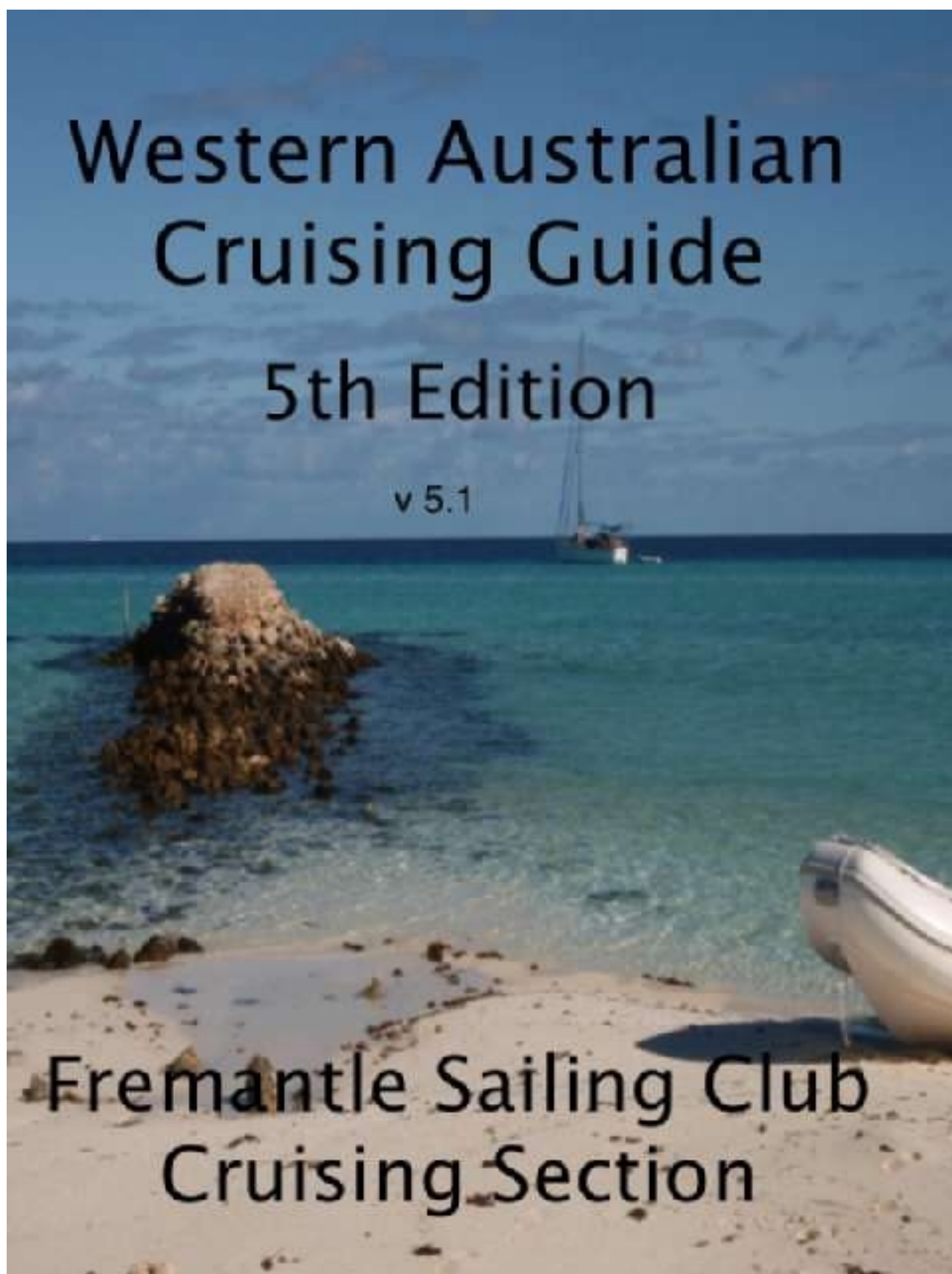


Western Australian Cruising Guide

5th Edition

v 5.1

Fremantle Sailing Club
Cruising Section



Fremantle Sailing Club
Western Australian Cruising Guide
5th Edition



Cruising Section

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Disclaimer

This book is intended as a guide only. Every effort has been made to be accurate in compiling the guide, but it may contain errors or omissions. Accordingly:

- (a) No warranty is given that it is free from error or omission;
- (b) The authors, editors, the Fremantle Sailing Club and its servants expressly disclaim liability for any act or omission done in reliance on the book or for any consequences of any such act or omission.

The Fremantle Sailing Club does not accept liability for errors in third party information.

Since the Western Australian coast covers a vast distance with many anchorages, not all the anchorages have been visited in all conditions. Thus readers should be aware of inherent inaccuracies and omissions.

1 INTRODUCTION

1.1 Foreword

In 1990 FSC member Ross Brown suggested to the Cruising Section committee that the collective knowledge and experience of members could be gathered into a cruising guide for Western Australian waters. Ross was asked to undertake the task with the help of a small committee. Seven years later the first edition of Western Australian Cruising was published in August 1997.

The second edition, edited by Steve Laws, was released in 2001. The third and fourth editions (2008 and 2014) were both edited by Jim Putt.

This fifth edition has seen a substantial change in format and layout, and includes much new content. It is the only comprehensive yachting guide covering the Western Australian coast from the Northern Territory to South Australia. It is hoped that the information contained in this guide will greatly assist those wishing to explore or transit our extensive coastline.

1.2 Preface to 5th Edition

The fifth edition is in some senses completely different from the fourth, yet in other respects it is the same.

What have we kept the same as the fourth edition?

- most of the pilotage content is based on previous editions, though with numerous updates and corrections (over 400 at last count);
- the geographical coverage is unchanged;

And what have we changed? The most obvious difference is that it is in electronic format. Amongst the many advantages of this are:

- ability to do word searches for the entire document;
- website links are live (clickable);
- you can have multiple copies on multiple platforms (tablet, smartphone, laptop, e-reader etc.);
- we can post corrections and updated versions on the Fremantle Sailing Club website at

<https://www.fsc.com.au/onwater/publications/> rather than waiting for the next print run.

- You can of course print out a hard copy version of the guide. You might chose to print out only the sections you want, and they can be in whatever size and paper type your printer can handle (waterproof A3 format?!). You can bind it in whatever manner suits you.

The structure and sequence of the background information chapters of the guide have also been completely changed to make it more user-friendly.

Some of the content is replicated in different sections; this reduces the need to flip back and forth between sections - a rather slow process with electronic documents.

We have also made it easier for you to contribute to the guide by using an on-line submission form, at <https://www.fsc.com.au/onwater/publications/> . Please do contribute — the entries in the guide are almost entirely sourced from people like yourself who have taken the trouble to document what they have found and then send it to us for inclusion in the guide.

Whilst this guide is comprehensive, it is by no means the only source of information for cruising the Western Australian coast. An additional source worthy of particular mention is the Kimberley Coast Cruising Yacht Club's web site www.kccyc.org.au

What will the next (6th) edition of the guide look like? It has been suggested that we should write an app and make it fully interactive. Another suggestion was to adopt a Wiki style to the content. A further suggestion was to extend geographical coverage 'right over the top' as far as Cape York in Queensland. All these suggestions have merit, but we felt it was too much to take on at the same time as going digital. What do you think the next edition should look like? Let us know! Send us an email at editorwacg@gmail.com

Kim Klaka

Editor, fifth edition

Western Australian Cruising Guide (WACG)

1.3 Fremantle Sailing Club (FSC)

The Fremantle Sailing Club was founded in 1920 as Port Yacht Club and became Fremantle Sailing Club in 1921.

The current location of FSC was decided upon in 1977 and covers 18 ha of water and 6 ha of reclaimed land. FSC has world-class boating facilities providing 664 wet berths and a substantial hard stand area; water, power, telephone fuelling and haul out facilities are available. There is a chandler and a number of professional services available on site.

The clubhouse comprises restaurants, bars, private meeting rooms, entertainment areas, laundry and an extensive library. There is also a dinghy clubhouse with coaching provided by Olympic medal-winning sailors.

Email newsletters are issued weekly to all members keeping everyone informed of club activities. The club's journal, the *Blue Water Bulletin* is issued every three months.

Access to Club facilities is granted to cruising visitors by the FSC administration. There is also a Cruising Section member appointed to assist visitors with local information.

Visit the Fremantle Sailing Club's web page www.fsc.com.au for more information.

1.3.1 FSC Cruising Section

The Cruising Section of FSC was formed in 1983 with Peter Kennedy as the inaugural chairman; it has over 200 active members. The Cruising Section concentrates on three activities:

- on-water cruises in company, ranging from afternoon cruises to three-week voyages;
- off-water events such as evening technical presentations and social dinners;
- providing resources to help cruisers – information booklets, a library, the FSC Green Book of Safety Recommendations, and of course this Cruising Guide.

There are typically ten cruises held throughout the year with destinations from Albany in the south to the Abrolhos and Shark Bay in the north, as well as local destinations. Amongst our regular cruisers we have people who have sailed the Western Australian coast for decades, others who have cruised southeast Asia, circumnavigated Australia, and more than a dozen who have sailed around the world. Cruising yachts regularly participate in the Fremantle to Bali event organised by FSC.

Visiting cruising yachts are encouraged to contact the Cruising Section by emailing fsc.cruising@gmail.com

1.4 Acknowledgements

This publication would not have been possible without the encouragement and generous support from FSC members, fellow sailors, government departments and industry. A truly outstanding contribution was made by Rob Hills as Assistant Editor, with special responsibility for chartlets and the more esoteric aspects of IT. The following people have also kindly contributed to the 5th edition:

Peter & Cheryl Ainsworth, Derrick Baan, Terry Baker, Ian Beard (VMR WA), Alain Belen, Carolyn Bellamy, Brendan Bradley, Paul Browning, Paul Burlinson, Rob Campbell, Glenn Cook (BoM), Terry Day, Trish Ebert, Teresa Edgecombe (DBCA), Paul Gebhard, David George, Rachel Griffith (DoF), Hubert Hagen, Rob Harvey, Phil Hearse, Bill Henson, Rob Hills, Sam Koncurat, Steve Macpherson, Jim Macbeth, Marion Massam (DoF), Peter & Chris McHugh, David Mitchell, Robert Morales, Ralph & Lynne Newton, Stuart Norman, Anna Gorham, Steve Parkinson, Liz Poulton (Chart and Map Shop), Jim Putt, Nicolas & Heidi Remy, Mike & Nicky Reynolds, Trevor Robinson, Werner Runge, Chandra Salgado Kent (Curtin University), C&L Salvador (FV Aqua Bounty), Julian Smart (Anthemion software), Matt Smith (DBCA), Marissa Speirs (DBCA), Ross Squire (KCCYC), Myra Stanbury ('Shipwrecks of the Roaring Forties' Project), Karina Tarbath (BoM), Patrick Ward (BoM), Debra Wells, Richard Weston, Carolyn Williams (DBCA).

To anyone I have omitted, my sincere apologies. Thank you all.

2 OVERVIEW OF WESTERN AUSTRALIA

2.1 Geography

Western Australia is Australia's largest state with a total land area of 2.5 million square kilometres (about 1 million square miles), and the second-largest country subdivision in the world. However, a significant part of WA is sparsely populated and isolated by desert from most of Australia's population in the eastern states cities. This enhances the feeling that Western Australia is somehow different from the rest of Australia, almost a separate country.

The state has about 2.5 million inhabitants, around 11% of the national total. Ninety-two per cent of the population lives in the southwest corner of the state. The capital city Perth has a population of more than 2 million. It is sited on the Swan River, with the Indian Ocean to the west and the Darling Ranges to the east. The other 'large' cities are Bunbury (68,000), Geraldton (40,000), Kalgoorlie-Boulder (33,000), Busselton (32,000) and Albany (31,000). All except Kalgoorlie-Boulder lie on the coast in the southwest of the state.

Western Australia is bordered by the Indian Ocean to the west, the Southern Ocean to the south, and the Timor Sea to the north. To the east it is bordered by South Australia and the Northern Territory. The state extends 1,621 miles east to west and 2,391 miles north to south, with 7,000 miles of coastline. The coastal areas have many local names. Some of the more frequently encountered ones are, from north to south: Kimberley, Pilbara, Ningaloo, Gascoyne, Mid-West, Lower West, Capes Coast and Great Australian Bight.

There is a small fertile coastal strip in the state's southwest corner which becomes drier and more barren as you travel north and east. The Great Sandy, Gibson and Great Victoria Deserts dominate the interior. The wild and rugged Kimberley is in the extreme north of the state.

The state's economy mainly relies on mining, oil and gas, agriculture and tourism. The state produces 46% of Australia's exports. Western Australia is the second-largest iron ore producer in the world.

2.2 Climate

2.2.1 Southwest

The southwest coastal area has a Mediterranean climate. Thanks to the offshore Leeuwin Current (see section 4.2), this part of the coast is one of the world's top six regions for marine biodiversity and contains the most southerly coral reefs.

Average annual rainfall varies from 300 mm at the edge of the Wheatbelt region (about 100 km inland from the west coast) to 1,400 mm in the wettest areas on the south coast; but from November to March, evaporation exceeds rainfall, and it is generally very dry. Plants are adapted to this dryness and to the extreme poverty of the soils. There are very few rivers running off into the waters of the west and south coasts. This, combined with the negligible tidal streams in these areas, leads to impressive water clarity. On calm days the seabed can often be seen in depths of 10 m.

2.2.2 Interior and southeast

The central two-thirds of the state is arid and sparsely inhabited. The only significant economic activity is mining. Annual rainfall here averages less than 300 mm, most of which occurs in sporadic torrential falls related to cyclone events in summer.

2.2.3 North (the Kimberley)

The Kimberley has an extremely hot monsoonal climate with average annual rainfall ranging from 500 to 1,500 mm, but there is a very long, almost rainless season from April to November. Eighty-five percent of the state's runoff occurs in the Kimberley, but because it occurs in violent floods and because of the poor quality of the generally shallow soils, the only agricultural development that has taken place is along the Ord River.

2.2.4 Climate extremes

Snow is very rare indeed in the state and typically occurs only in the Stirling Range near Albany, being the only mountain range far enough south and sufficiently elevated.

The highest observed maximum temperature of 50.5°C was recorded at Mardie Station (Pilbara) on 19 February 1998. The lowest minimum temperature recorded was -7.2°C at Eyre Bird Observatory on the south coast on 17 August 2008.

The highest annual rainfall of 2,462 mm was recorded in Doongan (Kimberley) in 2011. The highest daily rainfall of 747 mm was recorded in Whim Creek (Pilbara) on 3 April 1898. Mulyie (Pilbara) is the only weather station in Australia to record zero rainfall for an entire calendar year (1924).

Western Australia has the unenviable distinction of recording the fastest wind speed ever on the entire planet (outside a tornado). A maximum wind gust of 220 kn (408 km/h) was recorded on Barrow Island off the Pilbara coast during the passage of Tropical Cyclone Olivia on 10 April 1996.

2.3 A brief history of exploration

Many of the features on the Western Australian coastline are named after ships and people involved with the European exploration of this coast. The summary below provides some background and context.

2.3.1 Pre-17th Century

Many Aboriginal groups have strong cultural connections to the sea, particularly in the coastal Kimberley and Shark Bay. There is good evidence that they and other groups fished and travelled over the water by boats. Aboriginal people travelled between the islands of the Dampier Archipelago on rafts. These were made of mangrove logs lashed together and then attached to a frame of thin wood by additional lashings. This was sufficient to carry two men and a few belongings.

Visitors from the Indonesian islands were mainly interested in fish, shells and trepang (also known as beche de mer or sea cucumber). There is no cartographic evidence of their visits. It is possible that Chinese and Arab sailors visited Australian shores in the 15th century, perhaps earlier, as there were trading operations on nearby islands. An interesting argument has been put forward by

K.G. McIntyre in his book, *The Secret Discovery of Australia (1977)*, that the Portuguese had explored at least the east coast of the continent south to Victoria and the west coast down to King Sound by 1522. The Dauphin chart, a French chart derived from Portuguese information in 1547, is the basis for McIntyre's contention and if correct it is the first known chart of the coast.

2.3.2 17th Century

It is the Dutch who are credited with first exploring our coast and producing charts that are recognisable precursors of the ones we use today. They gave names to many of the coastal features.

Initially the Dutch followed the routes established by the Portuguese, crossing the Indian Ocean from Madagascar to Java, but they found winds contrary or light and conditions unhealthy. Brouwer, a Dutch East India Company mariner, put forward the plan to use the westerlies in the south of the ocean until the longitude of Sunda Strait and then to turn north. He proved his plan by sailing that route in 1610. By 1617 this route became standard practice, halving the voyage time. The problem with this plan arose from the difficulty in establishing longitude. If they were late turning north, they came close to Australia; this is how the Dutch came to know the Western Australian coastline. It is a reef-strewn coast with few outstanding landmarks and it appears the Dutch saw little to warrant settlement.

Dirk Hartog, a Dutch trader, discovered the west coast of Australia in 1616. Then Thyssen, commander of the Dutch East Indiaman *Gulden Zeepaard*, accidentally found the south coast and explored east of Cape Leeuwin in 1626, giving it a reasonable report. The wreck of the Dutch vessel *Batavia* on the Abrolhos Islands in 1629 increased interest in the Western Australian coast. In 1644 the Dutch merchant and explorer Abel Tasman circumnavigated the continent but without detailed contact with the west coast. In 1658 the ships *Waeckende Boey* and *Emeloort* gained knowledge of the coast south of the Abrolhos while searching for the *Vergulde Draeck*.

Dutch seafarer Willem de Vlamingh visited Rottneest and the Swan River in 1696, exploring about 10 nm up the Swan River by boat and surveying this area. He then headed north and discovered a pewter plate left by Hartog in 1616 on Cape Inscription, at the north end of Dirk Hartog Island. He replaced this with a plate on which he inscribed not only Hartog's words but some of his own. The French found and removed the plate in 1818.

The English were also active on the western coast in the 17th century. The crew of the British East Indiaman *Trial* were wrecked on Tryal Rocks in May 1622. They spent a week camped on the Montebello Islands before sailing on to Batavia (now called Jakarta). The English buccaneer William Dampier made contact with the coast in 1688 in the *Cygnets* and, although he was not a very effective cartographer, his report stimulated interest by the French and English. He spent some time in the vicinity of King Sound where he careened his ship, perhaps at Karrakatta Bay, and collected scientific data. The British government sent him back in 1699 in the *Roebuck* for further exploration. On the second voyage he first sighted land near the Murchison River. He went on to Shark Bay, surveying and collecting, before proceeding to what was later called the Dampier Archipelago. After his next stop near Lagrange Bay he left the coast and headed for Timor to find fresh water.

2.3.3 18th Century

Due to lack of funds, Britain did not follow up Dampier's efforts. The French mariner Louis de Saint Alouarn aboard *Gros Ventre* claimed western Australia for France in 1772. The French explorer D'Entrecasteaux in *L'Espérance* and *Recherche* surveyed the south coast in 1792. These activities finally prompted the English to revisit the coast. In 1791 George Vancouver of the Royal Navy landed near where Albany now stands and laid claim for Britain.

2.3.4 19th Century

Matthew Flinders came next in the *Investigator*. With his great surveying skills he surveyed the south coast in 1801. He met up with the Frenchman Commodore Nicolas Baudin at Encounter Bay, South Australia. Baudin made a detailed survey of the west coast in 1801 and 1803. His expedition included his own ship, *Geographe*, and Rear Admiral Emmanuel Hamelin's *Naturaliste*. Also aboard *Naturaliste* were Louis de Freycinet as cartographer and François Peron as naturalist. The *Naturaliste* in particular gathered a great deal of information.

Baudin's expedition spent over four years on the Australian coast and arguably made the greatest surveying contribution, which resulted in over one hundred and eighty coastal features being given French names.

Phillip Parker King, an Australian who was the son of a former governor of NSW, was charged with the task of filling in the gaps left by Matthew Flinders in the exploration of the Australian coastline. King's surveys ranged far and wide, but those which involved the west coast began in the *Mermaid* in 1818 when he made landfall at King George Sound (Albany) after sailing across the Bight from Sydney. After a spell there he sailed north to North West Cape naming Vlamingh Head after its discoverer. He entered and named Exmouth Gulf, anchoring on the eastern side before going on up the coast, naming Cape Preston. In February and March he explored the Dampier Archipelago (named thus by the French) finding Rosemary Island which Dampier had named in 1699.

King examined Rowley Shoals which had been reported by Captain Rowley in the *Imperieuse*. He named the northern shoal Mermaid and found the other two and named them Clerke and Imperieuse.

King then left Western Australian waters for the present Northern Territory and on to Kupang (Indonesia), where he spent two weeks re-provisioning. He then returned to the northern coast of Australia, sailed anti-clockwise down the west coast and along the south coast and ended the voyage in Sydney. He sighted the Montebello Islands on the way and discovered nearby Barrow Island.

King continued surveying elsewhere and did not return to the west coast until 1819 when, after coming 'over the top', he entered and surveyed Cambridge Gulf. West of this, King found the charts produced by Freycinet were of high standard. Rounding Cape Londonderry, King entered waters not surveyed by the French. He named Vansittart Bay after the then late Chancellor of the Exchequer. He then followed the coast to Admiralty Gulf among numerous islands, reefs and strong tidal flows. The survey was completed in September 1819 after reaching Cape Voltaire. He then went to Kupang for ten days before returning to Australian waters with the aim of finding Tryal Rocks, the location of a British shipwreck of 1622. Unsuccessful, King returned to Sydney.

King's third voyage in the *Mermaid* began in mid-1820, extending his earlier survey work at Cape Voltaire and entering Prince Frederick Harbour in York Sound. The ship had sprung a leak so it was beached in Careening Bay, where repairs were completed by the end of September. She was refloated, sailed into Brunswick Bay and then into St. George Basin and the Prince Regent River. He investigated the river for 17 nm from the Basin and found the famous 50 m high waterfalls. Ill-health among the crew from sores, cuts, bruises and eye infections caused King to head back to Sydney, again unsuccessfully searching for Tryal Rocks on the way.

King's next voyage began in May 1821 in the *Bathurst*, because the old *Mermaid's* fastenings were failing. King had with him Bedwell and Roe as master's mates, and the botanist Cunningham who had already made extensive collections all over Australia. He went north-about again, sighting Cape Londonderry in mid-July. They were short of water and the source at Careening Bay had dried up. However, they were able to collect all the water they needed at the falls on the Prince Regent River.

In Hanover Bay, an altercation with Aboriginal people resulted in the surgeon of the *Bathurst* being speared and seriously wounded. King then set a course through Collier Bay and the entrance to King Sound, naming the Buccaneer Archipelago because of the buccaneer William Dampier's visit. King continued charting until they reached Point Gantheaume (Broome) before breaking off to go to Mauritius for supplies.

On their return, they made landfall at Chatham Island on the south coast. They stayed for a while in King George Sound before going on to complete their survey between the Swan River and North West Cape. When they stopped at Cape Inscription they discovered that French naval explorer Louis de Freycinet had removed the Vlamingh plate three years before. The plate had been taken to Paris but was returned in 1947 by the French government and is now in the Shipwreck Galleries of the Maritime Museum in Fremantle. From North West Cape, King made scattered surveys of the islands, rounded Cape Leveque and completed his work in King Sound which had been previously overlooked. Adverse weather prevented exploration further north so he returned to Sydney and left the scene of Australian exploration.

In 1826, the 16 day visit to King George Sound by the Frenchman Dumont d'Urville in the *Astrolabe* stirred Governor Darling of NSW to dispatch Lockyer to settle in King George Sound (Albany). This was followed by the establishment of the Swan River Colony in 1829, including the site of the present-day capital, Perth.

Lieutenant John Lort Stokes and Commander John Wickham of HMS *Beagle*, started surveying the west coast in 1838. It was the first of two visits and they centred their surveys on the Bonaparte Archipelago and King Sound. They named Whirlpool Pass after losing control of their ship in the tide races. They continued east to Collier Bay, Doubtful Bay and Brecknock Harbour. In mid-April while in Port George IV, the explorer George Grey (who had travelled overland) joined the *Beagle*. The *Beagle* headed back to Sydney shortly after.

During *Beagle's* next trip to the west an Aboriginal's spear injured Stokes whilst he was on the western shore of Joseph Bonaparte Gulf. This caused the expedition to hurry south to the Swan River Colony, where they spent three months. In April 1840 they sailed to the Abrolhos Islands and made a detailed study of the islands and the mainland coast to the east. On Gun Island they found a Dutch gun apparently from the wreck of the *Zeewijk* which had come ashore in 1727. Further

north at Depuch Island they saw Aboriginal paintings on the rocks. They then continued north to Kupang. Leaving Kupang they returned to survey the Montebello Islands and were finally successful in locating Tryal Rocks. Dysentery caused Stokes to return to Fremantle and eventually back to Sydney. Towards the end of 1841 he was able to return to the west coast and slowly continue sailing north until early 1842. The names Stokes and Wickham have not been seen on our charts until quite recently.

With the discovery of gold in 1890 the population of Western Australia rapidly increased. Western Australia achieved responsible government in 1890, and federated with the other British colonies in Australia in 1901.

2.3.5 20th Century

With Australia now a country in its own right, more formal governmental surveys were conducted along the coastline, the first Australian Pilot being published in 1916. The RAN Hydrographic Service was established on 1 October 1920, carrying out surveys to this day. Nevertheless, many remote areas remained uncharted and often unexplored. Some of the seminal work in documenting the Kimberley region for recreational sailing was conducted by Harry and Margaret Moore, who published *Kimberley Cruising* in 1985. This was followed in 1986 by Kevin Lane's state-wide coverage in *Cruising West*. Those two books in particular form a large part of the lineage for this guide, which continues the tradition of recording surveys and exploration of the Western Australian coastline, much of which to this day is only frequented by small vessels.

3 WEATHER

3.1 Definitions

Western Australia describes wind speed in knots in marine forecasts and reports (or km/h in land forecasts) rather than the Beaufort wind scale. However, it still retains some of the Beaufort descriptors of general terms used.

Wind speed given in forecasts and coastal observations refers to average speed over a ten-minute period at a height of 10 m above the surface.

Gusts typically range up to 40% greater than the mean wind speed but can be considerably higher in the vicinity of showers, thunderstorms and frontal systems.

Wave and swell heights are described in metres as measured from trough to crest. wave heights usually refer to significant wave heights, which are defined as the average of the highest one-third of the waves. The probable maximum wave height may be up to twice the significant wave height.

3.1.1 Bureau of Meteorology weather forecast areas



Weather forecast areas (Bureau of Meteorology)

3.2 A note on observations from weather stations

The strength of the wind increases with height above the surface, so you can only directly compare measurements at two different locations if they are recorded at the same height. The Bureau of Meteorology places most of its anemometers at the standard height of 10 m above the ground. You

might think this solves all our problems but it does not, because the ground itself is at different heights above sea level. For example, Rottnest Island anemometer is 43 m above sea level whereas the Garden Island anemometer is just 6 m above sea level. So we might reasonably expect the Rottnest Island station to record slightly higher speeds than the Garden Island station even if the wind at sea level is the same speed. There are numerous other effects – shadowing or funnelling around hills and valleys, different friction over rough and smooth terrain etc. In practical terms this means that:

- the wind speed experienced by a yacht on the ocean is likely to be different from that recorded at a weather station, and
- differences in readings between weather stations are not necessarily due to different weather.

It takes years of analysis and experience to work out exactly what is going on; all the average yachtsman can do is acknowledge these uncertainties and treat small differences with caution and scepticism (not so different from dealing with charted positions and GPS).

3.3 Summary of wind patterns

The notes below are based in large part on weather records averaged over decades. However, the weather varies from year to year; it is predictable to some extent by monitoring oceanographic events such as El Nino and La Nina. Furthermore, the advent of climate change has made predictions based on past records less reliable, so what has happened in the past is no longer a reliable indicator of what might happen now. Please bear this in mind when reading these notes.

The weather on the Western Australian coast is greatly influenced by a belt of high pressure which slowly shifts south and north with the seasons. This belt, referred to as the ‘sub-tropical ridge’, is made up of individual travelling anticyclones (highs) which usually follow each other regularly at five- to seven-day intervals moving from west to east. Occasionally an anticyclone may remain almost stationary for several days, holding up the general procession. This is known as a ‘blocking high’ and is quite often found in the Great Australian Bight and the Tasman Sea. Despite their distance from WA, blocking patterns in the east of the country can have a large influence on local conditions, typically bringing a prolonged easterly flow to the southwest of WA.

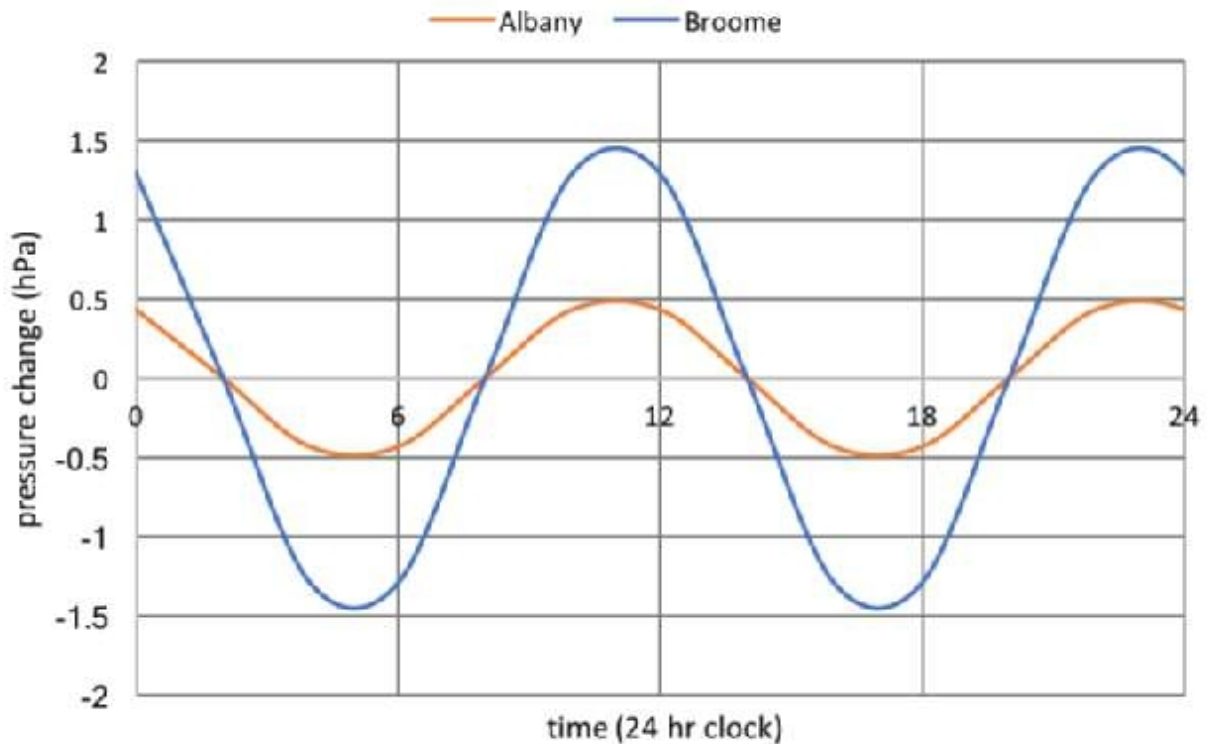
Separating this parade of anticyclones are troughs or depressions (mid-latitude lows with associated cold fronts), causing some variability to the wind pattern. Central pressures of the anticyclones are usually around 1020–1030 hPa. Low pressure systems near the southern WA coast are usually around 990–1000 hPa.

Sea and land breezes are very prominent features of coastal Western Australia. On the Pilbara coast the sea breeze tends to be from the NW, on the west coast it is from the SW, and on the south coast from the SE. The sea breeze is usually established by noon and fades after sunset. However, this pattern varies along the WA coast and is dependent upon the broader synoptic pattern. The sea breeze is described in much more detail later in this section.

When interpreting weather maps it is important to realise that a given wind strength is produced by a smaller pressure gradient in the tropics than in the south. A smaller pressure gradient means the isobars are further apart. For example, at 15°S a pressure gradient of 1 hPa across a distance of 180 nm will produce a 10 kn breeze; at 30°S that same pressure gradient across only 100 nm will also produce a 10 kn breeze. This relationship between isobar spacing, latitude and wind speed

starts to break down as you enter the tropics and move towards the equator.

When observing barometric readings you must allow for marked diurnal pressure variation. This is greatest in the tropics. These diurnal variations can hide the initial fall of pressure that precedes an approaching storm. The diurnal variation to barometric pressure decreases with increasing latitude. By the time you get south of Perth, this diurnal effect is quite small. The following graph illustrates the changes that can occur at Albany and Broome. The time shown is local time.



Diurnal variation of atmospheric pressure

3.3.1 Summer weather pattern (November – April)

The axis or ridge of the summer highs usually lies along the south coast or in cool Bight waters, around latitude 35°- 40°S.

North of 22°S

Summer in the north is the hot and wet season. Humidity increases as the monsoon trough migrates southwards over the north of the continent. The usual SE trades become weaker and more intermittent.

A trough (either an extension of the Pilbara/Kimberley heat trough, or the much larger monsoon trough) frequently lies on or near the northwest coast, and this slackens the local pressure gradient, causing prevailing winds to ease and become light to moderate. If the trough axis lies in your vicinity, extended periods of calm or very light and variable winds may prevail.

Note that the added moisture and instability associated with these troughs may trigger thunderstorms, which can be accompanied by vigorous squalls. Heavy rain showers or

thunderstorms with wind gusts to 45 kn are relatively common across Pilbara and Kimberley waters, and pose a particularly dangerous hazard when conditions are otherwise benign and mariners are becalmed.

The northwest monsoon generally becomes established between December and February when the monsoon trough reaches the Timor sea. Humid conditions, NW winds with squalls and thunderstorms may be experienced as far south as Exmouth Gulf. Weather associated with the monsoon is hot and humid with persistent rain. As the monsoon becomes established, waters off the northwest coast become an increasingly favourable breeding ground for tropical cyclones. Tropical cyclones generally occur during the months December to March, averaging about 5 per year in Western Australian waters. The Australian cyclone season officially runs from November to April, although very few have occurred in November (see section 3.4).

South of 22°S (approximately Carnarvon)

The prevailing ocean winds are from the E or SE. These winds blow across all waters through the night and during the day are replaced by the sea breeze in coastal regions. In early summer the sea breeze can reach 25–30 kn but by late summer it rarely exceeds 20 kn. Cold fronts tend to be weak and relatively short-lived during the summer months, and are typically confined to the south of the State by the sub-tropical ridge. Occasionally an unusual weather pattern develops which brings north winds; this could be a heat trough moving offshore, or a cyclone forming off the north coast. Whilst the wind strengths might not of themselves be a great cause for concern, they do create a dangerous situation — there are very few harbours of refuge from a N wind along the western coast. Fremantle, Geraldton and maybe Bunbury are the only places reasonably safe to run for shelter in a fresh northerly. Whilst there are a few other bolt-holes, they are either exposed to any resulting wind change, or dangerous to enter in swell or high seas.

3.3.2 Winter weather pattern (May – October)

In winter the axis of the high pressure ridge lies across the continent along latitude 22°–30°S, much further north than in summer.

North of 22°S

Winter in the north is the mild, dry season and is the preferred time for cruising the northern coastline. Moderate winds and temperatures with generally benign, settled weather can be expected. North of the high-pressure belt, the SE trades blow, modified locally by sea breeze effects. In winter these SE trade winds are predominant over the coast north of about 25°S. They are fairly steady winds of about 10–20 kn. However, these E/SE winds can become exceptionally strong and gusty when a strong high pressure system lies in the Bight, and/or a trough lies offshore from North West Cape. This pattern enhances the offshore winds, which are typically strongest from late evening until mid-morning the next day as the overnight temperature inversion erodes. June and July tend to have the strongest easterly surges, and there are many mornings where mean winds reach 25–35 kn offshore.

South of 22°S

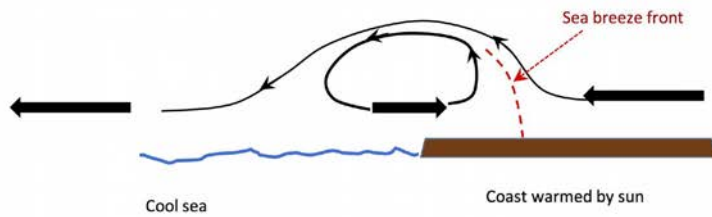
Winter in the south is the cool and wet season. The axis of the winter highs usually lies along latitude 25°–30°S. Strong cold fronts can extend as far north as North West Cape and they

generally approach from the west or southwest. Warm fronts are very rare. Fronts are generally associated with strong winds, with a wind change from NW to SW as the front moves through, accompanied by heavy rain and possible thunderstorms. Sometimes there may be a series of fronts causing an extended period of several days with strong winds and gales from the NW to SW. The average cold front brings wind gusts up to around 50 kn. Occasionally, stronger fronts may bring gusts across the southwest region to 60 kn (or more rarely, 70 kn near the southwest capes.) Cold fronts usually bring new swell (up to 5 m swell heights may be experienced offshore from the lower west coast), which add to the high sea-waves generated by the local gale force winds. Therefore caution is required if attempting to enter a protected anchorage accessed by way of a shallow passage. Entry should only be attempted during periods of low to moderate swell. However, winter sailing is not all gloom and doom as a slow-moving high can yield days of light easterlies with clear skies, albeit with night-time temperatures below 5° C close inshore.

3.3.3 The sea breeze

Introduction

The sea breeze is a local effect caused by a difference in air temperature over the sea and the land due to solar heating during the day. The sea breeze can be experienced anywhere along the WA coast at various times of year and can dominate the wind pattern. The west coast of WA in summer has some of the strongest and most consistent sea breezes in the world, so it is important to understand how it works. Detailed sea breeze effects are described in the local knowledge section 3.5. Below is a highly simplified explanation.



Typical sea breeze cell

During the afternoon the land becomes hotter than the ocean and the hot air over the land rises. This lowers the pressure and creates an inward flow of air from the ocean; this is the cooling sea breeze that is felt by the sailor. The hot air high up also flows out towards the ocean, where it descends and completes the loop of air flow. This phenomenon persists until the land/sea temperature difference decreases in the evening. Sometimes a reverse flow occurs at night if the land air cools below the ocean air temperature; this is called the land breeze - an unimaginative but accurate name.

The strength and timing of the sea breeze is affected mainly by the general synoptic situation, and to a lesser extent by the amount of cloud cover and the local coastline shape. It is also affected by

surface friction and the Coriolis effect. Instead of blowing directly onto the shore at right angles, these last two factors combine to cause the sea breeze direction to back (go anticlockwise) e.g. for a west-facing coast the sea breeze will come from SW, not W. (this is the opposite effect to northern hemisphere sea breezes).

There are three main variables to the sea breeze – timing, strength and distance offshore.

Timing

The sea breeze typically starts around lunchtime, though it can vary from 0900 to 1600. It starts at its earliest offshore. The default weather pattern is for an offshore wind overnight which dies out mid-morning for maybe half an hour, then the sea breeze builds from mid-morning to mid-afternoon depending on season and location. It then eases off at sunset, usually dying out before midnight and then being replaced by the prevailing gradient wind.

Strength

The most common speed is 15–20 kn in the Perth area, weaker in the Kimberley and stronger on the Gascoyne, Lancelin and south coasts. The area from Shark Bay south to Geraldton is where some of the stronger sea breezes develop. Sometimes the sea breeze can reach speeds of more than 30 kn, usually when a strong high pressure is centred southwest of Cape Naturaliste, and a heat trough lies just inland from the west coast. The trough generates a very strong temperature gradient and the S winds on the east side of the ridge (over the ocean) reinforce the sea breeze effect. The net result is a very strong sea breeze that continues to blow strongly well after sunset (except very close inshore), the only change being a backing to the S after dark.

The likelihood of a strong sea breeze persisting into the night during summer can sometimes be foretold by the appearance of cloud in the west late in the afternoon, on an otherwise cloud-free day. However, these are also typical conditions for an approaching cyclone or cold front. The moving of the low pressure trough inland (bringing a cool change) can sometimes be foreshadowed if a cold front lies at 40° S, 110° E (about 500 miles southwest of Perth).

Distance offshore

There is very limited information on the size of the sea breeze cell; it is certainly common up to 20 nm offshore. Anecdotal evidence suggests that the starting point is often around 5–7 nm offshore. The sea breeze cell then moves inland whilst also expanding in overall size i.e. it also extends seawards, but at a slower rate than its landward growth. How it diminishes in the evening varies considerably, but it usually dies inland around sunset when it is still blowing on the coast. As the sun sets and the temperature gradient erodes, the sea breeze cell weakens and the local sea breeze retracts offshore. Typically, winds ease inland first while quite fresh winds may continue on the coast and offshore. Winds simultaneously back and become southerly.

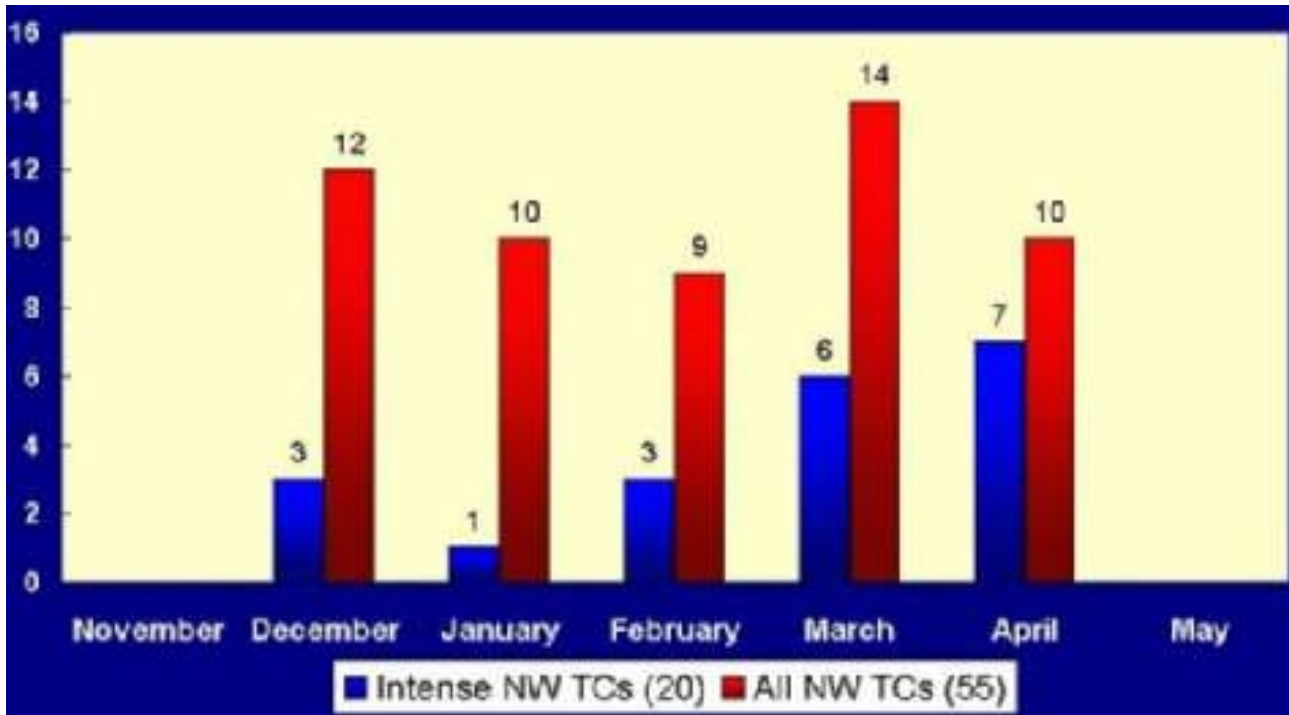
If the sea breeze cell recedes some distance offshore, the wind will also ease at the coast and turn E; more commonly, winds across the coastal strip just moderate and tend S or SE overnight.

3.4 Cyclones

The northwest coast of Western Australia experiences more severe cyclones than any other part of the Australian coastline. It is one of the most cyclone-prone coasts anywhere in the world. Many tropical cyclones form each year, but on average only two cross the coast of northwestern

Australia.

The official tropical cyclone season extends from November to April, with most coastal crossings occurring during February and March. The earliest in the season that a cyclone has crossed the northwest Australian coast was on 19 November 1910 when the eye passed over Broome. The latest in the season was a cyclone that formed near Cocos Islands and passed over Shark Bay on 21 May 1988.



Monthly distribution of cyclones in northwest Australia

The highest cyclonic wind gust in the world is 220 kn, recorded at Barrow Island (data courtesy of Chevron) during cyclone *Olivia* on 10 April 1996. A wind gust of 144 kn was also recorded at Varanus Island during *Olivia*.

The strongest wind gust recorded on the Australian mainland is 144 kn. The gust was recorded during cyclone *Vance* at 1150 (WST) 22 March 1999 at Learmonth Meteorological Office.

The huge waves generated by cyclonic winds are a serious threat to vessels; 20 m waves have been recorded off the Pilbara coast.

www.bom.gov.au/cyclone/about/extremes.shtml

3.4.1 Characteristics of cyclones

Severe tropical cyclones (category 3 or higher) are intense low-pressure systems and are defined as having sustained surface winds greater than 63 kn (surface wind gusts will be higher). In the southern hemisphere they have well-established clockwise wind circulation.

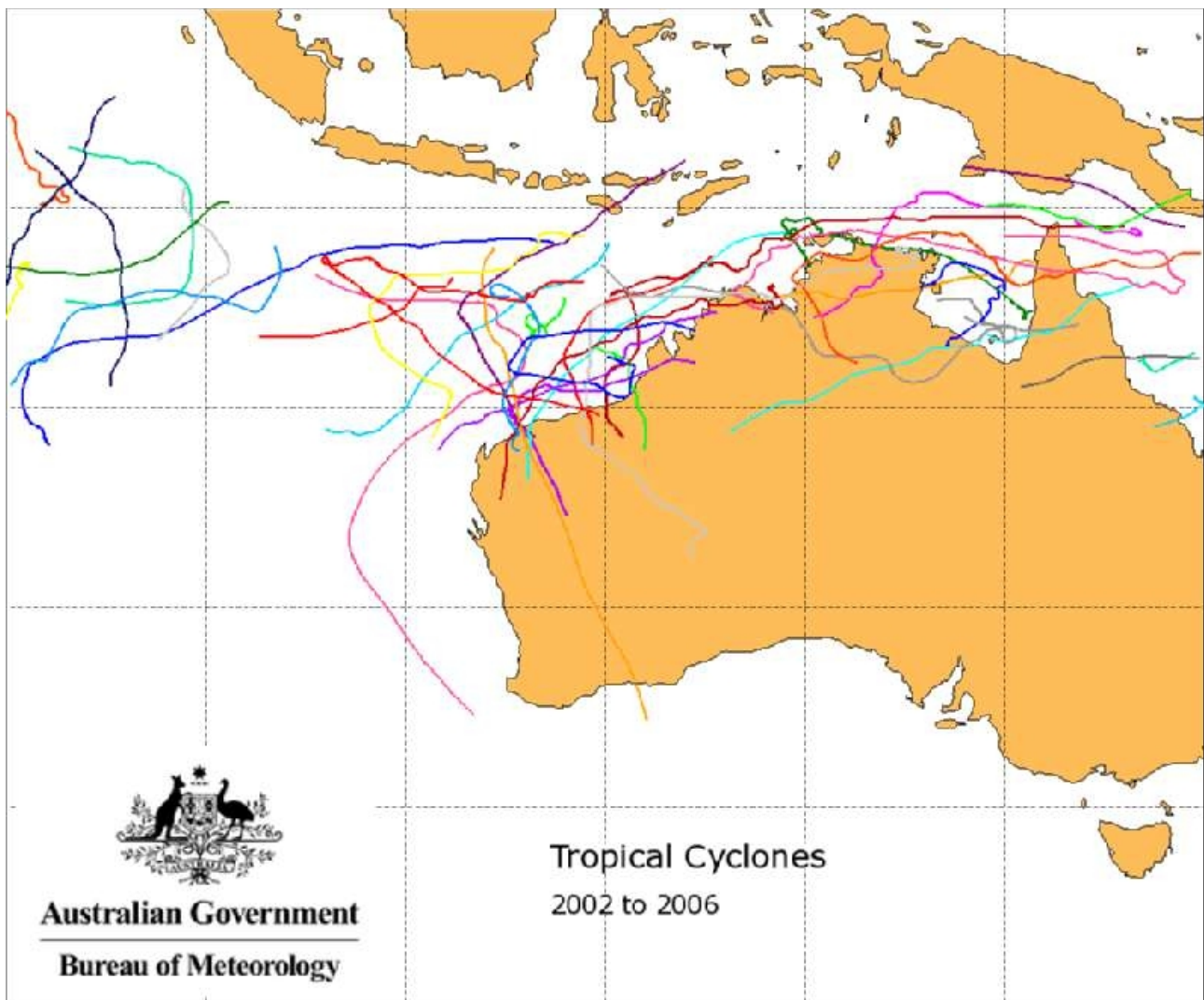
Tropical cyclones vary in both size and intensity. Small cyclones may be only 60 nm wide whereas large ones may be up to 300 nm wide. Both large and small cyclones can have devastating wind speeds near the centre.

The circular eye of a tropical cyclone is an area in the centre of the cyclone characterised by light

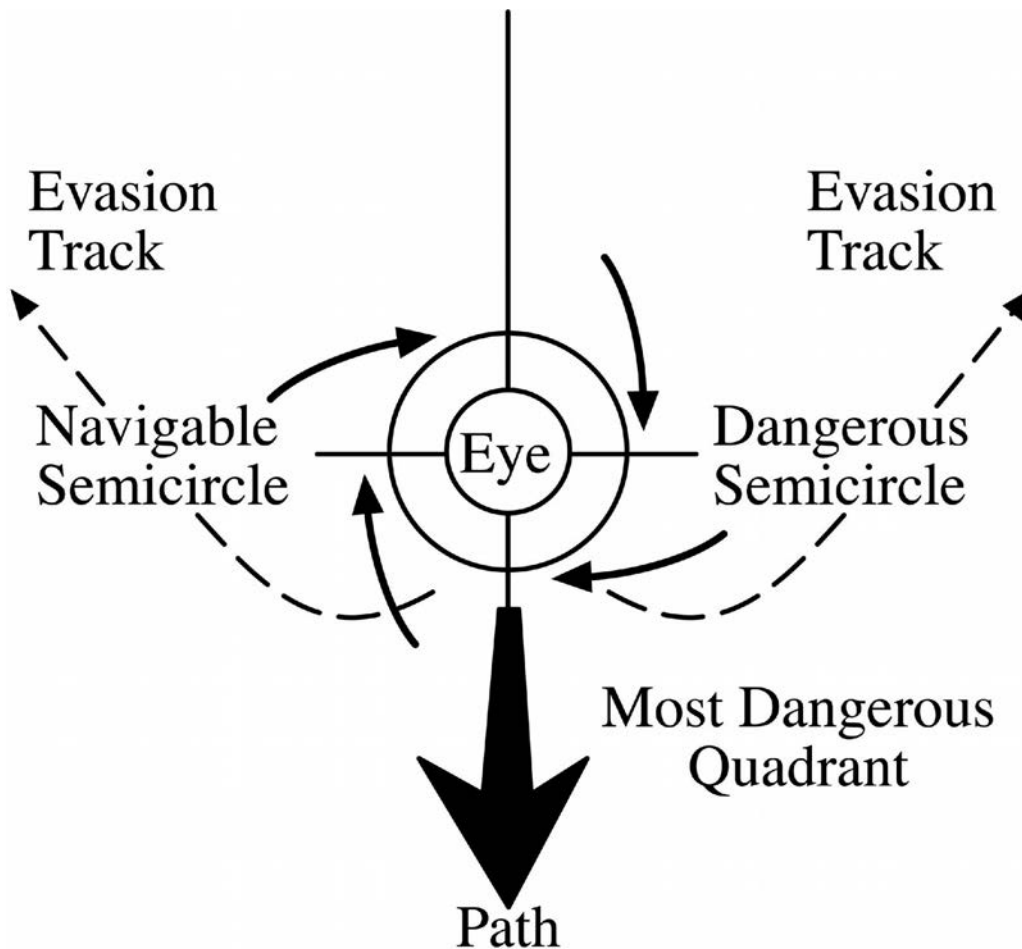
winds and often by clear skies but heavy confused seas. The eye is typically 20 nm wide but can range from under 5 nm to over 50 nm. It is surrounded by a dense ring of cloud known as the eye wall which is the area of strongest winds, the most intense thunderstorms and highest waves. Following the passage of the eye the winds shift direction dramatically, sometimes up to 180°.

In Western Australia, tropical cyclones generally form between the latitudes of 5°S and 15°S. Cyclones usually (but not always) start moving in a west-southwest to south-southwest direction then recurve to the southeast between 15°S to 20°S. Generally, their speed of travel is 5-10 kn in latitudes above 20°S (the Pilbara and Kimberley), 10-25 kn north of Carnarvon (25°S) and 25-45 kn south of Carnarvon.

Tropical cyclones are small (relative to other weather patterns), behave dynamically, generate and interact with their own environment, and are intense systems with very strong updrafts and downdrafts. Consequently they can be very difficult to model accurately. A cyclone's motion and speed is governed by the surrounding environment, and it is not uncommon for them to track in complete loops. Any tropical cyclone could, given the right conditions, move along the Pilbara coast to North West Cape then recurve towards the southwest of WA. Cyclone Alby (April 1978) was an example which travelled down the coast and eventually crossed the west coast at Bunbury (33°S).



3.4.2 Avoiding cyclones



Cruising yachts are well advised to keep clear of cyclonic activity. Should you find yourself in the path of a cyclone, the preferred strategy is to make all speed for the nearest cyclone proofed harbour or anchorage. If possible, the safe harbour should be chosen based on knowledge of the track and current position of the cyclone. A preferable place to shelter is in a harbour which is not directly exposed to the winds and storm surge (high sea levels) generated by the cyclone. If mooring at a sheltered location is not practicable, then a mooring location which is not exposed to the potentially most dangerous effects of a cyclone should be chosen. Almost all cyclones rapidly decrease in intensity as they move inland, so personal safety can be greatly improved by travelling inland if there is suitable transport and the roads are open. However, heavy rain and severe flooding will still be encountered, so obtain accurate official local land-based information when making any decision to escape.

If, when at sea, none of the above options are possible, then depending upon which quadrant you are in relative to the direction of movement of the tropical cyclone, the left front quadrant of a tropical cyclone is the most dangerous. If you are caught in this area the winds are blowing you towards and along the cyclone's path and the area of maximum winds.

If the wind is backing (i.e. shifting anticlockwise) you are in the dangerous semicircle. Proceed (or heave to) with the wind off the port bow, heading you away from the cyclone. As the wind backs

turn to port thereby tracing a course to clear the storm.

If the wind veers (i.e. shifts clockwise) you are in the navigable semicircle. Proceed with the wind off the port quarter. As the wind veers turn your boat's heading to starboard.

From a plan-view perspective, the most dangerous part of a tropical cyclone (southern hemisphere specific) is the left, front quadrant (when facing in the direction the cyclone is moving). Keep in mind that the centre of the system contains the strongest winds. The combination of the cyclone's clockwise rotation and its forward translation means this quadrant can produce the strongest winds. Hence the ideal scenario is to remain north of the track if the cyclone is moving towards the west, and south of the track if the cyclone is moving east.

3.4.3 Cyclone warnings

Advice to coastal communities takes the form of a tropical cyclone watch or warning. A cyclone watch is issued every six hours whenever gales are expected to occur in the region within 24 to 48 hours. A cyclone warning is issued every three hours when gales are expected in the region within 24 hours. The Department of Fire and Emergency Services (DFES) issues colour-coded cyclone alerts, Blue, Yellow, Red and All Clear:

Blue Alert

Get ready for a cyclone. You need to start preparing for cyclone weather.

Yellow Alert

Take action and get ready to shelter from a cyclone. You need to prepare for the arrival of a cyclone.

Red Alert

Take shelter from the cyclone. You need to go shelter immediately.

All Clear

The Cyclone has passed but take care. Wind and storm surge dangers have passed but you need to take care to avoid the dangers caused by damage.

The Forecast Track Map available on the Internet and by fax allows you to see the forecast in graphical terms. For the latest cyclone advice phone 1300 659 210 or go to

www.bom.gov.au/cyclone/?ref=fr

and <https://www.emergency.wa.gov.au>

The forecast positions given in cyclone warnings have an average error of around 40 nm for a 12-hour forecast and 60 nm for 24 hours, although on some occasions the errors are larger than this.

Cyclone contingency plans for DoT facilities in the northwest are available by linking to

www.transport.wa.gov.au/imate/what_to_do_in_an_emergency.asp

3.5 Local wind knowledge by coastal sections

The weather in this section has been divided geographically to correspond approximately with the similarly named Bureau of Meteorology forecast areas. The notes below are based in large part on weather records averaged over decades. However, the weather varies from year to year; it is

predictable to some extent by monitoring oceanographic events such as El Nino and La Nina. Furthermore, the advent of climate change has made predictions based on past records less reliable, so what has happened in the past is no longer a reliable indicator of what might happen now. Please bear this in mind when reading these notes.

3.5.1 Kimberley Coast

Winter

The preferred months for cruising in the Kimberley are the winter season from May to October (the dry season). SE winds are prevalent in the morning and can reach 30 kn when there is a strong high over the continent or in northern Bight waters. The wind usually eases in the afternoon. This is less likely to happen east of Cape Voltaire (125°E) where the wind strength remains unabated. Land and sea breezes modify the winds on this part of the coast. In the earlier part of the dry season easterlies can occasionally blow at gale force along the coast, usually between about midnight and 1000, as an overnight nocturnal inversion breaks down. In August the SE winds weaken and NW sea breezes appear, usually fading in the evening. This pattern becomes less frequent as you move eastward through the Kimberley. Humidity and temperatures are much lower than in summer.

Summer

Sailing in this region in summer (Nov- April) is not advised owing to the high risk of cyclones. Cyclones will cause gale to hurricane force winds within 200 nm of their centre. Thunderstorms also produce local strong winds. Listening for cyclone warnings is vital.

Outside cyclone events, a typical wind pattern is for S to SW winds in the morning, veering NW in the afternoon with the onset of the local sea breeze. The weather in the summer is monsoonal - hot and humid with persistent rain, thunderstorms and squalls. Waterfalls, creeks and rivers run in the wet season and most of them continue to run well into the dry season.

3.5.2 Pilbara coast

Winter

The winter easterlies may be strong when associated with a strong high in the Great Australian Bight, especially offshore at places such as the Montebello Islands. An old salt in Dampier had a word of wisdom that has shown some truth: "The last two numbers of the central pressure of a winter high over Australia is very close to the magnitude of the wind strength offshore Australia's northwest coast.", e.g. a 1035 hPa high will produce 35 kn offshore along this coast.

Within 20 nm of the coast sea breezes are present, but their main effect is to reduce the strength of the easterly in the afternoons rather than change its direction significantly. Nevertheless, the sea breeze effect on the Pilbara coast encourages the wind to trend NW.

Local wisdom suggests that the time to set out from Broome to Dampier or vice versa, in suitable weather avoiding strong E winds, is when a fairly strong front is approaching the south of the state. This often coincides with a weaker easterly flow during the mornings because the front acts to disrupt the usual high pressure ridge across the south of the continent, thus weakening the pressure gradient across the northwest coast.

Summer

As with the Kimberley, sailing off the Pilbara coast in summer (November to April) is again not advised owing to the high risk of cyclones. The northwest monsoon prevails mainly between December and March, though its effects are less marked than for the Kimberley. Between these months, winds are variable but tending to the NW and W and rarely calm. Autumn (April and May) is the season when the wind is the lightest.

3.5.3 Ningaloo Coast

The overall pattern of the Ningaloo coast (North West Cape to Shark Bay) is for winds from the southerly quadrant to dominate year-round. Heading south along this part of the coast is likely to involve sailing to windward at any time of year, though winter may sometimes have periods of easterlies and the shoulder season of April-May tends to have the best chance of lighter winds.

Winter

During winter the southerlies are occasionally interrupted by the northern remnants of a strong cold front. This may bring a period of NW or W winds accompanied by rain, backing SW to S after the passage of the front.

Summer

During the summer the winds are almost constant from the southern sector, with sea breezes reinforcing them. Cyclones are possible in the summer.

3.5.4 Gascoyne and Geraldton Coast

Winds along this part of the coast are generally strong and from the southern sector all year round.

Winter

During the winter months this area experiences some cold fronts, but many of them are weaker than further south. As with the Ningaloo coast, strong cold fronts may extend northwards into the area, bringing periods of strong NW to W winds ahead of the front, tending SW to S behind the front. Frontal systems are usually accompanied by rain, possible thunderstorms, cold change, increased swells etc. The lengthy periods between fronts often exhibit light easterly winds and sea breezes, making for pleasant sailing provided a southern ocean storm has not propelled the swell up to this region. The quietest conditions are produced when a weak front crosses the southwest corner of WA and extends north almost to Geraldton. This occurs most often between April and June, producing low wind speeds across the Gascoyne region.

Summer

In summer the SW sea breeze can be very strong indeed. At night time the breeze tends to swing SE and ease off a little, but there is not much respite for a yacht heading south. When a heat trough lies just inland the sea breeze can reach over 30 kn, blowing through the night and only backing as far as S. The 20 year wind records from North Island (Abrolhos) show that it is a lot windier in October than in April. Compared with Rottnest (Fremantle), North Island in October is windier than Rottnest in January. The many peninsulas in Shark Bay affect the way the sea breeze arrives. For example, conditions at Denham are often quite different from those at Monkey Mia.

Abrolhos weather

The weather pattern in the Abrolhos Islands is largely unaffected by the land and sea breezes off the mainland. During the summer, SE winds prevail and are consistently moderate to strong. Winter time NW to W changes are preceded by northerlies and light winds.

The Abrolhos Islands are first in the path of any weather moving from the W or NW. Cold fronts may reach the islands 24 hours before they hit the mainland. Consequently land and inshore waters forecasts are not very helpful. Website services such as the BoM MetEye become invaluable http://www.bom.gov.au/australia/meteye/?loc=WA_FA001, though internet reception at the Abrolhos is unreliable (see Section 13.5).

The best time to visit the Abrolhos Islands is during March, April or May, when the strong summer southerlies are abating and the winter fronts have not yet appeared.

3.5.5 Lancelin and Perth Coasts

Winter

During winter the prevailing SE winds are moderate. They are interrupted by NW winds associated with the passage of low pressure systems on the south of the anticyclone belt. These NW winds are occasionally of gale force and accompanied by rain squalls. They back to SW as the cold front goes through.

Periods of near calms can be experienced when a high pressure system dominates the weather. Occasionally a particularly strong high pressure system may generate moderate to fresh easterlies, making for good sailing up or down the coast.

Summer

A characteristic of this area for inshore waters during summer is the prevailing E or SE wind overnight and in the morning, with a moderate to strong SW afternoon sea breeze. There is a tendency for the E wind to blow for longer in the late summer and autumn. The summer E wind is much more turbulent than the steady SW sea breeze, bringing sudden gusts and 30° wind shifts. The wind offshore overnight tends to stay more in the S or SE than the E.

The sea breeze

The default forecast for Perth from December to March is “light easterly winds overnight, a moderate to fresh afternoon sea breeze, with a maximum temperature in the low 30s”. It is so consistent that the locals joke that the Met Bureau leave it as a recorded message while the staff go away for their summer holiday. The reality is that we only get the “standard” sea breeze on about half the summer days. There are three main variables — timing, strength and location.

Timing

The sea breeze typically starts between 1100 and 1300, though it can vary from 0900 to 1600. It starts at its earliest offshore. Just how far offshore is not easily determined. The sea breeze a few miles inland of the coast e.g. on the Swan River in Perth, arrives about 1 to 1.5 hours later than on the coast. The default weather pattern is for an E wind overnight which dies out around 1000 for maybe half an hour, then the SW sea breeze quickly builds from 1100. It quickly attains 15-25 kn and usually is at its strongest at about 1700.

If the overnight E wind has some S in it, then the sea breeze is likely to arrive earlier by veering through the S rather than dying, and it will possibly blow harder. Conversely if the overnight E wind has some N in it, it will go light and often back through N during the late morning. The sea breeze is then likely to arrive later than usual and be weaker.

The timing of the sea breeze arrival can also be estimated from the atmospheric pressure gradient. If the pressure at Geraldton (29°S) is only 1 or 2 hPa less than the pressure at Cape Leeuwin (34°S), the sea breeze can be expected to arrive at the coast around 1000. If the pressure at Geraldton is much less than at Cape Leeuwin — say, 6 or 7 hPa — the sea breeze will not arrive on the coast until about 1400. If the pressure at Geraldton is higher than at Cape Leeuwin, all bets are off as you do not have a standard summer weather pattern.

These rules of thumb work for perhaps two-thirds of the time.

Strength

The sea breeze is strongest in the northern part of this coast and weakest in the southern part. Lancelin is famous for its windsurfing because of the wind strength. Rottneest Island is fairly typical, being half way down this section of the coast. There, the most common wind speed for the afternoon sea breeze is 15-20 kn (force 5) on 45% of the days in January, and it is over 20 kn (force 6 and higher) for a further 25% of the time. These are mean wind speeds; gusts will be 30-40% higher.

As you move further south to Busselton, the most common sea breeze wind speed is 5-10 kn, which occurs for about 30% of the time.

The sea breeze tends to be strongest in December and January, with lighter winds in March and April. October, November and May are also sea breeze months, but their presence is strongly influenced by the movement of cold fronts.

When a heat trough lies just inland the sea breeze can reach over 30 kn, blowing through the night and only backing as far as S.

An indication of sea breeze strength is given by the location of the high pressure ridge. If it is west of the coast offshore, the sea breeze is likely to be fresh. If it is in the Bight, the sea breeze is likely to be weaker. When the high is in the process of moving eastwards from offshore into the Bight, this can be when the sea breeze can reach near-gale force. This transition from offshore into the Bight may only take a few hours, its effect on the sea breeze strength depending on the time of day amongst other things.

Distance offshore

There is very limited information on the size of the sea breeze cell. An experiment described in Tom Beer's *Environmental Oceanography* (1983) suggests it can reach up to 70 miles offshore; it is certainly common up to 20 miles offshore. In the other direction, it has been felt 100 miles inland, usually well after sunset. This implies that it starts somewhere offshore. Anecdotal evidence suggests that the starting point is often around 5-7 miles offshore. The front of the sea breeze cell (also called the sea breeze trough) then moves inland whilst also expanding in overall size i.e. it also extends seawards, but at a slower rate than its landward growth. The sea breeze usually dies inland around sunset when it is still blowing on the coast i.e. the sea breeze front retracts seaward.

Direction

This isn't really a variable – it blows relentlessly from the SW – but there are some subtleties to it. If the morning wind is from the SE, the wind will steadily veer to the SW. It often goes beyond SW to W, before “bouncing” back to SW or even SSW. If the morning breeze is from the NE, the breeze may back through N and develop as a weak W, or rarely NW, sea breeze, taking a long time to finally get to SW. It doesn't seem to “bounce” like the southerly swinging sea breeze does.

Night time winds

So much for the afternoon sea breeze; what about sailing at night? The summer wind at night will most likely have an easterly component and more often than not a southerly component. So the late afternoon SW sea breeze should back SE as it dies in the evening, and may go round as far as NE by midnight. This pattern is strongly dependent on the size, location and movement of the high pressure ridge. Sometimes (e.g. when a heat trough lies just inland), the wind only backs as far as S and stays strong, except very close inshore. This makes for a hard windward passage heading south.

The easterly is a much more turbulent wind than the sea breeze because it blows over the uneven land surface, so expect sudden gusts and 30° wind shifts.

Non-sea breeze conditions

The summer sea breeze pattern is disturbed when a low pressure heat trough or mid level disturbance develops near the west coast. This is when forecasting is at its most difficult. To the east of the trough there are very hot northerly winds, sometimes quite strong. To the west there are cool fresh southerlies. The distance between these two extremes can be as little as 10 miles, so forecasting the position of the trough relative to the coastline is critical. Thunder squalls are often forecast inland, which sometimes approach from the N to NW. The moving of the low pressure trough inland (bringing a cool change) can sometimes be foreshadowed if a cold front lies at 40°S 110°E (about 500 miles southwest of Perth). However, when a heat trough lies close inland the sea breeze effect returns and can reach speeds of more than 30 kn.

3.5.6 Bunbury Geographe Coast

The weather here is, in general, an average of Perth and Leeuwin weather, though with a couple of interesting peculiarities. In winter the cold fronts are stronger than in Perth and in summer the sea breeze patterns are rather different. This area is dominated both geographically and meteorologically by Geographe Bay, which has an east-west coast. Sea breeze directions (for a southern hemisphere coastline) are backed about 45 degrees from right angles to the coast. So you would expect the sea breeze along the Geographe Coast to come from the NW. Indeed this happens, but only to start with. This coast is in fact subject to three competing sea breezes:

1. The first is the weak local NW breeze, which usually takes over from the dying easterly at around 1000 or 1100.
2. Then the much stronger breeze arrives from the coast between the Capes (Naturaliste and Leeuwin). That is a north-south coast, so its sea breeze comes from the SW. This usually takes over from the local NW breeze by early afternoon.
3. Finally, on days when conditions are ripe for sea breeze development (e.g. when the high is

transitioning from offshore into the Bight), the even stronger sea breeze along the southern coast at Albany arrives over the hills very suddenly and fiercely. This breeze is from a west-east aligned coast so it is from a SE direction. Its strength is enhanced by the SE geostrophic wind around the high pressure system, and the tight curvature of the isobars around the Capes region. If this third sea breeze does arrive it will appear in late afternoon and can reach 25 kn within a few minutes. Anyone sailing eastwards back to Busselton after a lunchtime picnic at Quindalup or Bunker Bay can suddenly find themselves with a surprisingly hard sail to windward at the end of a mellow day. It doesn't happen every day in summer, but it does occur.

3.5.7 Leeuwin Coast (Cape Naturaliste to Cape Leeuwin)

The winter weather is dominated by low pressure systems and associated cold fronts. These result in gales from the western sector. There are gaps between the gales but they are fewer and of shorter duration than further north off the Perth coast.

The predominant summer pattern is for fresh winds from the S or SE, interspersed with cold fronts from the low pressure systems passing by across the Southern Ocean. Sea breezes are from the SE so they tend to reinforce the prevailing winds.

3.5.8 Albany, Esperance and Eucla Coast

The wind pattern along this part of the coast is for prevailing SE to S winds in the summer and SW to W winds in the winter. The preferred time for cruising this part of the coast is late summer because winter gales have yet to arrive and generally the winds are at their lightest.

Summer sea breezes are generally SE and reinforce easterly winds on the north side of a high-pressure ridge. Late at night and in early morning an offshore wind tends to fill in and may reinforce NE winds that have developed on the trailing flank of a high-pressure system.

Generally the coast is not precipitous enough to cause severe, localised squalls but in the region of Bald Head (near Albany) and Cape Vancouver (off Two Peoples Bay), severe gusts can occur when the wind is between N and W. Stand off 0.7 to 0.8 nm to avoid these conditions. Under Cape Le Grand (just east of Esperance), prolonged strong offshore winds may occur when NE winds are strengthened by land breezes. These may be quite localised.

3.5.9 Offshore Islands

Christmas Island

SE trade winds can be expected from April to November. Visiting from December to March is not recommended due to high swell and the possibility of tropical storms and cyclones.

Cocos (Keeling) Islands

Like Christmas Island they lie under the SE trades which blow between April and November. They are at risk of tropical cyclones and lows during the summer months.

Rowley Shoals

The best time to visit the Rowley Shoals Marine Park is during August or September when the easterlies are lightest.

3.6 Swell

Swell is the long period wave pattern generated by distant storms. Period is defined as the duration (in time) between successive wave crests. Height is measured in metres and is defined as the height between successive wave crests and troughs. Forecast swell heights always referred to the significant wave height, which is defined as the average of the largest 33% of waves.

As with wind, the wave direction is defined as where the wave is coming FROM. e.g. a southwesterly swell comes from the southwest and moves towards the northeast.

It is important to note that longer period swells have more energy (and so pose greater threat to vessels at sea) than short-period seas of an equivalent height. Conversely, a swell wave of a given height will not be as steep as a short-period sea of the same height.

Detailed guidance on swell heights is given in the information for each locality; an overview is provided below.

Swell waves that do not break are relatively benign, but a swell wave that breaks on a boat imparts a lot of energy, risking a capsize. Research conducted on scale models not long after the disastrous 1979 Fastnet yacht race provided a good rule of thumb: a capsize will occur if a yacht lies beam on to a breaking wave of height greater than the beam of the yacht. Given that the beam of a typical yacht sailing the Western Australian coast is about 3.5 m and a typical swell along the south and west coasts is between 2 m and 4 m, it becomes clear that the risk of capsize from a breaking swell wave needs to be taken into account. The swell height influences navigation and passage planning, not only because it affects the level of risk when sailing offshore in deep water, but also because it can determine which harbours and anchorages are safe to approach. As a wave moves into shallow water it gets steeper, until the water depth reduces to a point at which the wave breaks. This is called the breaking depth. The breaking depth is determined by many factors - wave length, seabed steepness, wave direction etc. - but the biggest influence is usually the height. The height of the swell, combined with the height of the wind waves, can be used to estimate the depth of water in which a wave will start to break. A conservative but realistic approximation to this calculation has been developed by the famous American navigator Stan Honey. The table below summarises the results in a manner that maybe useful for the average yacht navigator.

| | | | | |
|--------------------------|------|------|------|------|
| swell height(m) → | 2 | 3 | 4 | 5 |
| wind wave height (m)↓ | | | | |
| 1 | 7.5 | 10 | 12.5 | 15 |
| 2 | 10 | 12.5 | 15 | 17.5 |
| 3 | 12.5 | 15 | 17.5 | 20 |
| 4 | 15 | 17.5 | 20 | 22.5 |

Table 1: water depths (m) in which a wave may break

Example:

Suppose you are sailing in swell waves of height 3 m and wind waves of height 2 m. Follow the top line until you get to the 3 column, then go down that column until you get to the 2 row. The number in the cell is 12.5, so if the water depth drops below 12.5 m you may well encounter a breaking wave.

Detailed guidance on swell heights is given in the pilotage information for the anchorages; an overview is provided below.

3.6.1 North coast (Pilbara and Kimberley)

Off the Pilbara and Kimberley coasts the swell is generally quite low, but there are several weather patterns that can cause high waves. In winter when a high pressure system builds up over the inland continent, the resulting strong or gale force SE winds can generate a SE swell offshore. In spring and early summer, an easterly swell is possible along the north coast, generated further east when the trade winds blow across the Timor and Arafura Seas.

Once the monsoon trough has begun to migrate south in summer, strong monsoonal northwesterly winds across the Timor Sea and waters south of Indonesian may bring a NW swell to the Kimberley and Pilbara coast. Monsoon swells of 3-4 m are not uncommon in offshore waters in a prolonged monsoon flow.

In the cyclone season (November to April) the swell is usually low but during a tropical cyclone it be very high and can come from almost any direction .

3.6.2 West and south coasts (Ningaloo to South Australia)

From North West Cape southward the swell comes predominantly from the SW, emanating from Southern Ocean low pressure systems. Typical swell height in summer is 2 m along the west coast, though severe winter storms can generate 6 m swell heights. Heights up to 5 m are common in winter.

Along the west coast the swell is especially important because a number of the approaches to the anchorages become dangerous when the swell is high, as the waves can break over the sub-surface reefs. As a rule of thumb, attention to swell height is required once the swell increases beyond 2 m. It is often said that availability of safe refuge is determined by swell conditions more than wind conditions.

Swell is higher again along the south coast. It is mainly from the SW; 5 m height is common and it can reach 6-8 m. Swell waves are often the first indication of an approaching depression in the Southern Ocean. As with the west coast, the anchorages are greatly affected by the swell.

3.7 Forecasts

3.7.1 Warnings

Warnings for coastal waters are issued by the Bureau of Meteorology (BoM) whenever strong winds, gales, storms or hurricane force winds are expected. The initial warning provides a lead time of up to 42 hours. Warnings are updated on an hourly cycle until conditions subside.

3.7.2 Internet

The internet is probably the most valuable source of weather information when within mobile phone range or if a satphone with data download is available. The Bureau of Meteorology site is probably the first port of call <http://www.bom.gov.au/wa/forecasts/index.shtml> with its very useful service MetEye at http://www.bom.gov.au/australia/meteye/?loc=WA_FA001

The Bureau offer a stripped-down “lite” version of their marine forecasts, very useful when bandwidth is limited or mobile reception is poor: www.bom.gov.au/marine/lite/

Boaters also use many other free internet sites. Two of the more popular ones for the Western Australian coast are Seabreeze <http://www.seabreeze.com.au/> and Willyweather <http://wind.willyweather.com.au/wa.html>

For 16-day swell forecasts, the professional version of Swellnet has been recommended <http://www.swellnet.com/reports/australia/western-australia> . Select the location of interest then use the WAMS option.

3.7.3 Phone

Marine forecasts are available from the Bureau of Meteorology (BoM) by phone as recorded messages on the following numbers:

| | |
|------------------------------|--------------|
| NW coastal waters | 1900 969 901 |
| W coast coastal waters | 1900 969 902 |
| N coastal waters | 1900 969 903 |
| Tropical Cyclone information | 1300 659 210 |
| Coastal marine warnings | 1300 659 223 |

Charges may apply and calls may cost more from international, satellite, mobile and public phones.

3.7.4 VHF

Most coastal radio stations provide regular weather forecasts on VHF radio, with instructions and broadcast times announced regularly on Ch 16.

WA Water Police issue weather and navigation warning broadcasts covering Perth metropolitan waters within 20 nm on VHF Ch 16 and Ch 67. Volunteer Marine Rescue groups also issue BoM weather forecasts over VHF (see 7.4). For example, Geraldton VMR broadcasts Coastal Waters forecasts (on Ch 72, 81 and 82) at 0715, 1215 and 1615.

3.7.5 HF

BoM automated weather forecasts are broadcast on HF from two stations, Wiluna (VMW) and Charleville (VMC). These stations provide weather and warning information for all Australian coastal areas as well as High Seas Forecasts. VMW provides most of the information for Western Australian waters.

| Station | Day Time (kHz) 0700 to 1800 * | Night Time (kHz) 1800 to 0700 * |
|------------|-------------------------------|---------------------------------|
| VMC | 4426, 8176, 12365, 16546 | 2201, 6507, 8176, 12365 |
| VMW | 4149, 8113, 12362, 16528 | 2056, 6230, 8113, 12362 |

* times are EST for VMC; WST for VMW

Full details of the HF radio schedule are available on the Bureau's website

www.bom.gov.au/marine/radio-sat/marine-weather-hf-radio.shtml

Note 1: 8113 kHz generally gives the best reception from the Kimberley to the south coast during daylight hours.

Note 2: Navigation Warnings are transmitted by maritime state authorities on 8176 kHz starting 3 minutes prior to each hour. They end before the start of the weather broadcast by VMC on this frequency.

HF Marine radio coastal waters forecasts and warnings:

VMW voice broadcast schedules provide for bulletins of warnings broadcast on the hour in WST and EST (on the half hour CST). Weather forecasts for Coastal Waters and High Seas followed by coastal observations are broadcast using a program that is repeated every four hours. The program contains up-to-date forecasts, warnings and coastal observations.

| Content | Station | Scheduled broadcast times |
|--|----------------|--|
| Warnings for Qld Gulf, NT, WA and SA | VMW | Every hour commencing 0000 WST (0030 CST) |
| Special Announcements | VMW & VMC | Five minutes to every hour (25 minutes after the hour CST) |
| Forecasts for South Australia | VMW | 0300, 0700, 1100, 1500, 1900, 2300 CST |
| Forecasts for Western Australia (N of North West Cape) | VMW | 0330, 0730, 1130, 1530, 1930, 2330 WST |
| Forecasts for Western Australia (S of North West Cape) | VMW | 0030, 0430, 0830, 1230, 1630, 2030 WST |
| Forecasts for Northern Territory | VMW | 0100, 0500, 0900, 1300, 1700, 2100 CST |

HF high seas forecasts and warnings:

| Content | Station | Scheduled Broadcast Times |
|---|---------|--|
| Special Announcements | VMW/VMC | Five Minutes to every hour (25 minutes after the hour CST) |
| Warnings for Northern, Western and SE Areas | VMW | Every hour commencing 0000 WST (0030 CST) |
| Forecasts for Northern Area | VMW | 0230, 0630, 1030, 1430, 1830, 2230 WST |
| Forecasts for Western Area | VMW | 0230, 0630, 1030, 1430, 1830, 2230 WST |

3.7.6 Fax/Navtex

Weatherfax information can still be received using either a dedicated weatherfax machine or a laptop computer connected to an HF radio through an HF modem. HF Fax is broadcast from VMW Wiluna (WA) and VMC Charleville (Qld). If using an SSB receiver, tune 1.9 kHz below the frequencies given below. Fax broadcasts run on a 24 hour cycle, see www.bom.gov.au/marine/

VMC (Queensland) Fax Schedule

Times here relate to local time (EST) at the transmitter. Frequencies are in kHz.

| | |
|--------------------------|-----------------------|
| Daytime (05:00-19:00) | 20469 |
| Night-time (19:00-05:00) | 2628 |
| Any time | 5100, 11030 and 13920 |

VMW (WA) Fax Schedule

Times here relate to local time (WST) at the transmitter. Frequencies are in kHz.

| | |
|--------------------------|-----------------------|
| Daytime (05:00-19:00) | 18060 |
| Night-time (19:00-05:00) | 5755 |
| Any time | 7535, 10555 and 15615 |

3.7.7 National Radio Broadcasts

The ABC Regional Radio transmits daily weather forecasts to local and regional communities. The ABC publishes full details of transmission times and frequencies in a booklet obtainable from ABC offices located in most cities or the WA head office at.

30 Fielder Street

East Perth WA 6000

Ph: (08) 9220 2700

Fax: (08) 9220 2727

3.7.8 GRIB files

GRIB files are computer files containing gridded binary data which graphically represents weather forecasts generated by computer models. The data in each file covers a defined geographic area, includes one or more weather parameters, and includes one or more forecasts. The forecasts do not usually include local effects and are not checked by a meteorologist. Several meteorological organisations around the world run different computer forecasting models, but one of the most widely used is the US National Oceanic and Atmospheric Administration's Global Forecast System, usually referred to as GFS.

The weather parameters available in GRIB files vary between providers. They may include wind speed, wind gust speed, wind direction, mean sea level pressure, 500 hPa height, temperature, humidity, dew point, primary wave height, secondary wave height, swell, precipitation, cloud and CAPE (a measure of convection used for predicting thunderstorms).

Yachts at sea can obtain GRIB files via mobile phone when in range, or via modem-equipped HF radio or satellite data systems. For those with a HF system the Airmail program can be used to generate the request email and then display the returned GRIB forecasts. The greater the resolution requested the more costly the service. Free GRIB file providers include SailDocs and zyGrib.

GRIB files can be accessed from the BoM and free GRIB files can be downloaded for eight days ahead from zyGrib, Ugrib, and an on-board tablet accessing the PocketGrib app. This service allows you to select a location (e.g. Pelsaert Island Forecast, WA) and obtain wind, wave and swell forecasts, as well as some real time observations.

It is frequently said that GRIBs over-estimate light winds and under-estimate strong winds.

4 TIDES AND CURRENTS

4.1 Overview of tides

A good working knowledge of tides and how to obtain tidal data is important, and essential for the northern half of the state. Western Australia has two unusual tidal characteristics:

Firstly, the northern part of the state has some of the largest tidal ranges in the world - up to 12 m. Secondly, the southern part of the state has only one high tide per day instead of the more familiar two per day.

From about Carnarvon south, tides are mixed, consisting of both semi-diurnal (two high tides per day) and diurnal (one high tide per day) with a small range of usually less than one metre. Further north they are semi-diurnal with ranges 2-12 m.

Along the Kimberley coast, tides are the dominant factor in both passage-making and anchoring. Invariably it will be necessary to work the tides when accessing remote areas or river systems. Fuel can be wasted battling against the tide or, conversely, saved by going with the stream.

Both the sun and the moon exert an effect, with spring tides (large range) occurring a day or two after full moon and new moon. Neap tides (small range) occur about a week after springs at the first and last quarters of the moon. Always watch the phases of the moon as a check on your plans. Take care to work shoal waters on a rising tide, with special care not to go aground at high water when the range is decreasing from springs to neaps. In some places where tides are semi-diurnal, the second tide of the day may have a different range from the first.

While the tides in some parts of the Kimberley are over 10 m at springs, in others the range at neaps is less than 1 m. Tidal ranges are greatest in the western part of the Kimberley, although Wyndham and Cambridge Gulf also have 6-8 m range.

Tidal streams in the Kimberley generally flood E and S, and ebb W and N, with the strongest streams where the tidal ranges are greatest.

The famous 19th century navigator Phillip Parker King observed that a flood tide carries the vessel through the deepest part of a channel but with an ebb tide there is danger.

When proceeding up rivers, such as the Prince Regent, bear in mind there is a considerable lag between the time of HW and LW at the mouth and at the head of the river. This can mean the water level may still be rising near the head of the river while falling near the mouth. In the wet season fresh water runoff also has an effect.



Kimberley currents at their strongest - Horizontal Falls (R&L Newton)

4.1.1 Tidal data sources

Information on tidal heights can be found in the Australian National Tide Tables, a hard-copy publication from the Australian Hydrographic Service. Times and heights for HW and LW for Standard Ports are given together with methods for calculating heights and times for secondary and intermediate ports.

Even better than the printed tables is their Austides CD; all the calculations are done for you and there is immediate information on secondary ports.

DoT WA produce tide tables for all areas of the State, available on the DoT website at <http://www.transport.wa.gov.au/imate/tide-predictions.asp>. The datum used for tidal heights in the DoT WA tide tables varies from port to port. Most, but not all, use LAT.

Many chart plotters and internet sites have local tidal data. Be aware that the predictions from different sources may vary. The reasons for this are many, but one common cause is the different number of harmonics (the contributing mathematical components) used in the tidal height calculation embedded in the software. The fewer harmonics used, the quicker and easier the calculation but the less accurate the answer.

Most charts have a tidal “box” showing tidal ranges for neaps and springs. Information on direction and strength of tidal flow is also given on the AUS charts, displayed as flood and ebb arrows and tidal diamonds. The tables associated with the tidal diamonds give the direction and speed of flow at various times before and after high water (HW). Some tide arrows on charts indicate direction of flow radially over a 12-hour period. If the rate of flow shown with arrows is a range, the higher

figure refers to a spring tide while the lower to neap tides.

For many anchorages described in this guide there is detailed information under the sub heading "Tides". This information refers to the closest tidal station to the anchorage and the maximum spring tide range predicted at the anchorage. Some interpolation between tidal stations may be required.

4.2 Leeuwin and related currents

It is comparatively easy to provide long-term statistical predictions of ocean currents - the text below attempts to achieve this. However, it is rather more difficult to predict current strength and direction in detail over periods of days. A very useful tool is provided by the Bureau of Meteorology at <http://www.bom.gov.au/oceanography/forecasts/>

It provides graphical forecasts of current strength and direction for up to 7 days ahead. There are predictions based on sea surface temperature, and separate predictions based on sea surface slope. (Remember the old adage about weather forecasts and position plotting; avoid relying on data from a single source!)

The mean monthly sea level off Fremantle is also used as an approximate gauge of the strength of the Leeuwin Current, with higher sea levels indicating a stronger current.

Whilst the Pacific Ocean might seem too far away to influence the WA coast, fluctuations in the strength of the SE trade winds in the Pacific can have a dramatic effect on the strength of the Leeuwin Current. When the Southern Oscillation Index (SOI) is positive (a La Nina event), the Leeuwin Current will be stronger. When the SOI is negative (an El Nino phase), the current is weaker.

4.2.1 Background

The Leeuwin Current is a warm ocean current that flows southwards along the Western Australian coast before turning eastwards at Cape Leeuwin and continuing into the Great Australian Bight. In some ways it is unique for a western coast, being quite different from the much weaker, cool, northward currents found along the southwest African coast (the Benguela Current) and the Chile/Peru coast (the Humboldt Current), where upwelling of cool nutrient-rich waters from below the surface results in some of the most productive fisheries in the world.

Because of the Leeuwin Current, our continental shelf waters off Western Australia are relatively warm but nutrient-poor, and our fisheries are correspondingly very different from those off southern Africa and South America. The Leeuwin Current is also responsible for the presence of true corals at the Abrolhos Islands and tropical fish at Rottnest Island.

This section briefly reviews the main characteristics of the Leeuwin Current and other near-shore currents along the Western Australian coast as they may affect the boating community. It must be emphasised that current patterns are generally highly variable, so the quoted current speeds must be understood as a general guide only.

4.2.2 History

It was over a century ago that a biologist studying the marine life of the Abrolhos Islands first suggested that there must be a warm southward current off Western Australia instead of the cool

northward current which would otherwise have been anticipated. Subsequent measurements of the water properties along our coast gave support to this idea, but it was only with the advent of satellite technology that the existence of the southward current was finally confirmed.

During the 1970s, satellite-tracked drifting buoys and satellite images, as well as direct current measurements, clearly showed a warm current bringing tropical water down the Western Australian coast and around Cape Leeuwin. In a landmark paper by Cresswell and Golding in 1980, this flow was named the Leeuwin Current after a Dutch vessel of that name (meaning lioness) which explored the southwest coast in 1622. The various measurements showed that the current is much stronger in autumn, winter and early spring than it is during the summer months.

Subsequent research by CSIRO and local universities has given us much more information about the behaviour and variability of the Leeuwin Current and its associated eddies and counter-currents.

4.2.3 Where does the Leeuwin Current start?

The driving force of the Leeuwin current lies in the Pacific Ocean. Here, the SE trade winds cause warm water to move westwards, some of which is pushed through the archipelago of Indonesia (often referred to as the Indonesian Throughflow), which in turn initiates the southward flow of water down the WA coast. The Leeuwin Current itself originates north of Exmouth, with contributions from the northeast and also from offshore. The trajectories of drifting buoys show southwestward flow along the outer NW Shelf towards Exmouth, with the strongest flow (maximum speeds of about 0.5 kn) occurring along the outer shelf between February and June. Strong SW winds can retard or even reverse the currents, especially nearer the coast.

4.2.4 Exmouth to Shark Bay

From Exmouth southwards, the Leeuwin Current takes on its identity as a jet-like stream of warm water flowing southwards along the edge of the continental shelf (the 200 m depth contour). However, it periodically meanders offshore in the form of large loops and eddies which can carry the warm tropical waters over 100 nm away from the coast. Three or four of these “waves” can be present at any one time between Exmouth and Cape Leeuwin.

As the continental shelf along the Ningaloo Coast is very narrow, the current can be as little as 5 nm off the coast there. Currents measured near the sea bed at the edge of the continental shelf off Point Cloates in 1986/87 were generally southward with speeds of 0.5 to 1 kn.

The shelf widens off Shark Bay and the Leeuwin Current is accordingly further offshore than at Ningaloo. Nevertheless, warm water can on occasion flood across the shelf and into Shark Bay. Currents along the outer shelf are generally about 0.3 kn and can be quite variable in direction.

During the summer months (October to March), the strong southerly winds drive an inshore counter-current (the Ningaloo Current) northwards along the inner shelf; we have less information at this stage about its strength.

4.2.5 Shark Bay to Fremantle

The Houtman Abrolhos Islands, situated near the edge of the continental shelf off Geraldton, are frequently bathed by Leeuwin Current waters. The strongest southward currents (up to 2 kn) are

likely to be encountered near the 200 m contour between February and August, and the flow is weaker and more variable in direction between September and January. Large meanders and eddies feature prominently in this area. As meanders develop and carry the warm water away from the coast, cooler offshore water can be drawn in against the shelf resulting in northward currents off the islands. Below about 250 m depth there is usually a northwards undercurrent with speeds of up to 0.5 kn.

Current measurements nearer the coast show that the average drift tends to be northwards at 0.25 to 0.5 kn in summer and southwards at similar speeds in winter; peak current speeds can be up to 1 kn. Throughout the year, however, there may be current reversals resulting largely from changes in the winds. The Leeuwin Current rarely flows around the east side of Rottnest, but it frequently bathes the west and southwest sides, with a strong influence on the flora and fauna. Winter sea temperatures at the Abrolhos Islands and Rottnest Island can be several degrees higher than against the mainland coast.

Satellite images show that the core of the Leeuwin Current can generally be identified by a peak in the surface temperature and a strong temperature decrease further offshore. The surface temperature difference across this current boundary is typically 2° to 3°C off the west coast (it can be over 4°C off Albany).

4.2.6 Cape Naturaliste to Cape Leeuwin

During the winter months when the Leeuwin Current is flowing strongly, it tends to move on to the continental shelf as it approaches the Cape Naturaliste/Cape Leeuwin region. As it weakens in late spring, it moves offshore and is displaced by a cool northwards near-shore counter-current (known as the Capes Current) which is driven by the strong and persistent S winds blowing in summer. This in turn dies away in about March/April as the winds weaken, and the strengthening Leeuwin Current moves inshore again. Currents measured across the Continental Shelf off Cape Mentelle (34°S) show that the highest speeds can be almost 2–kn near the 200 m contour, with weaker and more variable currents near the coast.

4.2.7 Cape Leeuwin into the Great Australian Bight

After rounding Cape Leeuwin, the Leeuwin Current generally flows along the outer continental shelf on its passage eastwards, at least as far as Cape Pasley near 124°E. From about this longitude it tends to move offshore again because of the distinct northward kink in the coastline. As on the west coast, large offshoots or meanders can carry the warm water over 50 nm offshore. Measurements south of Clifty Head (116°E) indicate that the current is usually flowing to the east between May and October with speeds of up to 1 kn near the coast. Frequent reversals to westward flow (at lower speeds) occur during the summer months. There can be eastward currents exceeding 3 kn in the core of the Leeuwin Current just off the continental shelf, and the flow around the large eddies can result in currents both southward (away from the coast) and northwards (towards the coast) at up to 2 kn.

4.2.8 Summary

Along both the west and north coasts, the Leeuwin Current is generally present near the 200 m

contour, where the current speed is likely to be 1-3 kn to the south and east respectively. It flows more strongly between April and October than during the summer months, and can usually be identified by its relatively high temperature compared with the inshore and offshore waters. Large meanders and eddies associated with the Leeuwin Current can result in swirling current patterns in almost any direction.

Closer inshore along the west coast (say from 100 m depth into the coast), the currents are more affected by local winds, tending to flow southward in winter and northward in summer. Average speeds are about 0.25 kn but can exceed 1 kn on occasion.

Clearly, a yacht heading northwards up the west coast would be wise to stay relatively close inshore to avoid the strength of the southward currents, especially during the winter months. During summer, the wind-driven coastal counter-currents would assist a northerly run in depths of about 100 m. When sailing southward on the other hand, there may be advantage (up to a couple of knots) in seeking the Leeuwin Current near the 200 m contour.

Conditions along the south coast are less well known, but again it is likely that maximum advantage would be gained by following the 200 m contour when sailing eastward. Conversely, stay inshore when heading west.

Boaters should bear in mind that, under conditions of opposing current and wind, the waves become steeper and wave heights can increase by 50 per cent. Rough seas can therefore be expected when the wind is blowing strongly against the current.

Additional information can be found at www.bom.gov.au/oceanography/forecasts

4.3 Sea level changes

In the context of this guide we are interested in sea level changes that occur over periods from minutes to days, as distinct from climate change discussions which are looking at changes over decades and centuries. Sea levels can change for two main reasons - atmospheric pressure changes, and water piling up or sloshing due to strong winds. Sometimes the combined effect of these two factors is called storm surge - a misleading term given that the sea levels can change when there is no storm. A better term is the "residual", which is the difference between the predicted height of tide and the actual sea level height.

Residuals are extremely difficult to forecast days or even hours ahead. The best that can be done (unless you have professional expertise in coastal oceanography) is to look at the near real-time records of sea level elevations published by the WA Dept of Transport at <https://www.transport.wa.gov.au/imarine/tidal-movement.asp>

This web site shows graphs of the sea level residual at 25 locations around the WA coast, from a few minutes ago to about 3 days ago. You can look at the trends and extrapolate (with care) to work out the likely sea level residual over the next couple of hours. The further ahead you extrapolate, the less reliable your estimate. Note that the residual includes the effect of both atmospheric pressure and wind (and any rare phenomena such as earthquake tsunami).

4.3.1 Effect of atmospheric pressure

Slow pressure changes

The atmosphere presses down on the ocean so if atmospheric pressure drops, sea level rises and vice versa. Every 1 hPa variation from mean atmospheric pressure (1012 hPa) will create a 10 mm change in sea level. So a typical low pressure system of 992 hPa will result in sea levels rising by 0.2 m (200–mm) whereas a typical high pressure system of 1032 hPa will cause a drop in sea level of 0.2 m. This is clearly important when negotiating shallow entrances or bridge clearances. Fortunately it is very easy to calculate using the yacht's barometer.

Rapid pressure changes (meteotsunamis)

Recent research has shown that large changes in sea level can occur when a quite small but rapid change in atmospheric pressure travels across the ocean surface. Sea level changes caused by this phenomenon are called meteotsunamis. They can occur when, for example, a thunderstorm moves fairly quickly, or a cold front approaches. They can cause sea level changes of up to 0.5 m on the WA coast, so they are one of the main sources of sea level change, and can be generated by atmospheric pressure changes as small as 2 hPa. Meteotsunamis have been recorded in many parts of the world. In WA they have been recorded on the west and south coasts, but not in the north (the Pilbara and the Kimberley).

A meteotsunami will have a period of anything from tens of minutes to a few hours (compared with tidal periods of 12 and 24 hours). They will generate currents of typically 1 kn, but in areas of restricted flow (channels, breakwaters etc.), the currents can reach 5 kn.

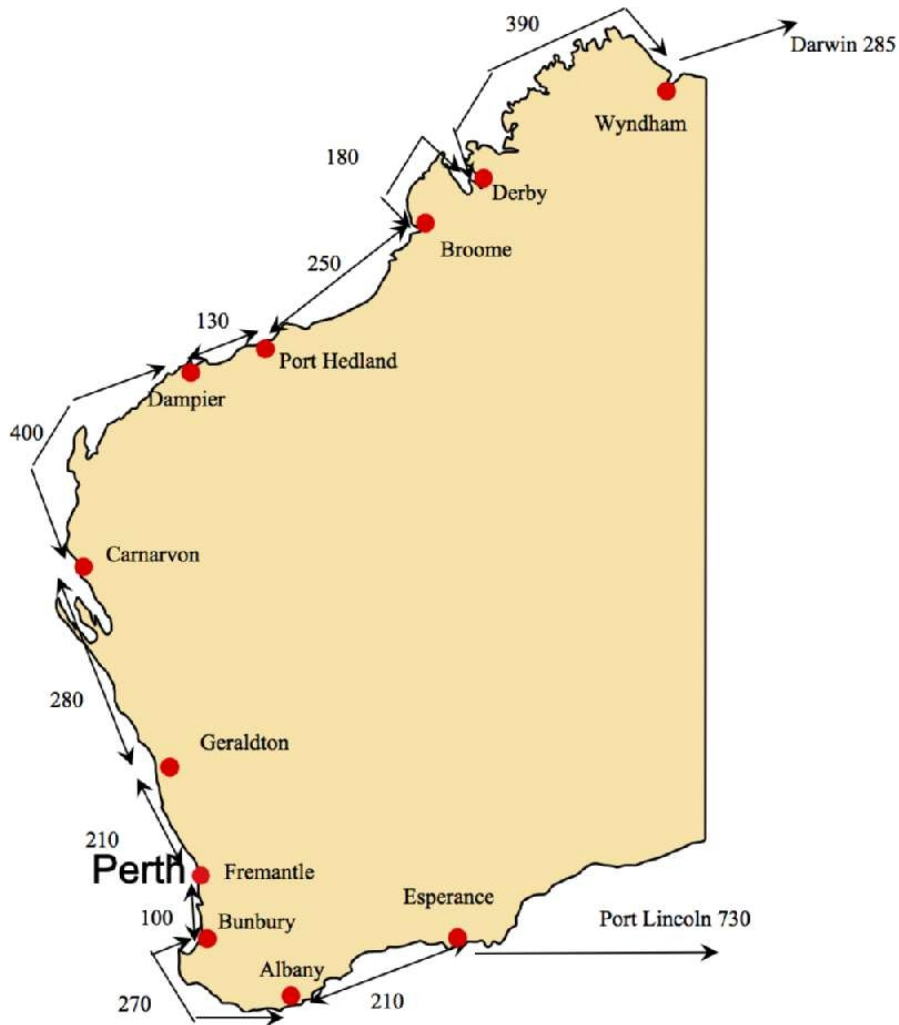
About 30 meteotsunamis are experienced along the west coast of WA every year, though they are often unnoticed unless their peak coincides with high tide. They have a period of about 2.7 hours all along the coast, which is governed by the fairly consistent length and depth of the continental shelf down the coast.

4.3.2 Effect of wind

When a strong wind is blowing towards the shore it will have a tendency to push water along, piling it up and increasing the sea level. This increased sea level can last from hours to days and is properly called storm surge. The effect is complicated firstly because the amount of pile-up depends on the geometry of the local coastline, and secondly because the piled-up water will tend to run back again. The combination of these two factors can lead to a sloshing effect called seiching, similar to the water in a bath rising and falling at each end but staying constant in the middle. An example is Cockburn Sound off Fremantle. In a NW winter storm the water will tend to pile up at the southern end of the sound, but will also tend to slosh back and forth, with a period of typically 2-3 hours. The sea level height variation due to storm surge is typically 0.2–0.3 m.

5 PASSAGE PLANNING

5.1 Distances



Approximate distances (in miles) between major ports

5.2 Places a yacht can be left

Note that distances between some of these places are several hundred miles, and some have limited public transport.

Darwin

Possibly Port Hedland

Dampier

Exmouth

Carnarvon

possibly Denham (on moorings only)

Geraldton

Port Denison

Jurien Bay

Possibly Cervantes

Two Rocks

Mindarie

Hillarys

Fremantle

Mandurah

Port Bouvard

Bunbury

Port Geographe

Augusta

Albany

Esperance

Port Lincoln

5.3 The big picture

5.3.1 Kimberley Cruising

The preferred months for cruising in the Kimberley are May to October (the dry season). SE winds are prevalent in the morning and can reach 30 kn when there is a strong high to the south. The wind usually eases in the afternoon. Leaving Broome for the Kimberley by the end of May will allow six to eight weeks cruising in the Kimberley before returning south.

It is preferable to visit most anchorages during a period of neap tides.

5.3.2 Heading north

The preferred time to depart Fremantle if bound for the Abrolhos, Shark Bay or further north and east is April/May onwards. If bound for Queensland aim to be in Darwin by the end of September. A Fremantle to Kimberley and return trip requires moving fairly quickly. If no cyclone is forming it is

viable to leave Carnarvon the first week of May.

5.3.3 Heading south

June/July is a good time to depart Darwin when heading for the Western Australian coast. When travelling south to Fremantle, aim to arrive in Dampier by early September. Local wisdom suggests that the time to set out from Broome to Dampier or vice versa, in suitable weather avoiding strong E winds, is when a fairly strong front is approaching the south of the state. This often coincides with weaker E winds during the mornings. A vessel heading south from Dampier in September should encounter moderate southerly quadrant winds for the stretch southwards down the west coast. Aim to be in Geraldton by the end of September; any later significantly increases the likelihood of relentless strong southerlies. Coming south from North West Cape usually involves windward work and a day or so in a quiet haven can make a welcome change. 20 year wind records from North Island (Abrolhos) show that is a lot windier in October than in April, and the wind is from the southerly quadrant for more than 80% of the time for both those months.

Continuing south from Geraldton the aim is to leave in September-October i.e. late enough in the year to avoid winter cold fronts, but not so late that you encounter the strong southerly summer sea breezes. The weather windows are often short and sparse. A better time for this passage is April-May. You will still need to find the windows between the strong sea breezes and the cold fronts, but they tend to be longer and more frequent.

5.3.4 Across the Great Australian Bight

The preferred times for the east-bound crossing of the Bight is October to November or late February to March. By March the easterly-moving cold fronts are starting to be felt on the south coast. However, the centre of the lows are still well to the south resulting in more moderate SW winds than later in the year. Departing Albany or Esperance or better still Cape Arid on the back of a passing cold front will usually ensure your arrival at Port Lincoln before the passage of another front.

Passage east to west is often best during March, when the predominant easterly winds are lighter than in January and February.

One yacht passing east to west in April took a northerly inshore route of Streaky Bay, St. Francis Island, Eucla, Eyre, Daw Island and Esperance. They considered this northerly route calmer than the direct route, as it avoided underwater canyons.

5.4 Passage notes by region

5.4.1 Kimberley

One of the great attractions of the WA coast is the Kimberley. From Fremantle it is a distance of about 1,300 nm or about twelve days continuous sailing if passage making when heading north. The return trip will take much longer if southerly winds persist. The majority of yachts departing westward from Darwin head straight for the western side of Joseph Bonaparte Gulf (127°E) and make their landfall at Koolama Bay or Reveley Island.

When cruising the Kimberley coast the dominant consideration is the tide; the ability to calculate the state of the tide at any given location and time of day is essential. A tidal range of 12 m and

tidal streams of up to 10 kn occur in some locations. When calculating depths for anchoring and for safe passage, draft becomes insignificant compared to the tidal range. It may be necessary to work the tide in order to transit a given location. It is therefore important to calculate the best time to transit the location and then work back to your present anchorage in order to determine the best time for departure. Always be ready to consider another route rather than push against the tide. The preferable time to visit most anchorages is during a period of neap tides. However, Prince Regent River is best visited during spring tides, which is also the time when the charter boats visit. The transit times favour springs to ensure maximum hours of daylight to negotiate the river. It would be prudent to check on the availability of fuel supplies before departing Darwin or Broome. Most yachts find that they use more fuel than expected because the winds are often very light. See section 11.1.6 for details of fuel depots.

5.4.2 Northwest (Pilbara) coast

The coast from Cape Leveque to North West Cape comprises one conspicuous sand hill after another. The eastern part (east of Cape Keraudren) is characterised by the low sand hills of the Great Sandy Desert. West of Cape Keraudren the coast becomes a series of low limestone islands protecting mangrove embayments behind them. Several seasonal rivers drain the Pilbara region inland. There are many exploration and drilling rigs off this coast.

The distance between Broome (122°E) and Dampier (117°E) is approximately 400 nm and from Dampier to North West Cape is a further 170–nm. The primary coastal centres along this stretch of coast are Port Hedland (118°E), Dampier (117°E) and Exmouth (114°E). From Broome to Dampier the direct sea route is up to 60 nm offshore. Passage making can be uncomfortable if the easterly freshens (e.g. with a strong high in the Great Australian Bight). To avoid this, a route close along the shore does not add greatly to the distance and enables shelter to be taken near the coast in some comfort, if day-sailing is preferred. There are few recognised anchorages in the eastern part of this coast and in suitable weather the suggestion is to anchor anywhere off Eighty Mile Beach. Much of this coast shoals for some distance offshore so these anchorages may be rocky. There are few safe cyclone anchorages. The following are possible stopovers (from east to west):

Broome to Port Hedland

Lagrange Bay, Eighty Mile Beach (north), Eighty Mile Beach (centre), Eighty Mile Beach (south), Blaze Bay, Larrey Pt.

Port Hedland to Dampier

Depuch Island, Cape Lambert (west side), Flying Foam Passage.

Dampier to Exmouth

Port Weld, either Mangrove Passage or Mary Anne Passage, Onslow, Serrurier Island.

5.4.3 West Coast

Much of the coast south of North West Cape appears to be fairly hostile at first sight, with off-lying reef and few anchorages that can offer all-round protection. However, closer inspection reveals some hidden delights.

The majority of the coast from North West Cape (22°S) to Amherst Point 100 nm south is protected

by Ningaloo Reef, an underwater landscape that rivals the Great Barrier Reef for its coral and other marine life. The reef lies 1-3 nm offshore and the swell breaks on it heavily. The reef is steep to on the west side. Sections of the coast from North West Cape to Shark Bay (25°S) are very close to the continental shelf. Swell builds rapidly as the depth of water decreases and this needs to be taken into consideration, especially when approaching a shallow entrance through the reef. Shark Bay is an interesting cruising ground, especially but not exclusively suited to shallow draft vessels. The recommended passage out of Shark Bay southward is through South Passage via Blind Strait, which is a convenient and straightforward route. However, the exit through South Passage at Steep Point is subject to swell and you must be prepared to sit out several days inside South Passage if the swell is up. The coast from Steep Point (26°S) to the Murchison River mouth at Kalbarri (28°S) is high and precipitous. Here lie the Zuytdorp Cliffs, which in places rise to 250 m. In all conditions other than flat calm it is recommended that boats keep at least 5 nm off the coast to avoid the likelihood of confused seas. Indeed, many yachts choose to stay 15 nm off in fresh southerlies. In the event of sustained strong easterlies, a course closer to the cliffs (1-3 nm) gives a moderate sea, lighter winds, and provides a more comfortable sail. From Steep Point to Geraldton there are no harbours of refuge for 150 nm, so a reliable forecast with a long weather window is needed for this passage.

The extraordinary Houtman Abrolhos Islands lie 40 nm off the coast at Geraldton (29°S). They comprise over 100 low-lying, sparsely vegetated islets with no facilities other than a few fishermen's shacks. Marine life abounds and the area is a popular cruising ground from March to May. The term "popular" needs to be put into Western Australian context - there might be 30-40 boats across the entire 45 nm stretch of islands, with rarely more than 5 boats per anchorage.

On passage between Geraldton (29°S) and Fremantle (32°S), maintaining a depth of 30 m or more is safe; but be careful in the vicinity of Beagle Islands (30°S) where this contour comes close to reefs. In the event of persistent southerlies, passage south is possible inside the reef between Dongara and Beagle Islands and from Ledge Point southward. There will be numerous cray pot floats to avoid. Professional crayfishers have advised that for coastal sailing, the best way to minimise craypot encounters is to "sail outside the five fathom bank in 24-26 m depth". For passage making, they advise to stay outside the 100 m depth contour.

The region around Fremantle is full of day and overnight anchorages, at places such as Rottnest and Garden Islands. It is very popular with cruising and racing yachts, powerboats and fishers.

During the summer months Geographe Bay near the southern end of this coast provides smooth water and shelter from the prevailing southerlies, making for a delightful cruising ground.

The world suddenly changes once Cape Naturaliste (33°S) has been rounded. The flat water of Geographe Bay is a memory of the past and the ocean takes on a new look with majestic swells and boisterous winds. In most conditions Hamelin Bay (34°S) and possibly Canal Rocks are the only anchorages worth considering past Cape Naturaliste. These are not great anchorages, but they do offer an alternative to beating to windward if conditions become unpleasant. If the conditions are moderate and the forecast is good, it is often better to keep going.

The following are possible stopovers (from north to south):

Exmouth to Geraldton

Exmouth, Tantabiddi, Norwegian Bay, Mauds Landing, Carnarvon, South Passage or Turtle Bay (Dirk Hartog Island), Port Gregory.

Geraldton to Fremantle

Geraldton, Port Denison, Jurien Bay, Cervantes, Lancelin.

Fremantle to Cape Leeuwin

Fremantle, Mandurah, Port Bouvard, Bunbury, Port Geographe, Quindalup, Hamelin Bay.

5.4.4 South Coast

This is a wild and sparsely populated coast with some rewarding cruising grounds for the well-prepared. There are few secure all-weather anchorages. The south coast starts at Cape Leeuwin (34°S, 115°E), one of the three great capes of the Southern Ocean (the other two being Cape Horn and the Cape of Good Hope). The two towns of consequence to boaters along the entire 700 nm coast are Albany (118°E) and Esperance (122°E) (with the possible addition of Augusta next to Cape Leeuwin).

As a general guide for rounding Cape Leeuwin, maintain a depth of 35 m to give safe clearance of about 5.5 nm in good conditions. In adverse conditions the heavy swell calls for a much wider clearance. Be aware of strong onshore currents in summer months.

The Archipelago of the Recherche (122°E) is a group of islands and rocks separated by deep water, that extend up to 40 nm offshore and stretch along the coast for 123 nm. Some isolated reefs lie up to 18 nm offshore.

Due to the deep water close inshore and variable wind directions, there are only a few recommended anchorages in the Archipelago.

The following are possible stopovers (from west to east):

Augusta, Dunsy Bay, Albany, Two Peoples Bay, Dillon Bay, Investigator Island, Esperance, Hammer Head.

5.5 Downwind passage planning - gybing angles

Whilst it is an unfortunate fact of life that sailing the WA coast involves a lot of windward work, there are many occasions when you will find yourself in the delightful situation of sailing for a destination that is dead downwind. You may then need to ask the question: "If I sailed a bit lower, would the shorter distance sailed compensate for the loss of boat speed; or if I headed up and went faster, would this overcome the increased distance I have to sail?"

The table below answers that question. It is usable for all boats and in all wind speeds. Using the table will help reduce your downwind passage times; copy it and put it next to the chart table or helm position.

To use the table, first identify the row corresponding to the True Wind Angle (TWA) you are sailing at. Then look across that row until you find the boat speed you are sailing at (or its closest number). Now look at the boat speeds in that column; they are the speeds you have to attain if you change your wind angle, in order to make the same downwind progress. For example, if you are sailing at 160° TWA with a boat speed of 8 kn, then you are in the 7.5 kn VMG column. If you point

up and bring the wind direction forward to, say 150°, you will have to increase your boat speed to at least 8.7 kn in order to make the same progress in a downwind direction.

Key:

Black figures are boat speed.

Red figures are True Wind Angle

Blue figures are Velocity Made Good in a direction dead downwind

| | VMG | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|------|------|------|------|------|------|------|------|------|------|------|
| TWA | 4.5 | 5 | 5.5 | 6 | 6.5 | 7 | 7.5 | 8 | 8.5 | 9 | 9.5 | 10 | 10.5 | 11 | 11.5 |
| 180 | 4.5 | 5.0 | 5.5 | 6.0 | 6.5 | 7.0 | 7.5 | 8.0 | 8.5 | 9.0 | 9.5 | 10.0 | 10.5 | 11.0 | 11.5 |
| 170 | 4.6 | 5.1 | 5.6 | 6.1 | 6.6 | 7.1 | 7.6 | 8.1 | 8.6 | 9.1 | 9.6 | 10.2 | 10.7 | 11.2 | 11.7 |
| 160 | 4.8 | 5.3 | 5.9 | 6.4 | 6.9 | 7.4 | 8.0 | 8.5 | 9.0 | 9.6 | 10.1 | 10.6 | 11.2 | 11.7 | 12.2 |
| 150 | 5.2 | 5.8 | 6.4 | 6.9 | 7.5 | 8.1 | 8.7 | 9.2 | 9.8 | 10.4 | 11.0 | 11.5 | 12.1 | 12.7 | 13.3 |
| 140 | 5.9 | 6.5 | 7.2 | 7.8 | 8.5 | 9.1 | 9.8 | 10.4 | 11.1 | 11.7 | 12.4 | 13.1 | 13.7 | 14.4 | 15.0 |
| 130 | 7.0 | 7.8 | 8.6 | 9.3 | 10.1 | 10.9 | 11.7 | 12.4 | 13.2 | 14.0 | 14.8 | 15.6 | 16.3 | 17.1 | 17.9 |

Black figures are boat speed.

6 NAVIGATION AND PILOTAGE

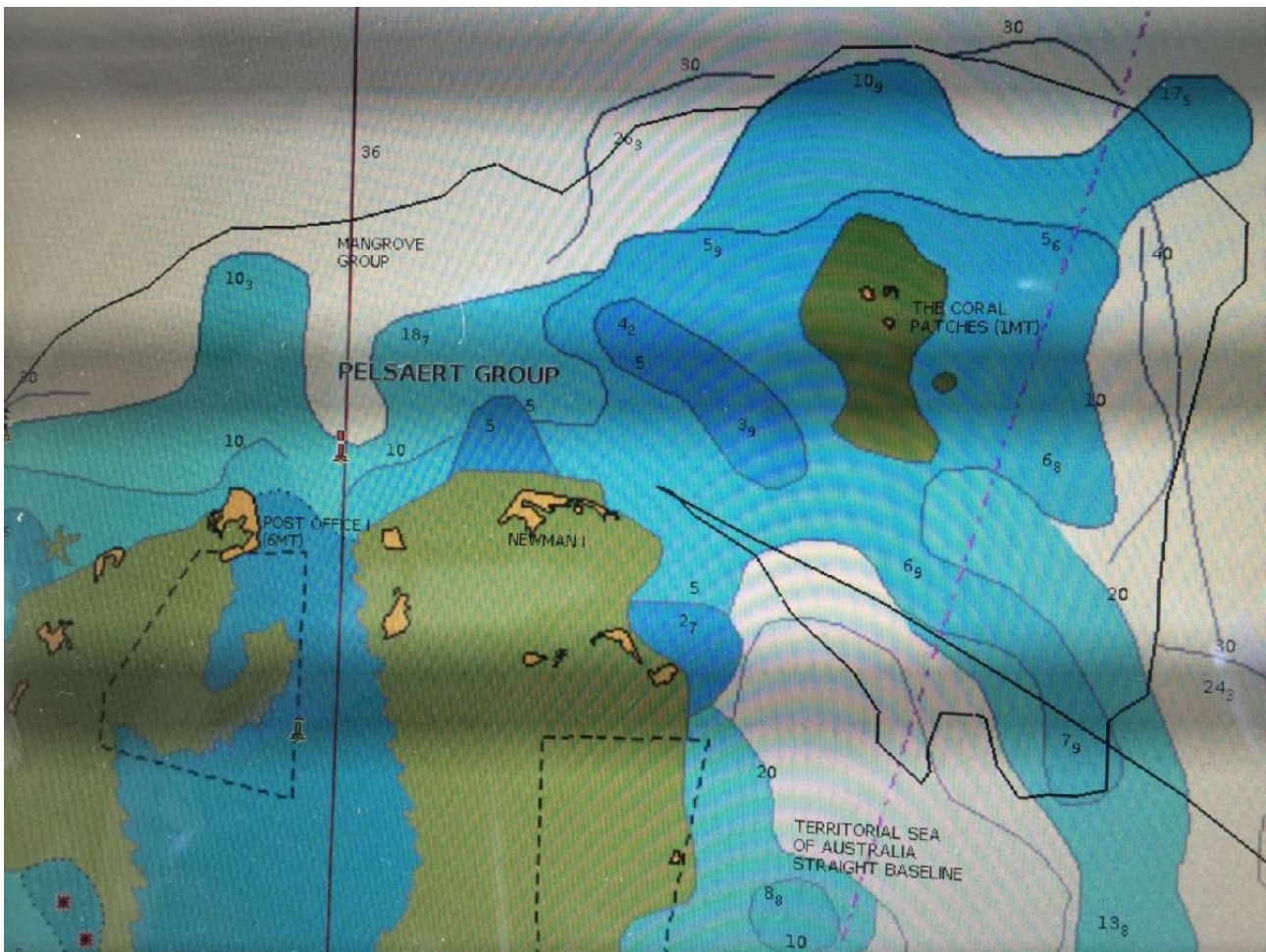
6.1 Abbreviations and terms used

| | |
|------------|--|
| ABC | Australian Broadcasting Corporation |
| AHO | Australian Hydrographic Office |
| AHS | Australian Hydrographic Service |
| AIS | Automatic Identification System |
| AMSA | Australian Maritime Safety Authority |
| Bommies | Isolated outcrops of reef just below sea level (colloquial expression) |
| Conspic | Conspicuous |
| CST | Central Standard Time |
| DER | Department of Water and Environmental Regulation |
| DoT | Department of Transport |
| E | East |
| ED | Existence Doubtful |
| EST | Eastern Standard Time |
| GMDSS | Global Maritime Distress and Safety System |
| GPS | Global Positioning System |
| ha | Hectare |
| HAT | Highest Astronomical Tide |
| hPa | Hectopascal |
| HW | High Water |
| HWN | HW Neaps |
| HWS | HW Springs |
| km | Kilometre |
| kn | Knot |
| LAT | Lowest Astronomical Tide |
| LLW | Low low water |
| LW | Low Water |
| LWN | LW Neaps |
| LWS | LW Springs |
| M | Mud |
| m | Metre |
| mm | Millimetre |
| nm | Nautical Mile |
| NMOC | National Meteorological and Oceanographic Centre (Melbourne) |
| Obstn | Obstruction |
| PA | Position Approximate |
| DBCA | Dept Biodiversity, Conservation & Attractions |
| PD | Position Doubtful |
| RACON | A device that reflects a radar signal with a predetermined identity |
| S | Sand |
| “Steep to” | A rapid change in contour, either depth of water or land |
| ULP | Unleaded petrol |
| UTC | Universal Time Co-ordinate (was GMT) |
| w.p. | Waypoint |
| WST | Western Standard Time |

Diagram symbols

| | |
|--|---|
| | Anchorage/Moorings |
| | Rock/reef which covers and uncovers |
| | Sand/mud which covers and uncovers |
| | Ebb tide/flood tide (with rate at Spring Tide) |
| | Eddies |
| | Recommended track |
| | Rips and tidal overflows |
| | Waterfall |
| | Rock which covers and uncovers |
| | Rock awash at level of chart datum |
| | Submerged rock with 2m or less water over it at chart datum, or depth unknown but considered dangerous, limiting danger line |
| | Breakers |
| | Wreck showing any portion of hull or superstructure at level of chart datum |
| | Historic wreck |
| | Soundings in metres and tenths of a metre at chart datum |
| | Drying heights in metres and tenths of a metre |
| | IALA Cardinal markers with lights |
| | Lateral markers with lights |
| | Port buoy |
| | Starboard buoy |
| | Light buoy |
| | Spar buoy with top mark, floating beacon |
| | Spar or post with light |
| | Position of important light |
| | Position of minor light |
| | Leading marks, lit/unlit showing recommended track and heading |
| | Breakwater or groyne |
| | Aquaculture area - Obstruction |
| | Mangroves |
| | Sand dunes |
| | Height of summit (in metres) |
| | Tower and cliffs |
| | Sand beach |
| | Used on overviews to indicate area covered by detailed diagrams |
| | Used on overviews where scale pre- cludes accurate depiction of diagrams |

6.2 Positional accuracy



Screen grab from a chart plotter showing the path of a yacht in the Abrolhos that hit a reef east of Newman Island (where track reverses direction). The plotter showed deep water!

6.2.1 Waypoints, datums and errors

To help locate places referred to in the text, approximate latitude and longitude positions have been given. Positions have been taken from the appropriate chart and should not be interpreted as a precise location for anchoring. Waypoints may be preceded by the abbreviation “w.p.” These are positions observed and recorded from GPS. The reader is reminded that the reported waypoints may be subject to errors e.g. due to the selection of an incorrect datum.

Navigators should be aware that if their GPS is computing a position from a datum different to that of the chart then discrepancies of up to 250 m can occur. Charts issued before 1966 are likely to show the greatest discrepancy. In general the GPS receiver should be set up on WGS84 for charts issued since 1994.

Some charts use different datum for charts issued between 1966 and 1994, e.g. Australian Geodetic Datum 72, which may not be an option on your receiver. You could instead use WGS84 for charts issued between 1966 and 1994 and apply the correction given on the chart.

For those navigating with a chart plotter, beware that when changing scales the inbuilt software

corrections applied to one scale may not necessarily apply to other scales. There is also the danger that when changing to a small scale (zooming out), fine detail such as an isolated reef may disappear from the screen.

Interference with satellite signals has been noted in areas of high radio frequency activity such as North West Cape, and near airfields.

The chartlets in this guide are believed to be accurate but some hazards and other detail may have been omitted. The usual disclaimer must therefore be made that they should not be used for navigation. It is each skipper's responsibility to satisfy themselves that their actions are appropriate to the situation.

Some of the anchorages and passages mentioned in the guide require traversing unsurveyed areas. Although others may have previously traversed these areas, no guarantee of safe passage can be given.

6.2.2 AHO statement on positional accuracy

When positions provided by contributors from their yachts' GPS are checked against AHO sources, some anchorages would appear to be firmly over reef. This conflicting information has been referred to the AHO for clarification. The advice received is as follows:

“Vessels using charts of any form should be aware that the quality of charted information varies from place to place, generally in proportion to the remoteness of a locality away from commercial shipping routes. Official Australian nautical charts, including paper charts, raster navigation charts (RNC) and electronic navigation charts (ENC) all carry quality indicators showing the quality of charting throughout each chart. This quality varies both horizontally and vertically, as well as in the completeness of a survey. A quality indicator and descriptive table may be found in the Zone Of Confidence diagram on paper charts and RNC, or in the equivalent quality layer in ENC. Licensed copies of official charts, as well as all privately produced charts, are subject to the same limitations but do not carry this quality information, so can be subject to misinterpretation.

Zones Of Confidence are a tiered system of A, B, C, D or 'Unassessed'.– Within this system horizontal accuracy may vary from better than +/- 5 m to worse than +/- 500 m, vertical accuracy may vary from a few decimetres to a few metres, while survey completeness will also vary considerably. For more information, mariners should refer to AHP20 - Seafarers Handbook for Australian Waters, or to the relevant free Fact Sheet on the Australian Hydrographic Service website (www.hydro.gov.au). In many remote areas, charts will only be improved through reports from mariners.”

6.2.3 Use of Google Earth

There have been well-researched reports that electronic and paper chart systems are not consistently reliable on this coast e.g. Navionics charts are reported to have a significant unaccounted offset in the Abrolhos. Overlaying of Google Earth images with the aid of software such as OpenCPN has been found very helpful in resolving any such chart system discrepancies. FSC member Mike Reynolds has published a practical guide to using Google Earth images for marine navigation, at <http://yachtzenagain.blogspot.com.au/2012/10/using-googleearth-images-for-marine.html>

and <http://yachtzenagain.blogspot.com.au/2015/04/googleearth-kap-library-for-opencpn-and.html>
another useful source is the Venture Farther website at
<http://www.venturefarther.com/home/Home.action>

6.3 Charts

There are many sources of charts for the WA coastline, including AHO, DoT (WA), Navionics and CMap. No single source is universally better than the others, so cross-referencing of at least two independent sources is advised.

AUS 300 (1:300 000) and 700 (1:150 000) series charts issued by the Australian Hydrographic Service (AHO) cover most of the coast. They are good for passage-making and are also useful for anchoring in many places (with the exception of the Kimberley area, where many areas are yet to be charted in detail). Charts with a Reliability Diagram indicate the accuracy of the survey. The diagrams should be studied to ensure that the survey was sufficiently detailed and accurate for the navigation proposed. It is always advisable to check the Reliability Diagram and GPS datum that applies to the area in question.

Charts issued by the WA Department of Transport (DoT) are very good. Continuous DoT charting is available from Shoal Point (just south of the Houtman Abrolhos Islands) southward to Cape Naturaliste. Additional DoT charts are available for Exmouth, Coral Bay, Shark Bay, the Abrolhos Islands and selected areas of the south coast. These charts are generally on a scale 1:25 000 with inserts of boat harbours and anchorages. DoT charts are downloadable as pdfs without charge at their website:

<http://www.transport.wa.gov.au/imarine/nautical-charts.asp>

6.3.1 Updating your charts

AUS charts

The AHO offers a free personalised service to anyone wishing to maintain their charts current to the latest Notice to Mariners. By registering online at www.hydro.gov.au/webapps/jsp/enotices/enoticesRegistrationForm.jsp and listing charts of interest, the Hydrographic Office will email you twice monthly corrections for your selected charts. Alternatively, AHO Notices to Mariners can be downloaded from their website at <http://www.hydro.gov.au/n2m/notices.htm>

DoT charts

The latest Notice to Mariners (NtM) information for DoT charts is available free, from <http://www.transport.wa.gov.au/imarine/nautical-charts.asp>

When a chart is reissued all previous notices are cancelled. Hard-copy WA charts purchased directly from the DoT will have attached a list of corrections applicable to the chart, dating from the time of publication. Charts purchased elsewhere will not necessarily have the supplementary information and it is important to download this information from the web page above.

6.4 Use of chartlets

Wherever possible the location and description of an anchorage in this guide is accompanied by a

chartlet. Each chapter also has an overview chartlet displaying the separate sections within the chapter.

The chartlets have been compiled from a variety of sources including AUS charts, DoT charts, Navionics, Google Earth, topographical maps and earlier editions of this publication.

Each chartlet is scaled. Distances taken from a chartlet should be regarded as approximate. Accurate measurement of distance cannot and must not be taken from a chartlet.

All chartlets in this guide are orientated with north to the top of the page. Many bearings have been provided from reports that have not stated their reference datum, so it has been assumed that bearings are relative to true north (unless stated otherwise), and are therefore approximate.

The anchorages and routes depicted on the chartlets are sourced from vessels that have navigated in those areas.

In several locations moorings are provided to minimise anchor damage to the sea bed. The number of moorings in any one location can vary from time to time. In an attempt to maintain visual clarity many chartlets have only one mooring depicted, although several moorings may be present. Daytime-only anchorages are shown by a half-anchor.

6.5 Text

6.5.1 Depths and Tides

The phrases “deep draft” and “shallow draft” are used throughout the text. These come from reports sent in over the years, so their meaning is not precise (unless specified). As a guide, we suggest “deep draft” means more than 2 m and “shallow draft” means less than 1.3 m.

It has not been possible to be consistent with the application of low water datum throughout the text. Where reports have been specific in regard to the tidal conditions, then LAT, LWN or LWS has been used. More often the tidal information has been non-specific. Where the text has reference to LW depth over a shallows it would be prudent to assume LWN, then correcting for tides that fall below this level.

For many anchorages described in this guide there is detailed tidal information under their sub heading “Tides”. This information refers to the closest tidal station to the anchorage and the maximum spring tide range predicted at the anchorage.

6.5.2 Latitude and Longitude positions

Latitude and longitude positions have been rounded to one decimal place of minutes (about 200 m). It has been considered that higher resolution information may be misleading (see Section 6.2). This sometimes results in the positions of two objects up to 200 m apart (e.g. moorings) being given the same coordinates. However, their separation should be evident when navigating at such close quarters. The alternative of quoting two or three decimal places encourages close-quarters waypoint navigation, a potentially dangerous practice in poorly charted areas.

6.5.3 Bearings

Many bearings have been provided from reports that have not stated their reference datum. It has been assumed that bearings are relative to true north (unless stated otherwise), and are therefore

approximate.

6.6 Western Australian hazards

Those who are new to sailing the coast of Western Australia may not have encountered the hazards set out below. It behoves the skipper and navigator to pay close attention to them when planning or making a passage, especially at night.

6.6.1 Cray pots

Cray pots (lobster pots) are prevalent along the western coast all year round from approximately North West Cape southward to Cape Leeuwin.

The pot lines float on the surface and can become entangled in the keel, rudder or propeller. Although the fishing is less intensive further offshore there is still the danger of lines getting caught. There is a greater risk of this occurring when under power and at night. Pots seem to be set all too frequently on the lead lines into anchorages such as at Lancelin, Geraldton and Jurien Bay. Professional crayfishers have advised that for coastal sailing, the best way to minimise craypot encounters is to “sail outside the five fathom bank in 24-26 m depth”. For passage making, they advise to stay outside the 100 m depth contour.

The problem may be reduced by several means, apart from vigilance. Cutters fixed to the propeller shaft cut the line before it has a chance to weld itself into a ball. The commercial fishermen frequently use them.

In yachts where the propeller is between the keel and rudder skeg a stainless-steel wire attached to the aft end of the bottom of the keel and the bottom of the rudder skeg will reduce the chances of a line getting up to the propeller and rudder. Another technique is to attach two horns made of 10 mm or 12 mm stainless rod forward of the propeller and pointing aft so as to deflect a line under the propeller.

No matter how well equipped, going overboard to free a line is a hazardous and difficult activity, especially at night. It is worth giving thought to avoiding the problem and to ensuring unremitting vigilance when on watch.

6.6.2 Pearl farms

Pearl farm leases are located mostly along the northern coast of Western Australia. Their locations are not always shown on charts. An area designated as a pearl lease should not be interpreted as meaning there is a pearl farm at that location. The farms are relocated from time to time; only the lease remains. The surface farms are either floating or fixed structures and must be avoided. The farms are usually marked by buoys or beacons, which may be lit. The anchor lines for the structures often extend at a very shallow angle just below the surface, for up to 120 m. In the Kimberley west of Cape Leveque many farms/leases are located on the seabed. The area is defined by marker buoys which are lit or are fitted with radar reflectors.

Pearl farm leases are non-exclusive and the grant of a pearl farm lease under the *Pearling Act 1990* does not generally preclude access or rights of transit through a farm site by other legitimate users, using caution and staying within agreed channels and navigational aids.

It is an offence under S20 of the *Pearling Act 1990* to interfere with any pearling structure including

radar buoys, marker lines, long lines etc. Pearlers have the right to expect long lines and other pearling gear and equipment to be left alone. As a condition of the farm lease, to maintain the right to the exclusive use of the passages between long lines, the pearlery have agreed to incorporate a navigable passage either through or around the pearl farm.

The following protocol is recommended to yachts intending to transit areas containing pearl leases:

Before moving into an area where pearl farms are known to exist, the yacht should endeavour to contact the pearl farm on VHF Ch 16 or other channels as nominated by the pearling company. The pearlery are likely to want to know name of vessel, size and draft. In turn they can supply information on preferred passage, hazards and local knowledge. Such an exchange can be helpful to both parties and hopefully reassure the pearlery about the integrity of their farm.

It is most important that skippers ensure that automatic bilge pumps and any other method of discharging waste are disabled whilst in the confines of a pearl farm lease or nearby waters where discharge is likely to flow with the tide into the pearl farm lease areas.

Pearl farm staff may be able to assist with providing fresh water but are seldom able to provide diesel fuel. Generally, yachts are not welcome and you should endeavour to be self-sufficient.

The Pearl Producers Association has been very helpful in contributing to this section of the guide.

6.6.3 Negotiating reefs

A great deal of the Western Australian coast is reef-strewn and can only be sailed safely under good conditions. Coral reef areas are particularly dangerous because reefs can rise vertically from depths of over 20 m to less than 2 m below sea-level.

Navigation is best done when the sun is high and behind the observer. It is of benefit for the viewer to be elevated - mast steps are invaluable. This, together with wearing polarised sunglasses, enables the best view into the water.

Overcast weather, windy weather and glassy calm weather all make moving about in coral areas hazardous because of the difficulty in seeing into the water. The extreme tidal range in the Kimberley results in murky water. In conditions of glassy calm water, bommies (small, isolated rocks) are sometimes detectable because of a faint ruffle on the surface above them. Usually the more brown in colour the bommies are, the shallower they are.

6.6.4 Whales

A general description of the whales likely to be encountered is given in section 9.10. Whilst these are magnificent beautiful creatures, they constitute a serious hazard to yachts. This section provides advice on how to avoid them. It has been prepared with advice from Dr Chandra Salgado Kent, Deputy Director of the Centre for Marine Science and Technology at Curtin University.

However, all errors and opinions belong to the editor. Numbered references are detailed at the end of this section.

What is the hazard?

The hazard is a whale colliding with a yacht, causing damage and possibly sinking. The whale is also likely to suffer severe injury if the yacht is large. There are many species of whale found off the Western Australian coast – pygmy blue, southern right, minke, sperm, beaked, etc. [1] - but the

most populous by far is the humpback whale. There are now over 350,000 humpbacks migrating up and down the WA coast, over twice as many as there were a decade ago. Numbers have been increasing at over 10% per year, with no signs of a levelling out [2], [3]. To put this in perspective, it is estimated that there are fewer than 2,500 containers floating on the ocean at any one time; so there are at least ten times as many humpback whales off our section of the Australian coast as there are containers floating in all the oceans of the entire world. [4]

Of the other whale species, the pygmy blue whale (WA population estimate 2,000 [2]) and southern right whales are most likely to be encountered by yachts along the WA coast.

Where is the hazard?

The following comments are strongly generalised, with many variations occurring from year to year and from place to place.

Humpback whales

Humpback whales migrate northward to the Kimberley for the winter and southward to the Antarctic for the summer. The migration takes several months, the start time varying from year to year by up to a month, depending on availability of food in the Antarctic [5] [6]. The northward migration starts with the whales passing the southwest of WA as early as April, with most humpbacks reaching their destination around the Kimberley region by the end of August. This is one of their main breeding grounds, although as the population has expanded, pregnant females are increasingly having their calves south of the Kimberley as they migrate north. Calves can be born as far south as Flinders Bay. The southward migration starts from the Kimberley in late August, arriving off Geographe Bay as early as August and peaking in September/October. However, cows with calves start and finish their southward migration about two months after the first migrators, departing the Kimberley region in September and arriving at Geographe Bay in November [5]. Peak migration time off North West Cape is August, with whales travelling in both directions [2].

On the northward migration, most whales travel between the 100 m and 400 m depth contours. On their migration south, their track shifts towards the coast, with a large proportion travelling inside the 200 m depth contour. Off the Kimberley coast the northward migration is mostly between the 50m depth contour and the 200 m contour, whereas the southward migration tends to follow the 50 m contour.

Large numbers will also be found in the shallower waters of Camden Sound, Pender Bay, Onslow, Exmouth Gulf, Shark Bay, Geographe Bay and off Flinders Bay and Albany, many of which are used as resting areas during their southward migration [5], [6].

Pygmy blue whales

Pygmy blue whales are thought to migrate from Southern Ocean foraging grounds to the Australian coast in February. Many travel west along the southern coast mostly in relatively deep waters, then around Cape Leeuwin and up through the Perth Canyon about 15 nm west of Rottnest. Here they may spend time foraging before continuing their northern migration towards Scott Reef and Indonesia. They tend to travel in water depths greater than 200 m [1]. The exception to this is when migrating back south, when they travel through the shallow waters of Geographe Bay between October and December, and can be seen as close as 50 m from the shore between Dunsborough and Cape Naturaliste.

Southern right whales

There are large concentrations of southern right whales along the south coast, with increasing numbers found in Geographe Bay. For 1-2 months around July and August they can be found close to the coast, lying almost stationary near the surface with their calves.

How can the hazard be reduced?

A number of strategies are examined below.

Plan your voyage outside the migration times.

This means keeping out of the Kimberley and Pilbara at peak times of migration between July and September, which is unfortunately the ideal sailing season from a weather perspective. A passage north from the Perth region in May, returning by late August would appear to be a good compromise between weather and whale hazards. Avoid passing North West Cape in August, as this is the peak migration time.

Passages along the Perth and Geographe Bay shores pose a similar dilemma – July to September minimizes the whale hazard but this is the period of winter storms. Avoid transiting Geographe Bay in September and October, as this is the peak time for humpback whales.

Passage planning along the south coast is in some ways much simpler. The peak time for southern right whales is around July and August, which coincides with the worst weather for this coast.

Sail with the flow, not against it.

Humpback whales tend to travel at about 2 kn [5], therefore travelling with the migratory flow will reduce the number of encounters. The relative speed on impact may also be less, though damage is still likely to be severe. This strategy requires a yacht to travel northwards in the period June – July and southward in the period September - October.

Southern right whales move very slowly, so direction of travel does not influence the hazard along the south coast.

Slow down

Slowing down reduces the amount of damage in the event of a collision. If you are travelling with the migratory flow it also reduces the number of encounters (for example, if all the whales travelled at the same speed, and you travelled at that speed in the same direction as them, you would never encounter a whale.) On the other hand, if you are travelling against the flow, slowing down increase the number of encounters.

Sail outside the 200 m depth contour.

This strategy will reduce the number of encounters, but it is practical only for longer passages of a few days.

Sail inside the 20 m contour

This is probably not a very good strategy. The advantage is that sailing in shallow waters will reduce the number of encounters in many places, though not nearly as much as for the deep water option. However, the strategy will not work in the many shallow water resting areas (Geographe Bay, Shark Bay etc.). The big disadvantage is the rather obvious one of having to dodge reefs and shallows whilst sailing very close to a predominantly lee shore.

Use the engine

If the engine is running the yacht will be more audible to a whale, helping them avoid a collision. A rapidly increasing noise level e.g. starting the engine or revving it, has more effect than a steady noise level [7]. Use of the engine creates the significant extra hazard of snagging a cray pot round the prop in the region from North West Cape to Cape Leeuwin.

Keep a lookout.

Whilst keeping a good visual lookout is clearly a no-brainer in daylight, at night-time it is ineffective. Thermal imaging cameras have been used successfully to detect surfacing whales. The cost of this technology is rapidly decreasing, and it may also be useful for detecting other hazards such as cray pots and floating containers [8]. The practical difficulty on short-handed yachts is the need to simultaneously keep a visual lookout whilst frequently looking through the camera (a similar problem to watching a radar screen).

References

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I. Groc, "What whales do at night," *Scientific American*, 24 February 2016. [Online]. Available: <https://www.scientificamerican.com/article/what-whales-do-at-night/>. [Accessed 12 December 2016].

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7 EMERGENCY SERVICES

The skipper of a vessel who is contemplating an extended voyage should consider the following safety matters:

- It is a legislative requirement in Western Australia that vessels venturing more than 2 nm offshore have to carry a registered EPIRB on board the vessel.
- An HF radio and/or satellite telephone is recommended for vessels venturing into remote areas both to the south and north of the state, where there is limited communications capability (see section 8).
- Arrange for a friend or relative to be the contact person for the duration of the voyage. Give this person a copy of an itinerary of the trip with a schedule of anticipated contact dates. Include a timeframe when you should be reported overdue to police if you fail to contact by the due date.
- As a further safety precaution, position reports can be submitted via the local Volunteer Marine Rescue Groups as you progress along the coastline. This is one of the first avenues of inquiry conducted by police when a vessel is reported overdue, as it can help to minimize the size of a potential search area.
- For those seeking daily search and rescue coverage during their voyage, AMSA in Canberra provides the search and rescue system MASTREP (Modernised Australian Ship Tracking & Reporting) for large commercial ships which is also available to recreational vessels if equipped with an AIS transmitter and a GMDSS element such as HF DSC or INMARSAT C. Read more at <https://www.amsa.gov.au/forms-and-publications/Publications/Mastrep.pdf>

7.1 Rescue Coordination Centre - Australia

Australia's search and rescue response arrangements are led by the Australian Maritime Safety Authority (AMSA) Rescue Coordination Centre - Australia (RCC Australia). RCC Australia operates 24 hours a day from AMSA's Head Office in Canberra as a component of AMSA's Emergency Response Centre (ERC), and is responsible for the national coordination of both maritime and aviation search and rescue. RCC Australia is also responsible for the management and operation of the Australian ground segment of the Cospas-Sarsat distress beacon detection system. As part of its role, RCC Australia coordinates medical evacuations, broadcasts maritime safety information, operates the MASTREP reporting system and runs the national search and rescue training school.

Upon receiving a distress beacon signal or being notified of a missing civil aircraft or seagoing vessel, RCC Australia will take action to establish the safety of the aircraft, vessel, vehicle, or person at the source of the signal. This action may include:

- coordinating a search and rescue operation with assistance from organisations as appropriate, such as the defence forces, trained aviation organisations, emergency medical helicopters, state police services, state emergency services, the Australian Communications and Media Authority (ACMA), airlines, the general aviation industry, volunteer marine rescue groups, the Bureau of Meteorology, the shipping industry and fishing cooperatives;

- providing assistance to other search and rescue organisations; and
- passing coordination to the appropriate state or territory police organisation to conduct search and rescue operations within their jurisdiction.

Contact:

Rescue Coordination Centre – Australia:

Australian Maritime Safety Authority

GPO Box 2181

Canberra ACT 2601

Ph: 1800 641 792

(02) 6230 6811

Email: rccaus@amsa.gov.au

MMSI: RCC Australia/VIC 005030001

<https://www.amsa.gov.au/search-and-rescue>

7.2 WA Water Police

The Western Australia Water Police is located in North Fremantle, Mandurah and Dampier and is responsible for policing Western Australia's 7,000 miles of coastline.

Western Australia Police is the Hazard Management Authority for Sea Search and Rescue for Western Australia. In the metropolitan area, Water Police is responsible for fulfilling this role and also provides coordination for more complex search and rescue operations in regional police districts.

Coordination for search and rescue operations takes place at the Water Police Coordination Centre (WPCC) in North Fremantle. The WPCC is staffed 24 hours a day by civilian radio/call takers and police officers who are nationally trained Search and Rescue Mission Controllers. Specialised computer software assists in the establishment of search areas.

Volunteer marine rescue groups (see 7.4) are heavily relied upon and are usually the first resource to be deployed for search and rescues. Other government agencies, commercial vessels and aircraft are also called upon to assist.

The Water Police Coordination Centre operates Coast Radio Perth and Coast Radio Hedland and is responsible for scheduled weather and marine safety information broadcasts. The Water Police Coordination Centre monitors the following HF and VHF marine frequency channels:

VHF: Ch 16 and 67.

HF: 6215, 4125, 8291 and 8176 kHz. Navigation warnings are broadcast daily at 1257 (Port Hedland), 1457 (Perth), 1657 (Port Hedland) and 1857 (Perth), all WST. The initial call is made on 8291 kHz and then transfers to 8176 kHz to relay the information.

Contact:

Water Police Branch

Harvest Road

North Fremantle

Ph: (08) 9442 8600

phone for marine emergencies: 131 4444

<https://www.police.wa.gov.au/About-Us/Our-agency/Specialist-Units/Water-Police>

7.3 Department of Fire and Emergency Services WA

DFES (formerly known as FESA) performs a critical role coordinating emergency services at the State level. The Volunteer Marine Rescue (VMR) groups sit under the umbrella of DFES. The efforts of DFES are not usually visible to boaters, but they are an important link in the coordination of rescue efforts.

7.4 Volunteer Marine Rescue WA

<http://www.vmrwa.org.au/>



VMR groups of Western Australia

Volunteer marine rescue stations (VMRs) cover a great deal of the inhabited coast and apart from their search and rescue roles they can be helpful with information about approaching an anchorage. They also broadcast local waters forecasts daily and on request.

VHF repeaters

Many VMRs use VHF repeaters to extend their coverage. Most of the Repeaters have a nominal range of 50 nm except for Abrolhos, Rat Island (30 nm). All but Steep Point are monitored 24/7 by the nominated VMR Coast Station.

Repeater frequencies should be used for initial contact with VMRs when transiting and on arrival. To test if you are in range of a repeater; tune to a repeater channel (21, 22, 80, 81 or 82), key the mike then release the key. If you receive a short 1 second burst of noise (the tail) you should be able to contact the VMR monitoring that frequency.

A list of the volunteer marine rescue groups, with operating times and frequencies, is given below in sequence from north to south.

| Station | Frequencies | Radio Hours | Contact |
|---|--|--|---|
| East Kimberley Marine Rescue VMR 699 | 16, 80, 81 No HF | 10 hrs/day, 7 Days, all year | (08) 9161 1747 |
| Wyndham Repeaters | Lacrosse Island 81 Bastion 80 | | |
| Derby Sea Rescue VMR 694 | 16, 81 2182, 4125 | 12 hrs/day 7days/week throughout the year | 0419 959 376 |
| Derby Repeater | Koolan Island 81 | | |
| Broome Sea Rescue VMR 650 | 16, 22 4125 | Provide Listening Watch 24 Hrs/ all year | 0438 937 038 enquiries@broomesearcue.org.au |
| Broome repeater | Water Bank Tower 22 | | |
| Port Hedland Sea Rescue VMR 691 | 16 No HF | | (08) 9173 3055 vmrsporthedland@westnet.com.au |
| Port Walcott Sea Rescue VMR 689 | 16, 81 No HF | Min. 10 hrs/day weekend & public hols only, during peak boating season. | 0439 870 995 pwvmr@westnet.com.au |
| Pt Walcott Repeater | 5KP (Robe) Tower 81 | | |
| West Pilbara Sea Rescue VMR 685 | 16, 73 No HF | 10 hrs/day, 7 Days, all year | 0437 978 774 secretary@westpilbarasearescue.org.au |
| Onslow Vol. Marine Rescue VMR 683 | 16 No HF | | 0429 688 714 onslowvmr@bigpond.com |
| Exmouth Sea Rescue VMR 682 | 16, 21, 22 Yes (freqs?) | Min 10 hrs/day weekends & public hols only. 24hrs all year VHF Radio only. | 048 183 416 evmrgrescue@bigpond.com |
| Exmouth VHF Repeaters | Charles Knife Canyon 21 Harold E Holt Naval Base 22 | | |
| Coral Bay Sea Rescue VMR 679 | 16, 80, 82 4125 | Coral Bay Adventures 0800 - 1700 | 0429 425 874 MahiMahi1@bigpond.com.au |
| Coral Bay repeaters | Warroora 80 | | |

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|--|---|--|--|
| | Ningaloo Station 82 | | |
| Carnarvon Sea Rescue VMR 676 | 16, 73, 81 4125 | 10 hrs/day, 7 Days, all year | (08) 9941 3613 carnarvonvsr@westnet.co m.au |
| Shark Bay Vol. Marine Rescue VMR 675 | 16 No HF | 24 hrs/day throughout the year | 0429 481 446 vmrsharbay@westnet.co m.au |
| ACRM ("Acrim") base Denham | 16, 80 No HF | April-August | (08) 9948 1737 wendesmith1@bigpond.co m |
| Kalbarri Sea Rescue VMR 673 | 16, 80 4125 | 10 hrs/day, 7 Days, all year | 0428 265 500 vmr673@westnet.com.au |
| Geraldton Vol. Marine Rescue VMR 670 | 16, 72, 81, 82 (call up on 82) 4125 | 24 hrs/day all year (HF daytime w/e only) | 0427 643 543 gvmrg@node1.com.au |
| Geraldton Repeaters | Rat Island 81 Moresby Ranges 82 | | |
| Port Denison Sea Rescue VMR 667 | 16, 73 2182, 4125 | 10 hrs/day, 7 Days, all year | 0419 936 313 denisonwaterfront@westn et.com.au |
| Leeman Sea Rescue VMR 664 | 16, 73 4125 | | (08) 9953 1164 leemanvmr@westnet.com .au |
| Jurien Bay Sea Rescue VMR661 | 16, 21 4125 | 24 hrs/day all year | 9652 1950 jbvsrg@wn.com.au |
| Jurien Repeater | Mt Lesueur 21 | | |
| Lancelin Sea Rescue VMR688 | 16, 22 4125 | | (08) 9655 1289 lancelinvmrs@bigpond.co m |
| Lancelin repeater | Nilgen 22 | | |
| Two Rocks Sea Rescue VMR 677 | 16, 73 No HF | 10 hrs/day, 7 Days, all year | (08) 9561 5777 info@trvsrg.com.au |
| Whitfords Sea Rescue VJ6LQ | 16, 73 4125 | 24 hrs/day all year | (08) 9401 3757 |
| Fremantle Sea Rescue | 16, 73, 81, 82 | 24 hrs | (08) 9335 1332 |

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|--|-------------------------|--|--|
| VN6DI | | | fremantle@searescue.com.au |
| Fremantle repeater | Rottnest Island 81 | | |
| Cockburn Sea Rescue VH6CL | 16, 73, 82 No | 24hrs | (08) 9410 1544 cvssr@cockburnsearescue.org.au |
| Rockingham Sea Rescue VN6KC | 16, 73, 81, 82 4125 | >12 hrs/day, 7 Days, all year | (08) 9527 9988 enquiries@rockinghamsearescue.org.au |
| Mandurah Vol. Marine Rescue VMR 611 | 16, 73, 82 4125 | Min. 10 hrs/day. Weekends/Public Holidays only, during peak boating season. | 0409 081 801 manrescue@westnet.com.au |
| Mandurah Repeater | Turner Hill 82 | | |
| ACRM "Acrim" Base (Capel) VH6FKC | 16, 80 HF on request | 0600-2230 (24 hrs for mayday & pan pan only) | (08) 9727 2451 |
| Bunbury Sea Rescue VMR 634 | 16 4125 | Monitored by ACRM 24/7 | 0438 937 038 bunburysearescue@westnet.com.au |
| Busselton Sea Rescue VMR 640 | 16, 74, 22 80 No HF | Min 10 hrs/day weekends & public hols only. 24hrs all year via ACRM 24/7. | 0407 755 715 busselton@busseltonsearescue.org.au |
| Dunsborough repeater | Mount Duckworth 22 | | |
| Naturaliste Sea Rescue VMR 631 | 16, 74, 80 4125 | | (08) 9756 8262 vmrnat@westnet.com.au |
| Cape Naturaliste repeater | Radar Hill 80 | | |
| Margaret River Sea Rescue VMR 628 | 16, 72, 80 No HF | 10 hrs/day, 7 Days, all year | 0428 387 286 |
| Augusta Sea Rescue VMR 625 | 16, 82 No HF | 10 hrs/day, 7 Days, all year | 0408 907 966 aovms@westnet.com.au |
| Augusta Repeater | Hillview Golf Course 82 | | |
| Windy Harbour Sea Rescue VMR 620 | 16, 81 2182, 4125 | | (08) 9840 1527 trelesa@bigpond.com |

| | | | |
|---|----------------------------------|---|--|
| Windy Harbour Repeater | Cathedral Rk 81 | | |
| Walpole Sea Rescue VMR 619 | 16, 21 No HF | 10 hrs/day, 7 Days, all year | (08) 9840 1527 wsrg@westnet.com.au |
| Walpole Repeater | Youngs Hill 21 | | |
| Peaceful Bay Sea Rescue VMR 616 | 16, 77, 22 4125 | Min 10 hrs/day weekends & public hols only. 24hrs all year Base Radio only. | (08) 9840 8108 pbsrg616@bigpond.com |
| Peaceful Bay Repeater | Mt Shadforth 22 | | |
| Denmark Sea Rescue VMR 613 | 16, 77, 22 No HF | 10 hrs/day, 7 Days, all year | (08) 9848 3899 dsrg_vmr613@westnet.co m.au |
| Albany Sea Rescue VMR 610 | 16, 81, 82 4125 | 0800-1700 weekends & public hols. 24 hr/day listening watch all year. | 0427 923 557 rescue@albanyvmr.org.a u |
| Albany Repeaters | Mt Clarence 82 Green Range 81 | Min. 10 hrs/day. w/e and public hols only, during peak boating season. | |
| Bremer Bay Sea Rescue VMR 607 | 16, 80 No VHF | | 0429 374 171 volunteermarine@bermer baycrc.com |
| Bremer Bay V Repeater | Bremer Bay 80 | 10 hrs/day, 7 Days, all year | |
| Hopetoun Sea Rescue VMR 604 | 16, 21 No HF | | 0428 383 302 hopetounvmr@bigpond.c om |
| Hopetoun Repeater | Hopetoun 21 | 24 hrs/day throughout the year | |
| Esperance Sea Rescue VMR 601 | 16, 21, 22 2182, 4125 | | 0419 869 655 esperancevmr@bigpond. com |
| Esperance Repeater | Howick Hill 21 6 Mile Hill 22 | | |
| Christmas Island Vol. Marine Rescue VMR 686 | 16, 74, 80, 81, 82 No HF | | (08) 9164 7000 |

| | | | |
|--|---------------------|--|-------------------------------------|
| Christmas Island repeaters | 80, 81, 82 | | |
| Cocos Island Vol. Marine Rescue VMR 678 | 16, 20, 28 No HF | | 0428 425 874 sitazia@hotmail.com |
| Cocos (Keeling) Island repeaters | 20, 28 | | |

Notes

- - If calling a sea rescue group in the Perth Metro area it is customary to call on the working channel VHF 73 and by-pass calling Ch 16.
 - Bunbury, Busselton and Dunsborough sea rescue groups do not maintain a radio listening watch. If these stations are called it will be ACRM Base that will respond.
 - ACRM have advised their best geographical coverage is on VHF Ch 80, with the repeater located on Cape Naturaliste.
 - ACRM encourage logging on and off by text on 0466 724 233, particularly out of hours.
 - All groups also work 27 MHz Ch 88 Emergency.

7.5 Hospitals and nursing posts

7.5.1 Hospitals

In alphabetical order:

| Location/name | address | phone |
|---------------------------------------|--|----------------|
| Albany Hospital | Warden Avenue, Albany WA 6330 | (08) 9892 2222 |
| Augusta Hospital | Donovan Street, Augusta WA 6290 | (08) 9758 3222 |
| Broome Health Campus | Robinson Street, Broome WA 6725 | (08) 9194 2222 |
| Bunbury Hospital | Bussell Highway (cnr Robertson Drive), Bunbury WA 6230 | (08) 9722 1000 |
| Busselton Hospital | Mill Road, Busselton WA 6280 | (08) 9753 6000 |
| Carnarvon Multi Purpose Service | Cleaver Street, Carnarvon WA 6701 | (08) 9941 0555 |
| Christmas Island Health Centre | Christmas Island, Indian Ocean WA 6798 | (08) 9164 8333 |
| Cocos (Keeling) Islands Health Centre | Home Island, Cocos (Keeling) Islands, Indian Ocean WA 6799 | (08) 9162 7609 |
| Dampier - Nickol Bay Hospital | Dampier Road, Karratha WA 6714 | (08) 9143 2333 |
| Denmark Hospital | 50 Scotsdale Road, Denmark WA 6333 | (08) 9848 0600 |
| Derby Hospital | Clarendon Street, Derby WA 6728 | (08) 9193 3333 |
| Dongara Eneabba | 48 Blenheim Road, | (08) 9927 0200 |

| | | |
|-------------------------------|---|----------------|
| Mingenew Health Service | Dongara WA 6525 | |
| Esperance Hospital | Hicks Street, Esperance WA 6450 | (08) 9071 0888 |
| Exmouth Multipurpose Service | Lyons Street, Exmouth WA 6707 | (08) 9949 3666 |
| Geraldton Hospital | Shenton Street, Geraldton WA 6530 | (08) 9956 2222 |
| Hedland Health Campus | Colebatch Way, South Hedland WA 6722 | (08) 9174 1000 |
| Kalbarri Health Centre | Kaiber Street, Kalbarri WA 6536 | (08) 9937 0100 |
| Mandurah - Peel Health Campus | 110 Lakes Road, Mandurah WA 6210 | (08) 9531 8000 |
| Margaret River Hospital | Farrelly Street, Margaret River WA 6285 | (08) 9757 0400 |
| Nickol Bay Hospital | Dampier Road, Karratha WA 6714 | (08) 9143 2333 |
| Onslow Hospital | Second Avenue, Onslow WA 6710 | (08) 9184 3200 |
| Peel Health Campus | 110 Lakes Road, Mandurah WA 6210 | (08) 9531 8000 |
| <i>Perth Metro: *</i> | | |
| 1. Joondalup Health Campus | Cnr Grand Boulevard and Shenton Avenue, Joondalup WA 6027 | (08) 9400 9400 |

| | | |
|---|--|--|
| 2. Rockingham General Hospital | Elanora Drive, Coo loongup WA 6168 | (08) 9599 4000 |
| 3. Sir Charles Gairdner Hospital | Hospital Avenue, Nedlands WA 6009 | (08) 9346 3333 |
| 4. Fiona Stanley Hospital | 102-118 Murdoch Drive, Murdoch WA 6150 | (08) 6152 2222 |
| 5. Princess Margaret Hospital for Children | 1 Roberts Road, Subiaco WA 6008 | (08) 9340 8222 due to close June 2018 |
| 6. Perth Children's Hospital | Winthrop Avenue, Nedlands WA 6009 | due to open June 2018 |
| Point Samson - Wickham Health Centre | Mulga Way, Wickham WA 6720 | (08) 9187 1015 |
| Port Denison -Dongara Eneabba Mingenew Health Service | 48 Blenheim Road, Dongara WA 6525 | (08) 9927 0200 |
| Port Hedland - Hedland Health Campus | Colebatch Way, South Hedland WA 6722 | (08) 9174 1000 |
| Wickham Health Centre | Mulga Way, Wickham WA 6720 | (08) 9187 1015 |
| Wyndham Hospital | Minderoo Road, Wyndham WA 6740 | (08) 9161 0222 |

* Note that Fremantle Hospital no longer has an Emergency Department. The nearest Emergency Department for Fremantle is Fiona Stanley Hospital at Murdoch, 10 km east of Fremantle.

7.5.2 Nursing Posts

Dept of Health WA

Bremer Bay Health Centre, 29 John Street, Bremer Bay WA 6338 Ph: (08) 837 4026

Kalbarri Health Centre, Kaiber Street, Kalbarri WA 6536 Ph: (08) 9937 0100

Rottnest Island Nursing Post, Rottnest WA 6161 Ph: (08) 9292 5030

Silver Chain:

Abrolhos Island (approx March–30 June only). Ph: 0427 422 665

Eucla. Ph: (08) 9039 3471

Leeman. Ph: (08) 9953 0100

Lancelin. Ph: (08) 0427 387 253

Shark Bay (Denham). Ph: (08) 9948 1400

Walpole. Ph: (08) 9840 0900

8 COMMUNICATIONS

There are several methods of communicating from on board. Which system is chosen will depend upon distance from shore and on-board equipment:

- VHF transmission over a distance probably not greater than 20 nm between vessels, or to land-based volunteer marine rescue organisations, harbour authorities or the Water Police;
- HF transmission over long distances between vessels, or to a shore station such as the WA Water Police;
- mobile phone to any other phone. Coverage is generally up to 20 miles offshore, with some parts of the northwest and south coasts not having coverage;
- Satellite data devices for email, SMS and phone to anywhere in the world.

The most frequently used system when communication is required ship to ship is VHF.

Email communications can be made by HF radio (with a modem), Inmarsat, mobile phone, satphone, Iridium Go! and Inmarsat.

8.1 VHF

VHF range is line of sight so it is strongly dependent on the height of the aerial. Range between yachts is typically 20 nm, shore stations can sometimes be reached 30 nm away, and the marine rescue group repeaters (see 7.4) have a nominal range of 50 nm. VHF coverage from volunteer marine rescue groups is almost continuous from Kalbarri (half way up the west coast) to Albany on the south coast, but there are significant gaps elsewhere.

A VHF radio set does not require a licence but it can only be used by a licensed operator, or under the supervision of a licensed operator. The operator /supervisor must hold as a minimum, either a Short Range Operator Certificate of Proficiency (SROCP) or a Marine Radio Operator VHF Certificate of Proficiency (MROVCP).

8.2 HF

HF range is frequency-dependent but covers the entire WA coast and across the Indian Ocean. HF channels are simplex (send and receive use the same transmission frequency).

An HF radio set must have a maritime ship licence and a call sign, and the operator must also have an operating licence - either a Long Range Operator Certificate of Proficiency (LROCP) or a Marine Radio Operator Certificate of Proficiency (MROCP). Note that a fully licensed ham radio operator (a much higher qualification than LROCP or MROCP) can use the full range of permitted 'ham' and marine frequencies.

8.2.1 HF shore stations

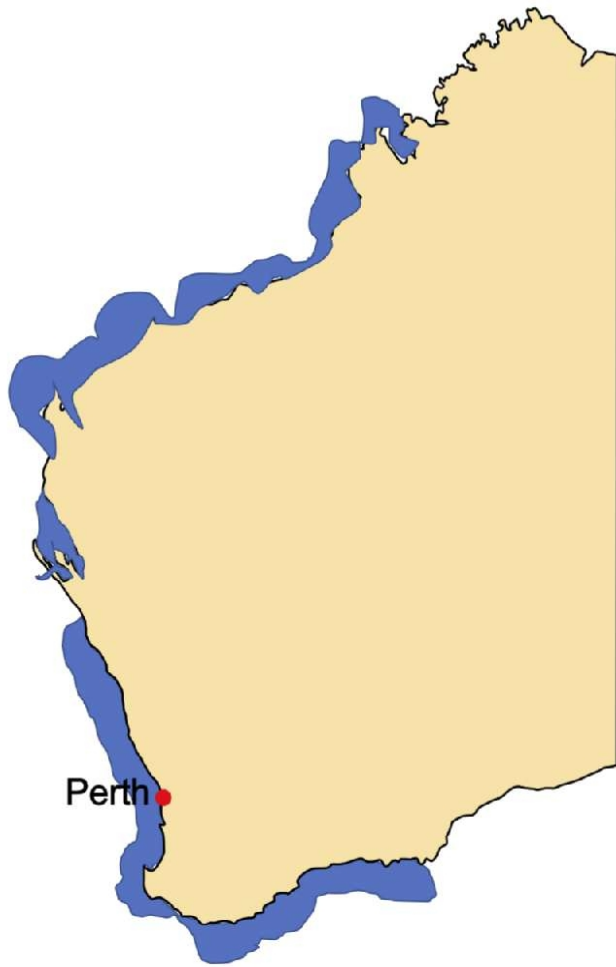
Coast Radio Perth (CRP) and Coast Radio Hedland (CRH) are voice-monitored all the time by the Water Police Co-Ordination Centre (WPCC) in North Fremantle. They monitor the distress and calling frequencies of 4125 kHz, 6215 kHz and 8291 kHz 24 hours, 7 days a week.

Ph: Water Police Coordination Centre (08) 9442 8600

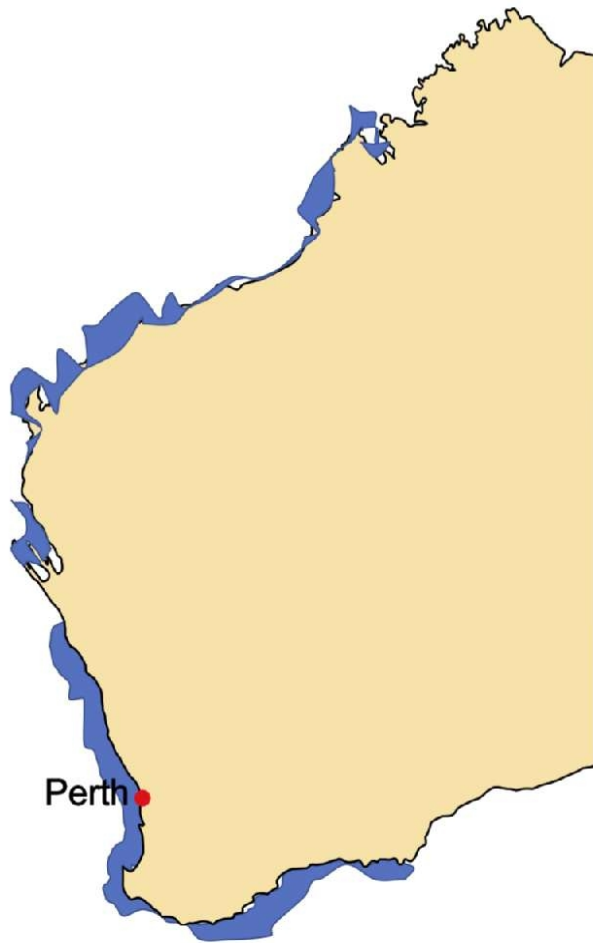
Some volunteer marine rescue groups also monitor HF frequencies, see 7.4.

8.3 Mobile phone/internet

Mobile phone coverage is improving steadily and is now available for about half the WA coast for typically 15 - 20 miles offshore. Range is nearly doubled if an external aerial is fitted on the stern rail - possibly even further if located high up the mast. Power boosters are sometimes used to further increase range, though the legality of some of these devices has been questioned. SMS-only coverage is generally better than voice or data. Internet connection has been obtained at anchorages up to 40 nm offshore using a portable WiFi hotspot router (e.g. MiFi) placed in a pouch and hoisted to the top of the mast. The service provider offering the best coastal coverage is Telstra, which tends to outweigh any of its disadvantages for use on board. Telstra refused to give permission to print their coverage maps in this guide, so the diagrams below are only approximations of their maps. You can access their current coverage maps on the internet at <https://www.telstra.com.au/coverage-networks/our-coverage> - but only if you are in range!



Telstra 3G mobile coverage with external antenna



Telstra 3G mobile coverage - device antenna only

8.4 Sat phone

Satellite phones cover the entire area of this guide and beyond. They are now compact, reliable and relatively inexpensive to buy. Call costs are still high compared with land lines and mobiles, but can be kept reasonable if used thoughtfully.

8.5 Iridium Go!

This is a global satellite data device which can be used for phone, SMS, email and even (limited) web browsing. It is therefore becoming very popular.

<https://www.iridium.com/products/details/iridiumgo>

8.6 Inmarsat-C

Other satcom services such as Inmarsat-C can be used to transmit and receive data packets containing information e.g. emails, SMS, navigation alerts and distress signals.

<http://www.inmarsat.com/services/safety/inmarsat-c/>

8.7 EPIRB

It is a legal requirement in WA for all vessels to carry a registered 406 kHz beacon when you go more than 2 nm offshore from the mainland and 400 m from any island. (The EPIRB exempt area in the Perth metropolitan area was removed on 1 January 2014.) You can register your EPIRB online at www.beacons.amsa.gov.au

8.8 AIS

AIS is part of the global maritime safety system. All ships over 300 tons (gross tonnage) must carry an AIS system, which broadcasts information about the ship to any suitably equipped receiver within VHF range. The AIS uses VHF channels 87 and 88 to transmit short bursts of data giving the ship's identity, position, course and speed plus ship type, e.g. 'Tanker', and even its dimensions and destination port. These bursts of data do not affect voice communications on those channels but can sometimes be heard as random "clicks" on a standard VHF transceiver.

AIS receivers suitable for small boats are readily available and can be integrated into chart plotters, showing the positions and courses of all AIS equipped ships within VHF range. AIS is better than radar for collision avoidance in many ways, but it is not a replacement for radar because it cannot "see" a ship which is not transmitting for some reason. Examples of vessels which might not be transmitting AIS are warships, crayboats, small and medium-sized trawlers, and recreational vessels (power or sail). This list represents a large proportion of the the vessels travelling around the Western Australian coastline, so AIS is clearly no substitute for a proper visual lookout.

It is possible to receive and display AIS positions on a laptop computer. It requires suitable software and a small modification to an otherwise standard VHF receiver. For more information see <http://www.coaa.co.uk/shipplotter.htm>

9 MARINE ANIMALS AND FISHING

The medical aspects of this chapter have been sourced from the Commonwealth Government HealthDirect website <http://www.healthdirect.gov.au/sea-creature-stings> and Therapeutic Guidelines: toxicology and wilderness. Version 2, June 2012 ISBN 978-0-9808253-2-9 .

Once you have finished reading this section you will realise why it is important to complete a First Aid course.

9.1 Sea snakes and land snakes

There are more than 50 species of venomous sea snakes (family *Hydrophiidae*). Sea snakes are rarely aggressive and are slow to strike, but some possess potentially lethal venom, and may cause paralysis. Sea snakes eat fish and sometimes bask on the surface in large groups. Some lay eggs on land, but others bear their young alive at sea. Most are about 1-1.2 m long, but may grow to 2.5 m. They are mainly found in northern waters of Western Australia.

Some land snakes can be extremely aggressive and their venom equally dangerous. Note that some land snakes can swim.

Symptoms

Usually muscle pain, which develops within hours of the bite and can become severe. Also nausea, vomiting and malaise.

Treatment

First aid includes washing the wound and compression bandage.

Systemic envenomation requires evacuation to hospital and antivenin.

9.2 Blue-ringed octopus

The blue-ringed octopus occurs along most of the Western Australian coast and is highly poisonous. Several species of blue-ringed octopi occur around Australia, but bites are very rare. They only occur when the octopus is disturbed or handled. Shell collectors sometimes pick one up when it is hiding inside a shell.

Symptoms

The bite is often painless, followed by numbness and tingling. Generalised paralysis may follow.

Treatment

Apply a pressure immobilisation bandage and keep the person calm. The important point here is to maintain ventilation by mouth-to-mouth resuscitation until professional help arrives. Paralysis may last hours or days; the victim will require evacuation to hospital.

9.3 Stonefish, bullrout or cat fish

Stonefish (*Synanceja*) are found around the top two-thirds of the Western Australian coast. They inhabit shallow waters and are sluggish, bottom-dwelling fish. They live among rocks, coral, in mud flats and estuaries. They rest on the bottom, blending almost exactly with their surroundings.

Difficult to see, when stepped on they can inject venom through their dorsal-fin spines.

Symptoms

Immediate severe (sometimes unbearable) pain that lasts for up to an hour, though with minimal other effects.

Treatment

Any pieces of spine should be removed. For pain relief immerse the affected area in water as hot as the patient can tolerate (45°C) until resolution of pain, or for at least 90 minutes. The temperature must be tested with an unaffected limb first. Painkillers can also be used to treat the pain.

9.4 Cone shells

Some cone shells (*Conus*) can inject a paralysing toxin by means of a dart; a few of the larger species have a fatal sting.

Symptoms

Paralysis

Treatment

Remove any foreign matter from the wound. Clean the wound. Apply a pressure immobilisation bandage and keep the person calm and as still as possible. Provide emergency care including cardiopulmonary resuscitation (CPR) if needed.

9.5 Jellyfish

Jellyfish stings can cause symptoms ranging from transient local discomfort to life-threatening cardiovascular collapse. There is much confusing information about the first aid for jellyfish stings, and numerous remedies are suggested with little evidence.

In all cases the sting site can be washed with sea water (not fresh water) and the tentacles removed; use tweezers or tongs, NOT bare fingers or hands. Hot water immersion has been shown to reduce the pain for bluebottle stings. Hot water may reduce the pain in other jellyfish stings, but this has not been tested. DO NOT rub sand or pour soft drink over any jellyfish sting, or urinate on the stung area.

Use of vinegar

For major box jellyfish stings (mainly *Chironex fleckeri*) vinegar should be applied liberally as soon as available. The benefit of vinegar for other types of jellyfish stings is unclear and may increase local pain. However, if you are in tropical waters and you can't clearly identify the cause of the jellyfish sting, then treat the sting with vinegar in case it is a major box jellyfish, and seek medical assistance just to be safe.

9.5.1 Major box jellyfish stings (*Chironex Fleckeri*)

The major box jellyfish is the most dangerous jellyfish in Australia and is found along the north coast of WA as far south as Geraldton, usually from November to March.

Symptoms

Severe local pain. In rare cases severe envenoming may occur with a metre or more of tentacle, leading to cardiovascular collapse; death may occur within 30 minutes.

Treatment:

- Keep the person calm.
- May need immediate cardiopulmonary resuscitation (CPR).
- Wash with sea water (NOT fresh) and remove tentacles and stings; use tweezers or tongs, NOT bare fingers or hands.
- Pour vinegar over the tentacles on the person's skin to deactivate the sting. Never substitute vinegar with methylated spirits or alcohol because they will make the sting worse.
- Strong analgesia, including morphine, may be required.
- Nearly all cases should be evacuated to a major hospital.

9.5.2 Irukandji syndrome

Caused by the stings of the jellyfish *Carukia barnesi*. It is found mainly in the northern areas of Australia.

Symptoms

Delayed severe generalised pain, which usually takes 6 to 12 hours to resolve. Nausea and vomiting, anxiety and agitation. There may be cardiac symptoms involved.

Treatment

- Manage the pain, which may require morphine.
- Probably requires evacuation to advanced medical care.

9.5.3 Blue Bottles (Portuguese Man-of-War)

Although they are most common in the northwest during the wet season (typically November – April), they can be present at other times. In one reported case, part of a tentacle was sucked up through a deck wash pump to hose down the hot crew. The vast majority are successfully treated with first aid on beaches and only rarely require hospital treatment.

Symptoms

Severe local pain, red rash, nausea, vomiting and myalgia (muscle aches) in severe cases.

Treatment

- Wash with salt water (NOT fresh).
- Remove any tentacles; use tweezers or tongs, NOT bare fingers or hands.
- Immerse in hot water (45°C) for 20 minutes - the temperature must be tested with an unaffected limb first. If you cannot access hot water, apply an ice pack or cold water to the affected area. Vinegar is no longer recommended.
- Seek medical attention if the person develops further symptoms such as abdominal pain, nausea and vomiting, or if there is continuing pain, itchiness or blistering at the site.

9.5.4 Minor jellyfish stings (stingers)

Usually found south of Geraldton i.e. non-tropical waters.

Symptoms

Pain and redness.

Treatment

- Wash any remaining tentacles off the skin with seawater or pick them off the skin; use tweezers or tongs, NOT bare fingers or hands.
- Apply a cold pack to the affected area for about 10 minutes or until the pain is relieved.
- Seek further medical attention if the person's condition gets worse.

9.6 Mosquitoes

Mosquito-borne diseases can cause severe illnesses such as Ross River virus. Avoid being outside for 1-3 hours after sunset and around dawn. Dress in loose, long clothing. Apply insect repellent on exposed areas of skin every four hours.

9.7 Crocodiles

Estuarine (salt water) crocodiles (*Crocodylus porosus*) are found in the Kimberley and to a lesser extent along the Pilbara coast. They inhabit tidal rivers, the coast between rivers, around some offshore islands, and lagoons on flood plains north of Broome. The protection of these creatures has resulted in sightings becoming increasingly common, including areas as far west as Onslow (115°E). Estuarine crocodiles are the largest living reptile, growing to 6 m. Mostly they are wary but they do attack, particularly when nesting in the wet season. As their population grows, more aggression is being displayed. Show great respect for these powerful and dangerous animals. Crocodiles are very unpredictable and the best advice is to stay as far away as possible. Do not attract them with offal. Only swim in freshwater pools that crocodiles cannot reach. Never establish a regular routine of landing the dinghy at the same point of the shore. Do not linger at the water's edge. Do not get between a crocodile and the water. It has been reported that the flapping of an inflatable dinghy tied astern attracts crocodiles. The threat from crocodiles makes a large rigid dinghy and reliable outboard the preferred tender for cruising the Kimberley. Small inflatable dinghies are more vulnerable to damage.

9.8 Sharks

Sharks occur along the entire coast, although attacks are uncommon. Do not attract sharks by disposing of food waste in any area where swimming or diving is intended.

9.9 Whale sharks

Whale sharks (*Rhincodon typus*) are most likely to be seen off northern Ningaloo Reef. They are the world's biggest species of fish, growing to 12 m. They are fully protected and although appearing to be gentle giants can inflict serious injury. Only one vessel at a time is allowed within 250 m of a whale shark and for a maximum of 90 minutes. If a second vessel arrives it must remain at least 250 m from the shark and any others at least 400 m from the shark.

9.10 Whales

Shore-based whaling for humpback (*Megaptera novaeangliae*) and sperm whales (*Physeter*

macrocephalus) began in 1805 from stations in Fremantle, Carnarvon, Norwegian Bay, Albany and Geographe Bay. Due to the dramatic reduction in whale population the stations closed down about 50 years later. The taking of sperm whales continued in Albany until 1978.

Annual migration of the humpback whales is between 60° and 70°S (Antarctica) and 15° and 20°S (Kimberley). They stay close to the coast and migrate north from March to May. They can be seen coming south with their young from August to October.

The humpback whales are the fifth largest of the great whales and can grow up to 19 m and weigh 40 tonnes. They are black with white underneath and sides. The underside of the tail fluke is white, with black patterns by which each whale can be identified. Southern right whales can be seen around Albany and Cape Leeuwin from July to October. Blue, humpback, southern right and minke whales all use southwest Australia for migrating, resting, and/or calving each year. Not only does Geographe Bay provide key habitat for these vulnerable or endangered species, it is also one of very few locations in the world where the largest of these animals, the blue whale, migrates within hundreds of metres of the coast. Source: www.souwest.org

9.10.1 Interaction with whales

Whales are intelligent and sensitive mammals and DBCA has prepared the following code for safe whale-watching:

Only approach a whale (or a group of whales) from a direction parallel or 300 m ahead and allow the whales to approach you. Do not separate what may be members of a tightly knit family group. When within 300 m reduce the speed of your vessel to a slow speed consistent with no wake. If you intend stopping the engine, allow it to idle for a few minutes before switching off. Whales become alarmed at sudden noises or at the sudden stopping of a noise. One hundred metres is the closest vessels may come to a whale, unless they are research vessels. If the animal approaches the vessel more closely, put the engine in neutral and avoid engaging the propellers until it has moved off. Relatively small yachts have sunk or suffered severe damage after hitting a whale. So perhaps the preferred manoeuvre is to stay well clear at all times!

Swimming with whales is prohibited. It may cause stress to the animal and is dangerous for people, as a tail or fluke slap can render a swimmer unconscious. For comprehensive guidelines see

<http://www.environment.gov.au/marine/publications/australian-national-guidelines-whale-and-dolphin-watching-2017>

For information on avoiding whales see section 6.6.4 .

9.11 Dolphins

The common dolphin (*Delphinus delphis*) and the bottlenose dolphin (*Tursiops truncatus*) can be seen all along the Western Australian coast. They are a tourist attraction at Monkey Mia (Shark Bay), Bunbury, Mandurah and Cockburn Sound (Rockingham).



Dolphins in Shark Bay (A Gorham)

9.12 Sea lions

Australian sea lions (*Neophoca cinerea*) were once hunted for their fur and meat but have been protected since 1892. They can be seen on islands off the southwest coast as far north as the Abrolhos Islands and are among the world's rarest of seal species. Unlike other seals, which breed annually, sea lions breed every 17.5 months, breeding at different times on different islands. Their coats vary in colour but are usually combinations of tans, cream and brown. DBCA advise that sea lions should be given a wide berth and left undisturbed.

9.13 New Zealand fur seals

New Zealand fur seals (*Arctocephalus forsteri*) are also protected and can be seen on the islands off the south coast of Western Australia (Flinders Island and the Archipelago of the Recherche). They breed in December and January each year. The fur seals are smaller than sea lions with a more pointed face. They have a silver-grey coat which may appear dark grey or brown.

9.14 Dugongs

These gentle mammals (*Dugong dugon*) are an endangered species and only Aboriginal people may hunt them. They feed in shallow waters on seagrass and can be seen at latitude 26°-27°S, especially in the clear waters of the Ningaloo Reef and Shark Bay. Related to the elephant, the dugong evolved on land before moving into the ocean and today is the only herbivore that has

adapted to the marine environment to graze on seagrass. Ten thousand dugongs reside in Shark Bay (ten percent of the world's population).

9.15 Turtles

Six species of marine turtle are found in WA waters (green, hawksbill, flatback, loggerhead, leatherback, and olive ridley), especially in the tropics. The first four species nest on WA beaches. Nesting turtles are easily disturbed by movement, noise and light. Avoid using bright lights near nesting beaches as both adult and hatchling turtles may become disorientated.



Which species is this beautiful creature? (P Gebhard)

9.16 Rock lobster (crayfish)

The rock lobster fishery stretches from approximately North West Cape southward to Cape Leeuwin. About eight species of rock lobster are caught in Western Australia. The most prolific is the western rock lobster (*Panulirus cygnus*), locally called crayfish. Migrating lobsters have been known to cover large distances. One tagged lobster travelled almost 300 km in 74 days. Lobsters may travel up to 4 km per day. Females generally spawn at six to seven years old, and between the months of September and January. The largest reported rock lobster weighed 5.5 kg compared to the oldest laboratory specimen which was twenty eight years old and weighed 3.2 kg. Western

rock lobsters take between three and four years to reach legal fishing size (76 mm carapace length).

The lobster is caught using baited pots, whose number, design and placement is tightly controlled. Thousands of tonnes of lobster are taken each season. The lobster fishery is a large export earner. The recreational season extends from October to June, whereas the commercial season is now year-round. A dedicated licence is required for catching rock lobster (“a craypot licence”). For details see [.http://www.fish.wa.gov.au/Fishing-and-Aquaculture/Recreational-Fishing/Pages/Recreational-Fishing-Licences.aspx](http://www.fish.wa.gov.au/Fishing-and-Aquaculture/Recreational-Fishing/Pages/Recreational-Fishing-Licences.aspx).

9.17 Fishing bag and size limits

Fish bag and size limits are vital conservation measures designed to protect the future of fish stocks. Some fish stocks are in danger of being over-fished and it is crucial that every fisher helps to conserve fish populations by keeping to bag and size limits. The availability of GPS position and echo sounders has increased the ability to accurately target areas known to be good for fishing. Daily bag limits will also help share the available catch among the thousands of anglers. Bag limits apply throughout Western Australia, though there are also special limits for areas such as marine parks. Return undersized and unwanted fish quickly and gently to the water. You may not keep undersized fish for any purpose. Fishing for abalone is to all intents and purposes banned north of Busselton jetty. You need a Recreational Fishing Boat Licence (FBL) to fish from your boat or dinghy, and a separate licence for catching rock lobster (“a craypot licence”). For details see [.http://www.fish.wa.gov.au/Fishing-and-Aquaculture/Recreational-Fishing/Pages/Recreational-Fishing-Licences.aspx](http://www.fish.wa.gov.au/Fishing-and-Aquaculture/Recreational-Fishing/Pages/Recreational-Fishing-Licences.aspx). For full details of bag and size limits or areas that may have been temporarily closed to fishing, contact the Department of Fisheries Western Australia or go to: www.fish.wa.gov.au/Fishing-and-Aquaculture/Recreational-Fishing/Recreational-Fishing-Rules/Pages/default.aspx

10 GOVERNMENT DEPARTMENTS

Australia has three tiers of government:

- Commonwealth (Federal),
- State, and
- Local.

Local government (Councils) have little impact on matters addressed in this guide. The State Government covering this guide is the Government of Western Australia, except for the sections on Darwin (Northern Territory) and Port Lincoln (South Australia). There is a lot of overlap of responsibilities between Commonwealth and State government departments, and overlap between different departments within government. Department names and responsibilities are also subject to frequent reorganisation, leading to considerable confusion amongst the locals, let alone visitors: you have been warned! The main government agencies and their associated regulations affecting cruisers are described below; there are other government and quasi-government agencies that also have some impact e.g. port authorities, Rottnest Island Authority.

10.1 Arriving in and departing from Australia

10.1.1 Arriving from Overseas

Yachts arriving from overseas are subject to regulations and inspections from two Commonwealth government agencies: the Australian Border Force (effectively Customs and Immigration) and the Department of Agriculture (Quarantine). Boaters should also note the requirements of many harbours and marinas to hold insurance cover, see section 10.10.

Pre-Arrival Notification

The master of a vessel arriving in Australia by boat is required by law to give notice of impending arrival at least 96 hours before arrival. Penalties may apply for failure to do so. You can give 96 hours notice by any of the following methods:

- Sending an email to yachtreport@border.gov.au
- Sending a fax to +61 2 6275 5078
- Phone +61 2 6246 1325

You will need to provide:

- the name of your vessel;
- the vessel's country and port of registration;
- your intended first port of arrival;
- your estimated arrival time;
- the last four ports you visited;
- the details of people on board including name, date of birth, nationality and passport number;
- details of any illness or disease recently encountered;
- if you have any animals on board; and

- if you have any firearms on board.

Australian Visa Requirements

Anyone who is not an Australian citizen needs to obtain a valid visa/Electronic Travel Authority (ETA) before travelling, in order to enter and spend time in Australia. New Zealand citizens can obtain a special category visa on arrival in Australia. Visas are available from Australian Missions overseas. They are also available, in ETA form, from travel agents and airlines in certain countries. For more information on Australian visa requirements, please contact an Australian Mission overseas or visit the Australian Border Force website www.border.gov.au

Clearance procedure on arrival

The Australian Border Force charges no fees for an inwards clearance on weekdays during daylight hours.

On approach to a clearance port the yacht should call the port's Vessel Traffic Information Control (VTIC) on VHF Ch 16 to confirm their arrival. On arrival, vessels should proceed to moorings designated for clearance. Depending on your arrival time, the Australian Border Force and the Department of Agriculture may require all persons to remain on board overnight before clearing you the following day.

Do not throw any waste or foodstuffs overboard while you are in Australian waters or while you are moored; use designated biosecurity disposal points. Keep all food and animals secure until your vessel has been inspected by Department of Agriculture officers; do not trade foodstuffs with other overseas vessels and keep your vessel free of insects.

Australian Border Force officers will contact vessels via VHF Ch 16 and request they proceed from the mooring to the nominated boarding station for inwards clearance.

Border Force first-port boarding procedures include the following:

- conducting a face to passport check of each crew member;
- collecting a completed Incoming Passenger card for each crew member;
- collecting a completed Form B333 Smallcraft arrival report; and
- search activities and questioning as required.

Clearance Options for Small Craft

Each foreign vessel will initially be issued a notice placing the vessel "under Customs Control" and restricting the vessel to the Port of Entry. Depending on the clearance option chosen by the Master or Owner of the vessel this Customs Control status will be lifted.

Control Permits (Previously referred to as a Cruising Permit)

There is no fee for issuing or extending Control Permits. A Control Permit will be issued to the Master of the craft if the Australian Border Force is satisfied the craft is transiting Australia for non-commercial purposes. Control Permits may be issued for a period of 12 months, or the length of the Master's visa, whichever is less. Extension of the permit may be granted on application, provided that you meet eligibility requirements and have an appropriate visa.

A person eligible to apply for a Control Permit must be a tourist or a temporary resident of Australia. Australian citizens are not eligible for a Control Permit unless they have overseas

residency. Satisfactory evidence of overseas residency is required. For a Control Permit to be issued, the craft must:

- have arrived from overseas and be scheduled to depart for overseas;
- have arrived under its own power and not as cargo;
- be transiting Australia for non-commercial purposes i.e. is not engaged in the commercial carriage of cargo or passengers;
- not be employed for any activities of a commercial nature (e.g. charter, hire or lease).

The craft, or parts of the craft, are not to be offered for sale, sold or otherwise disposed of. However, the craft may remain in Australia for repair or refit. The craft may be privately or corporately owned (however, a Control Permit is not granted where a craft is owned by a corporation and more than 50% of the owners of the corporation are Australian residents). Control Permits are not issued if the vessel is owned or operated by an Australian resident unless exceptional circumstances apply.

Quarantine Regulations (Department of Agriculture)

Department of Agriculture and Water Resources

www.agriculture.gov.au

Ph: 1800 099 090 or (03) 8318 6700

GPO Box 858

Canberra

ACT 2601

Yachts over 25 m long:

Large yachts are managed as commercial vessels. For information about the management of commercial vessels, go to <http://www.agriculture.gov.au/biosecurity/avm/vessels/commercial-vessels>.

Yachts under 25 m long:

If you are visiting, returning to Australia, or importing a yacht, the Master and/or operator of the yacht is responsible for complying with the Department of Agriculture requirements. These obligations help to manage pests and diseases that pose a risk to the Australian environment and agricultural industries. All vessels arriving from an overseas destination, or which have come in contact with international vessels, must enter Australia through a designated first-port and require inspection from a biosecurity officer. All vessels must also comply with Australian Border Force pre-arrival reporting conditions.

When you arrive in Australia, a biosecurity officer from the Department of Agriculture will board your vessel to ask questions, assess documents and conduct a physical inspection. There are fees for these activities (see below). The purpose of these activities is to assess and manage biosecurity risks associated with yachts.

What can you bring in on a vessel

Australia has strict laws relating to the importation and/or possession of certain goods to minimise the risk of the introducing exotic pests and diseases into Australia. It is recommended that the crew consume as much of their organic provisions as possible before arriving in Australia. The master of the vessel must declare for inspection all food, plant material and animal products on arrival in Australia, to ensure they are free of pests and diseases. Some products may require treatment to make them safe; other items that pose pest and disease risks will be seized and destroyed by biosecurity officers. For a list of goods that are not permitted into Australia, see <http://www.agriculture.gov.au/SiteCollectionDocuments/aqis/travel/arriving-declareit.pdf> <http://www.agriculture.gov.au/travelling>

Yacht Arrival and Inspection Process

For an efficient inspection, please ensure the following actions are undertaken prior to and on arrival:

- Confirm your pending arrival with the department.
- Do not let anyone leave or board the vessel before the inspection.
- Secure the vessel in such a way that prevents excessive movement during the inspection.
- Remove all hazardous items.
- Remove panels, personal effects and other equipment from lockers/cupboards.
- Have fresh fruit, meat and waste bagged up on arrival for removal.
- Ensure all areas of the vessel are accessible for inspection, particularly timber surfaces.
- Have information readily available regarding timber components, such as history of refits.
- Contain/confine pets or animals on board.

Inspection Process

1. Interview with the Master or Operator

The interview provides a biosecurity officer with the opportunity to verify the health status of the vessel, people and animals (where applicable) on board. The officer will also view all relevant documentation, such as information related to timber components.

2. Inspection

On arrival at a first port of entry, your vessel will be physically inspected. This includes inspection of:

- health of persons on board;
- personal effects/articles;
- timber components of the vessel and any history of damage or refits;
- kitchen facilities and store rooms;
- hull, anchors, chains and other ancillary gear;
- water collection/storage containers.

Inspections will only be undertaken in safe conditions, during daylight hours and usually within normal operational hours. You should also be aware that more than one inspection may be

required to resolve biosecurity risks. If no biosecurity concerns are detected during the inspection, the biosecurity officer can release your vessel.

3. Managing Risks

To manage common risks, the biosecurity officer may undertake or request that you undertake certain directions and/or treatments, including (but not exclusive to):

- confirmation of the management of any plants or animals on-board;
- removal of waste;
- release from biosecurity control to permit coastal voyaging (“stripping the vessel”);
- other treatments as directed.

If biosecurity concerns are detected, the biosecurity officer can take any of the following actions:

- Seek further advice from departmental technical experts or other authoritative bodies;
- Refer concerns to other relevant Australian Government agencies, such as human health issues;
- Seek the assistance of alternative detection methods (e.g. dog or device for termites);
- Direct your vessel for remedial action via approved methods, such as timber treatment;
- Direct the vessel to a particular place or for export where the vessel is imported as cargo.

Your yacht may also be subject to surveillance inspections on succeeding days at the first port of arrival and subsequent port/s of call to ensure continued compliance with directions as instructed by a biosecurity officer.

4. Pratique

Once the biosecurity officer has completed the inspection, a post inspection interview is conducted to discuss any biosecurity issues identified in the vessel inspection with you. Pratique is provided at this time together with confirmation of any conditions for your further travel within Australia.

Where an accredited timber inspector from the department is not available at the time of inspection, you will be required to return within two weeks. Your certificate of pratique will note the port in which to return.

Pets or animals on-board vessels

Vessels which carry pets are considered high risk and therefore require increased surveillance whilst in Australian waters. Some animals are not permitted into Australia and you should always check the restrictions prior to travelling to Australia with your pet. Prior to arrival at an Australian first port of call, the master must notify the department of the presence of animals on board the yacht. The inspecting biosecurity officer will issue the master or owner with the ‘Reporting Requirements for Animals on Vessels’ form. This form sets out the general conditions for the keeping of animals on board the vessel and may include additional conditions. The ‘Master Declaration’ section of the form must be completed. The general conditions for yachts with animals on board include the following:

- The vessel must be secured at mid water mooring.
- All animals on board must be confined in a manner so as to prevent contact with people or Australian domestic animals.

- The animal must be confined below decks if the vessel is left unattended.
- All animals waste must be disposed of in a manner approved by the department.
- The department must be notified immediately if the animal becomes sick, dies or escapes whilst in Australia.
- A biosecurity officer will visit the yacht at each port of call in Australia, or on a regular basis if the yacht is remaining in the same port, to ensure that the conditions stated on the 'Reporting Requirements for Animals on Vessels' form are being met.
- All subsequent movements around Australia must be reported to the department prior to departure and arrival.
- Continuous surveillance of pets will incur the department's fee for service charges.
- If the animal is to remain permanently in Australia, contact the department to determine eligibility for import.

Vessel clearance fees and charges for yachts under 25 m

The following information is correct as at October 2016. Where a yacht is cleared and inspected at the first port of call, a minimum charge of \$380 is payable, which includes granting pratique and the first hour and a half of inspection. Should inspection time exceed 1.5 hours, additional time shall be charged at \$45 per 15 minutes. Operational hours are Mon-Fri 0630-1830. Overtime rates are applicable for inspections required outside operational hours. Inspection services for yachts are payable at the time of inspection. Only a valid credit card payment can be accepted and all credit cards will be authorised when presented. Cash will not be accepted by biosecurity officers. If you have no other form of payment other than cash then you will be required to go to the nearest Department of Agriculture office to present payment to a 'Collector of Public Money (CPM)'. For further information go to <http://www.agriculture.gov.au/fees>

Biosecurity within Australia

Quarantine inspections are conducted not only for overseas arrivals and departures, there are also controls when sailing between states within Australia. The Department of Fisheries (WA) monitors introduced marine pests on recreational vessels travelling into WA from the eastern states and from the Northern Territory, by conducting random audits. Fines may be applied. For further information see 10.5.

10.1.2 Departure from Australia

Prior to departure from Australia, Australian Border Force clearance is required. This is available at any designated port (see next section). Australian Border Force should be contacted in advance to avoid unnecessary delay. It is an offence to depart without clearance.

Requirements for departure

Passports and completed Outgoing Passenger cards are required for all people on board. Masters of Australian or imported vessels may be required to 'enter' the vessel for export if the craft is to be sold or positioned overseas.

Registering Craft - the Registrar of Ships

Masters of foreign craft not registered under the law of a foreign country must make a declaration

about the nationality of their craft when leaving Australia.

All Australian vessels, whether owned by an Australian citizen or by an Australian company, must be registered with the Australian Maritime Safety Authority (AMSA) before leaving Australia. State registration does not meet this requirement. It is necessary to apply for registration of your craft several weeks before leaving Australia. Unregistered craft will not receive Australian diplomatic protection while overseas. For more details see <https://www.amsa.gov.au/vessels/shipping-registration/australian-general-register/>

10.1.3 Ports of entry and departure

The following are designated ports of entry and departure on the Western Australian coast:

- Broome
- Port Hedland
- Dampier
- Carnarvon
- Geraldton
- Fremantle
- Bunbury
- Albany
- Esperance.

Note that Exmouth is **not** a designated port of entry or departure. Christmas and Cocos Keeling Islands are not considered part of the Western Australian coast so clearance for immigration and quarantine is required when entering or departing the islands. A further customs and quarantine clearance is required when entering an Australian mainland port from these islands. An Australian vessel intending to only visit Cocos Keeling or Christmas Island is not required to have an Australian registration.

10.2 Australian Maritime Safety Authority (AMSA)

<https://www.amsa.gov.au>

Ph: (02) 6279 5000

24-Hour emergency helpline within Australia: 1800 641 792; outside Australia: +61 2 6230 6811.

GPO Box 2181

Canberra ACT 2601

Australia

AMSA is a Commonwealth Government body whose principal functions are:

- promoting maritime safety and protection of the marine environment;
- preventing and combating ship-sourced pollution in the marine environment;
- providing infrastructure to support safety of navigation in Australian waters;
- providing a national search and rescue service to the maritime and aviation sectors.

In essence it is the peak maritime body for Australia. Many of its activities (other than search and rescue) are conducted through the Department of Transport (Marine) WA.

10.3 Commonwealth Department of the Environment and Energy (DoE)

<http://www.environment.gov.au>

Ph: (02) 6274 1111

GPO Box 787

Canberra

ACT 2601

The Department of the Environment and Energy designs and implements the Australian Government's policies and programmes to protect and conserve the environment, water and heritage and promote climate action. It is concerned with environmental impact assessment, national and international marine conservation programs, marine pollution and marine reserves. Commonwealth waters stretch from 3 nm to 200 nm off the coast, whereas State waters are generally less than 3 nm off the coast (and associated islands).

The cruising fraternity is aware of the importance of not damaging the environment. Disposal of plastic at sea is totally prohibited off the Australian coast. Food waste and other rubbish, including glass, paper, metal and bottles must not be thrown overboard within 3 nm of the coast, and between 3 nm and 12 nm only if it is reduced to 25 mm pieces. Preferably, take all rubbish ashore for disposal. No release of human waste is permitted within 3 nm of the nearest land or within any port limits. Disposal of sewage may also be limited in marine parks and reserves.

There is considerable overlap with the WA Parks and Wildlife Service in management of marine parks and reserves. Marine reserves in WA falling under DoE include:

- Ashmore Reef & Cartier Island
- Mermaid Reef in Rowley Shoals
- Commonwealth waters of Ningaloo Reef
- Abrolhos Islands
- Jurien Bay

The above list is by no means exhaustive. In many instances day-to-day management appears to be handled by the relevant State government department. For more information go to

<http://www.environment.gov.au/topics/marine/marine-reserves>

10.4 Department of Biodiversity, Conservation and Attractions (DBCA)

www.dpaw.wa.gov.au

Ph: (08) 9219 9000

Locked Bag 104

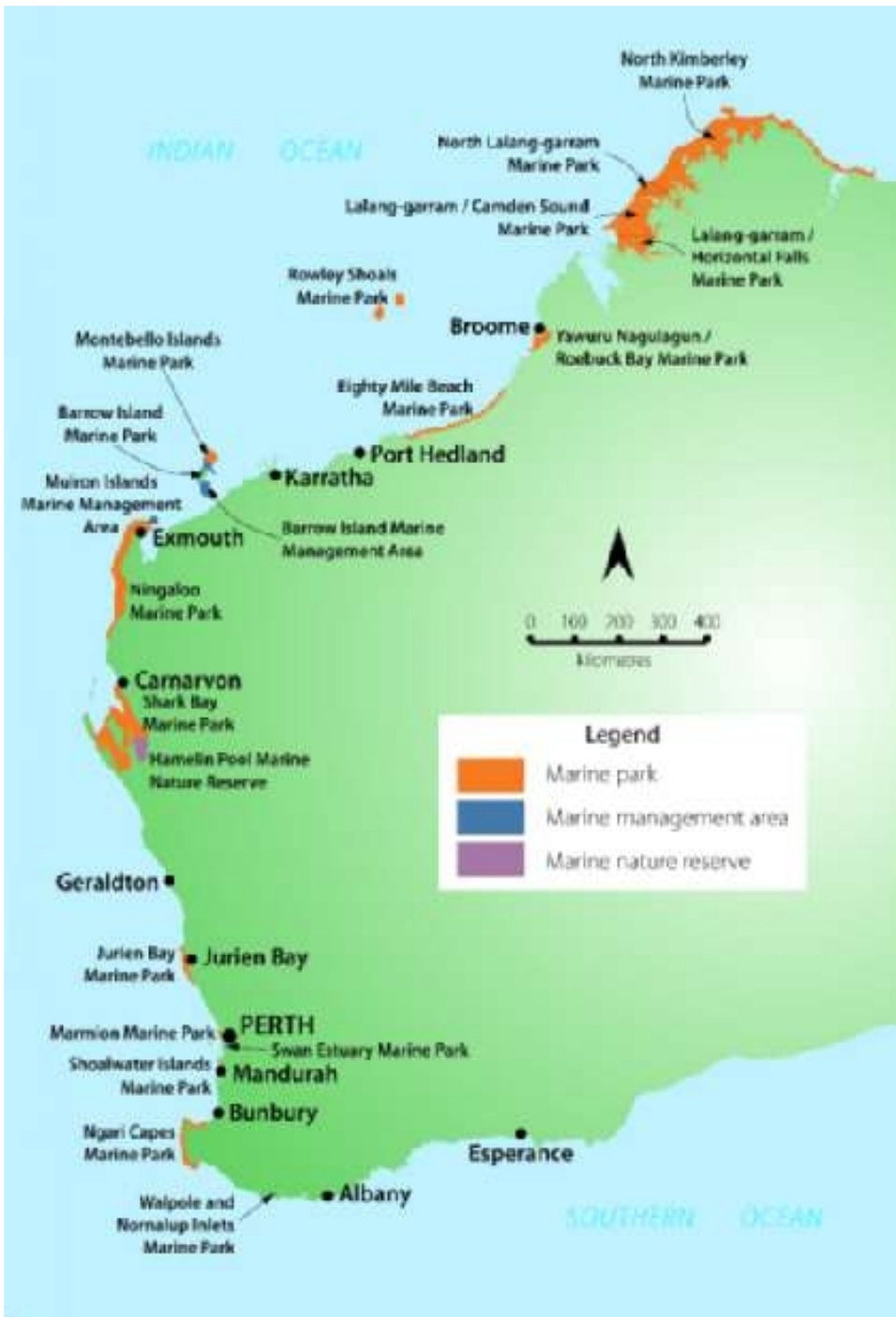
Bentley Delivery Centre

WA 6983.

The Department of Biodiversity, Conservation and Attractions (DBCA) Parks and Wildlife Service is responsible for the maintenance of the marine environment along the WA coastline. It was formerly Department of Parks and Wildlife (DPaW). It focuses on nature conservation and the community's enjoyment and appreciation of Western Australia's world-class network of national and marine parks. They are primarily responsible for management of the marine parks and reserves. One of their roles is to determine where anchors may or may not be placed and where moorings can be installed and used. DBCA produces booklets describing the many marine features and inhabitants to be found. For further Information go to: www.dpaw.wa.gov.au/management/marine

Marine nature reserves are special areas set aside for conservation. Marine management areas have high conservation value, but also have high human, particularly industry, usages. These reserves may be zoned and activities such as fishing may be prohibited. Marine parks have four management zone categories:

- Sanctuary zones are 'look but don't take' areas managed solely for nature conservation and low-impact recreation and tourism.
- Recreation zones provide for conservation and recreation, including recreational fishing.
- General use zones provide for a range of sustainable recreational and commercial uses that are consistent with conservation.
- Special purpose zones are managed for a particular priority use or issue, for example mangrove protection, sea lion breeding or pearling.



Marine parks around Western Australia (DBCA)

For the full extent of marine parks and sanctuary zones use the Park Finder at www.dpaw.wa.gov.au/management/marine

10.4.1 DBCA marine parks

Rowley Shoals

The Rowley Shoals Marine Park (RSMP) and Mermaid Reef Commonwealth Marine Reserve (MRCMR) are located at the Rowley Shoals, 170 nm west-northwest of Broome, and cover three

oceanic shelf atolls approximately 15-20 nm apart. Imperieuse and Clerke Reefs make up the Rowley Shoals Marine Park. They have permanent islands so are surrounded by State waters and are managed by DBCA. Mermaid Reef does not have permanent land above the high water mark, so it is surrounded by Commonwealth waters and is managed by the Commonwealth Department of the Environment, with assistance from DBCA.

Lalang-garram / Camden Sound Marine Park

Camden Sound Marine Park is situated off the West Kimberley Coast.

Eighty Mile Beach Marine Park

Eighty Mile Beach Marine Park, off the West Kimberley Coast south of Broome, extends over 220 kilometres between Mulla Mulla Down Creek in the southwest and Cape Missiessy in the northeast.

Montebello Islands Marine Park

The Montebellos are a group of islands about 60 miles north of Onslow off the Pilbara Coast.

Barrow Island Marine Management Area

Barrow Island Marine Management Area in the Pilbara extends from the Montebello Islands Marine Park southwards to beyond the Barrow Island Shoals.

Ningaloo Marine Park

Ningaloo Marine Park extends from Bundegi, just north of Exmouth, around North West Cape, then south to Red Bluff.

Muiron Islands Marine Management Area

Muiron Islands Marine Management Area encompasses the Muiron and Sunday Islands a few miles off North West Cape.

Shark Bay Marine Park

A very large bay off Carnarvon, part of the Gascoyne coast.

Jurien Bay Marine Park

Jurien Bay Marine Park extends along the Geraldton Coast from Dynamite Bay at Green Head in the north to just south of Wedge Island.

Marmion Marine Park

Marmion Marine Park is near Hillarys Marina off Perth.

Shoalwater Islands Marine Park

Shoalwater Islands Marine Park, about 20 nm south of Perth, covers all of Warnbro Sound (except the part between Port Kennedy and a point about 500 m east of Becher Point) and extends north to John Ledge and the centre of the bridge to Garden Island.

Ngari Capes Marine Park

The Ngari Capes Marine Park is off the Bunbury Geographe Coast and the Leeuwin Coast. It encompasses the marine waters between Busselton and Augusta, including the waters between Cape Naturaliste and Cape Leeuwin.

Walpole and Nornalup Inlets Marine Park

The Walpole and Nornalup Inlets lie on WA's south coast between Cape Leeuwin and Albany. Neither inlets have safe access from the sea. Walpole Inlet is shallow (mostly about a metre deep) and covers 100 hectares. Nornalup Inlet covers 1300 hectares and is deeper (up to five metres). The marine park takes in the Walpole and Nornalup Inlets and the tidal parts of the Frankland, Deep and Walpole rivers.

10.5 Department of Fisheries WA (DoF)

<http://www.fish.wa.gov.au>

Ph: (08) 9482 7333

Department of Fisheries

Locked Bag 39

Cloisters Square

WA 6850

The Department of Fisheries' primary responsibility is to conserve, develop and manage the fish and aquatic resources of Western Australia. They do this through managing and licensing commercial and recreational fishing activities and protecting the aquatic environment and ecosystems on which fish depend. They also coordinate the delivery of at-sea marine safety compliance services by the Department's Fisheries and Marine Officers under a service level agreement with the Department of Transport.

The Department of Fisheries manage the Abrolhos islands about 40 nm west of Geraldton. This also includes management of the free public moorings there.

The Department also manages the protection of the State from Introduced Marine Pests (IMPs). Boaters might not realise there is a big problem with marine species being introduced not only from overseas but also from interstate. The devastating spread of Japanese Kelp along the Victorian coast is an example. It is very important when sailing to or from the eastern states or territories, to ensure that your boat is clear of biofouling. Having any IMPs on your hull is a breach of the law and the Department of Fisheries conducts random audits of recreational vessels. This is not as draconian as might first appear; they provide a very useful and straightforward checklist for boaters to work out if their boat might pose a risk, and a helpline for advice. The checklist, and lots more valuable information on IMPs is available on their website at

http://www.fish.wa.gov.au/Documents/biosecurity/recreational_vessel_biosecurity.pdf;charstyle:Hyperlink

If you think you have found or seen a marine pest, please contact the FishWatch 24 hour hotline on 1800 815 507.

10.6 Department of Transport (Marine) WA (DoT)

<http://www.transport.wa.gov.au/imarine>

Ph: (08) 9435 7500

Marine House,

1 Essex Street,
Fremantle WA 6959

The DoT is WA's marine safety authority whose role is to provide safe and efficient navigation throughout the waters of the state. Services include marine education, responding to marine emergencies, registration of boats and maintaining navigational safety standards. It has overall responsibility for moorings in Western Australia, though in many areas this is delegated to other government agencies such as DBCA and Dept of Fisheries. DoT produces a range of useful boating guides, cyclone contingency plans and excellent marine charts.

10.6.1 State vessel registration

All boats in WA must be registered with DoT; this includes tenders unless they are used solely for transport between ship and shore. Visiting vessels from other Australian states and from overseas have three months' grace before registering their vessel with the DoT.

10.6.2 Recreational Skipper's Ticket (RST)

A recreational skipper is required to possess a WA Recreational Skipper's Ticket. All persons in charge of a vessel with a motor of 4.5 kW (6 hp) or greater must hold a RST. Interstate skippers with recognised tickets have a three-month period of grace before they must also obtain their WA ticket. The RST Workbook produced by the DoT has comprehensive sections on vessel registration, pollution and the environment, sewage, marine animals and habitat.

10.6.3 Safety requirements

The minimum safety requirements for vessels operating in WA waters are set by DoT. Cruising yachts will almost certainly carry all the required equipment so these requirements have negligible impact. For vessels operating more than 5 miles offshore the (paraphrased) list comprises:

- bilge pump
- fire extinguisher
- anchor and cable
- life jackets, one per person
- flares: 2 red parachute and 2 orange smoke
- EPIRB
- marine radio

10.6.4 Speed limits

DoT sets speed limits in bays, harbours and rivers that are crowded with small boats, swimmers etc. The speed limit zones are shown on the DoT charts and in their regional boating guides.

10.6.5 No-boating zones

Boats are banned from entering some areas, usually off busy swimming beaches. Whilst a yacht may anchor just outside these zones it can be difficult to get ashore, because motorised dinghies are not allowed inside the zone.

10.6.6 Harbour management

DoT manages most of the small-boat harbours along the coast e.g. Exmouth, Jurien Bay, Augusta. In the past there have been numerous complaints about their high berthing fees. However, in 2016 they introduced a flat rate for overnight stays (\$52.40 incl GST per night in 2017-18) for “Recreational vessel use of service jetty or wharf, alongside berth, pen or pile mooring. Some harbourmasters are not yet fully aware of this change, so it may be helpful to print out the relevant page from the fee schedule at: <http://www.transport.wa.gov.au/imate/marine-fees-and-payments.asp>

10.7 Department of Planning, Lands and Heritage WA

<http://www.daa.wa.gov.au>

Ph: 1300 651 077

Email: permits_queries@daa.wa.gov.au

The Permits Officer

Department of Planning, Lands and Heritage

PO Box 3153

East Perth

WA 6892

Many parts of the Kimberley fall under the responsibility of this department. Under the *Aboriginal Affairs Planning Authority Act 1972*, non-Aboriginal persons are required to obtain a transit permit (Section 31) issued by the Aboriginal Lands Trust before entering Aboriginal reserve land or visiting community centres. A permit is not required if only “anchoring off.” Reserves cover a significant area of the Kimberley coast, including most of the coast between Broome and Wyndham. Information on entering Aboriginal land and good advice on what is permissible and what is not can be found at

www.daa.wa.gov.au/en/Entry-Permits/

Travel permits can now be applied for online at <http://permits.daa.wa.gov.au/travelpermits/> with the permit usually appearing on your screen as soon as the application is submitted. While auto-approval will not apply in all circumstances, it is estimated that around 50-70 per cent of the permits that are applied for on-line will qualify. Those that don't qualify will generally be those applications that require specific community approval before the permit can be issued.

Some Aboriginal communities forbid photography for any purpose. Photography at Aboriginal sites requires the consent from the Department of Aboriginal Affairs and the local community if it is to be used for commercial reproduction or publication.

The *Aboriginal Heritage Act 1972* protects all Aboriginal sites and cultural artefacts in Western Australian state lands (including offshore islands) and waters including archaeological sites, submerged sites, historic missions, rock painting and engraving sites. It is an offence for anyone to excavate, destroy, conceal or in any way alter an Aboriginal site without the permission of the Minister for Aboriginal Affairs.

10.8 Uunguu Visitor Pass (UVP) - East Kimberley

The Wunambal Gaambera People hold native title over a large stretch of the Kimberley coast from Vansittart Bay in the east, to the Prince Regent River area in the west. If you are going ashore in the East Kimberley it is very important that you visit their website

<http://www.wunambalgaambera.org.au> whilst you have internet coverage, in order to obtain a paid visiting permit - the Uunguun Visitor Pass (UVP). These paid permits are in addition to the free Aboriginal Land Trust (ALT) permits also required to go ashore in many parts of the Kimberley (see section 10.7).

The UVP restricts the areas where visitors can go ashore to 50 locations along that stretch of coast and islands. Visitors cannot go ashore at any other locations in the permit area. The UVP can only be purchased online from the Wunambal Gaambera website. If you don't have satellite internet facilities on board your boat, you need to purchase the UVP before you enter the Kimberley coast. There are no mobile phone or internet facilities available in the area.

A UVP is required for each person on board your boat, \$90 per person in 2018. It is valid for up to 10 days from the start date you specify when you buy the permit. You may need to buy a 20 day permit if you intend staying longer than 10 days in the area.

The interactive map on the website provides a wealth of useful information for each location.

If you do not intend going ashore, you are not required to buy a UVP. It is unclear if the inter-tidal zone is covered by the UVP.

10.9 Government protection of historic sites

Historic archaeological sites (shipwreck survivors' camps, early European settlements, jetties, burial grounds, pearling camps, whaling stations, some aircraft wrecks and historic shipwrecks) are protected under Commonwealth and State laws. The Western Australian *Maritime Archaeology Act 1973* protects all sites associated with historic ships pre-1900 in State waters (enclosed bays, rivers and estuaries). The *Commonwealth Historic Shipwrecks Act 1976* protects all shipwrecks over 75 years old in Australian waters (to the low tide mark on the mainland coast and offshore islands). The Broome World War II flying boat wrecks are protected by a Conservation Order from the Heritage Council of Western Australia.

Visitors are encouraged to visit and enjoy historic sites but to take only photographs and leave only footprints. Information on historical and maritime archaeological sites and heritage trails in WA can be obtained from the Western Australian Museum's Department of Marine Archaeology.

[museum.wa.gov.au/research/collections](http://www.museum.wa.gov.au/research/collections) (<http://www.museum.wa.gov.au/research/collections>)

10.10 Public liability and third party insurance

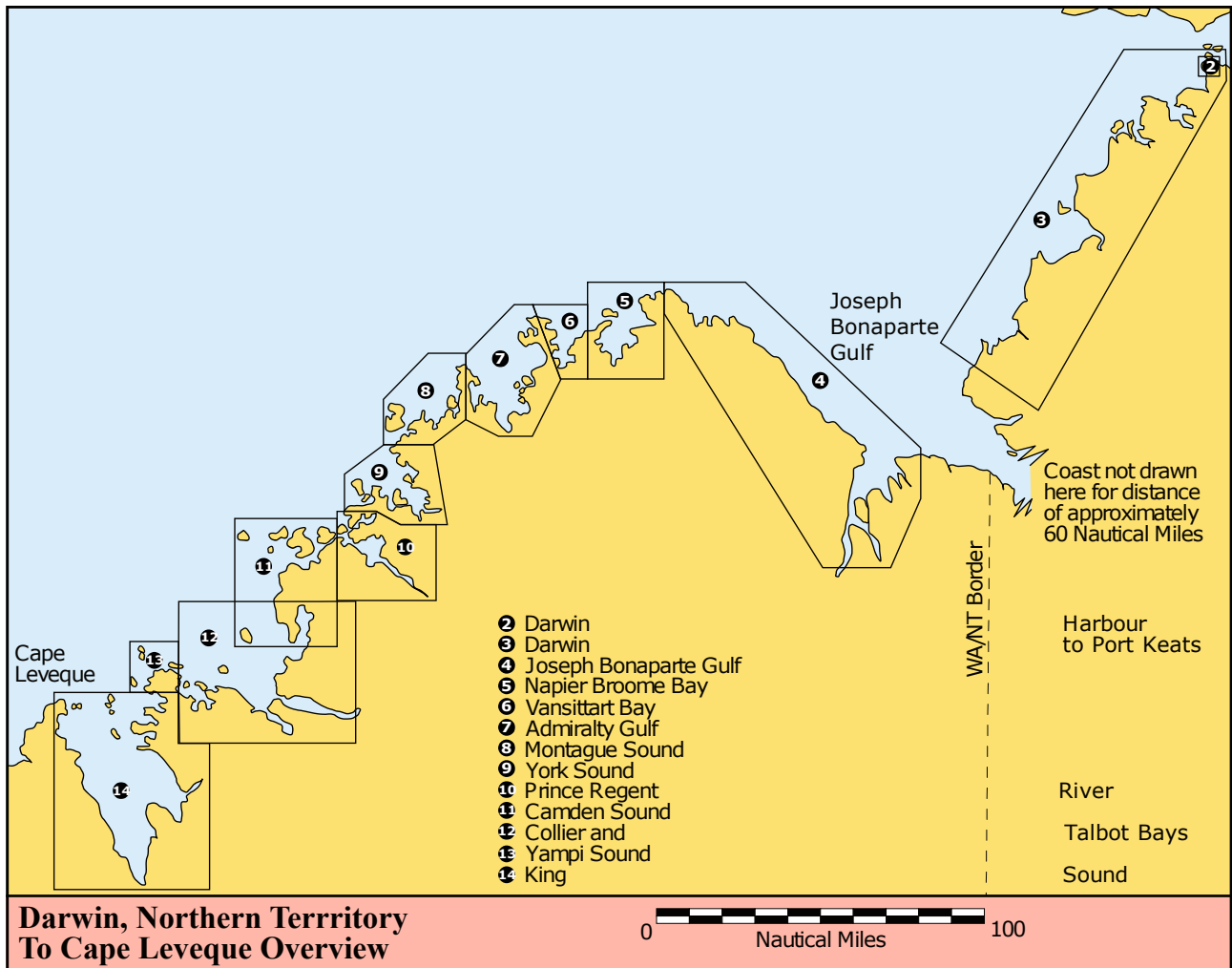
Whilst this is not strictly a government regulation, it is important to be aware that most commercial harbours and yacht club marinas require a vessel to hold substantial public liability and third party insurance. For example, to use any harbour run by DoT you require \$10 M public liability and third party insurance.

Pilotage and Sailing Directions



11 DARWIN TO CAPE LEVEQUE

Charts: AUS 26, 27, 29, 309, 316, 722, 724, 4721, 4722



Chartlet 1

11.1 General note

11.1.1 Overview

Charts AUS 47221 and 4722 cover this section of the coast and extend north up to Indonesia. The coast from Darwin to Cape Leveque includes most of the Kimberley region. This is a region of great beauty, ruggedness and wilderness which has not been thoroughly explored. The region covers 423,000 sq km with a population of just under 40,000. Bird life, crocodiles, turtles, dugong, sharks and many varieties of fish all add to the fascination of the place. Its remoteness has enormous appeal but can also be intimidating. The area is vast, inhospitable and, for the most part, uninhabited. Plan carefully, equip well and allow plenty of time for a trip through the Kimberley. The area has become increasingly popular with commercial cruise boats, so don't be surprised if you find yourself sharing an anchorage with others.

Lighting fires in the Kimberley can be dangerous. Extreme care should be exercised. Never leave a fire unattended.

Many of the place names appearing in the text or on a chartlet will not be found on an AUS chart. Among the first cruisers to visit the Kimberley and record it in print were Harry and Margaret Moore in their 1985 guide *Kimberley Cruising*. It was the Moores who first penned many place names.

11.1.2 Landing permits

Access to land may require one or more permits. The permit system is becoming increasingly fragmented and complicated, but it is very important that a permit is obtained before entering the Kimberley. (see 10.7 and 10.8).

11.1.3 Crocodiles

Crocodiles are prevalent in this area. They are very unpredictable and the best advice is to stay as far away from them as possible. Keep out of the salt water, swim only in fresh water and stay on dry land. A suitable dinghy is very important. A lot of additional enjoyment can be gained by exploring the many areas which are only accessible by dinghy. The threat from crocodiles makes a large rigid dinghy with a reliable outboard the preferred tender. Small inflatable dinghies are more vulnerable to damage. See also 9.7.

11.1.4 Tides

When cruising the Kimberley coast the dominant consideration is the tide tables; the ability to calculate the state of the tide at any given location and time of day is essential. Tidal ranges of 10 m and currents up to 10 kn occur in some locations. It is advisable to work the tide to your advantage in order to transit a given location. It is therefore important to calculate the best time to transit the location and then work back to your present anchorage in order to determine the best time for departure. For example, the passage across the mouth of King Sound is preferable at neaps, when the currents are at their weakest. Always be ready to consider another route rather than push against the tide. It may be a better option to take a circuitous route rather than battle adverse currents on the direct route. Murkiness of the water can make it difficult to pick a safe route. If unsure, sail just after LW so obstacles can be seen more easily.

When calculating depths for anchoring and safe passage, vessel draft becomes insignificant compared to the tidal range. When anchoring, remember that small river systems have much less tidal current than large river systems. Strong tidal flows have been known to wash the sand out from around anchors. See also section 4.

11.1.5 Anchorages

There are numerous anchorages in the Kimberley, many are unexplored and incompletely surveyed. The prudent navigator will approach these anchorages with caution. As a general rule, big bays usually have mud bottoms and tide-swept creeks have sand bottoms. Both offer good holding; remember always to calculate your scope based on the maximum tidal height. The comfort and safety found in anchorages is highly dependent on the tide. Anchorages that are comfortable in neap tides may not be so with spring tides. For example, Roebuck Bay (Broome) is normally reported as uncomfortable, but during neap tides and light winds can be quite acceptable. At times it is worth anchoring well off the shore to catch some cooling breeze; on the other hand it is better to move into bays to avoid the tidal flow.

Some boaters have found that it is more pleasant to explore the rivers and coast when the easterlies are fresh, then visit the outside islands in calmer weather. The outside islands offer pleasant beaches and are good fishing and squid spots. These include Adele, Cassini, Colbert, East Montalivet and Maret islands.

11.1.6 Fuel

Access to fuel can be a problem. Since the winds are often very light, most yachts find that they use more fuel than estimated. Fuel can be obtained at Darwin, Wyndham, possibly Berkeley River, Truscott, Dog Leg Creek, Cygnet Bay, and Broome. It would be wise to check on the availability of fuel supplies before departing Darwin or Broome.

Wyndham

Fuel must be arranged in advance from Des at Kimberley Motors Phone (08) 9161 1281. Diesel and ULP available. Cash and credit cards accepted. They have a small tanker and will deliver fuel to the Wyndham wharf.

Berkeley River

The Berkeley River Resort will sell diesel and ULP in small quantities if you run short. Contact the resort before visiting <http://www.berkeleyriver.com.au/> (08) 9254 3268

McGowan Island Beach.

Fuel is no longer available at McGowan Island Beach. The fuel tanker was due to be removed in late 2016.

Truscott Air Base (accessed from West Bay)

Shore Barge run a fortnightly barge service from Darwin to Truscott Air Base and Kulumburu. The Truscott staff live at the air base, which is about 10 km by road from the barge landing at West Bay. Phone Truscott (08) 9161 4395 or Darwin head office (08) 8932 3344 Mon-Fri.

<http://www.shorelands.com.au/> They supply diesel only. Payment must be made in advance.

Dog Leg Creek.

Bulk Diesel and ULP are available. They accept only cash or possibly Baileys Fuel Cards; there is no credit card facility. Diesel was \$3 per litre in 2017.

The fuel barge is operated by Dean Kemp, who runs a barge service out of Derby, mainly servicing the iron ore mines on Koolan and Cockatoo Islands. It is accessible at all tides, but they prefer to load fuel in daylight hours only. The barge is topped up from Dean's barge trips from Derby to Koolan Island. To ensure he has sufficient fuel for your needs, phone Dean 0427 951 491 a few weeks before your ETA at Dog Leg Creek to give him your approximate arrival date, and how much fuel you are likely to need.

Derby

Fuel is available at normal service station prices i.e. much cheaper than most places along the Kimberley coast. However, the port is navigationally difficult, holds few attractions, and is a long deviation off the main route.

Cygnnet Bay Pearl Farm

Fuel may be available by prior arrangement. Ph: (08) 9192 4283 or Email: reception@cygnnetbaypearls.com.au Website: www.cygnnetbaypearls.com.au

11.1.7 Pearl leases

The location of pearl leases can change and the number of operational leases fluctuates. Several locations once occupied by pearl leases are now fish farms. It is recommended that contact be made with pearling companies if you are staying in Broome or Darwin. See also 6.6.2

11.1.8 Weather

The notes below are based in large part on weather records over decades. The advent of climate change has made predictions based on past records less reliable, so what has happened in the past is no longer a reliable indicator of what might happen now. Please bear this in mind when reading these notes.

The weather in the wet season is hot and humid. In the dry, humidity and temperatures are much lower. Waterfalls, creeks and rivers run in the wet and most river systems continue to run well into the dry. The preferred months for cruising in the Kimberley are May to October (the dry season). SE winds are prevalent in the morning and can reach 30 kn when there is a strong high to the south. The wind usually eases in the afternoon. This is less likely to happen east of Cape Voltaire (125°E) where the wind strength remains unabated. Land and sea breezes modify the winds on this part of the coast. In the earlier part of the dry season easterlies can be fresh to strong. Into August they weaken and NW sea breezes become apparent, usually fading in the evening.

The wet season is from November to April with S to SW winds in the morning veering NW in the afternoon. Cyclones occur at this time of the year causing gale to hurricane force winds within 200 nm of their centre. Listen carefully and frequently for cyclone warnings issued by BoM.

Thunderstorms also produce local strong winds.

See also 3.6.1.

11.1.9 Introduced Marine Pests

Boaters might not realise there is a big problem with marine species being introduced not only from overseas but also from interstate. When sailing between Western Australia and the Northern Territory it is very important to ensure that your boat is clear of unwanted pests. Having any of these pests on your hull is a breach of the law and the Department of Fisheries conducts random audits of recreational vessels. This is not as draconian as might first appear; they provide a very useful and straightforward checklist for boaters to work out if their boat might pose a risk, and a helpline for advice. The checklist, and lots more valuable information, is available on their website at

http://www.fish.wa.gov.au/Documents/biosecurity/recreational_vessel_biosecurity.pdf;charstyle:Hypertext

If you think you have found or seen a marine pest, please contact the FishWatch 24 hour hotline on 1800 815 507.

Passage notes:

For those approaching from the south, Broome is the point of departure. Those travelling from the east will most likely have departed from Darwin.

11.2 Darwin

12° 27.0'S 130° 48.0'E

Charts: AUS 28, 26



Chartlet 2

Darwin is the capital of the Northern Territory with a population of 140,000. There are four marinas in Darwin that can be used by cruising yachts. All four have lock entrances with different lock widths, different facilities and different access rules and charges, some of which are described below.

⚓ Anchorage off Darwin Sailing Club (Fannie Bay) is an alternative to a marina. During spring tides it will be necessary to carry or drag the dinghy a long way before it can be left above the high water mark. Darwin Sailing Club make trolleys available for members and visitors.

Vessels that have entered Australia from overseas.

All vessels arriving from overseas, regardless of their port of entry, must undergo a Fisheries

Department underwater inspection to obtain a clearance certificate *before* entry into any Darwin marina. This is a free service conducted by the NT Government. Hull inspections are conducted in-water at the Cullen Bay Pontoon on the seaward side of Cullen Bay Marina (or in some cases at anchor at the Fannie Bay public anchorage). Contact NT Fisheries Aquatic Biosecurity staff on 0413 381 094 or email aquaticbiosecurity@nt.gov.au See also 10.1.1 for general entry requirements when arriving from overseas.

11.2.1 Cullen Bay Marina

12° 27.1'S 130° 49.0'E

<http://cullenbaymarina.com.au/>

The Cullen Bay Marina lock entrance is located at the southern extremity of Fannie Bay and immediately north of the lighthouse on Emery Point. The lock has four double vertical gates and the entrance is partially protected from the NW sea breeze by a drying sand spit and rock breakwaters.

Pen bookings are essential. Enquiries for pens in the marina can be made by contacting "Lockmaster" on VHF Ch 11, or Ph 0419 421 363. There are no long term live-aboards allowed, but cruisers passing through Darwin may be allowed to live on their boats for up to four weeks. Pets are not allowed.

The lock is 9.5 m wide and is accessible by yachts with 2 m draft through the marked entrance channel at all tides. Entry times for private yachts are 7 days a week from 0600 to 2200 on the hour. Lock bookings are essential (minimum 1 hour's notice) and lock fees apply for visiting yachts. The marina depth is maintained at between 5 m and 5.7 m. Fuel is available at the fuel jetty outside the marina; it is generally very busy with commercial craft before 0900. The fuelling jetty also doubles as the quarantine jetty. Darwin Casino and Mindil Markets are about 10 minutes walk away. The city centre is about 30-35 minutes walk.

See also: www.dwnsail.com.au



Careening on the beach at the northeast side of Cullen Bay Marina (R&L Newton)

11.2.2 Frances Bay Mooring Basin or “The Duck Pond”

12° 27.3'S 130° 51.0'E

<https://nt.gov.au/marine/for-all-harbour-and-boat-users/wharves-and-moorings-in-frances-bay-darwin>

The “Duck Pond” is a commercial boat basin managed by the Darwin Port Authority (DPA) and the lock entrance is located in the mouth of Sadgroves Creek immediately upstream of the Darwin Ship Repair and Maintenance facility. The lock has two horizontal sliding gates and the entrance is through a narrow dredged channel which is open to SE winds.

The DPA allows larger cruising yachts and wide beam catamarans into this marina when space permits (generally when the prawn trawlers are at sea). Pen bookings are essential, Ph: (08) 8999 3971. Live-aboards are allowed but only for yachts passing through Darwin. This is a commercial basin where heavy engineering maintenance of the fishing fleet is conducted.

The lock is 12 m wide and is accessible by yachts with 2 m draft through the marked entrance channel at a tidal height greater than 4 m (Darwin). Entry times for private yachts are weekdays from 0800 to 1700, or as directed by the lockmaster.

11.2.3 Tipperary Waters Marina

12° 26.9'S 130° 51.1'E

<http://www.tipperarywatersmarina.com/>

The Tipperary Waters Marina is located in Sadgroves Creek immediately downstream of the Dinah Beach boat ramp. The lock has four vertical gates and the entrance is partially protected from the southeasterly breeze by mangroves on the eastern bank of Sadgroves Creek. Pen and lock bookings are essential. Long term live-aboards are allowed. Enquiries for pens and lock entrance to the marina can be made by calling 0407 075 077, phone/fax (08) 8942 2231 or email to tipperarywatersmarina@bigpond.com.

The lock is 6 m wide and is accessible by yachts with 2 m draft through an unmarked entrance channel at a tidal height greater than 4 m (Darwin). Lock opening times are from 0600 to 2100 daily.

11.2.4 Bayview Marina

12° 26.5'S 130° 51.6'E

<http://www.bayviewmarina.com.au/>

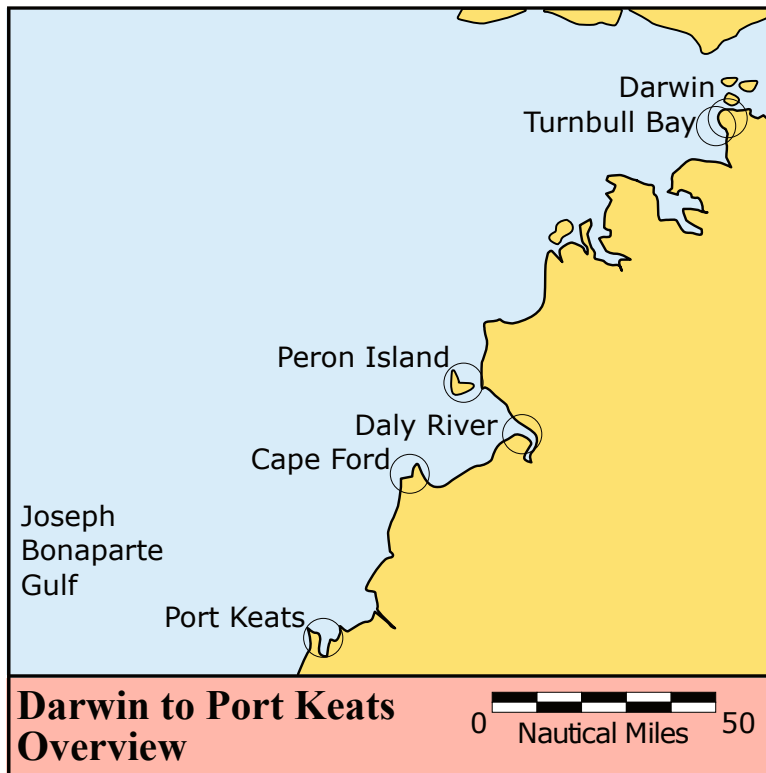
The Bayview Marina lock entrance is located about 1 nm up Sadgroves Creek. Entrance is through the marked channel at a tidal height greater than 4 m (Darwin). The lock has two external radial gates and one internal drop-down gate. The entrance is protected from all wind directions. Pen and lock entrance bookings are essential. Enquiries for pens in the marina can be made by contacting the lockmaster on VHF Ch 68, mob 0418 910 888, office (08) 8981 3788 or Email lockmaster@stirlingms.com.au There is no fuel available in the marina. Long term live-aboards are allowed.

They have 128 berths available, from 9 m to 21 m lengths all with power and water, in a secure and gated environment. The maximum size vessels that can be accepted are: length 26 m, beam 7.25 m, draft 2.5 m. The lock works between 0600 and 1800, 7 days per week. On Wednesday and Saturday the opening times are extended to 2100. The lockmaster requires one hour's notice of entry or exit.

Tides: Darwin. Range 8 m.

11.3 Darwin to Port Keats

Charts: AUS 26, 27, 29, 316, 724, 725, 4721



Chartlet 3

An important consideration in this area is the tide. Tidal flow in and out of the anchorages described can make all the difference to arriving as planned or experiencing frustration because of a contrary current. The preferred time to visit these anchorages is during a period of neap tides. The flood tide runs south down the coast and ebbs north.

11.3.1 Tapa Bay

(no chartlet)

12° 26.6'S 130° 35'E

AUS 29

Tapa Bay is a shallow bay within Bynoe Harbour. If departing from Darwin work the last three hours of the ebb tide around Gilruth Point, then turn to port inside Kellaway Reef.

⚓ Anchor off the shoreline, favouring the southern end of the bay.

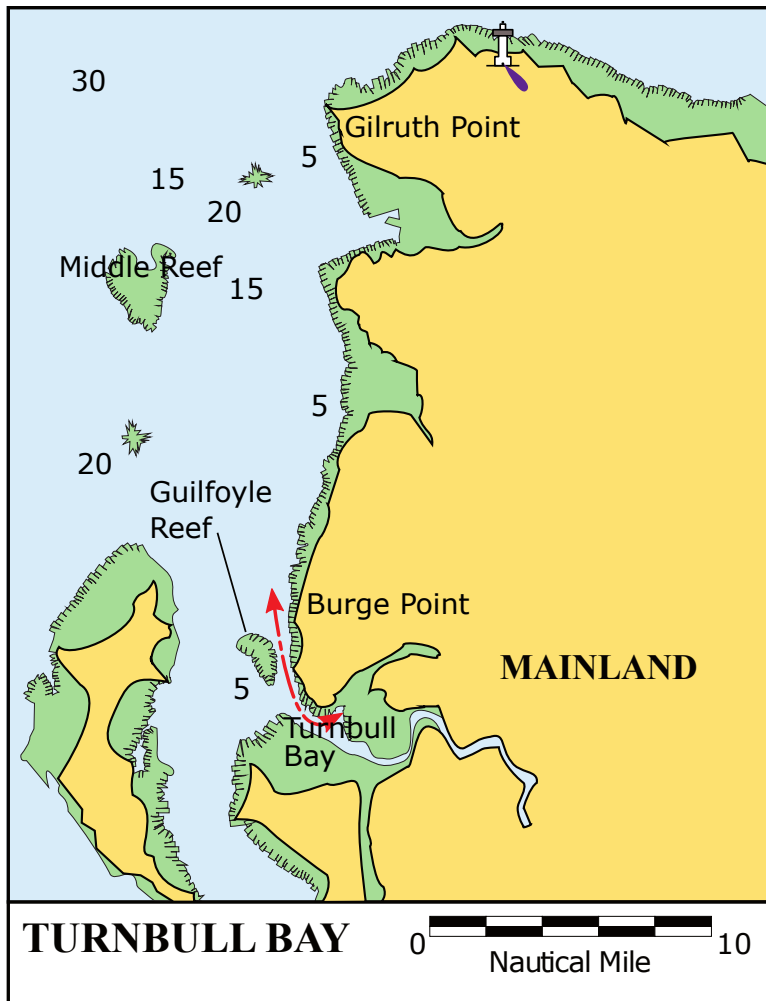
Caution: The bay is best visited during neap tides and can become uncomfortable if visited late in the dry season.

Tides: Tapa Bay Range 7 m.

11.3.2 Turnbull Bay

12° 36.5'S 130° 34.7'E

AUS 29



Chartlet 4

Work the last three hours of the ebb tide around Gilruth Point, then head south past Burge Point, turning to port inside Guilfoyle Reef. Local knowledge suggests Turnbull Bay as the preferred anchorage in Bynoe harbour.

⚓ Off the sandy beach favouring the northern part of the bay.

Passage between Burge Pt. and Guilfoyle Reef can be negotiated using the following waypoints:

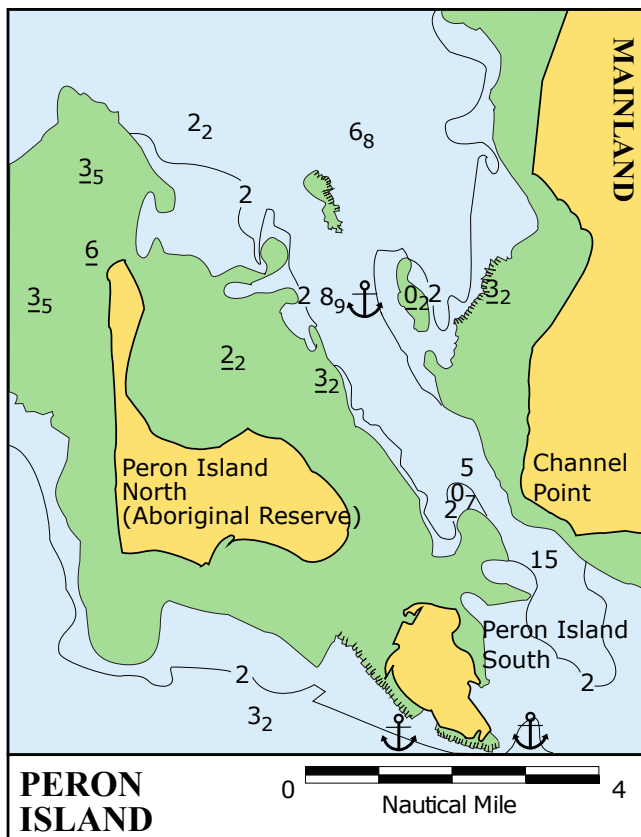
| | | |
|---|------------|-------------|
| 1 | 12° 34.0'S | 130° 33.5'E |
| 2 | 12° 35.8'S | 130° 33.8'E |
| 3 | 12° 36.2'S | 130° 34.0'E |
| 4 | 12° 36.3'S | 130° 34.4'E |
| 5 | 12° 36.1'S | 130° 34.7'E |

Tides: Burge Pt. Range 7m.

11.3.3 Peron Island

13° 10'S 130° 03'E

AUS 724



Chartlet 5

⚓ Anchorage can be taken in a bay off the southwest side of Peron Island South.

⚓ Anchorage has been taken off the southeast tip of the same island.

The westerly anchorage can become less comfortable later in the day with the onset of an afternoon sea breeze. Re-anchoring to the eastern side of the island is an alternative but has the disadvantage of possibly having to relocate in the early hours of the morning in the event of a boisterous SE wind developing.

Passage to the east of Peron Island North and Peron Island South is possible with care taken to work the tide when passing to the east of Peron Island South.

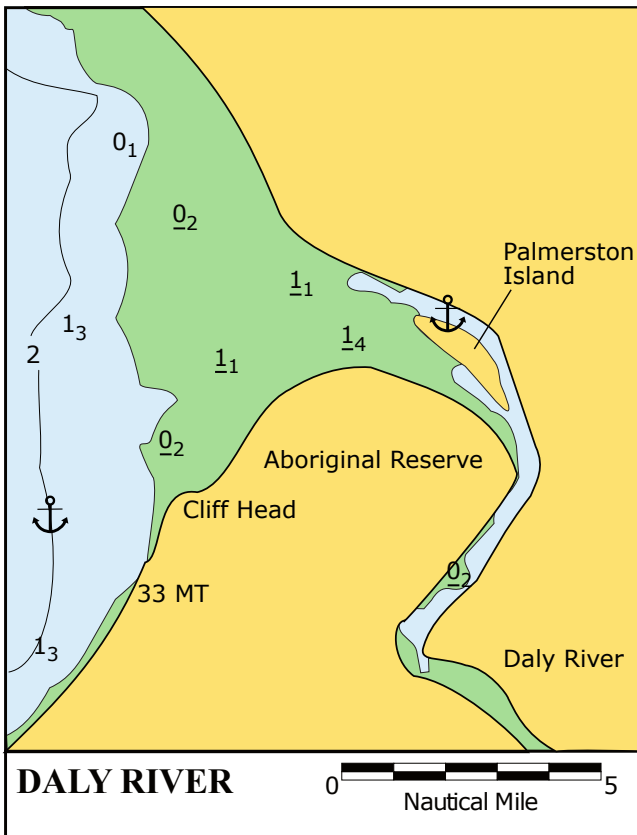
⚓ Satisfactory anchorage has been taken northeast of Peron Island North at 13° 07.7S, 130° 04.9E.

Tides: North Peron. Range 6 m.

11.3.4 Daly River

13° 19'S 130° 15'E

AUS724



Chartlet 6

⚓ An offshore anchorage can be taken 2 nm west of Cliff Head in SE weather.

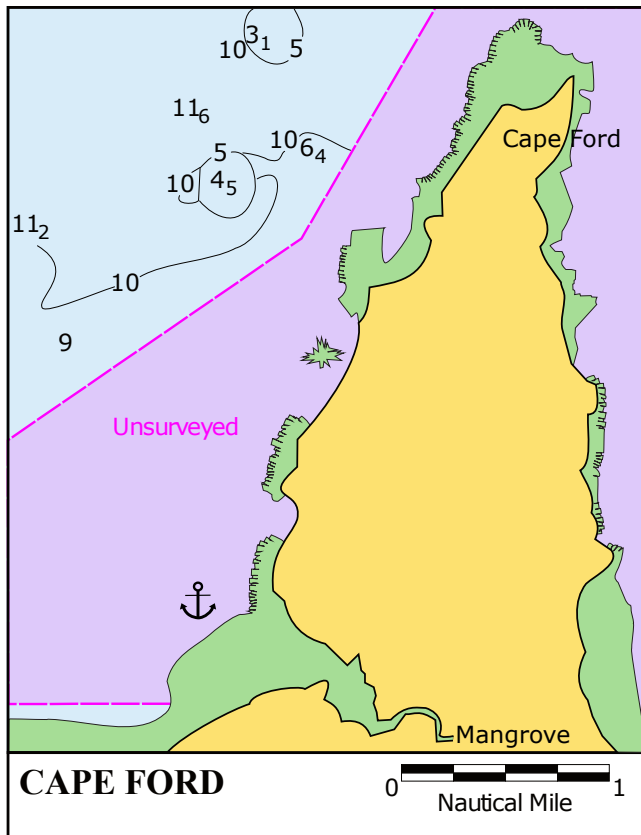
⚓ For those willing to work the tides an alternative anchorage can be taken in the Daly River east of Palmerston Island position approximately 13° 18.9'S, 130° 17.8'E.

Tides: Anson Bay. Range 6 m.

11.3.5 Cape Ford

13° 26.5'S 129° 53.5'E

AUS 724



Chartlet 7

Anchorage has been found on both sides of the Cape.

⚓ Anchorage has been taken in Anson Bay about 5 nm southeast of Cape Ford, well out in good depth at 13° 28.8'S, 129° 57.1'E.

⚓ Anchorage has also been taken about 2 nm south-southeast of Cape Ford, in unsurveyed water at 13° 27.8'S, 129° 54.2'E.

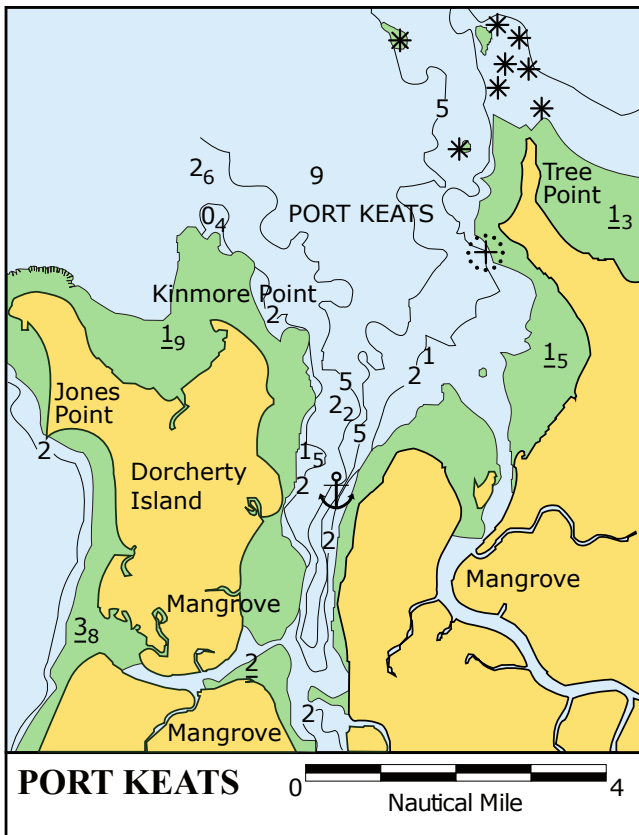
⚓ An acceptable anchorage in SE winds has been taken in unsurveyed water at the entrance to the creek some 3 nm southwest of Cape Ford, at 13° 29.3'S, 129° 51.2'E. Some shelter is provided by Cape Ford to the north and Cape Scott to the west.

Tides: Anson Bay. Range 6 m.

11.3.6 Port Keats

14° 03'S 129° 34'E

AUS 725



Chartlet 8

⚓ A very satisfactory anchorage has been reported during strong SE winds at 14°05.4'S, 129° 33.3'E.

Of Interest: The nearby Aboriginal community of Wadeye has a population of about 2,000 and is serviced by an airstrip. <http://www.indignet.com.au/wadeye>.

Tides: Port Keats. Range 8 m.

11.4 Joseph Bonaparte Gulf

Charts: AUS 32, 318, 726, 727



Chartlet 9

Joseph Bonaparte Gulf is an area subject to strong currents. The majority of yachts departing Darwin head straight for the western side of the gulf and make their landfall at Koolama Bay or

Berkeley River.

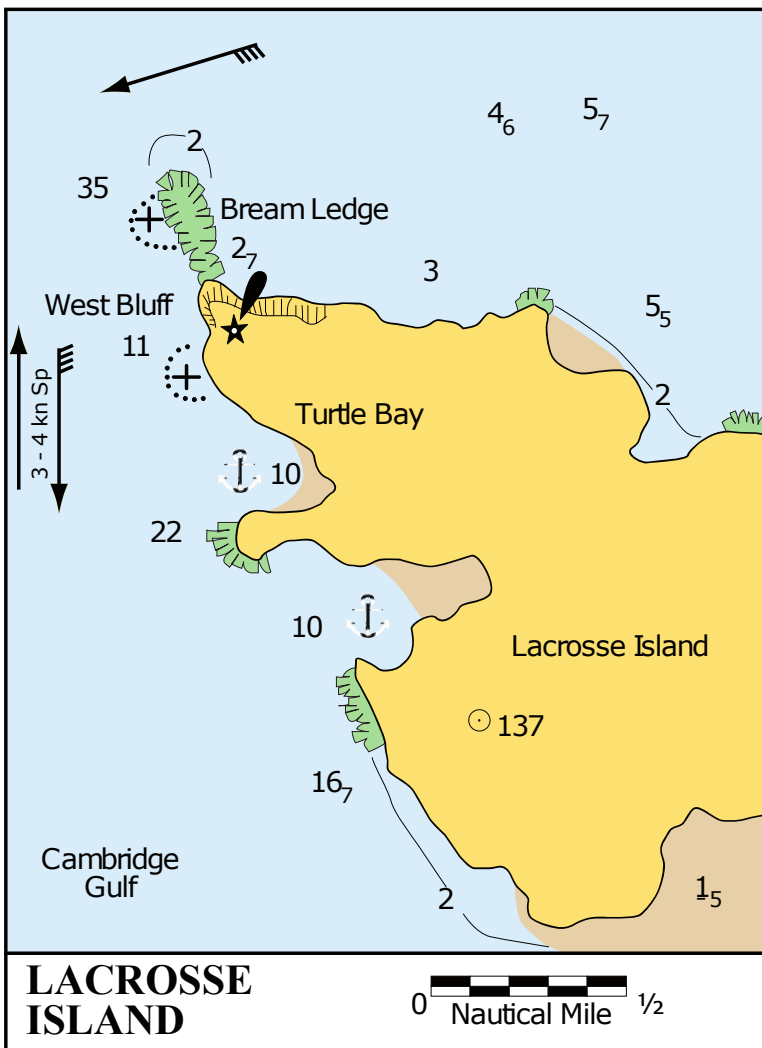
The west coast of Joseph Bonaparte Gulf is a lee shore in the prevailing strong E winds. Cambridge Gulf is located in the southwest part of Joseph Bonaparte Gulf and is divided at its entrance by Lacrosse Island. The tidal flow in Cambridge Gulf is very strong. Anchorages can be found at Cape Domett, Lacrosse or Adolphus islands, the Helby or Lyne rivers or Cherrie Cove.

History: Nicolas Baudin named Joseph Bonaparte Gulf in honour of the King of Naples, brother of Napoleon Bonaparte. Cambridge Gulf was discovered by Phillip Parker King in 1819. He spent 12 days exploring the gulf and searching for water. King named the gulf in honour of His Royal Highness the Viceroy of Hanover.

11.4.1 Lacrosse Island

14° 45'S 128° 19'E

AUS 32, 318, 726



Chartlet 10

On the west side of Lacrosse Island are two bays; a strong tidal flow causes rips across the mouths. Anchorage may be taken in the bays but will be exposed to some flow.

⚓ The northern anchorage is in Turtle Bay. Anchor over sand in 10 m at 14° 44.6'S, 128° 17.8'E.

⚓ An alternative anchorage is around the point to the south of Turtle Bay where it is more protected from N winds. Depths less than 10 m can be found.

Caution: Much of the bays dries at LWS.

Tides: Lacrosse Island. Range 7 m.

History: Named in honour of Admiral Jean-Baptiste Raymond, Baron de Lacrosse.

11.4.2 Cape Domett

(no chartlet)

14° 49.0'S 128° 22.7'E

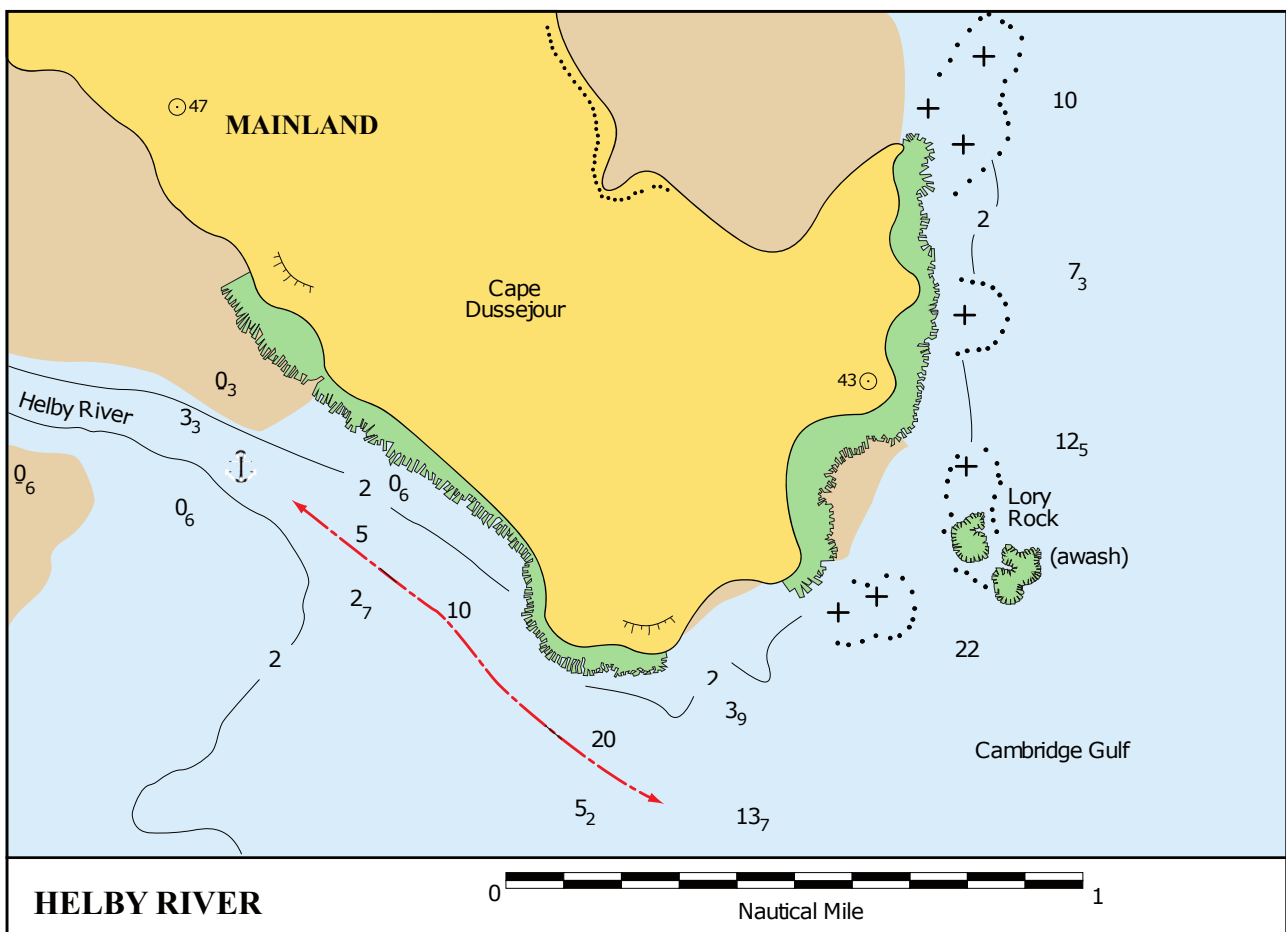
AUS 32, 726, 318.

⚓ Anchorage can be taken south of the Cape in light easterlies.

11.4.3 Helby River

14°46'S 128°13'E

AUS 32, 318, 726



Chartlet 11

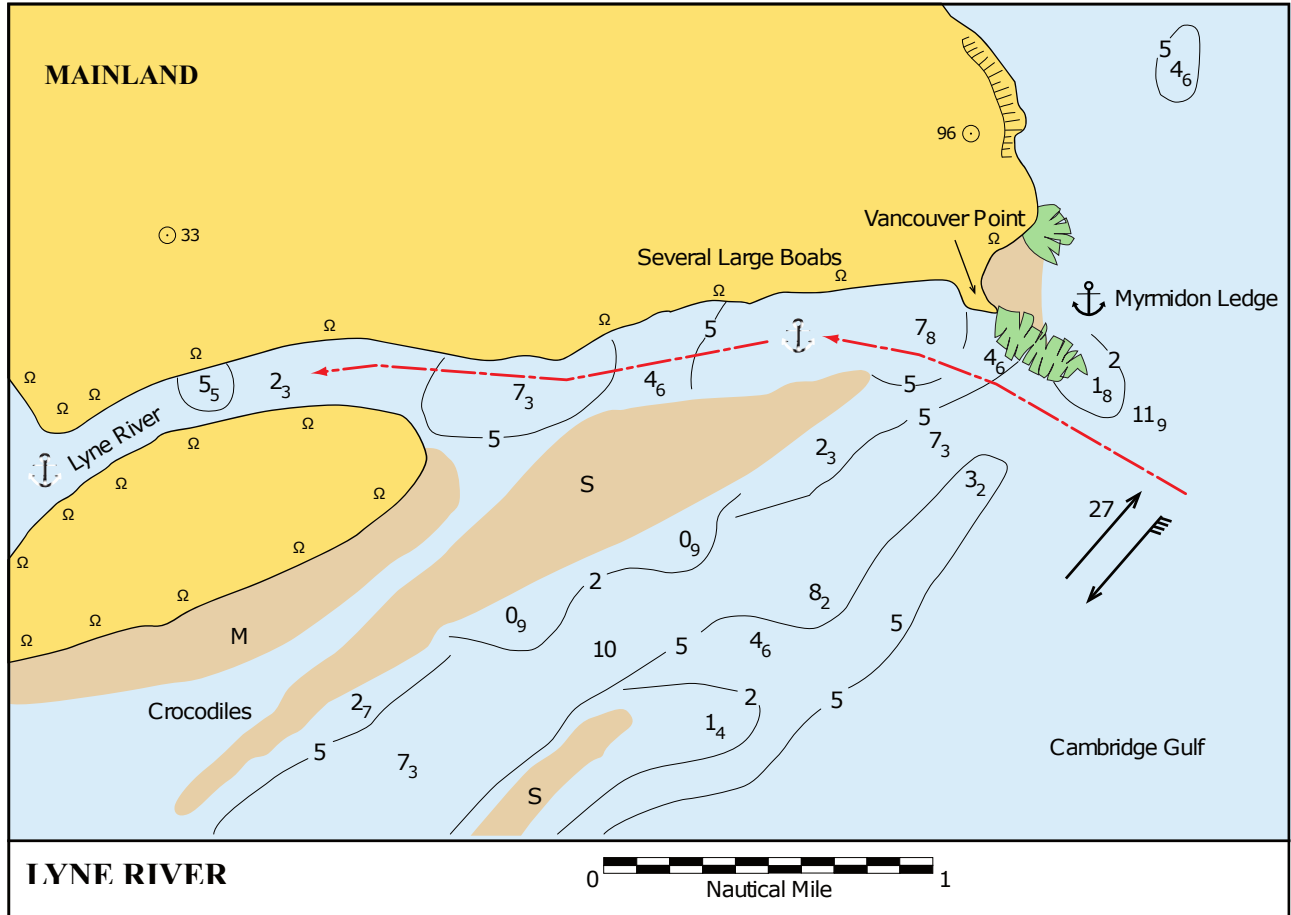
⚓ Cape Dussejour, opposite and west of Lacrosse Island, is the western headland of Cambridge

Gulf. Anchorage out of the tidal flow can be found on the southwest side of Cape Dussejour, in the entrance to the Helby River.

11.4.4 Lyne River

14° 52'S 128° 10'E

AUS 32, 318, 726



Chartlet 12

⚓ Myrmidon Ledge, on the seaward side at the mouth of the Lyne River, provides an indifferent anchorage in N winds. The tidal flow with strong eddies is the problem.

⚓ A better anchorage can be found by crossing the sandbar which reaches out from a drying sand spit; anchor just before you are opposite a group of boab trees.

⚓ An all-weather anchorage in 6 m over mud may be found by following the northern shore to a creek about 3 nm upstream from Myrmidon Ledge. Entry is best on a rising tide. With an outgoing tide the flow sets towards the ledge and caution is required.

There are freshwater creeks entering the upper arms of the Lyne River.

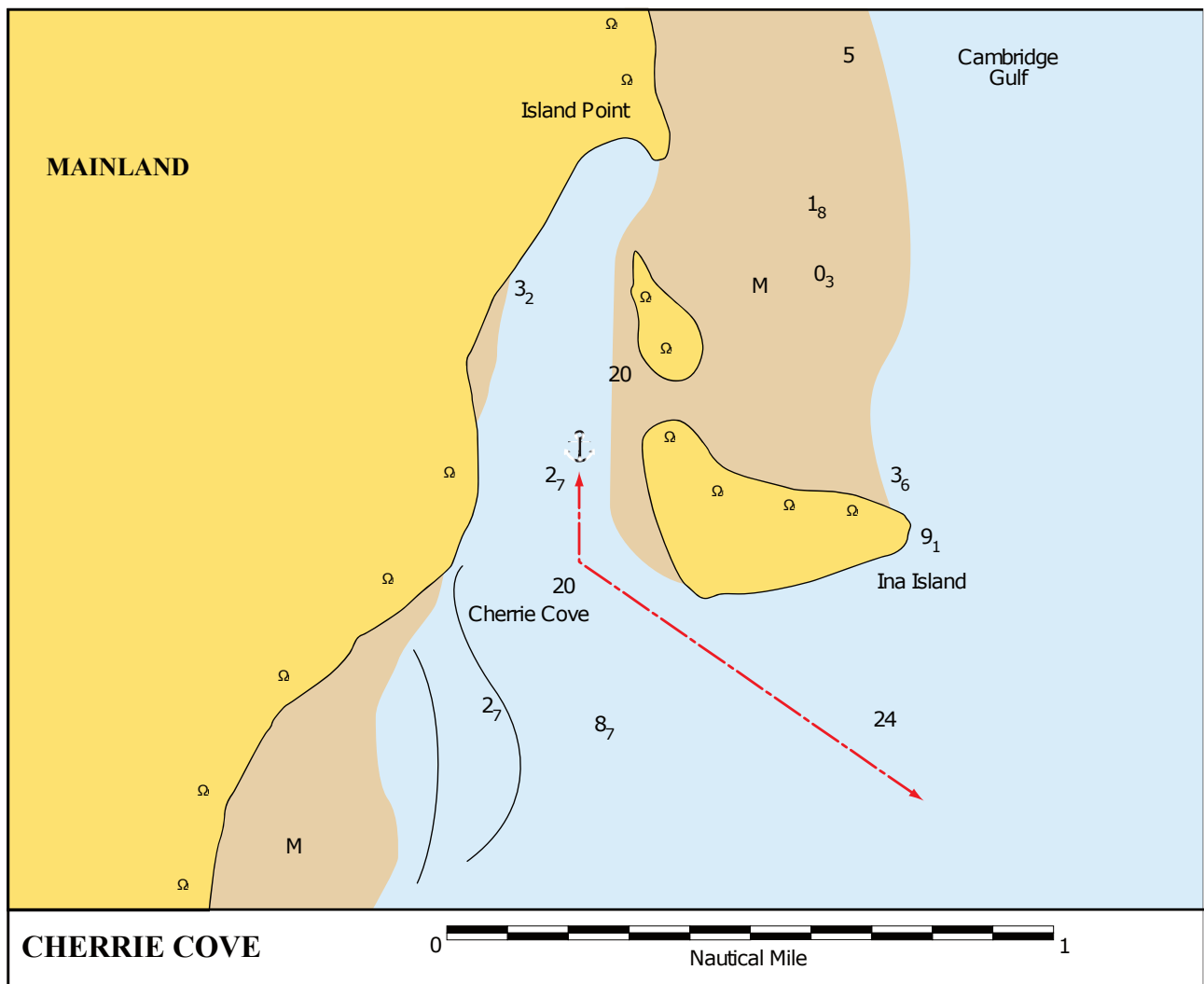
Tides: Lacrosse Island. Range 7 m.

Fishing: Good for barramundi.

11.4.5 Cherrie Cove

15° 00.3'S, 128° 06.5'E

AUS 32



Chartlet 13

⚓ Cherrie Cove is located on the west side of Cambridge Gulf, in the protection of Ina island 18.5 nm from Lacrosse Island. The approach is from the south of Ina Island and follows a 20 m deep channel. Anchor over mud close under the west side of the island in about 4 m, out of the main tidal stream. Crocodiles have been sighted.

Tides: Tidal streams off the east side of the island are very strong causing overfalls and rips.

11.4.6 Adolphus Island

(no chartlet)

15° 04'S 128° 08'E

AUS 32

⚓ Anchor in 4 m over mud 1 nm south of Nicholls Point; this is protected from N and E winds and lies out of the tidal stream. There is no beach, only mangroves, but this is a convenient anchorage

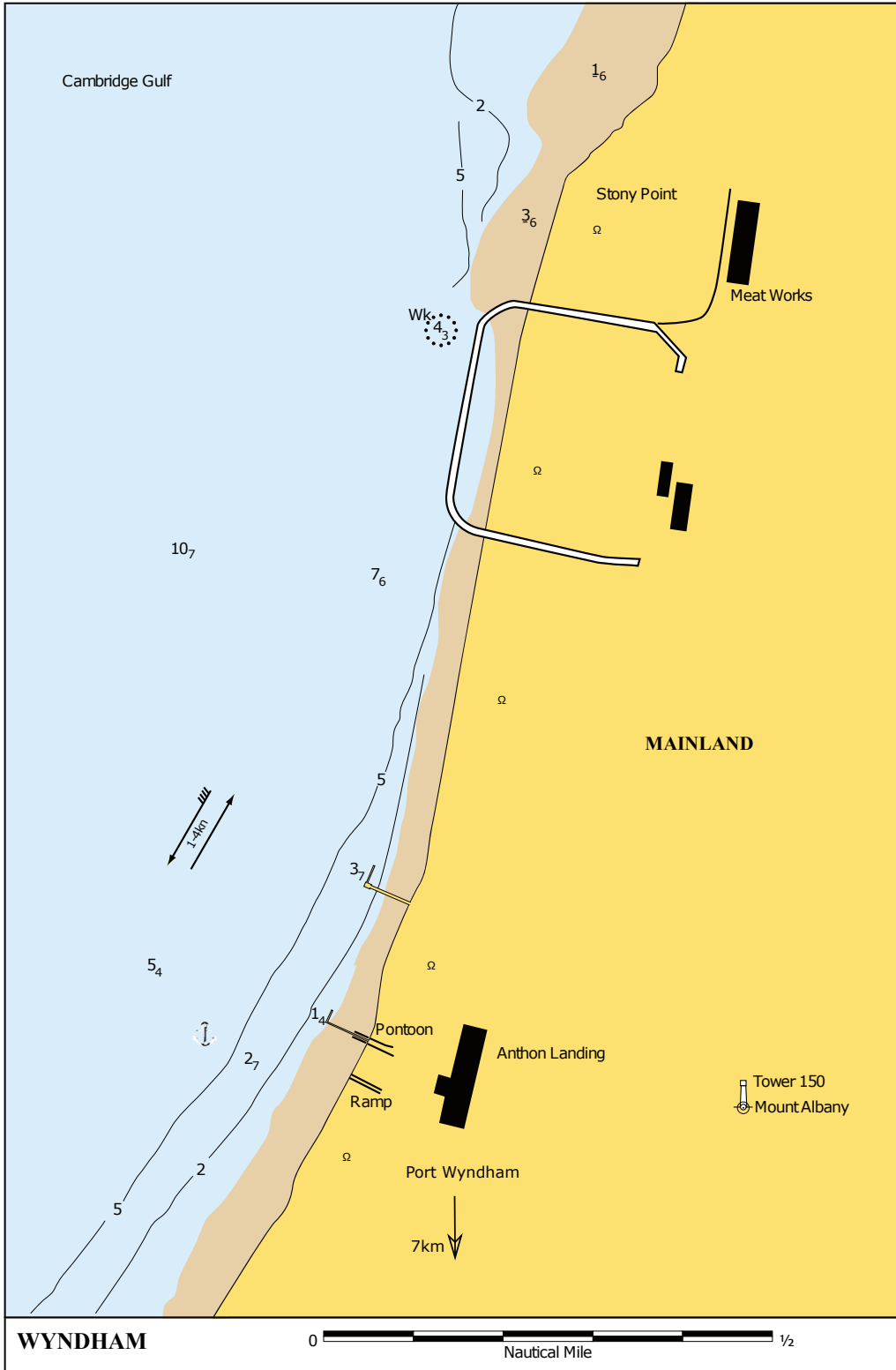
to wait for the tide.

Tides: Adolphus Island. Range 8 m.

11.4.7 Wyndham

15° 27'S 128° 06'E

AUS 32



Chartlet 14

Wyndham is the main port for the west Kimberley, with a population of under 700. It is situated 45 nm up the Cambridge Gulf. It was originally established because of gold discoveries, then later became the site of abattoirs and a meat exporting port.

Wyndham is well off the usual cruising route around the coast; it is inconvenient but possible to obtain fuel and supplies. It is the port for Kununurra and Lake Argyle about 100 km inland.

Wyndham is the hottest coastal town in Australia with an annual mean temperature of 29.1°C. The Bastion Range stands over Wyndham and probably contributes to the heat of the port.

⚓ Anchorage over mud is available off the boat ramp near the post office. Tidal flow in springs can be 3-4 kn and uncomfortable against the wind. There is a pontoon landing alongside the boat ramp for dinghies.

Caution: Crocodiles are a serious menace and a danger at the boat ramp.

Facilities: A hotel, post office, newsagent and a couple of small shops are situated at the port. The local community are very supportive of visiting boaters. Community support includes the East Kimberley Marine Rescue group and Pixies Yacht Club, located in the general store opposite the hotel. Alcohol restrictions are in place, though tourists are reportedly exempt. The main town of Wyndham is 7 km away by road, with most small town facilities including a hospital (see section 7.5). Hire cars and taxis are not available. As with most commercial ports, Wyndham is subject to security laws that impose many restrictions on vessels coming alongside. Whilst wharf access may be arranged under supervision, generally yachts are obliged to take on stores and fuel by dinghy from the small-boat floating pontoon. Fuel must be arranged in advance from Des at Kimberley Motors Phone (08) 9161 1281. Diesel and ULP available. Cash and credit cards accepted. They have a small tanker and will deliver fuel to the Wyndham wharf. At spring tides the wharf is only usable at HW slack because of the strong currents.

Tides: Wyndham. Range 8 m.

Of interest: The m/v *Koolama* lies submerged off the northwest corner of the wharf.

11.4.8 Buckle Head

(no chartlet)

14° 27'S 127° 52'E

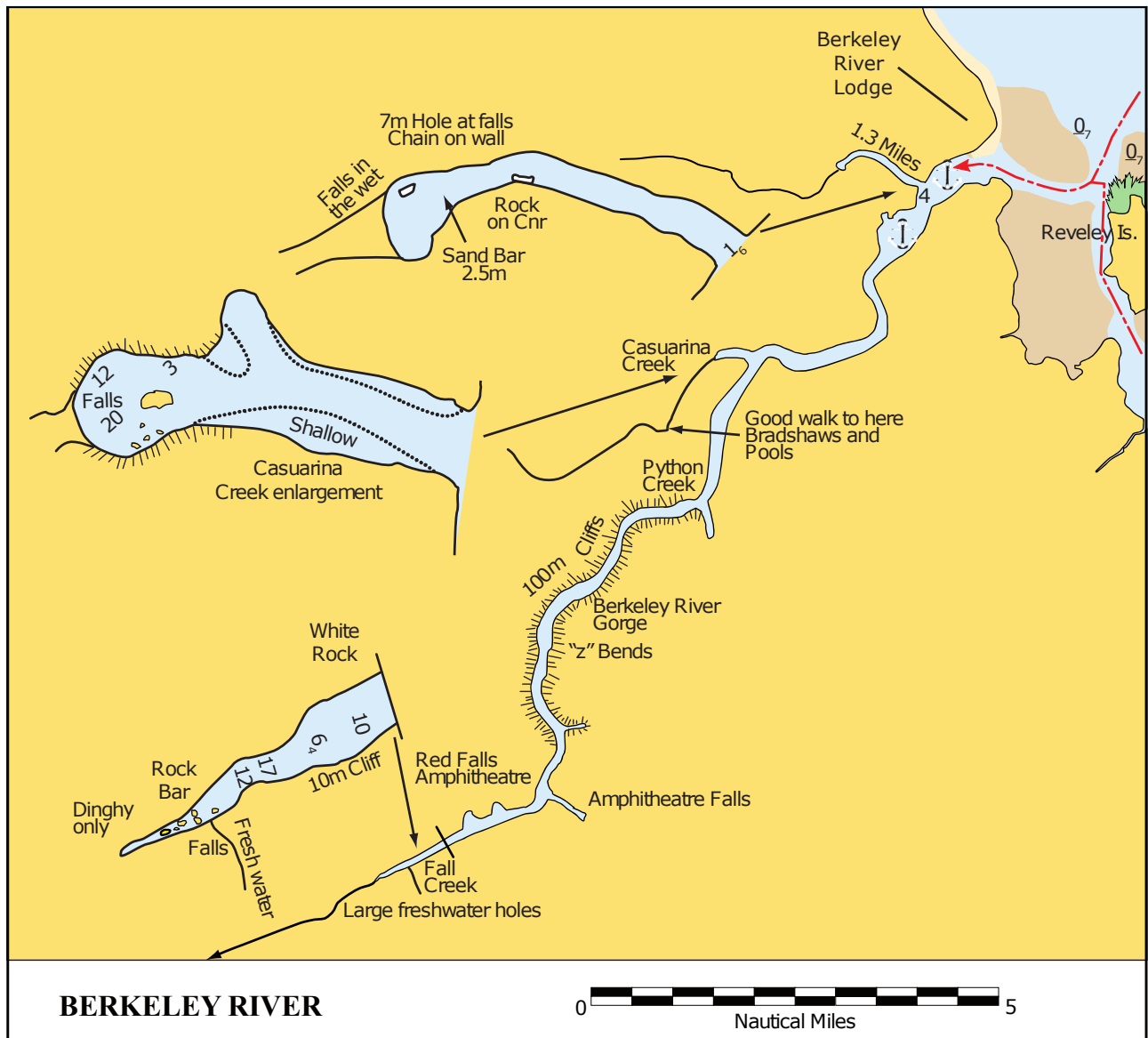
AUS 318, 726

⚓ Anchorage has been taken in the bay to the southeast of Buckle Head. Anchor over mud in 3 m, protected from the SW to NW. The approach from the northwest appears clear.

11.4.9 Berkeley River

14° 21'S 127° 47'E

AUS 318, 726



Chartlet 15

The Berkeley River enters Joseph Bonaparte Gulf 1.75 nm west of Reveley Island. Shallow sandbanks extend about 1.5 nm from the river mouth with a narrow channel having depth less than 1 m LWS. There are also several drying and shallow sandbanks in the bay between the southern entrance point and Reveley Island. Entry or departure from the river should only be attempted on a rising tide. Several approaches to the river entrance are possible and much will depend on draught, state of tide and prevailing conditions. The simplest approach for a shallow drafted vessel (less than 1.2 m) and only in calm conditions is from the northeast on a bearing of 225° to the river mouth. This route is extremely shallow, drying out at low water. The deeper and more prudent path is to approach the river entrance from the south, travelling along the west side of Reveley Island. It is also a good place to anchor and wait for a favourable tide. However, the preferred track may

change. In April 2015 there were reports of silting on this route, with the bank west of Reveley Island extending further north than previously recorded. The following waypoints have subsequently been suggested, but note:

- a) they are only given to one decimal place of minutes i.e. resolution of plus or minus 100 m,
- b) your GPS might be set to a different datum to the one used for these waypoints, and
- c) the silting may well have changed the channel by the time you read this.

So use your eyes and your depth sounder!

| | |
|------------|-------------|
| 14° 23.0'S | 127° 50.7'E |
| 14° 23.0'S | 127° 49.2'E |
| 14° 23.1'S | 127° 48.7'E |
| 14° 22.8'S | 127° 48.5'E |
| 14° 22.5'S | 127° 48.4'E |
| 14° 22.4'S | 127° 48.3'E |
| 14° 22.1'S | 127° 48.2'E |
| 14° 21.5'S | 127° 48.2'E |
| 14° 21.1'S | 127° 48.3'E |
| 14° 21.2'S | 127° 48.1'E |
| 14° 21.3'S | 127° 47.6'E |
| 14° 21.2'S | 127° 47.4'E |
| 14° 21.0'S | 127° 47.2'E |
| 14° 20.9'S | 127° 47.1'E |

Beware of anchoring outside (east) of the island overnight, as strong SE winds can make the area

untenable.

The river is navigable until a rock bar is encountered 14 nm from the entrance. Shallow draft boats can access the creeks at half tide or better and anchorage is possible. Deep draft boats should remain in the river and explore the creeks by dinghy.

⚓ Once inside the mouth of the river, anchorage can be taken just about anywhere where the holding is mud and depth allows. The narrow gorge part of the river about 9.5 nm from the entrance, and anywhere up river from about 400-500 m past the amphitheatre, has scoured rock bottom and anchoring would be unwise in these locations. The most commonly used anchorages are near the creek mouths.

Caution 1: There are rocks awash at HWS off the southern entrance point.

Caution 2: Crocodiles have been sighted in the river and the lower pools.

Tides: Reveley Island. Range 5 m.

Facilities: The luxurious Berkeley River Resort on the north side of the entrance welcomes cruisers. They have a bar and restaurant, and will sell diesel and ULP in small quantities if you run short. The staff are very helpful. There is an airstrip with a helicopter based there in the dry season that can be chartered for scenic flights, helifishing or crew transfers. Light aircraft can be chartered from Kununurra or Darwin to fly in crew, parts or supplies. There is a landing fee for aircraft not associated with guests staying at the resort. Contact the resort before visiting

<http://www.berkeleyriver.com.au/> Ph (08) 9254 3268. VHF Ch 16 call sign "Berkeley Resort".

Of interest: The first creek on the north side ends in a rocky amphitheatre with freshwater pools and low waterfalls. Casuarina Creek has 20 m high falls. Numerous walks and picnic spots.



Upper Berkeley River (D Ford)



Berkeley River (R&L Newton)



Upper Berkeley River (R&L Newton)

11.4.10 Eric Island

(no chartlet)

14° 16'S 127° 44'E

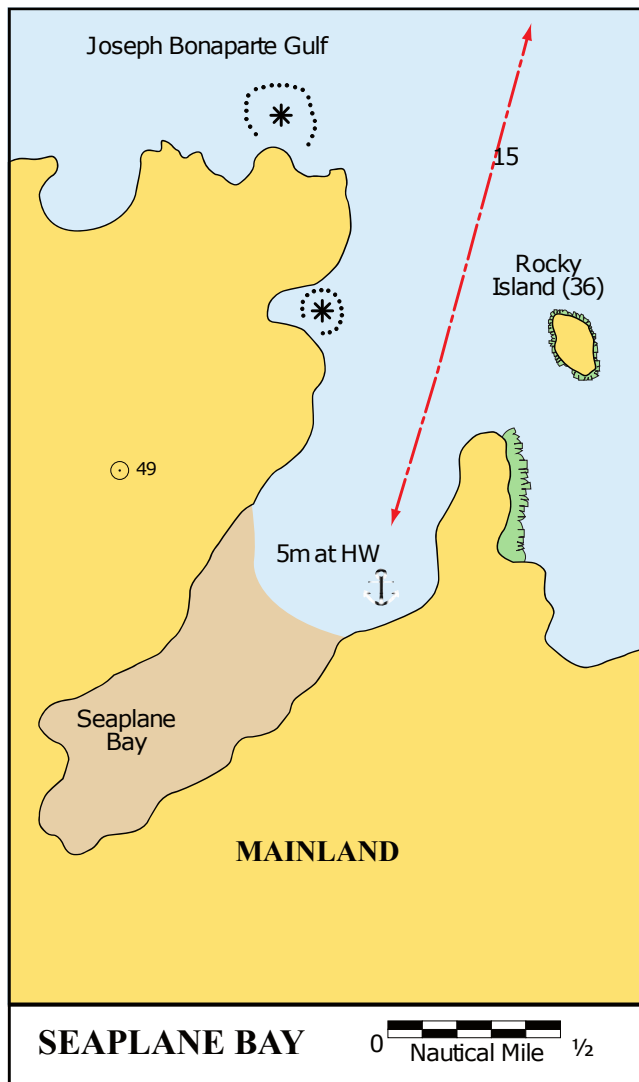
AUS 318, 726

⚓ Northwest from Berkeley River, anchorage may be taken up between Eric Island and the mainland, or between Eric Island and Elsie Island.

11.4.11 Seaplane Bay

14° 06'S 127° 32'E

AUS 318, 726, 727



Chartlet 16

Seaplane Bay is open to the north but is otherwise protected by thickly wooded hills. Evelyn Island, about 2 nm southeast of the mouth of the bay, is conspicuous. When you get closer, Rocky Island may be identified. No tide races have been reported around the entrance to the bay. Approach keeping clear of Rocky Island. There are no obstacles if you stick to the middle of the entrance. Anchorage has been taken at 14° 06.2'S, 127° 32.3' E in 12 m at neaps. There was no wind but some swell entered the bay. Swell refracts in from any direction.

⚓ Anchorage can be taken along the southeast shore in shoaling sand and mud in about 5 m.

Caution: Much of the bay dries at LWS.

Tides: Reveley Island. Range 5.0 m.

History: German aviators Bertram and Klausman survived for 38 days after the forced landing of their seaplane in this bay on 17 May 1932, before being rescued by a local Aboriginal search party.

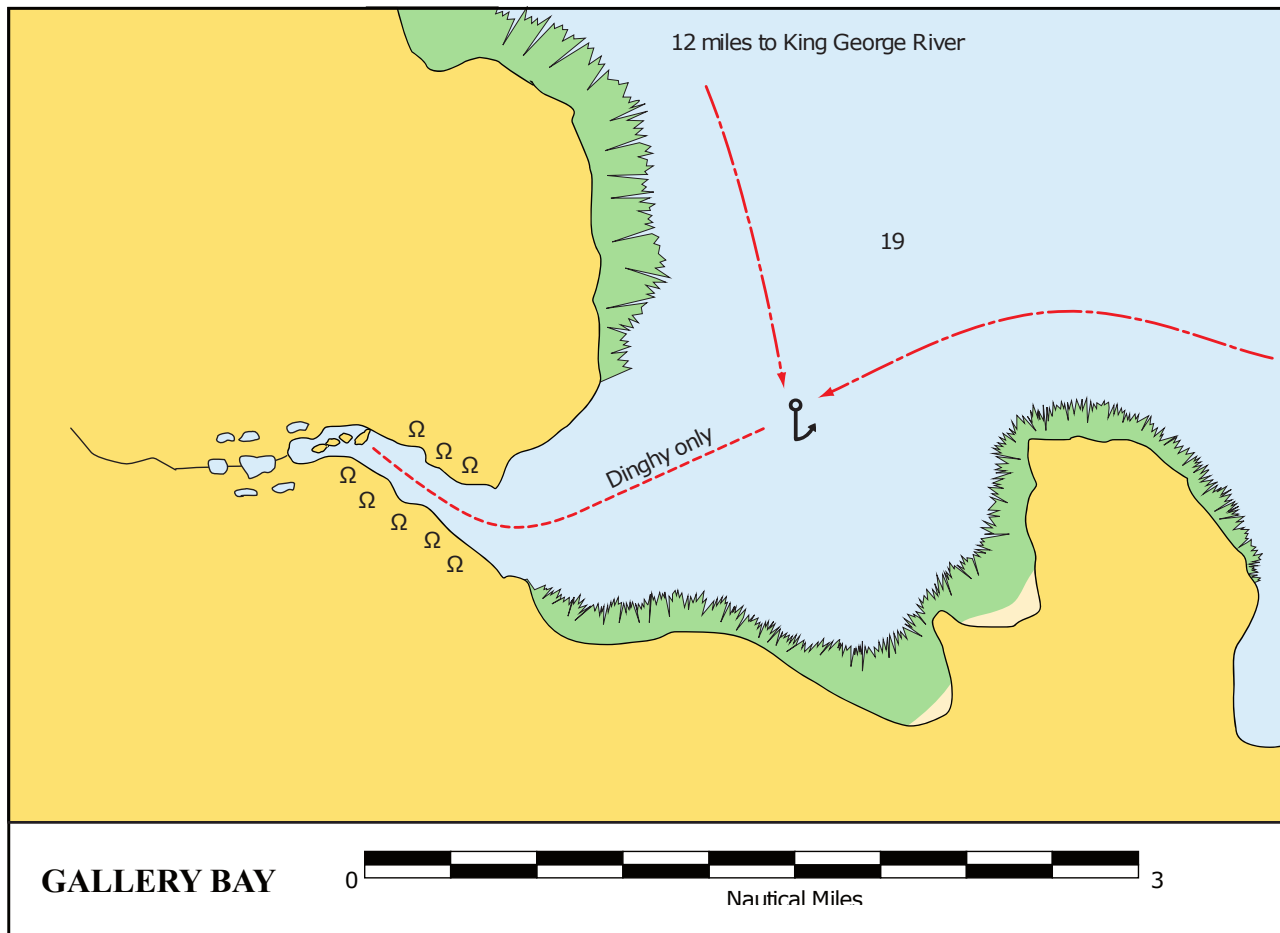
Passage notes:

This bay makes a good stepping stone from King George River to Berkeley River.

11.4.12 Gallery Bay

13° 58.7'S 127° 26.7'E

AUS 318, 727



Chartlet 17

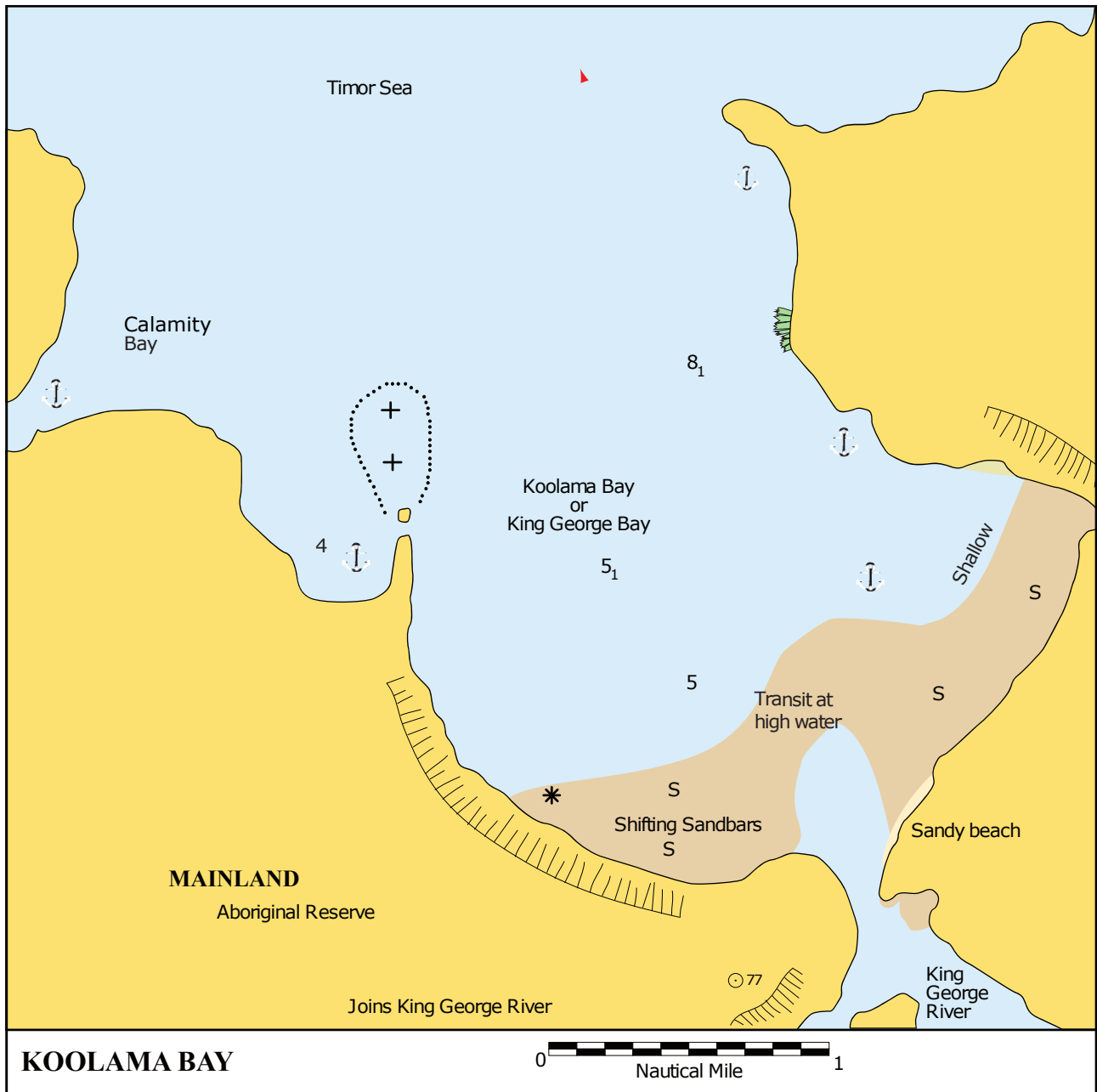
⚓ Daytime only anchorage can be taken at 13° 58.7'S, 127° 26.8'E. This exposed anchorage is only recommended in settled weather.

Of interest: Ashore there are Aboriginal paintings.

11.4.13 Koolama Bay

13° 55'S 127° 18'E

AUS 318, 727



Chartlet 18

Koolama Bay is south of Lesueur Island and west of Cape Rulhieres. The main feature is the spectacular and picturesque King George River. Koolama Bay is generally sandy. A reef east of Calamity Bay extends out from the central point. Swell can affect the whole bay. The river mouth is defined by a low sandy beach backed by mangroves on the east and a steep rocky cliff to the west.

⚓ Overnight, sheltered anchorage while awaiting entry into the river mouth can be found at 13° 55.2'S, 127° 19.5'E.

⚓ There are anchorages in the eastern part of Koolama Bay, mainly in 3-4 m over sand.

⚓ Anchorage can be taken over sand near the mouth of the King George River, outside the sandbanks.

⚓ Anchorage behind the small headland in the west of the bay offers some protection from the NW sea breeze, as does Calamity Bay.

Tides: Lesueur Island. Range 2.5 m.

Fishing: There is good fishing in the sand channels near the shore.



Approaching Koolama Bay (R&L Newton)

History: In February 1942 the state ship M/V *Koolama* (the name means waterfowl) was bombed by Japanese planes and badly damaged off Cape Londonderry. Captain Eggleston managed to beach the stricken ship near the entrance to the King George River. One hundred and sixty people got ashore in lifeboats and then camped on the beach at Calamity Bay.

As a result of an SOS message received at the Benedictine Mission in Kalumburu, a lugger set sail from the Drysdale River to find them. There were seven Aboriginal guides on the boat with Father Seraphim Sanz. They found the camp, and the lugger took on the wounded and some of the crew. A seaplane rescued others.

Meanwhile Captain Eggleston, with a skeleton crew, patched up the ship and with constant pumping out of water managed to refloat her. The *Koolama* reached Wyndham but due to an air raid it was abandoned at the wharf and later sank during salvage operations.

The 93 people left at the bay were led out by Aborigines. It was a torrid four-day walk over 75 km of harsh terrain in hot, humid weather. They managed to cross the swollen river to the Drysdale Mission. Later they were airlifted out from the Kalumburu airstrip.

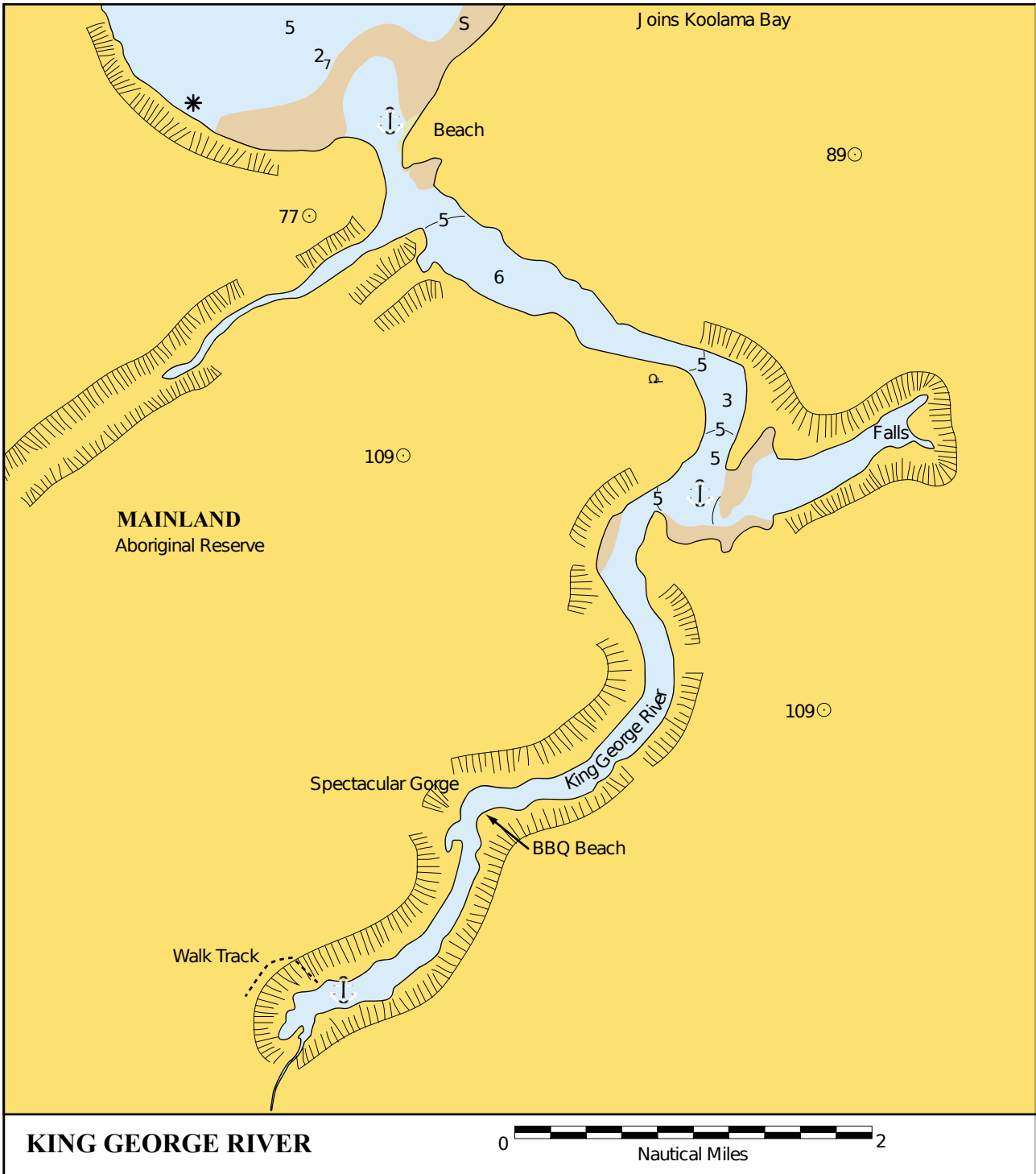


Koolama Bay entrance looking east (R&L Newton)

11.4.14 King George River

13° 58'S 127° 20'E

AUS 318, 727



Chartlet 19

The river mouth is defined by a low sandy beach backed by mangroves on the east and a steep rocky cliff to the west. Approach this from near the northern point of the bay. The entry channel shifts on occasion and up to date local knowledge should be obtained. Do not assume that entry waypoints used in previous years will be safe. It is wise to survey the depth in your tender before

crossing, or obtain recent waypoints used by other vessels in the current season.



King George River (R&L Newton)

There are times when sand ridges extend for half a mile into the river. These are best negotiated above half tide. As a general rule the outside of a bend offers the deepest water. Other than the sand ridges, minimum depths of 5 m will be found at the outside of the curves of the river. With a flooding tide the water may be clear enough to see the sea bed with polarised sunglasses.

On the way up the river, there is a branch off to the east, but sandbars block the entrance. This East Arm ends in cliffs with a waterfall.

The navigable water extends southwest for 6 nm, where two waterfalls plunge 100 m over a sandstone cliff. These falls are normally in full force from late December to early May each year and gradually recede until September. They are usually dry near the end of the dry season.

⚓ Anchorage may be taken in the middle of the river in 7 m over mud, about half a mile downstream of the falls. At the falls the depth is around 60 m.

⚓ The two most popular anchorages are near the river's main attractions, which are off the entrance to the East Arm falls, and the Twin Falls. However, anchorage can be taken almost anywhere in the river where depth allows. Other popular spots to anchor are just inside the river entrance, and near BBQ Beach 1.5 nm downstream at a sharp bend opposite a spectacular gorge .

Tides: Lesueur Island. Range 2.5 m in the bay and 1m at the waterfalls.

Of interest: The gorge opposite BBQ Beach is worth exploring by dinghy and a climb to the top warrants the effort if you are energetic. Climb using the obvious tracks; one of them starts on the

west side about 200 m from the falls and is marked by rock cairns. There are freshwater pools at the top.

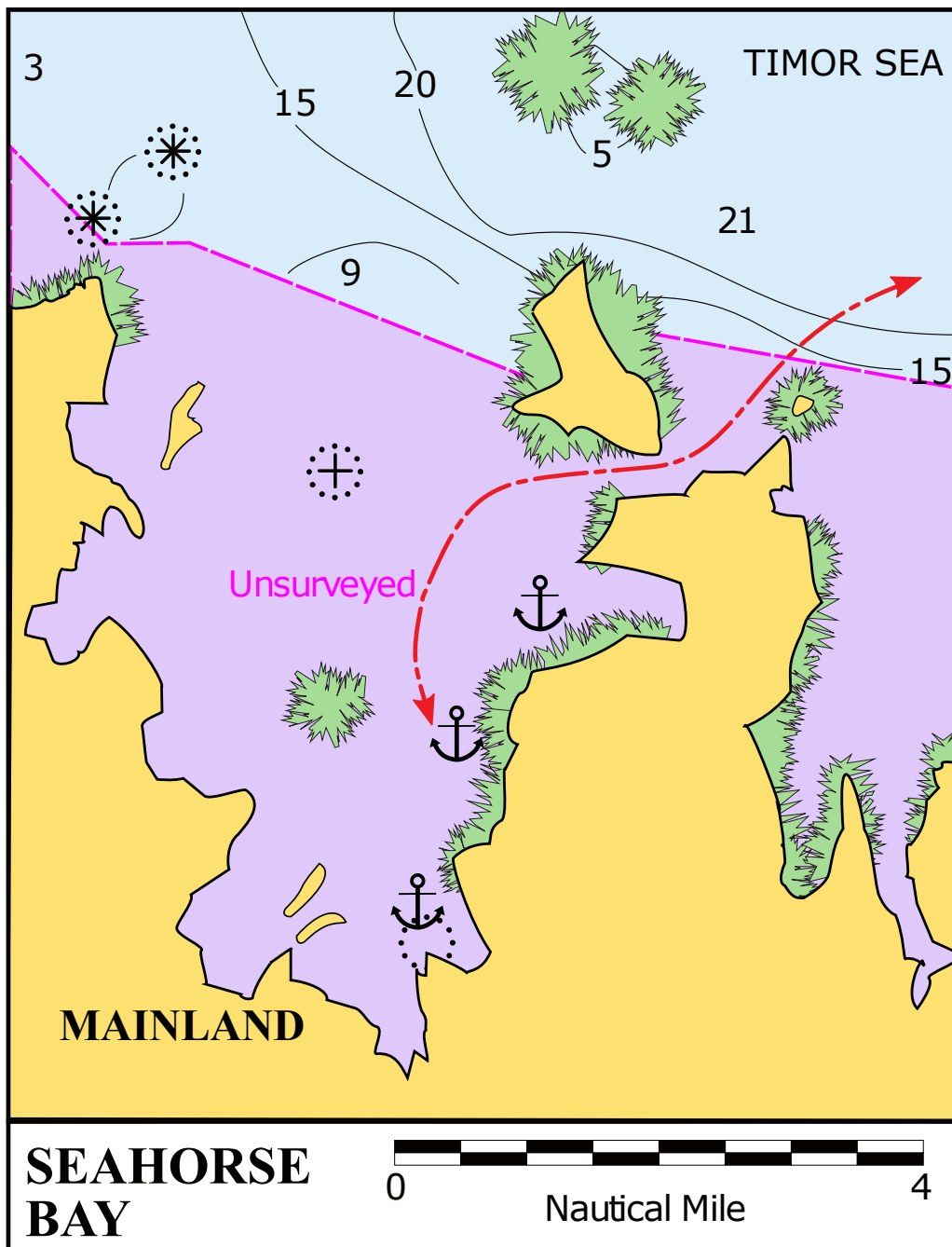


King George River Falls (R&L Newton)

11.4.15 Seahorse Bay

13° 55.0'S 127° 10.0'E

AUS 318, 727



Chartlet 20

⚓ Anchorage has been taken at 13° 55.5'S, 127° 9.6'E, 13° 56.5'S, 127° 9.0'E and 13° 57.7'S, 127° 7.0'E.

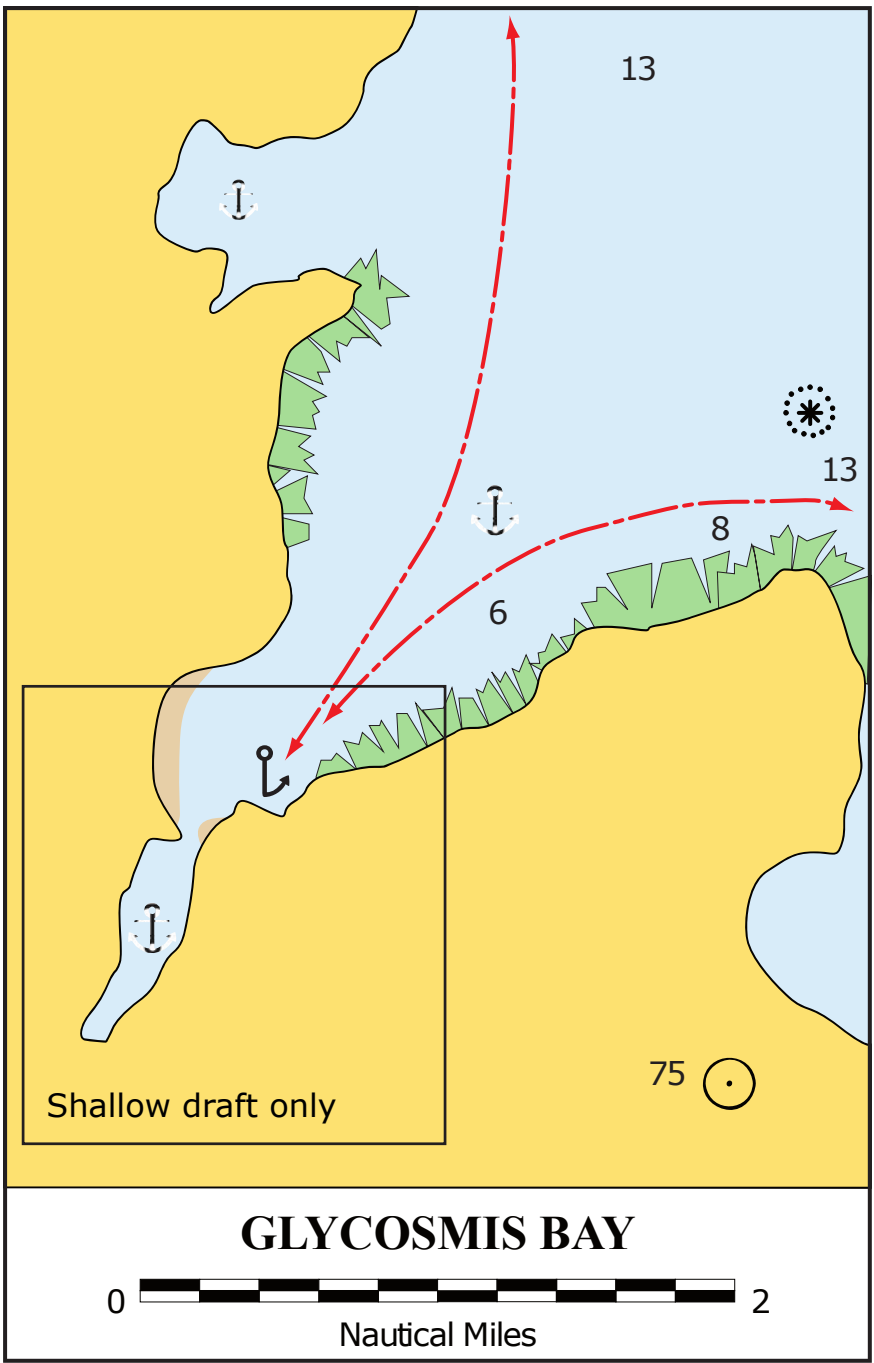
If approaching from the east the following waypoints gave satisfactory passage between the mainland and the unnamed Islet to the north.

| | | |
|---|------------|-------------|
| 1 | 13° 53.4'S | 127° 11.6'E |
| 2 | 13° 53.6'S | 127° 11.3'E |
| 3 | 13° 54.1'S | 127° 10.9'E |
| 4 | 13° 54.4'S | 127° 10.5'E |
| 5 | 13° 54.4'S | 127° 10.4'E |
| 6 | 13° 54.4'S | 127° 09.9'E |
| 7 | 13° 54.3'S | 127° 09.5'E |
| 8 | 13° 54.8'S | 127° 09.2'E |

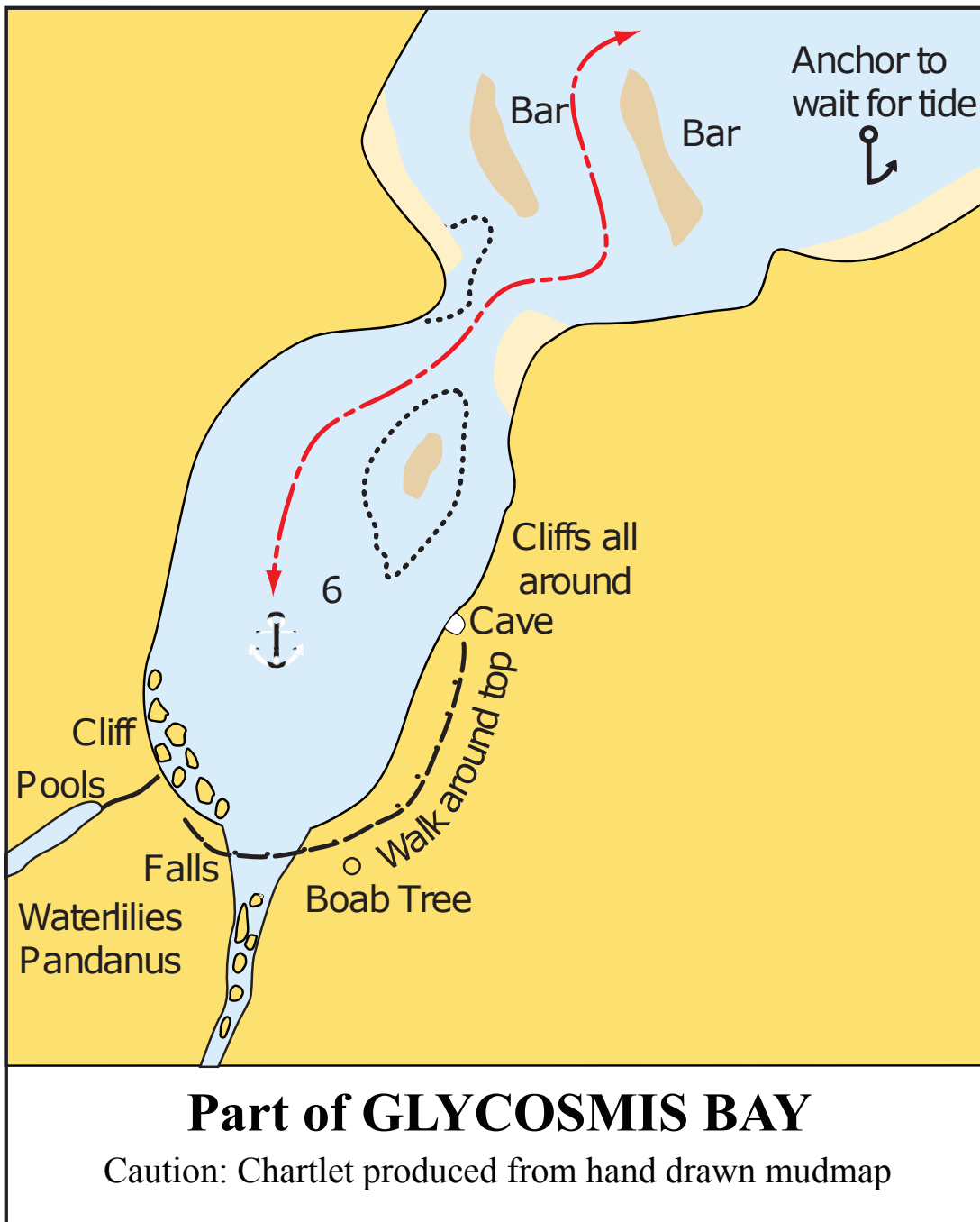
11.4.16 Glycosmis Bay (shallow draft only)

13° 52.5'S, 127° 05.0'E

AUS 318, 727



Chartlet 21 Glycosmis Bay



Chartlet 22 Glycosmis Bay Inset

There is a barred entrance to the inner lagoon. Wait for the tide off the sand beach as shown.

⚓ Anchorage can be taken at 13° 54.4'S, 127° 04.'E.

⚓ An alternative and excellent anchorage is to be found over shoaling sand in the small western bay.

11.4.17 Butterfly Bay

(no chartlet)

13° 49'S 127° 02'E

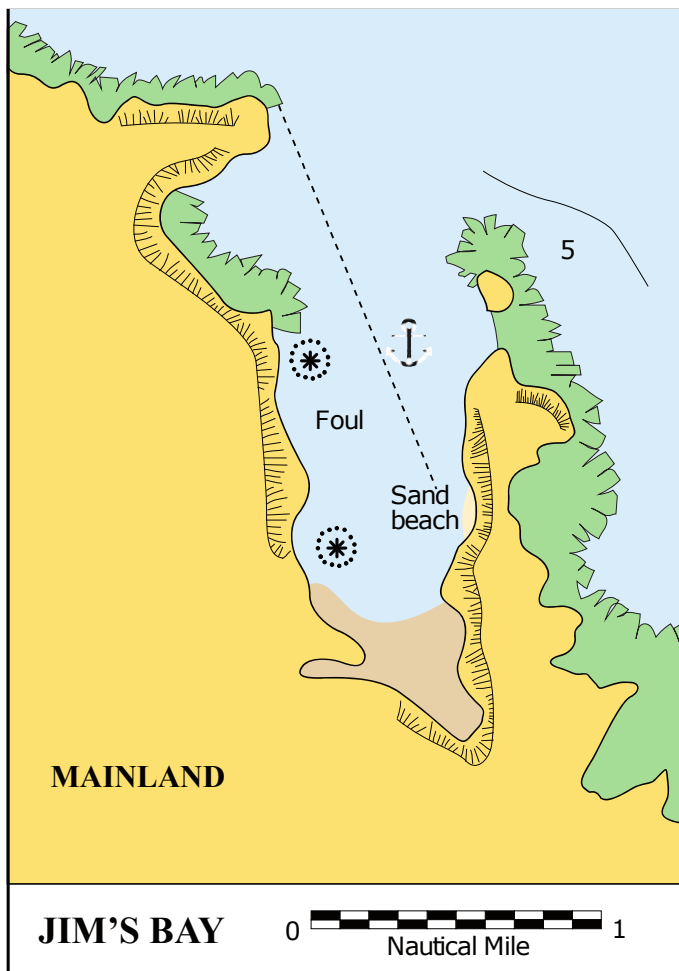
AUS 318, 727

⚓ This bay is not named on AUS charts but Butterfly Bay is commonly used as an overnight anchorage en route for Cape Londonderry. It lies 6 nm southeast of Cape Londonderry. This is a large, open, reefy bay but it is a convenient jumping off point to round the cape. It is exposed from NW to NE winds but good in easterly weather, when little swell enters. Anchor in the middle of the bay over sand and mud.

11.4.18 Jim's Bay

13° 46'S 126° 59'E

AUS 318, 727



Chartlet 23

⚓ Reasonable protection, in approximately 6 m LWN, is provided in the eastern side of the bay unnamed on the AUS chart 727 at 13°46.2'S, 126°59.5'E, but there are numerous bommies and shallow parts in this area. Better anchorage may be found in the middle of Jim's Bay, but only if there is no N wind or swell. This bay is another convenient jumping off point for rounding Cape Londonderry. The western part of the bay is foul. The dotted line on the chartlet indicates the

eastern extent of the foul ground.

Tides: Lesueur Island. Range 2.5 m.

11.4.19 Cape Londonderry

(no chartlet)

13° 44.4'S 126° 56.1'E

AUS 318, 727

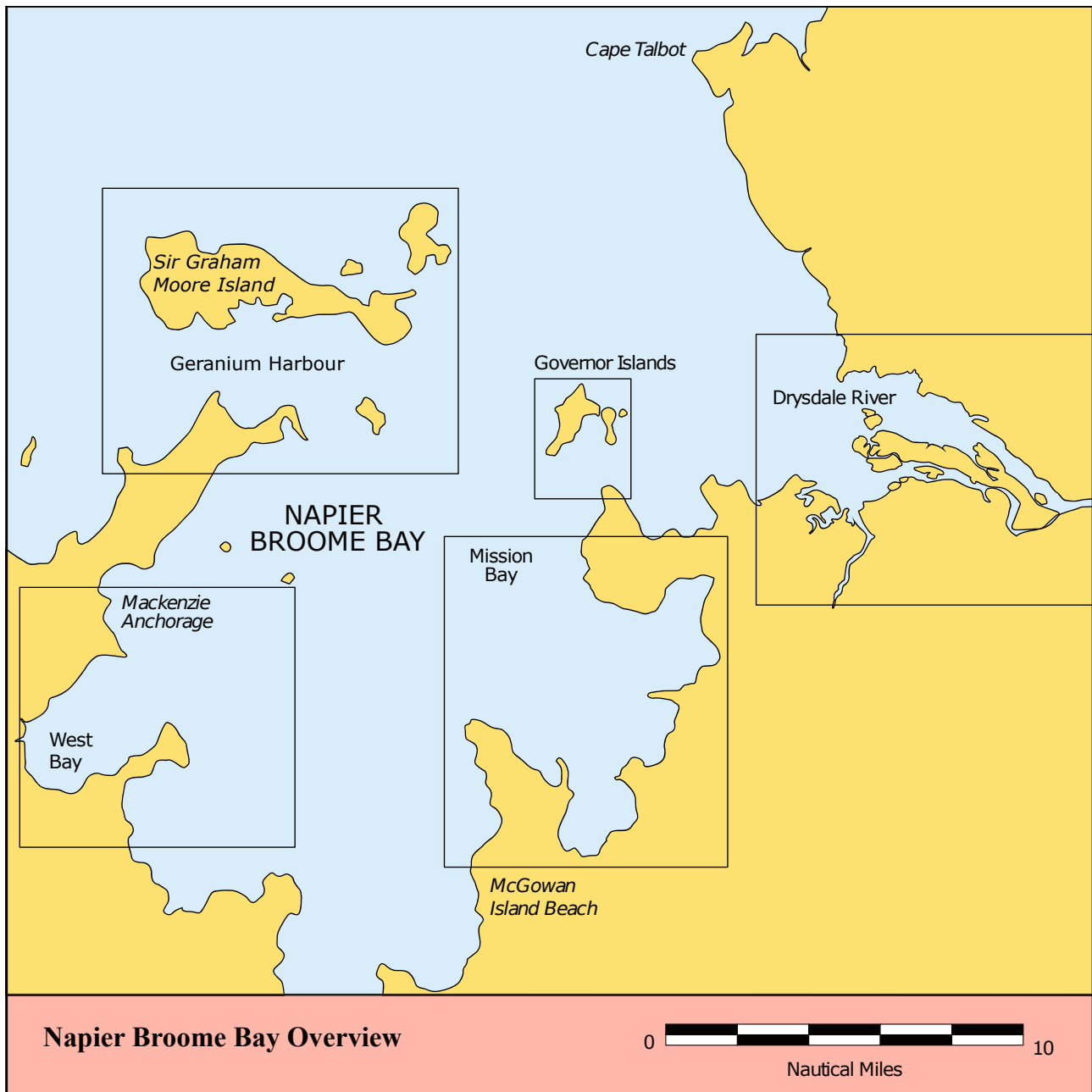
Cape Londonderry is the most northern part of the mainland of Western Australia. It is a low rocky headland from which drying reef extends NNW about 5 nm to the Stewart Islands. The two shoal bays west of this cape do not offer an acceptable anchorage. Tide direction for either side of Cape Londonderry and Cape Talbot to the west changes between these capes. There is strong tidal flow around the cape (3.5 kn observed on the flood) and the water is often discoloured and rough. Take great care to keep outside the 30 m depth contour. A minimum 2 nm clearance off the Stewart Islands is recommended; work the tide when possible.

Caution: A 3.5 kn current (flood tide) running against a 25 kn easterly can result in very steep and dangerous breaking sea.

Tides: Lesueur Island. Range 3 m. Tide times are 'a bit odd'.

11.5 Napier Broome Bay

Charts: AUS 318, 727



Chartlet 24

Napier Broome Bay extends from Cape Talbot to Sir Graham Moore Island. Within the bay there are many anchorages free of tidal flow.

Sir Graham Moore Island has a prominent flat-topped hill 54 m high on its eastern end.

11.5.1 Cape Talbot

(no chartlet)

13° 48'S 126° 45'E

AUS 318, 727

Cape Talbot is a low sandy point covered with trees and scrub. There is anchorage along the coast

south of this cape as far as Curran Point with protection from the east.

⚓ A bay anchorage about 1.5 nm south of Cape Talbot, sometimes known as Bruce's Bay, has a sandy beach with a creek entering at the southern end. There is plenty of room for at least three boats. Approach the anchorage on about 070° to avoid reef, which is more extensive than shown on the chart. Anchorage has been taken in good holding at 13° 48.7'S, 126° 45.4'E and at 13° 48.6'S, 126° 45.2'E over reef and rock.

Caution: Definitely no swimming. Crocodile and turtle tracks have been seen on the beach.

⚓ There is also a day anchorage about 6 nm south of Cape Talbot referred to as Chimney Creek. The creek runs between rocks into the bay.

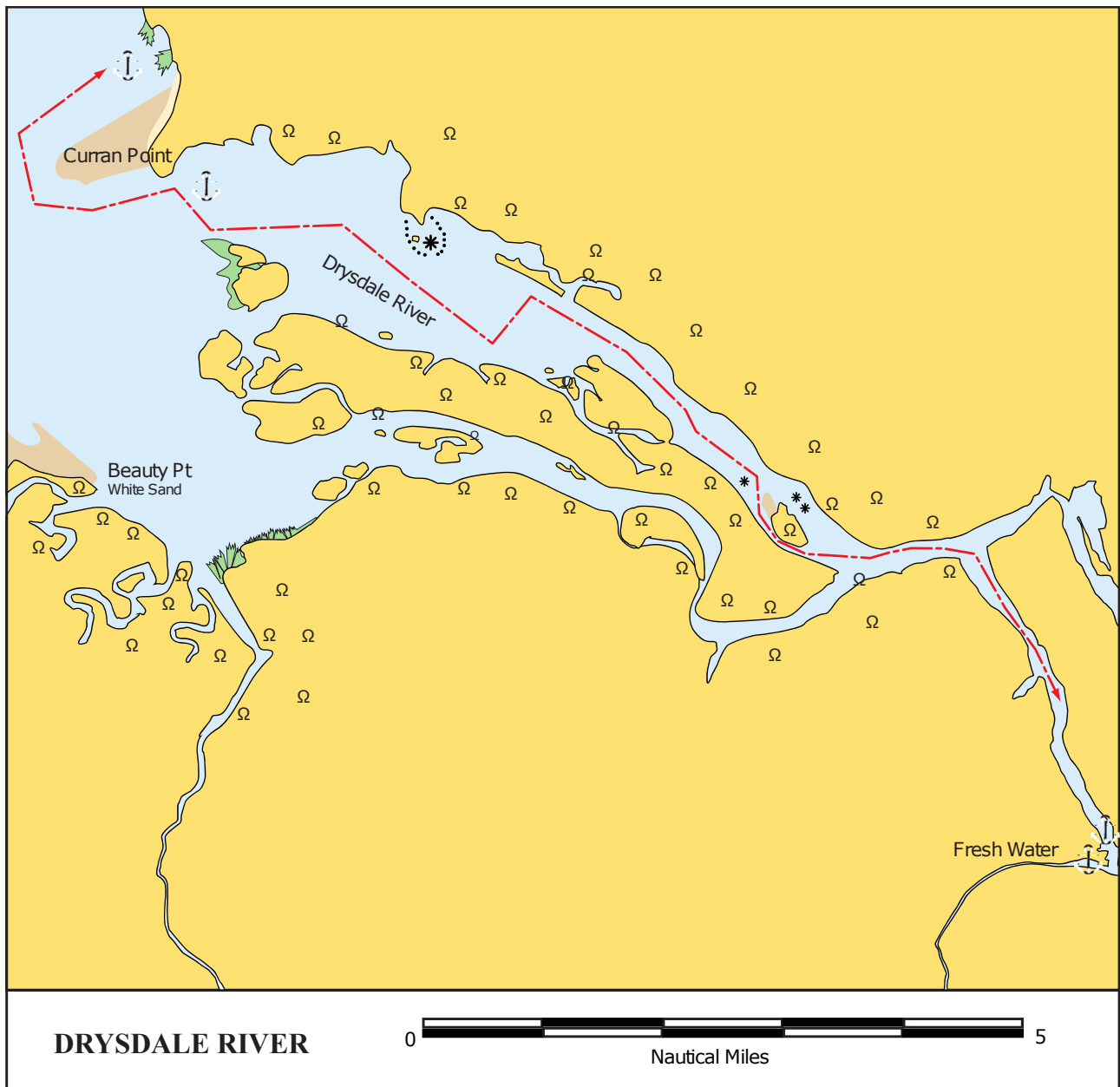
⚓ Anchorage has been taken at 13° 52.6'S, 126° 47.2'E in 5 m of water and good sandy bottom.

Caution: This anchorage is in uncharted waters and there are many exposed and underwater rocks along the coast.

11.5.2 Drysdale River (Shoal draft only)

AUS 318, 727

13° 57.0'S, 126° 50.0'E



Chartlet 25

When approaching the Drysdale River (Curran Point) from Cape Talbot it is advisable to stay 2 nm off the eastern coastline.

The Drysdale River consists of shallow sandbars and some rock bars for the first 8 nm upstream from the mouth, in approximately a southeasterly direction. Then the river narrows, deepens and turns south for the final 3 nm to the tidal rock bar and freshwater rapids.

Boats with normal draft can anchor near the river mouth on either side of Curran Point and explore upstream in the dinghy.

⚓ There is an anchorage northwest of Curran Point at 13° 54.4'S, 126° 48.0'E.

⚓ There is also an anchorage east of Curran Point at 13° 55.8'S, 126° 48.7'E.

Fishing around the sandy and rocky islands at the mouth is usually good.

Shoal draft yachts can travel upstream to the tidal rock bar on the high tide. The track shown on the chartlet indicates the deepest water between sandbars and alternative anchorages at the head of the saltwater section of the river.

Caution 1: The shallowest water (sandbars) will be encountered off the southeast end of the sandy island about 7 nm upstream from Curran Point.

Caution 2: Pass on the southwest side of this island as there is an above water rock and many drying rocks in the channel on the northeast side of this island. There are also a number of drying rocks and rock bars protruding half way across the river from the northern bank about 800–1,200 m upstream of the island.

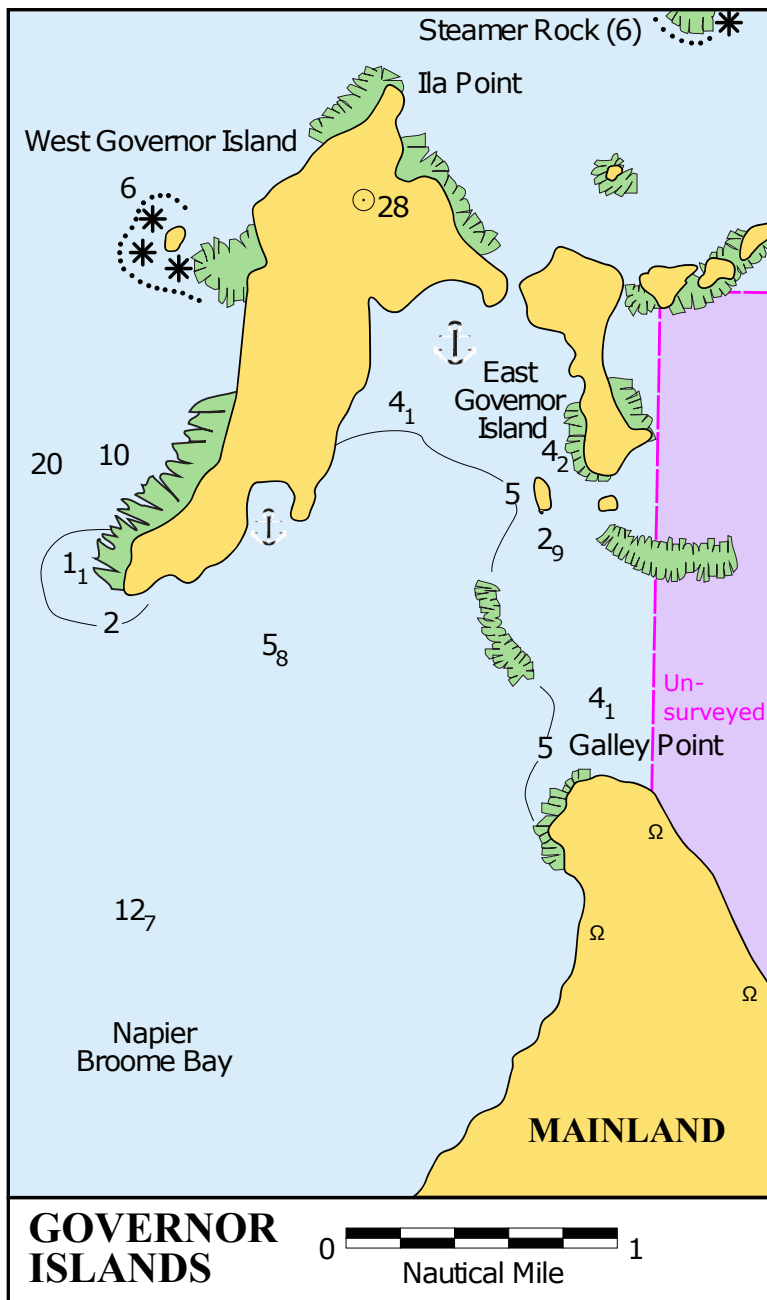
Of interest: There is year-round fresh water available at the tidal rock bar and at another creek with waterfalls (Waterfall Creek at 13° 59.8'S 126° 53.0'E) which flows into the major southern arm of the Drysdale River about 3 nm northwest of the tidal rock bar anchorage.

Tides: Napier Broome Bay. Range 3.5 m at the mouth, and about one hour later and 75% of the range at the tidal rock bar.

11.5.3 Governor Islands

13° 57'S 126° 42'E

AUS 318, 727



Chartlet 26

East and West Governor islands are prominent when approaching the entrance to Napier Broome Bay and are lighter in colour than Bluff Point.

⚓ There is good anchorage (13° 57'S 126° 41.7'E) in about 4-5 m which may be approached from the south. It is open to the south. There is also a small cove 0.5 nm southwest of this anchorage, providing shelter from the sea breeze but also open to S winds.

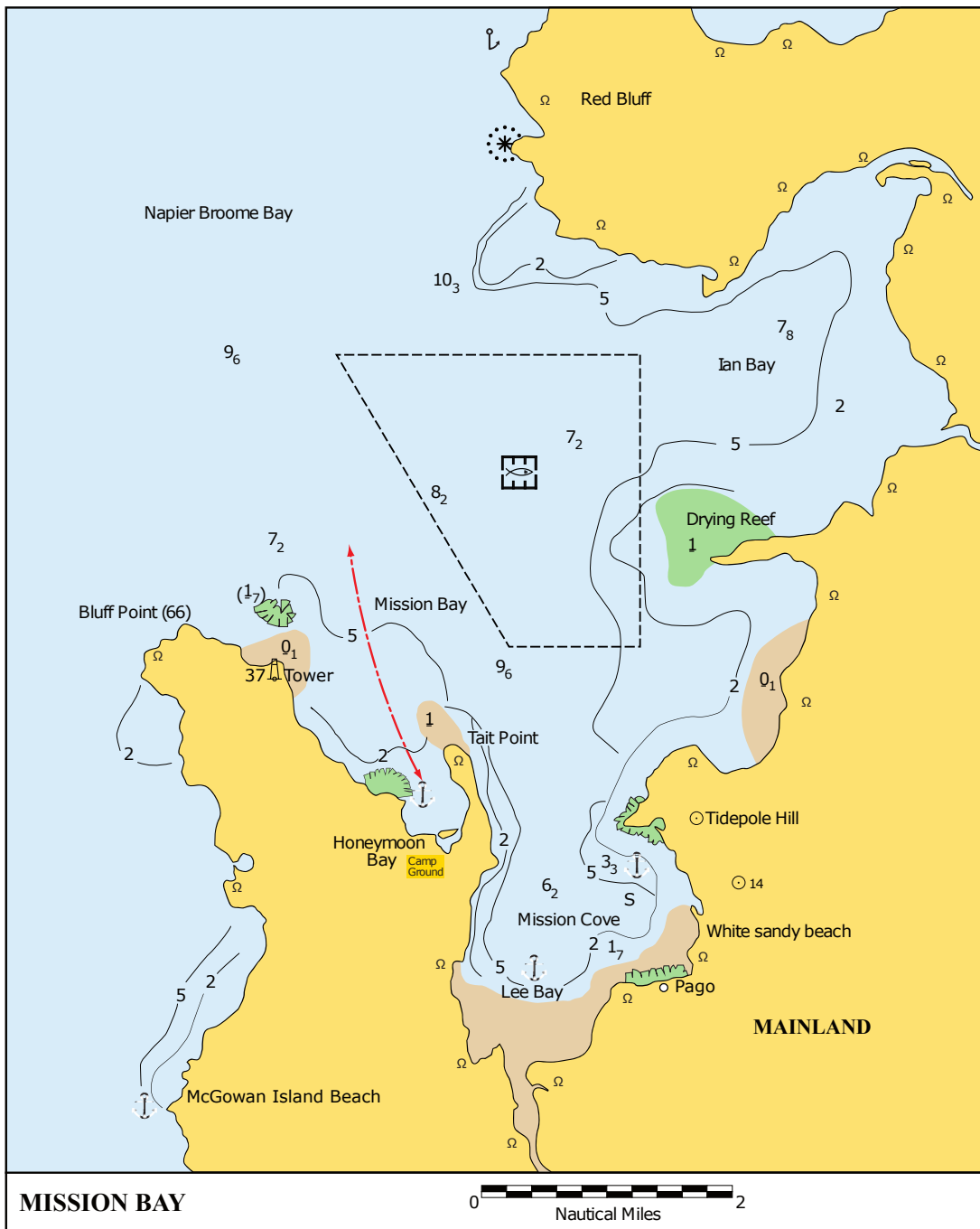
The reef extends south from East Governor Island to Galley Point making this passage to the

Drysdale River uncertain.

11.5.4 Mission Bay

14° 07'S 126° 42'E

AUS 318, 727



Chartlet 27

⚓ Red Bluff on the eastern shore of Napier Broome Bay, about 3 nm south of Governor Islands, provides a lunch break anchorage about 200 m offshore in 10 m LWS. The Bluff is high enough to provide good views of the surroundings from the top.

Fishing: Good fishing.

⚓ Mission Bay is in the southeast part of Napier Broome Bay. There is good anchorage in the eastern part of the cove over clean white sand. It has a good beach. The west part of the bay is known locally as Lee Bay.

Tides: Napier Broome Bay. Range 3.5 m.

History: The Drysdale River Mission, known by the locals as Pago Mission, was established in 1908 about a kilometre from the eastern shore of Mission Cove. It was abandoned in 1937 in favour of Kalumburu. Nothing remains of it now except some ruins and mango trees. The ruins alongside a freshwater stream are quite scenic. They can be found by following the track from the beach for 800 m, past all the rusty drums. The site was used as a radar station during the war.

11.5.5 Honeymoon Bay

14° 06.0'S 126° 41.0'E

AUS 727

(See Mission Bay chartlet).

Honeymoon Bay lies due south of a larger unnamed bay on the west side of Mission Bay. An extensive drying reef extends from the northwest point of Honeymoon Bay. The bay is reported to be 5-6 m deep, more than is shown on charts. To the south is a caravan/camping ground run by the local community.

Facilities: Water, showers and toilets. Transport (price on application to the campsite manager) is available to and from Kalumburu Mission 30 km away where a nursing post, fuel, gas and supplies are available.

Fishing: There are beds of large mussels near the shore.

Caution: Beware of Bluff Point (14° 05'S, 126° 39'E) in the southeast of Napier Broome Bay (it rises to a height of 66 m and slopes away to the head of Mission Cove). Unexploded mines are said to exist within a circle of 1 nm radius centred from 1 nm northeast of the point.

11.5.6 McGowan Island Beach

(See Mission Bay chartlet)

14° 09'S 126° 39'E

AUS 318, 727

⚓ Anchor in 5-6 m over mud at 14° 08.9'S, 126° 38.8'E. Watch for rocks that are visible at LW 14° 08.7'S, 126° 38.6'E & 126° 38.8'E. These rocks are normally marked with yellow stick buoys during the dry season.

A suggested approach is on a bearing of 156° towards the sandy beach.

Facilities: Water, showers and toilets are available.

No supplies are available at the beach. Kalumburu is 21 km by road (transport is available but expensive), where general facilities are located including gas, ULP, telephone, and a nursing post. Try Honeymoon Bay Camping Ground for a lift into Kalumburu.

Fuel is no longer available at McGowan Island.

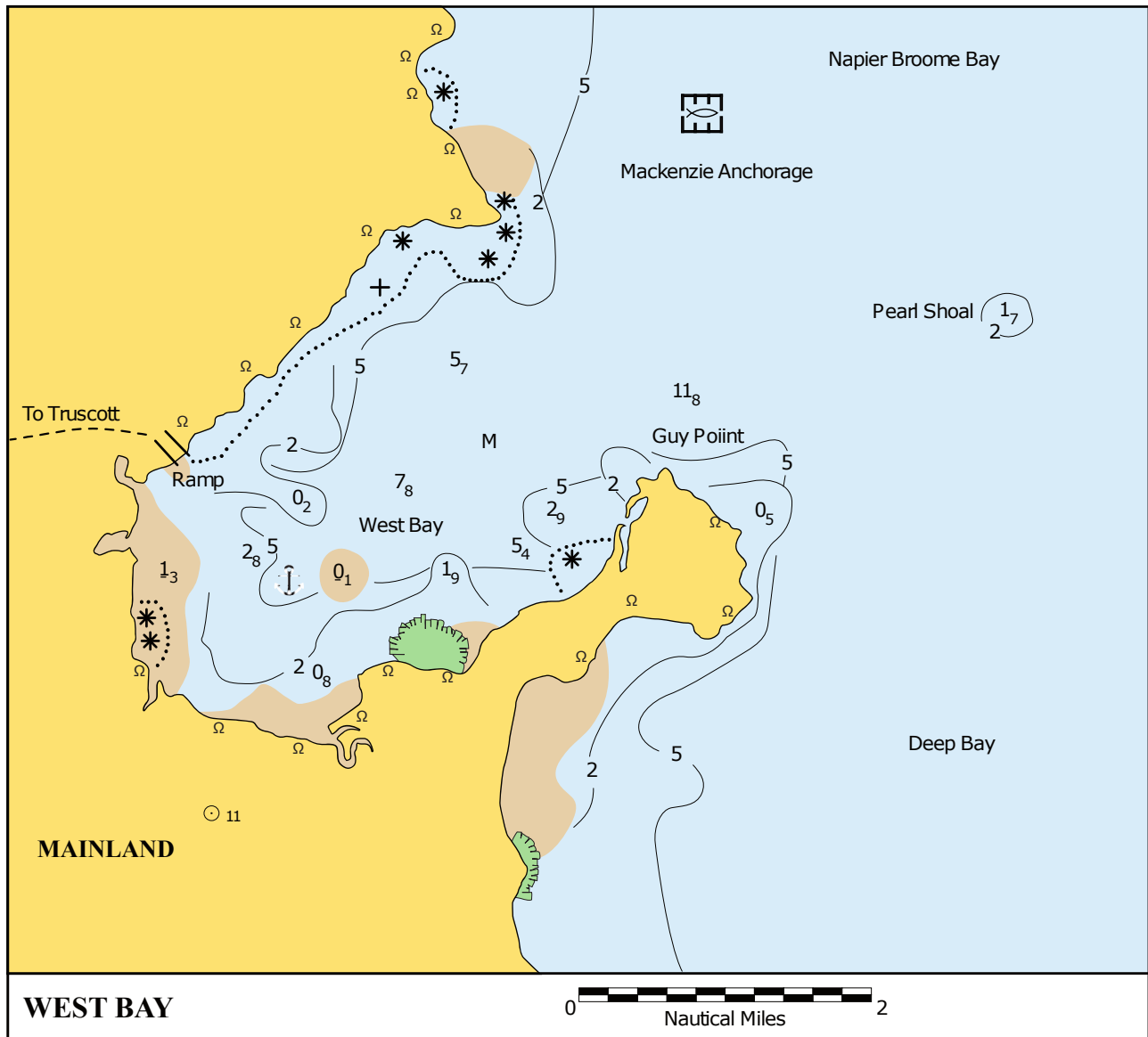
There is a weekly mail plane from Kununurra. It may be possible to arrange a crew exchange, or for stores to be delivered. Phone Shoal Air (08) 9169 3554 or Aviair (08) 9166 9300, Freecall 1800 095 500.

Fishing: Good in the lower King Edward River.

11.5.7 West Bay

14° 04'S 126° 30'E

AUS 318, 727



Chartlet 28

⚓ West Bay shoals and provides good anchorage in the western part. Keep to the centre when entering. The bay is protected from the NW and exposed to the E.

Caution: Crocodiles are reported to be plentiful.

Tides: Guy Point. Range 3.5 m.

Facilities: There is the possibility of obtaining fuel from Truscott Air Base, which is about 10 km by

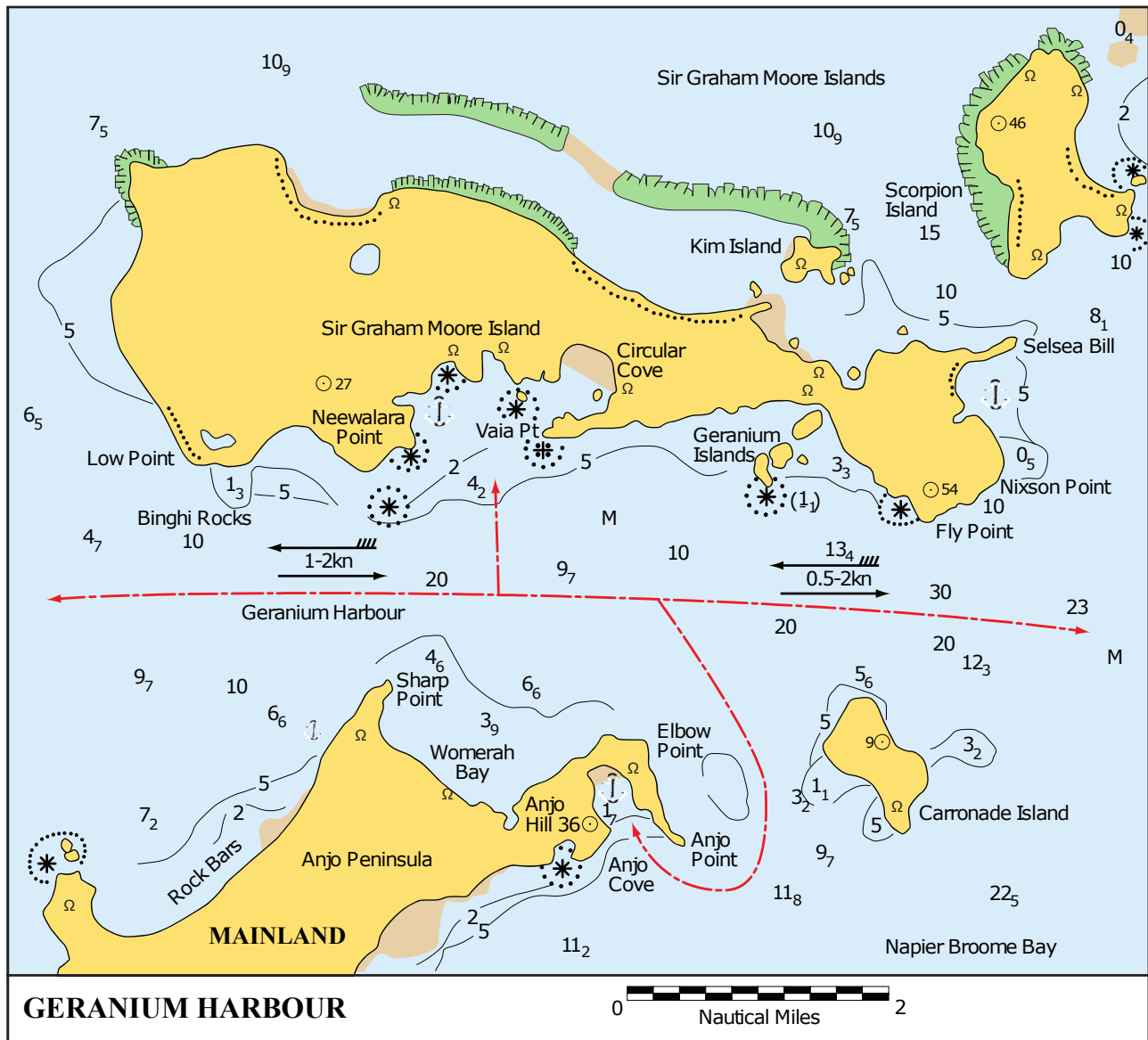
sealed road from the barge landing at West Bay. Phone (Truscott) (08) 9161 4395 (Darwin head office) (08) 8932 3344 Mon-Fri. <http://www.shorelands.com.au/> They supply diesel only. Payment must be made in advance.

Of interest: There is debris from World War II as West Bay was the “port” for the Truscott Air Base. Old vehicles etc. are still scattered around. Truscott is still an operational air base for the pearl farmers and Coast Watch aircraft.

11.5.8 Geranium Harbour

13° 55'S 126° 33'E

AUS 318, 727



Chartlet 29

⚓ Anjo Cove (13° 57'S, 126° 34'E) on the west side of Anjo Point is a small, secure, gently shoaling bay which offers protection from W through N to E, but is open to the SE. It is an easily accessed bay which provides a convenient stopover place. Keep to the centre from about 0.5 nm

out. Anchorage may be taken in the middle of the bay over mud in 3-4 m at LWN.

⚓ In E to SE winds a comfortable anchorage has been found west of Sharp Point, at 13° 56.7'S, 126° 31.4'E.

⚓ Anchorage has been taken in the shoaling bay at the eastern end of Sir Graham Moore Island.

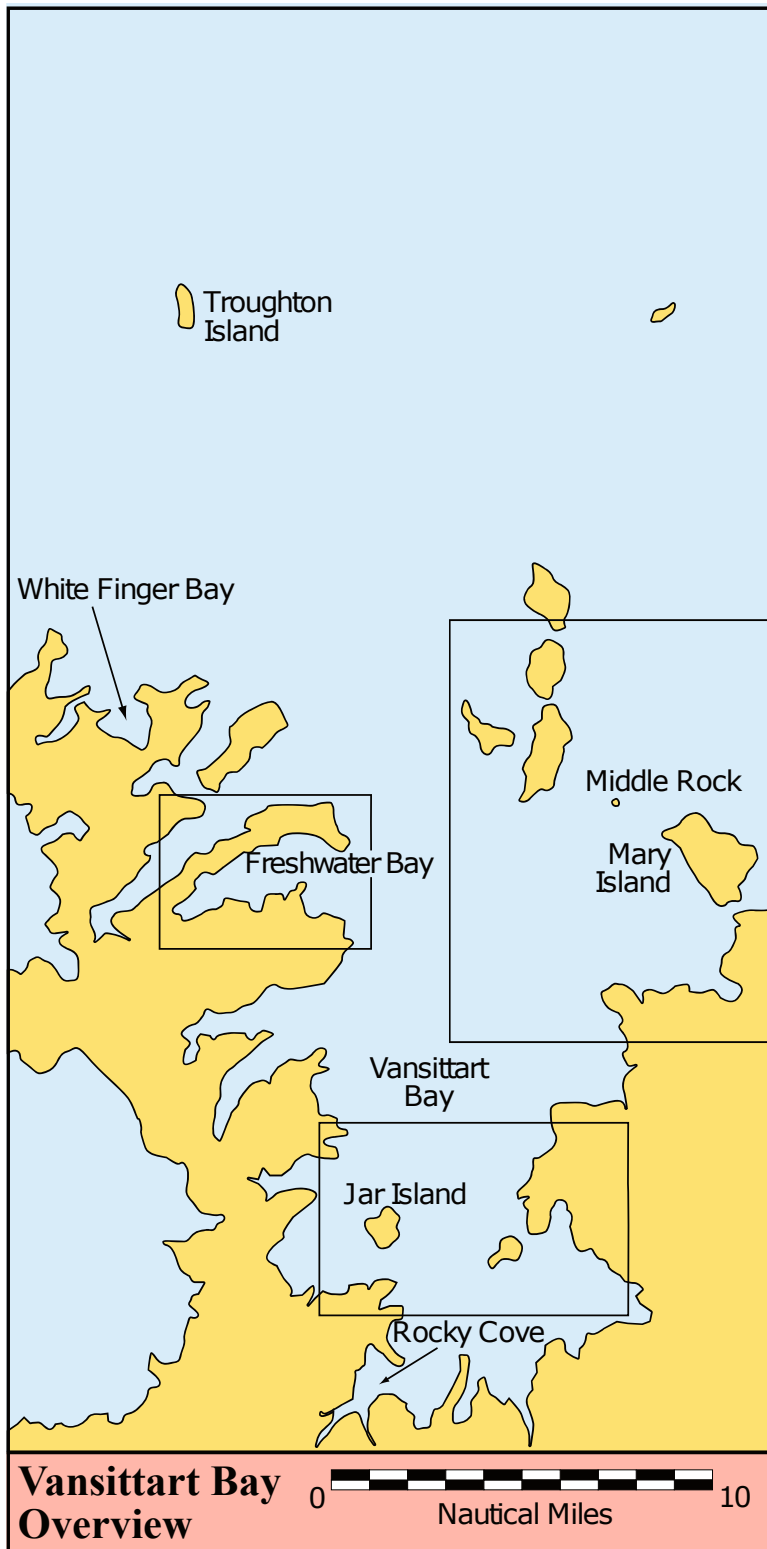
⚓ There is anchorage at the mouth of Circular Cove on the south side of Sir Graham Moore Island. Approach with care since rocks are to be found off all headlands. Deep draft boats cannot anchor safely further in than a line drawn from the islet to Vaia Point. Shoal draft boats can anchor just inside the cove (1 m at LWS) and have anchored at 13° 53.9'S, 126° 32.9'E. Tidal flow in the entrance to the cove is about 0.5-1 kn. This anchorage has been reported as unreliable, the seabed comprising soft, grey-green mud.

Lunchtime anchorage has been taken on the western side of Sir Graham Moore Island whilst waiting for the tide to change at Middle Rock (to the southwest), at 13° 52.7'S, 126° 30.8'E.

Tides: Guy Point. Range 3.5 m. The tidal flow through Geranium Harbour attains 2 kn at springs. The ebb sets east and the flood sets west. The strongest streams are in the western part. Between Anjo Point and Carronade Island the ebb sets north but the flood is not appreciable.

11.6 Vansittart Bay

Charts: AUS 318, 727, 728



Chartlet 30

The eastern shore of Vansittart Bay is rocky for up to 1 nm offshore. The western shore is mainly steep to and contains many coves and bays.

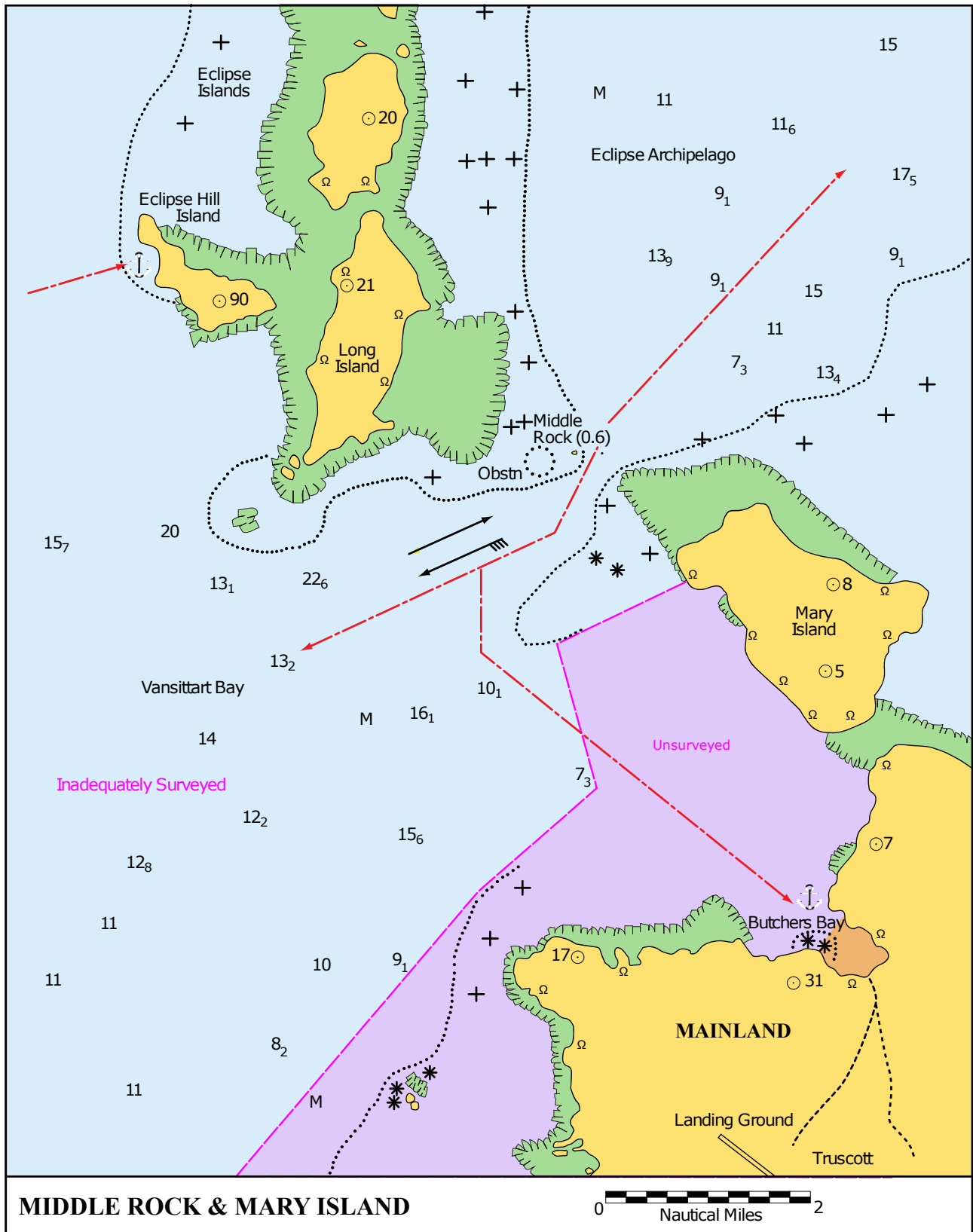
Phillip Parker King named Vansittart Bay after the then late Chancellor of the Exchequer.

Tides: There is approximately 3 m range in the south of Vansittart Bay.

11.6.1 Middle Rock & Mary Island

13° 58'S 126° 21'E

AUS 318, 727, 728



Chartlet 31

Clear passage may be made from Geranium Harbour to west of Mary Island passing southeast of Middle Rock.

Middle Rock is fairly extensive and lies between Long Island to the west and Mary Island to the east. Shallow reefs (1.5 m or less at LW) exist on either side of the passage. AUS 318 had Middle Rock incorrectly positioned (closer to the mainland than charted, at 13° 58.13' S, 126° 21' E). It appears to be correctly located in Navionics (2017). Rocks to the east of the passage dry.

The channel is deep (14 m) and lies 200-350 m southeast of Middle Rock. The deepest water is apparent from observing the water movement. There are overfalls in the channel which can be very rough. Rougher water indicates the deeper water, especially with wind against the tide.

Tides: Range 3.5 m at springs. The current can attain 5 kn at two hours after LW and has been reported to reach 9 kn at times. A passage north on a flood tide is made difficult by the need to stem the south-going current.

⚓ Mary Island is connected to the mainland on its southeast by a reef. Anchorage is available south of Mary Island (14° 02.5'S, 126° 22.9'E) in the northwest of Butchers Bay. Approach the anchorage with caution (unsurveyed). There are some rocks near the south side of the entrance. Butchers Bay dries at LWS. This is a convenient place to stop if the tide times require you to transit Middle Rock westwards late in the day.

11.6.2 Eclipse Islands

(no chartlet)

13° 55.0'S 126° 17.0'E

AUS 727, 728

⚓ Anchor in sand, off the fringing reef in the bay at the northwest end of Eclipse Hill Island. The approach from the west to southwest appears clear. This bay has been called Oyster Bay by some cruisers.

Caution 1: Crocodiles are reported to be plentiful.

Caution 2: Several drying rocks and shallow sandbanks run north and south of the Eclipse Islands.

Tides: Troughton Island. Range 4 m.

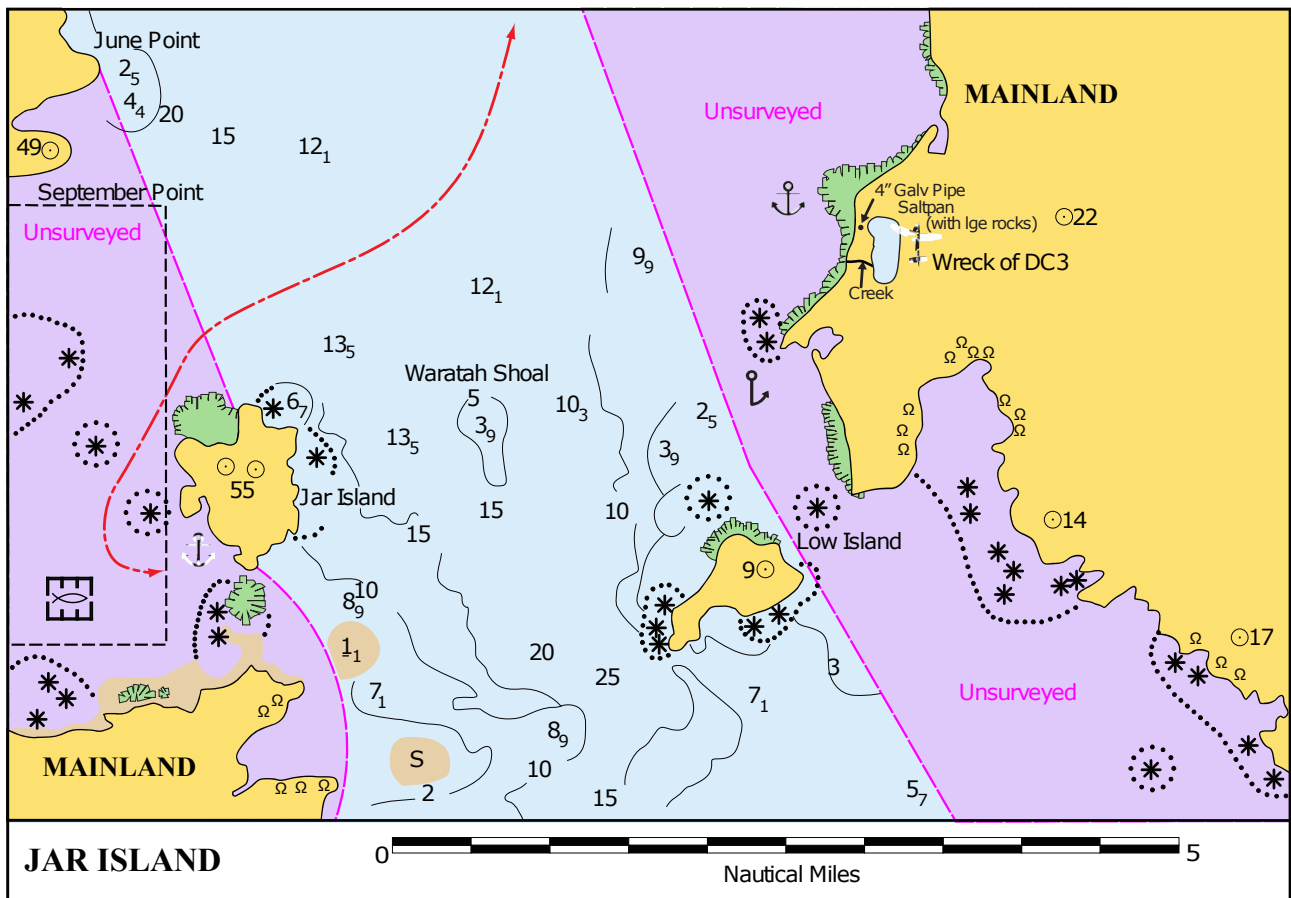
Fishing: Reef fish and oysters.

History: Phillip Parker King anchored near Middle Rock on 3 October 1819 and observed a full eclipse of the moon. Comparisons with the forecast eclipse time allowed their longitude to be determined. From this event came the name Eclipse Islands.

11.6.3 Jar Island

14° 09'S 126° 14'E

AUS 318, 727, 728



Chartlet 32

⚓ Anchor on the southwest side in minimal tidal flow . Extensive pearl leases extend to the southwest corner of the island. For safe passage between the leases and the island it is necessary to go between the rock just west of the island and the island itself.

Tides: Jar Island. Range 3 m.

History: Jar Island was so named by Phillip Parker King because he found a broken Macassan earthenware jar.

⚓ Anchorage is also available near the mainland, north of Low Island. Anchor 0.5 nm off the mainland because of extensive drying reef (14° 07.8'S, 126° 17.6'E).

Of interest: Dinghy to shore and follow the well worn tracks into the overhanging rocks and caves to view spectacular rock art. There are the remains of a wrecked World War II DC3 aeroplane on the mainland. Due east of the anchorage there is a small mangrove creek running down to the beach. An extensive saltpan lies behind the creek and sand dunes. The aeroplane is in the bush at the northeast extremity of the saltpan. The best anchorage for viewing the aeroplane is at 14° 06.5S, 126° 18.5E. This location is just north of the small creek shown on the chartlet. Best to walk up the beach for 200 m, then go east when you see the galvanised pipe, down to the saltpan, and

then a 300 m walk across to the wreck. It is not visible from the top of the sandhills.



View from Jar Island (D Ford)

11.6.4 Maia Cove

(no chartlet)

14° 13.5'S 126° 16.6'E

AUS 318, 727, 728

⚓ Maia Cove in the south of Vansittart Bay provides secure anchorage in clear water.

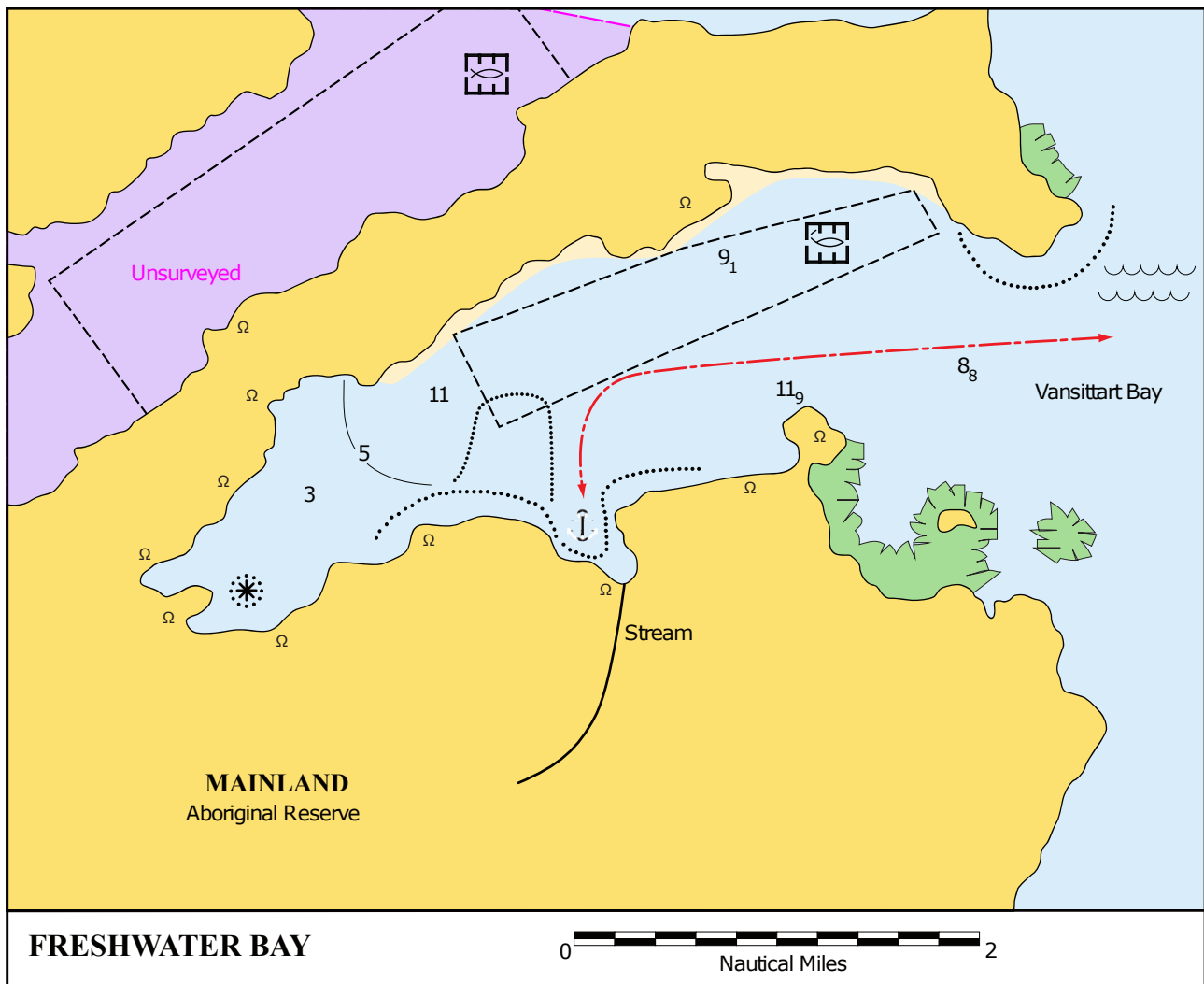
Stay central to the bay when entering, the 16 m depth indicated on the AUS chart is not encountered until further in the bay.

Of Interest: The remains of Willie Reid's camp at Kinganna lie at the head of Maia Cove.

11.6.5 Freshwater Bay

14° 00'S 126° 13'E

AUS 318, 727, 728



Chartlet 33

Freshwater Bay lies immediately south of the western entrance point of Vansittart Bay.

⚓ Anchorage has been taken in a small bay about 2 nm into the main bay at 14° 00.7'S, 126° 10.9'E, less than 200 m from the shore and over mud, sand and shingle. About 150 m from the shore the bottom shoals abruptly from 7 m to 2 m or less at LW.

Rated one of the best anchorages in the Kimberley, it is protected from most winds although the NW sea breeze comes from offshore.

Caution 1: There is a shallow reef extending from the eastern point of the small anchorage bay. Do not cut the corner. There is also a rock ledge extending 0.8 nm due north from the western point of the small anchorage bay.

Caution 2: A large fish farm occupies the north part of the bay.

Caution 3: A crocodile and sharks live in the bay.

Tides: Jar Island. Range 3 m.

Fishing: Fish and oysters abound.

Of interest: Freshwater Creek can be found in the southeast of the bay. Dinghy ashore and land amongst the mangroves. Water is fresh 100 m up the creek and often available most of the year. There is a picturesque walk up to the top on the right-hand side of the creek. There are rock pools and waterfalls. Sandflies can be bad at dusk.

History: Phillip Parker King searched unsuccessfully for water throughout Vansittart Bay but did not investigate Freshwater Bay.

11.6.6 Troughton Island

(no chartlet)

13° 45'S 126° 09'E

AUS 318, 319, 727, 728

Troughton Island is a support settlement for the offshore oil or gas rigs. There is no protected anchorage at Troughton Island.

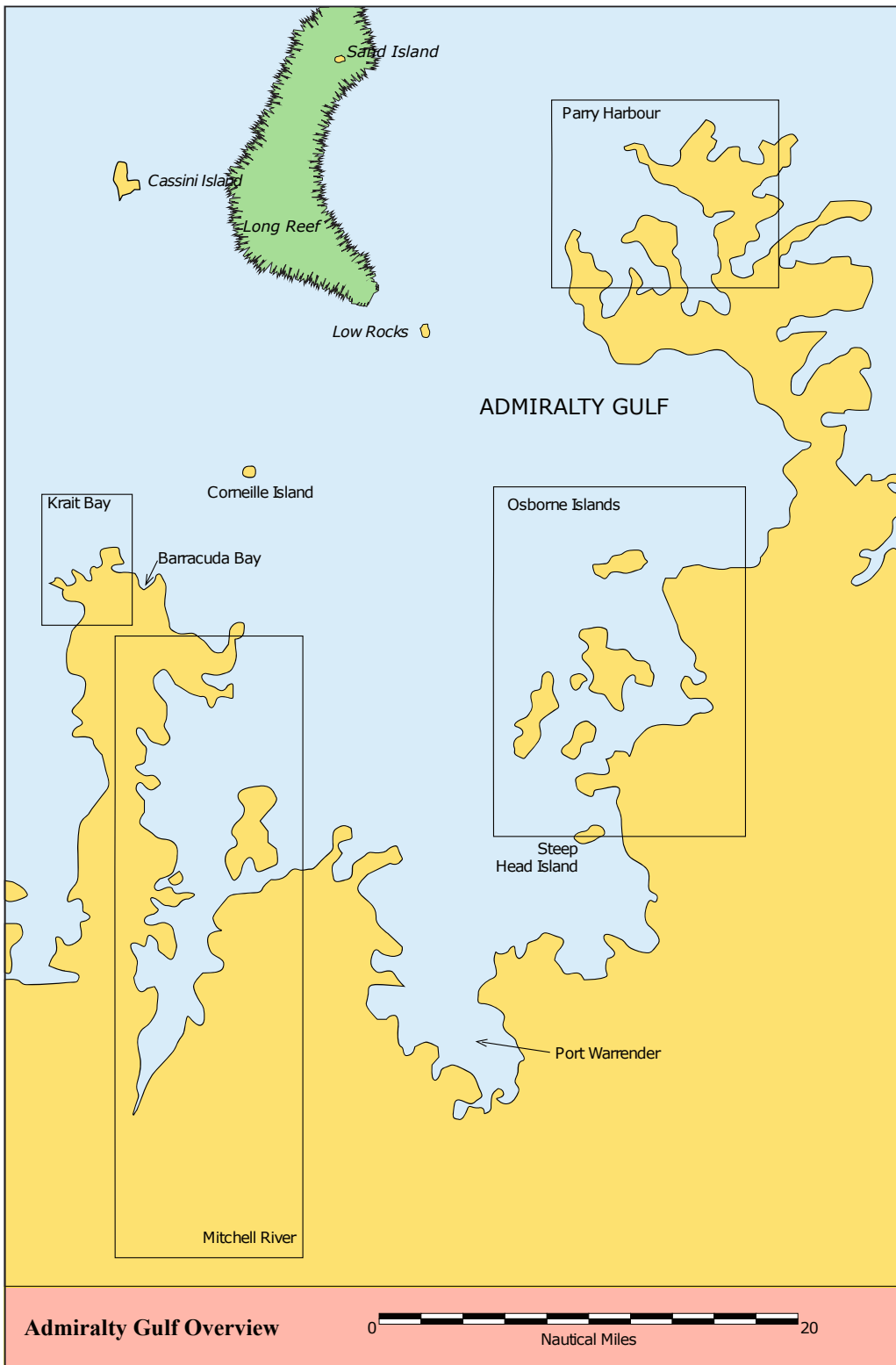
Caution: Tide rips occur off the southern extremity of the island.

Tides: Troughton Island. Range 4 m.

Facilities: Airstrip and helicopter base. Assistance may be available in a medical emergency.

11.7 Admiralty Gulf

Charts: AUS 318, 319, 320, 728



Chartlet 34

11.7.1 White Finger Bay

(no chartlet)

13° 56'S 126° 07'E

AUS 318, 728

⚓ White Finger Bay lies about 2 nm southeast of Cape Bougainville. (13°55'S, 126° 06'E). Previous editions of this guide have described it as an all weather anchorage in shoaling sand off the white sandy beach. However, the southern part of the bay is mangroves and shallow sandbanks. and the southeastern part of the bay is partially occupied by a pearl farm. The entrance to the western inlet is narrow, shallow, surrounded by reefs and should only be attempted at high tide and in calm conditions. The eastern side of the bay was also reported to be shallow, with no white beach.

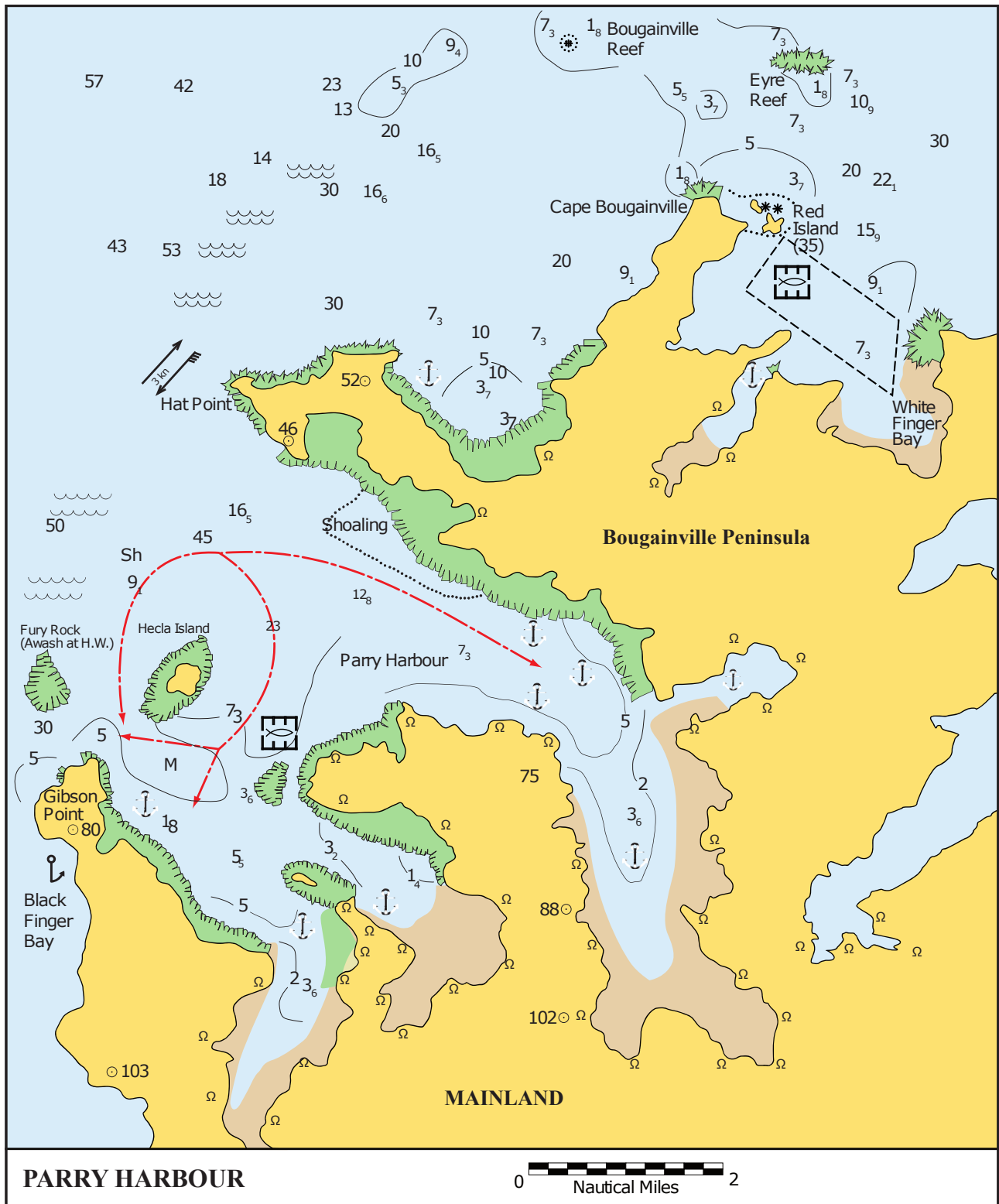
Caution: A large drying reef extends from the eastern point of the bay.

Tides: Troughton Island. Range 4 m.

11.7.2 Parry Harbour

13° 58'S 126° 00'E

AUS 318, 728



Chartlet 35 Parry Harbour

Parry Harbour is a large body of water providing protection from most winds. There are several

arms, each ending in shallow banks and mangroves.

⚓ The southeast arm is free of obstructions and of a depth permitting anchoring almost anywhere. This arm shoals gradually. It gives protection from the NW sea breeze.

⚓ Anchorage can be taken in the inlet east of where three other closely grouped anchorages are shown in the southeast arm (13° 59.0'S, 126° 05.6'E). Depth 3 m LWS.

⚓ The southwest arm may be entered from the north or east either:

a) between Fury Rock and the mainland or

b) by passing either side of Hecla Island.

Entry from the west is possible between Fury Rock and Gibson Point.

Keep to the centre of the passages between Hecla Island and the mainland and into the southwest arm. When there is a swell or a strong tide running, it may be difficult to see the safest part of the passage inside these islands. Reef extends out further than might be expected from viewing the chart. Anchorage at 14° 00'S, 126° 05'E has been found suitable. Anchorage has also been taken at 14° 02.0'S, 126° 01.4'E in 5m over mud, though Navionics charts show this location to be drying. Good shelter in 20-30 kn SE to E winds.

Caution: The sea to the west of Parry Harbour is subject to extensive overfalls.

Tides: Troughton Island. Range 4 m.

⚓ Black Finger Bay, south of Gibson Point, is fronted by a white sandy beach with several fingers of black rock projecting out from the northern cliff face. The bottom close inshore is reported to be rocky.

11.7.3 Low Rocks

(see Admiralty Gulf Overview chartlet)

14° 04'S 125° 52'E

AUS 318, 319, 728

⚓ This is an island worth a visit for bird lovers, with cormorants, terns and sea eagles. There is a day-anchorage at the south end of the island.

11.7.4 Cassini Island

(see Admiralty Gulf Overview chartlet)

13° 57'S 125° 38'E

AUS 319, 320, 728

Cassini Island is an offshore island worth considering in calm conditions.

⚓ There is anchorage off a beach on the northeast side with landing in the northwest part of the bay.

There is a lagoon and beach on the north of the island accessible by dinghy except near LWS.

Pass close to the point on the northeast of the island.

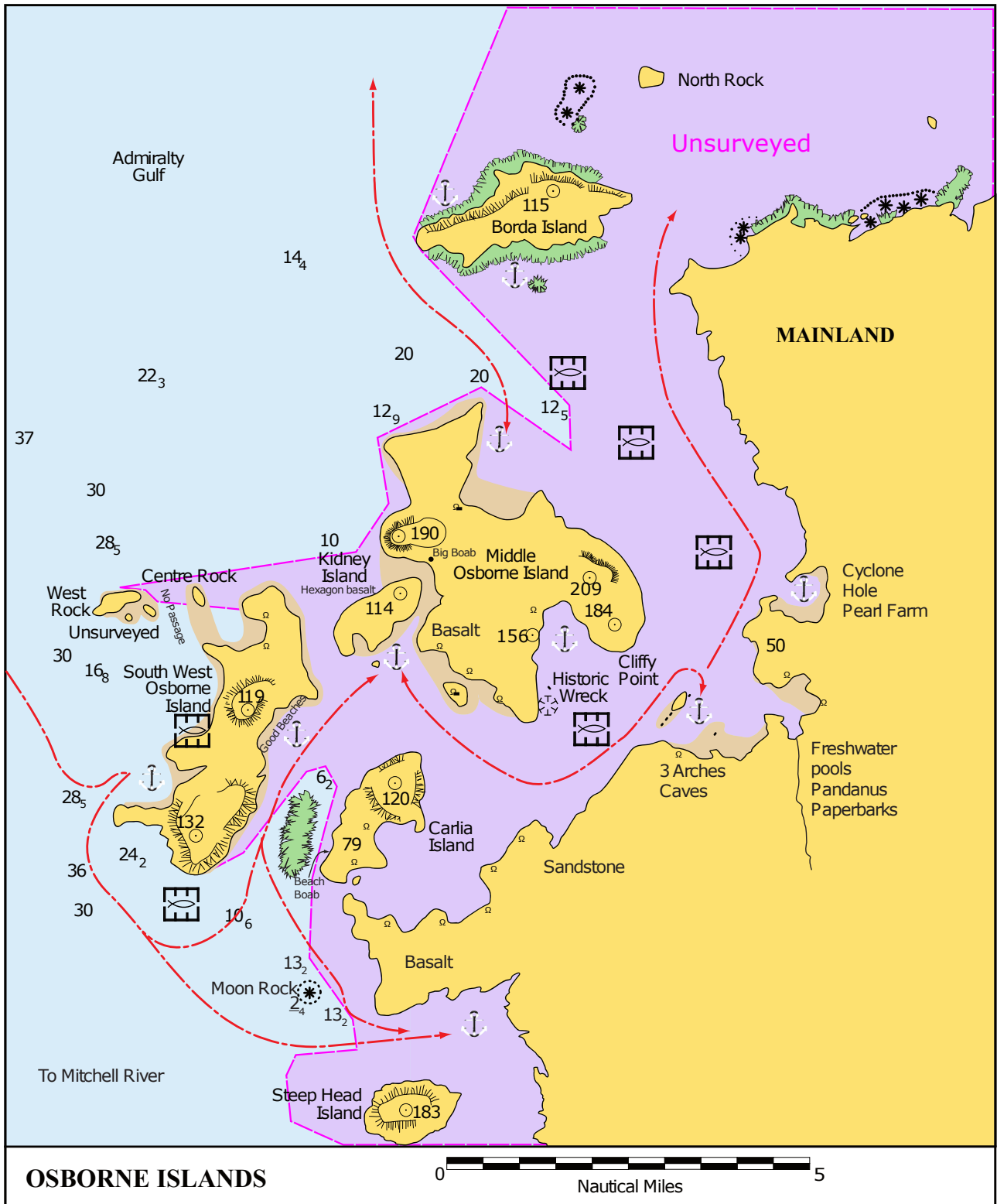
Tides: Cape Voltaire. Range 7.5 m.

History: Named after a family of French astronomers.

11.7.5 Osborne Islands

14° 20'S 126° 00'E

AUS 318, 728



Chartlet 36

The Osborne group of islands in Admiralty Gulf provides several anchorages.

Note: The bay on the south side of Middle Osborne Island is frequently occupied by moorings.

⚓ Anchorage has been taken at Cyclone Cove (14° 19.5'S, 126° 05.0'E).

⚓ Anchorage has also been taken in the enclosed bay 0.5 nm northeast of three rock arches at 14° 21.2'S, 126° 04.0'E.

Caution: There are extensive pearl leases in this area. They encircle Middle Osborne Island from northeast through east to southwest. Paspaley Pearls (the operators) monitor VHF Ch 16 and 72.

Of interest: There is an historic wreck which is exposed at LWS. The SS *Sunbeam* was a British steamer of 49 tons. She was lost in 1892 while on a pearling voyage and can be seen at low tide off the southern beach.

There is a creek on the mainland in the far eastern corner of the bay at 14° 21.0'S, 126° 05.2'E which has freshwater pools and pandanus paperbarks. It contains very interesting Aboriginal sites called "the apartments". There is access up the creek by dinghy at half tide to a rock shelf at the end of the creek with a small waterfall suitable for filling cans with water.

⚓ Passage may be made close to the east side of South West Osborne Island keeping clear of the uncharted reef in the centre of this channel. Anchorage can be taken in the bay on the west side of South West Osborne Island at 14° 22.1'S, 125° 56.1'E.

History: Named by Phillip Parker King on 12 October 1819 after Sir John Osborn, one of the Lords of the Admiralty. Described as Osbornes Islands on King's sketch chart and Osborn Islands on the Admiralty chart of 1716, now officially spelt Osborne Islands. The Aboriginal name for these islands is Pelaga.



Osborne Is: head of creek in east part of bay. Waterfall to right of dinghy (P McHugh)

11.7.6 Steep Head Island

(no chartlet)

14° 27'S 126° 00'E

AUS 318, 728

⚓ Anchorage on the northwest side of Steep Head Island, which has a remarkable precipitous shape. The seabed is mud with about 5 m depth, but it is exposed to the westerly sea breeze.

11.7.7 Port Warrender

(no chartlet)

14° 30'S 125° 53'E

AUS 318, 728

⚓ There is anchorage (14° 29.2'S, 125° 50.4'E) south of Crystal Head, which is a steep flat-topped promontory. It offers good protection from a strong sea breeze but is exposed to the east. It is over mud and shell in about 4 m.

⚓ In E to SE conditions, anchorage can be taken at 14°33.6'S, 125°54.4'E.

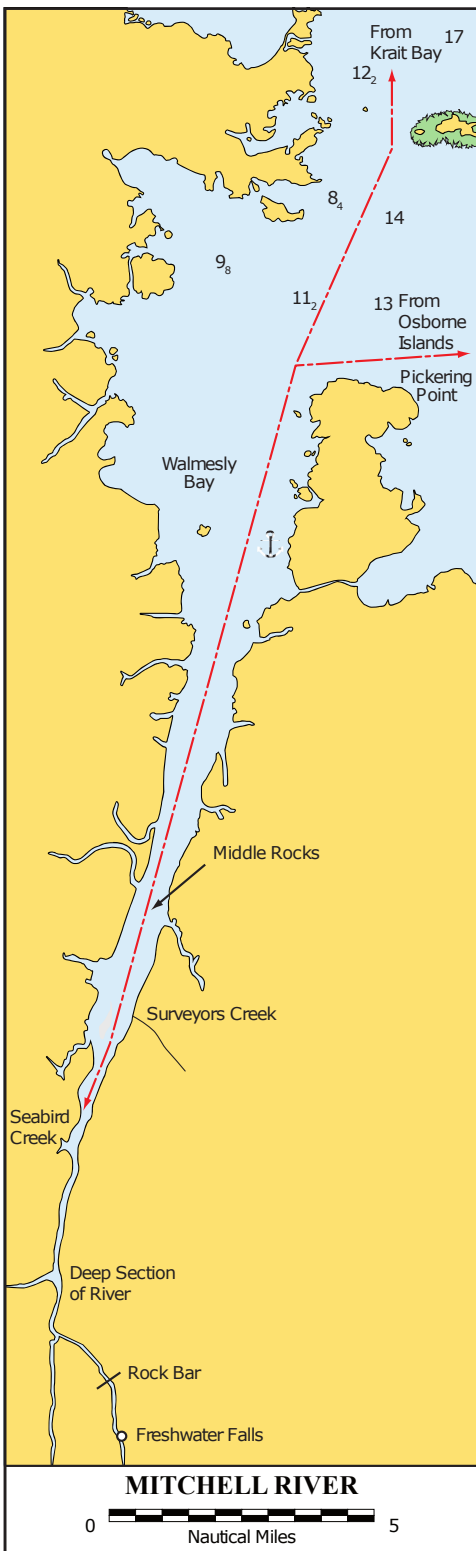
Of interest: The Kimberley Coastal Fishing Camp and the Bluey's One Tree Fishing Camp lie about 1 nm either side of the anchorage.

Tides: Port Warrender. Range 8 m.

11.7.8 Mitchell River

14° 30.0'S 125° 41.5'E

AUS 320, 728



Chartlet 37

From the north, proceed to the mouth of the Mitchell River via the passage west of Parry Island

then through Walmsley Bay, keeping a centre course through the bay and into the mouth of the river. From the Osborne Islands, clear Pickering Point by 0.5 nm then follow the same central course through Walmsley Bay and into the river.

It is possible to take a yacht 7 nm up the Mitchell River on any tide as far as Middle Rocks (14° 34.5'S, 125° 40.7'E), then explore further up the river to Surveyors Creek by dinghy. On high spring tides it has been reported possible to take a vessel with 2 m draft a further 2 nm beyond Middle Rocks (about 500 m downstream of the tidal rock bar).

⚓ Proceed up the Mitchell River and anchor in the centre of the river (14° 34.0'S, 125° 40.6'E) approximately 600 m north of Middle Rocks, which rise about 3 m above HWS. An alternative anchorage at the southern end of Walmsley Bay has been taken at 14°27.7'S, 125°42.7'E.

Check out the drying sandbars upstream of Middle Rocks on the following low tide and decide whether to explore Surveyors Creek and waterfalls by dinghy or to head upstream on the high tide the following day. When heading upstream, leave the anchorage at Middle Rocks about two hours before HW (Port Warrender). Leave Middle Rocks to port. It will take less than an hour to reach the mouth of Surveyors Creek.

⚓ From an anchorage immediately south of the mouth of Surveyors Creek (14° 37.4'S, 125° 39.7'E), it is possible to explore the creek in the dinghy at high tide. There is a series of waterfalls running into the creek about 1.5 nm from the mouth. Climb up the rocks then walk about 200 m up the creek to pools between the waterfalls.

About 2 nm upstream from Surveyors Creek, Seabird Creek on the western side of the river is worth exploring by dinghy. The freshwater section of this creek flows over relatively flat terrain where there is good easy walking and many shallow rock pools in which to swim.

From the anchorage at the tidal rock bar at the head of the navigable part of the river, take the dinghy a further 1 nm upstream to the freshwater section of the river then scramble over large boulders to access a series of freshwater waterfalls and some large safe swimming holes. It is about 2.5 km (1.5 hr walk) up onto the Mitchell Plateau. Be sure to return to the dinghy and then the yacht before the tide level falls below the level of the rock bar.

Tides: Port Warrender. Range 7 m.

Caution: Many crocodiles have been sighted in the river and in the lower fresh water pools.



Surveyors Creek, Mitchell River (D Ford)

11.7.9 Corneille Island

(no chartlet)

14° 11'S 125° 44'E

AUS 318, 320, 728

This island appears to have a well-protected square shaped bay on the southern side but this dries out completely at LW.

Tides: Cape Voltaire. Range 7m.

11.7.10 Barracuda Bay

(no chartlet)

14° 15'S 125° 39'E

AUS 320, 728

⚓ This bay is not named on the AUS charts but has been given the name Barracuda Bay by passing cruisers. Enter the bay on the western side. Anchor over a rocky bottom, south of the steep round hill on the western side of the bay.

Caution: An isolated drying rock lies on the east side of the mouth of the bay.

11.7.11 Kingsmill Islands

(no chartlet)

14° 10.0'S 125° 47.0'E

AUS 320, 728

⚓ Anchorage has been taken on the southwest side of Lafontaine Island.

11.7.12 Voltaire Passage

(see Krait Bay chartlet)

14° 13.0'S 125° 37.0'E

AUS 320, 728

Passage notes

Overfalls and strong tides may be experienced approaching Voltaire Passage. When approaching from the northeast, Lavoisier Island can look like part of the mainland. The shallow 2.7 m bank extending south from the two small unnamed islands to the north of the passage does not extend as far south as the chart suggests. Tidal flow can reach 4-5 kn in the passage but there is good depth. The tide floods ENE and ebbs SW. In a fresh wind against the tide, steep-sided waves are generated. Large overfalls exist (2.5 m wave height) in the vicinity of Lavoisier Island. The following waypoints for transit of Lavoisier Passage have been used: 14° 13.1'S, 125° 39.2'E to 14° 12.8'S, 125° 36.8'E .

Caution 1: There is no east-west passage south of Lavoisier Island. Uncharted reefs that dry LWS are located at 14° 13.6'S, 125° 38.0'E and 14° 13.7'S, 125° 37.6'E.

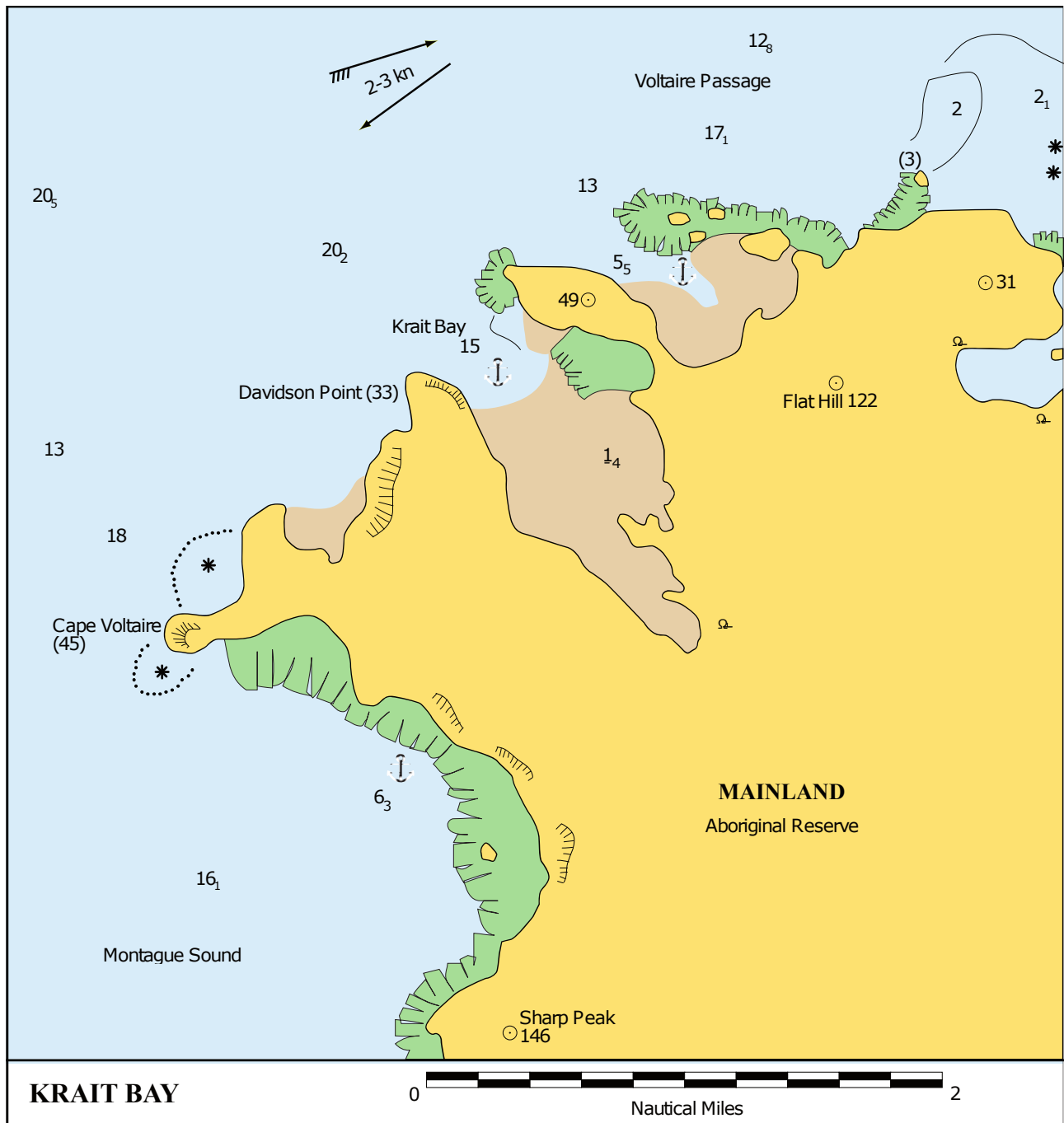
Caution 2: Some charts refer to Lavoisier Island as Lavolaler Island.

Tides: Cape Voltaire. Range 7 m.

11.7.13 Krait Bay

14° 15'S 125° 36'E

AUS 320, 728, 729



Chartlet 38

⚓ 1 nm east of Krait Bay is a small sandy bay with a steep square headland extending from the east, with several drying rocks almost blocking the entrance. At LW most of the rocks are exposed making the approach easier to see. A sandy beach on the southern shore provides landing at HW.

⚓ Krait Bay is a small but fair anchorage. Each side of the bay has fringing reef and a drying reef extends across the bay about 0.5 nm from the entrance. Good in a SE wind but exposed to the

NW. Keep slightly south of centre while entering. A substantial part of the south and east of the bay dries.

⚓ Anchorage has been taken at 14° 14.8'S 125° 35.9'E.

Fishing: Cod and snapper are excellent in the northeast corner at the drop-off.

Of interest: No freshwater has been reported but plenty of rusting drums and star pickets have been seen.

History: The vessel *Krait* surveyed the bay during World War II as a depot and training base for vessels raiding enemy harbours.

11.7.14 Cape Voltaire South

(see Krait Bay chartlet)

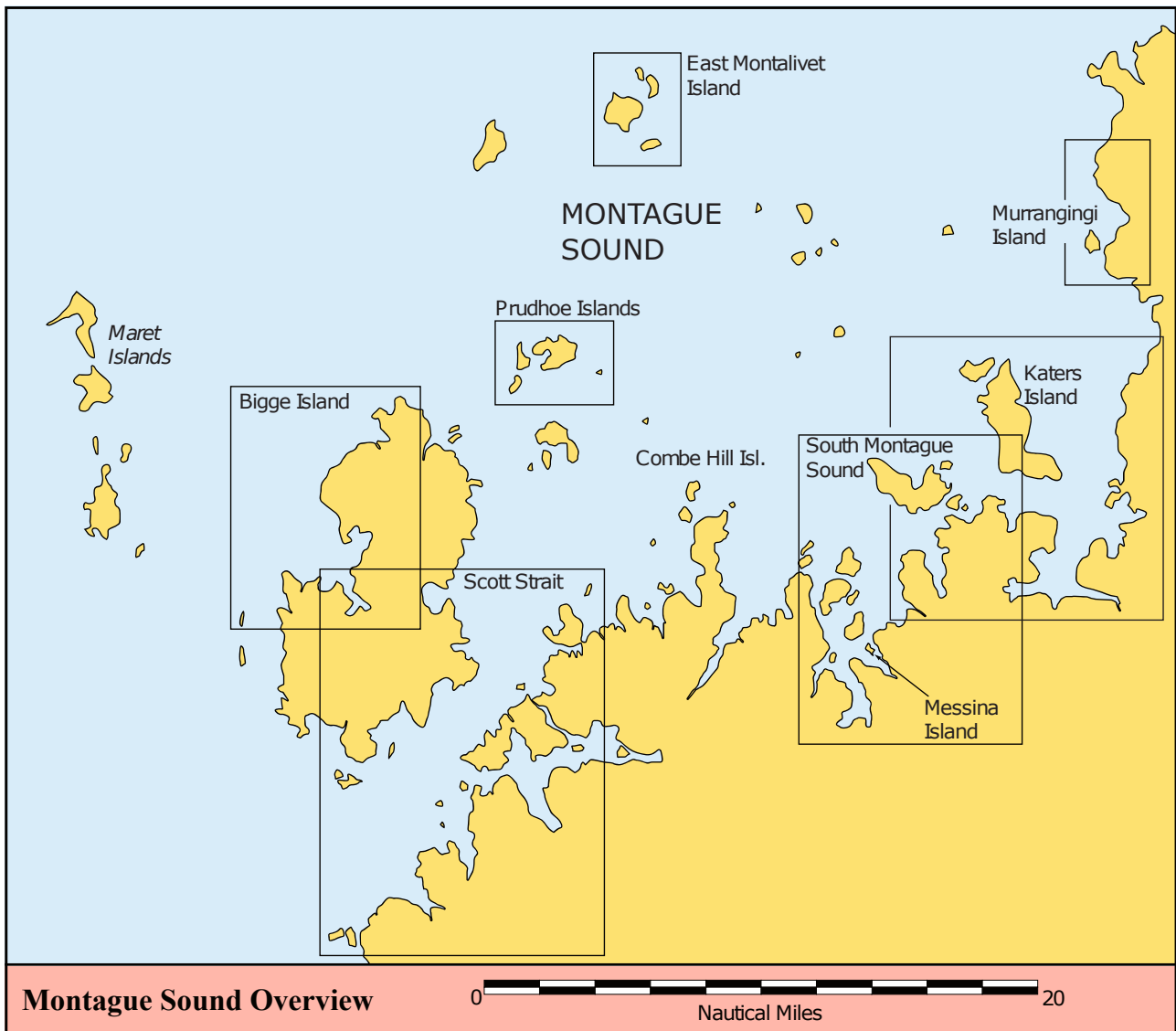
14° 15.5'S 125° 35.0'E

AUS 728

⚓ Anchorage can be taken over good holding sand in the bay southeast of Cape Voltaire at 14° 16.3'S, 125° 35.4'E. Much of the bay is deep, even close to the fringing reef. There is a very nice beach.

11.8 Montague Sound

Charts: AUS 320, 728, 729



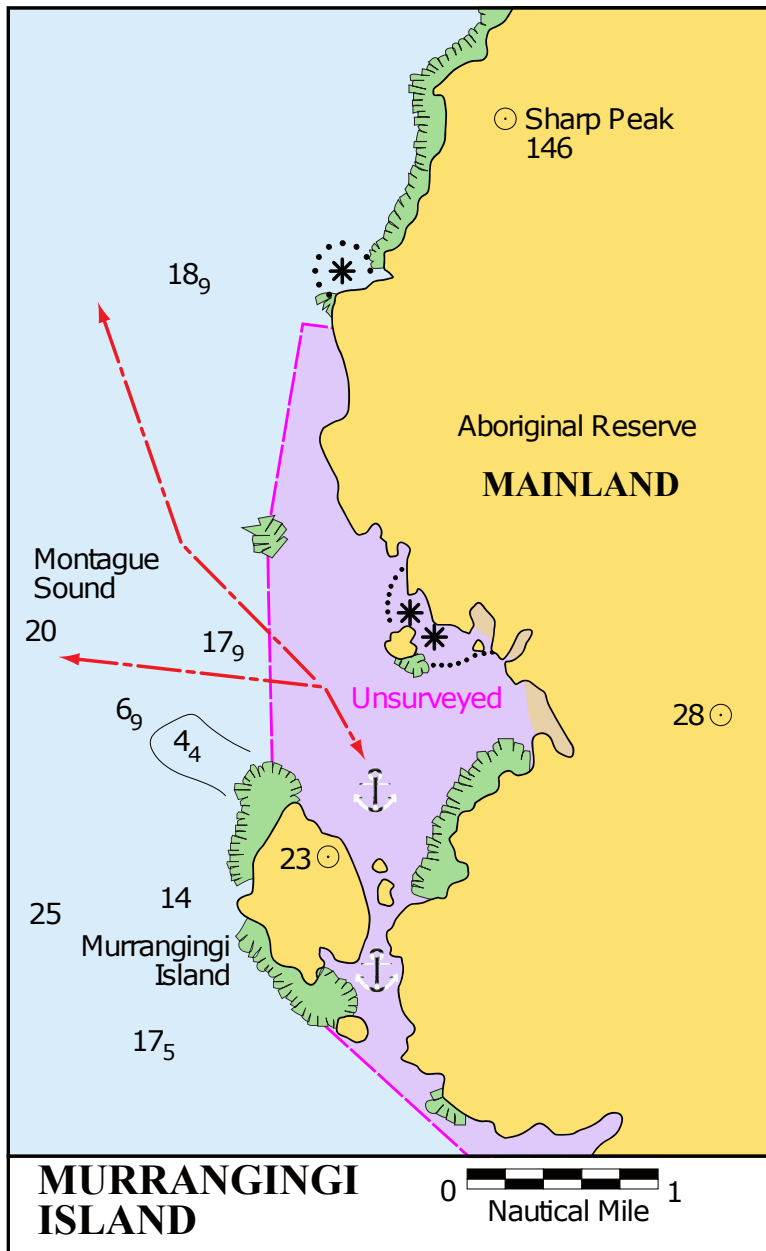
Chartlet 39 Montague Sound Overview

Bonaparte Archipelago consists of all the islands lying off Montague Sound and York Sound. This is a great area to explore. Baudin named the archipelago during his survey from 1801 to 1803.

11.8.1 Murrangingi Island

14° 21.0'S 125° 34.7'E

AUS 320, 728, 729



Chartlet 40

⚓ Anchorage may be taken up in 4 m over sand 6 nm south of Cape Voltaire in Montague Sound. The anchorage is between a small island, named Murrangingi Island, and a small beach on the mainland. When approaching, keep clear of the isolated drying reef 1.5 nm north of the island. The anchorage is uncomfortable in a 10-15 kn NW sea breeze.

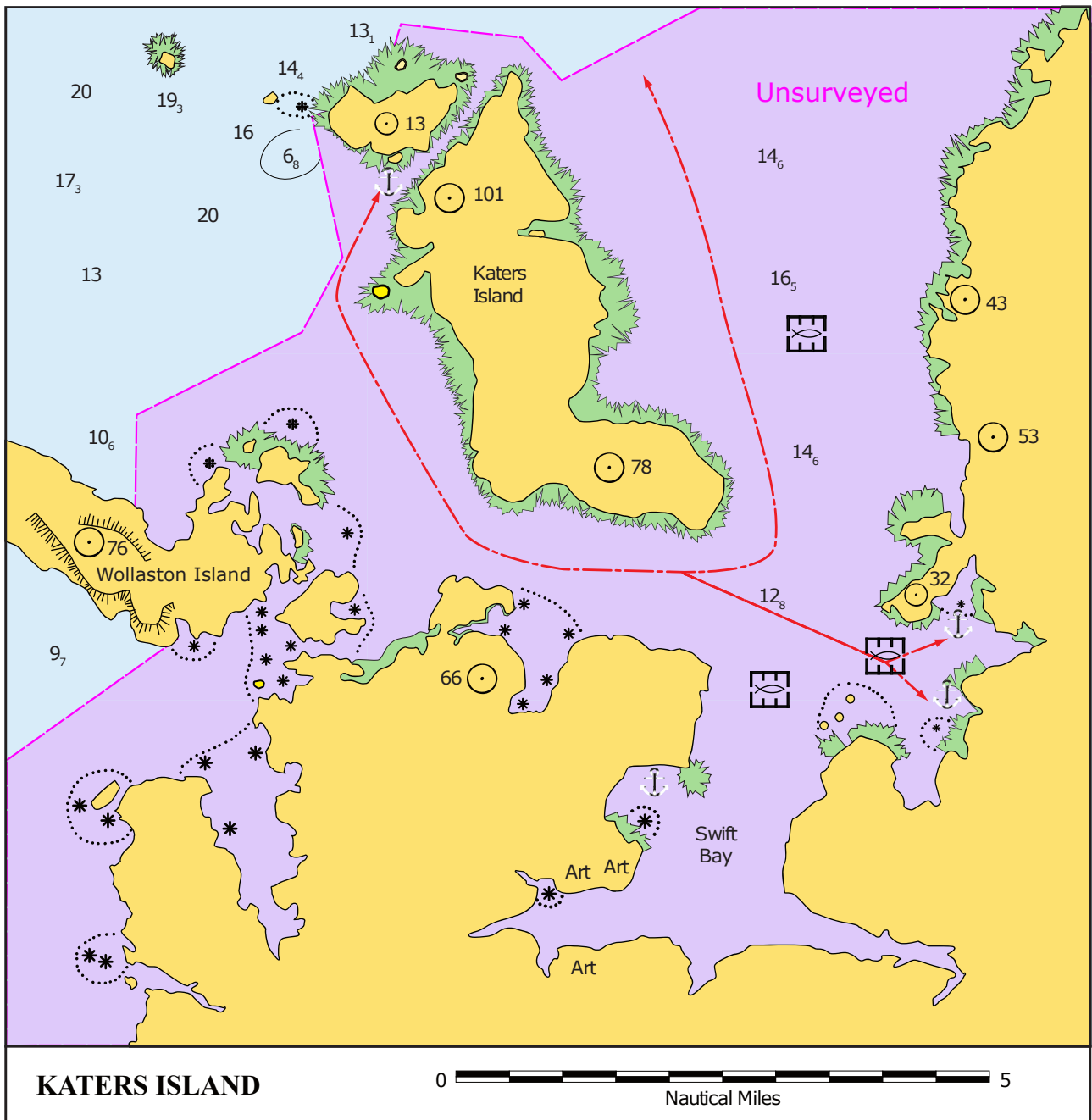
⚓ Anchorage has also been taken further south, in the channel near the east side of the island, 150 m north of where a sand spit occurs just before a large bay. A 1.5-2 kn current has been experienced. It has been rated as a well-protected anchorage.

Tides: Cape Voltaire. Range 7 m.

11.8.2 Katers Island

14° 27'S 125° 31'E

AUS 320, 728, 729



Chartlet 41

⚓ Sheltered anchorage (14° 26.6'S, 125° 30.4'E) over sand has been taken in the uncharted area to the northwest of Katers Island. There are fish farms on the southeast end of the island and in Swift Bay. It has been reported that a southerly circuit of the island is possible.

Caution 1: The Australian Pilot warns of several islets and reefs which lie off the west and northwest sides of the island.

Caution 2: The reef around Trocus Island (just northeast of Wollaston island) is reported more extensive than charted.

History: Named on 6 September 1820 by Phillip Parker King in honour of Henry Kater (1777-1835). Henry Kater was an English physicist, who outlined the principle of reflecting telescopes and is credited with inventing (though not patenting) the prismatic compass.

11.8.3 Swift Bay

(see Katers Island chartlet)

15° 32'S 125° 34'E

AUS 320, 728, 729

⚓ Sheltered anchorages (3 m LWS) over mud in the bay on the east side of Swift Bay are protected from the easterlies. The cove on the west side of the bay was free of pearl boat moorings in 2013. Anchor over mud. It is sheltered from the westerly sea breeze. There is a freshwater spring above the high tide line in the northwest corner of the cove running on to the rock shelf through a PVC pipe.

Caution: There are sharks in the bay with the water pipe.

Fishing: Good oystering in this cove and good fishing around the rocks in the southern arms of Swift Bay.

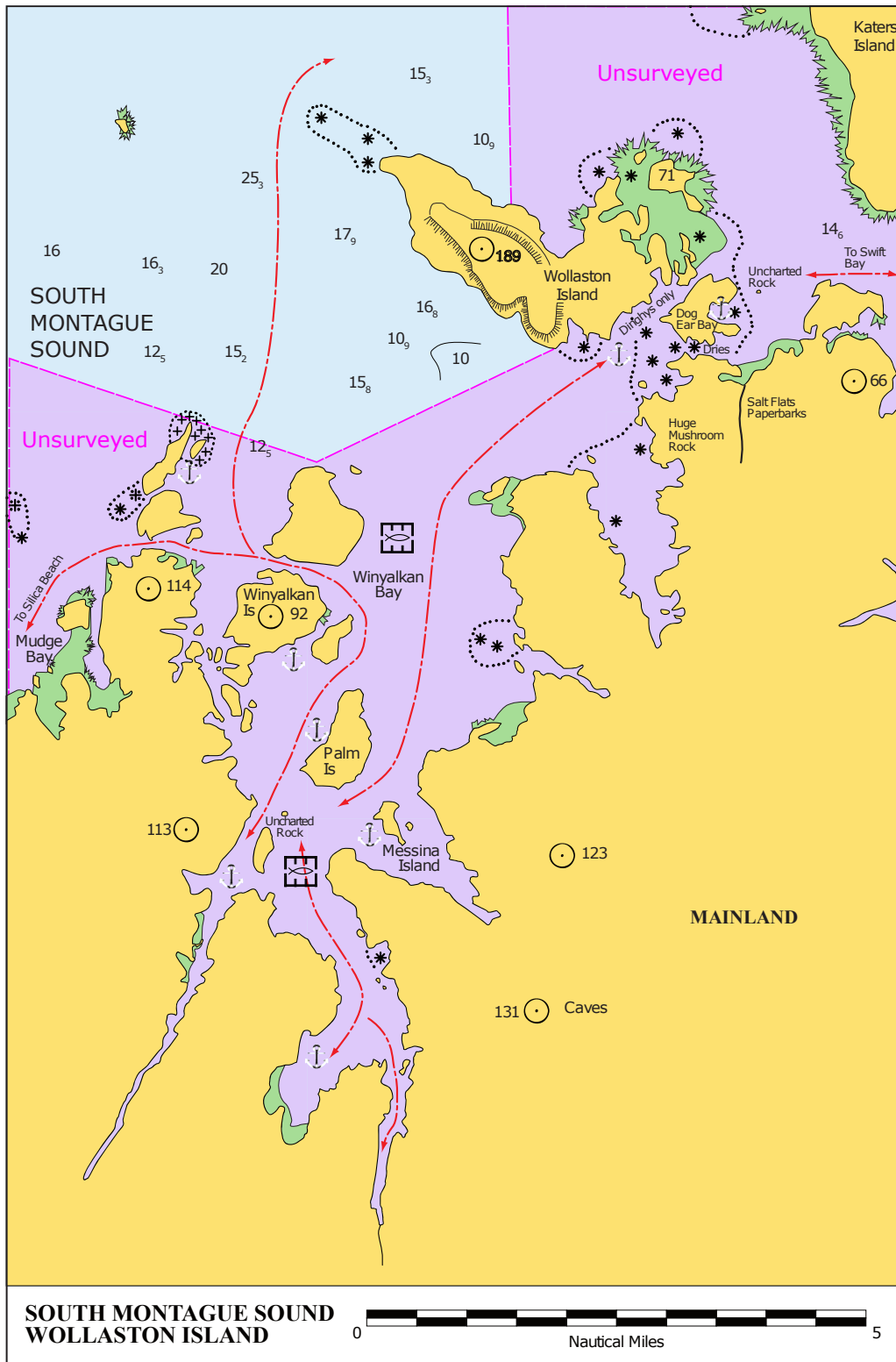
Of interest: There are extensive areas of shell middens in the southwest arm of Swift Bay, and Aboriginal art under rock shelves on both the southern and northern sides of this arm.

Tides: Cape Voltaire. Range 7 m.

11.8.4 Wollaston Island

14° 30.0'S, 125° 28.0'E

AUS 729



Chartlet 42

⚓ Anchorage can be taken off the southeast side of Wollaston Island, also off the southwestern

side in 11 m depth.. Sometimes there is passage for deep draft boats between Wollaston Island and the Dog Ear Bay Island, but first check with the dinghy. Be careful, there are only some days (at springs) when there is adequate depth. 3 m depth will be found when the corresponding tide at Cape Voltaire is 5.6 m or higher.

Tides: Cape Voltaire. Range 7 m springs and 1.5 m or less at neaps.

Of interest: A visit by dinghy to Dog Ear Bay will be rewarded with good coral viewing and Aboriginal paintings.

11.8.5 Winyalkan Island

(see South Montague Sound chartlet)

14° 33.0'S 125° 25.5'E

AUS 320, 729

There is an anchorage south of Winyalkan Island. It is possible to proceed south from Winyalkan Island to Palm Island at position 14° 34.6'S, 125° 26.4'E.

Caution: There is an uncharted rock in the channel on the north side of Winyalkan Island, at 14° 32.9'S, 125° 25.9'E.

⚓ Anchorage has been taken at 14° 34.4'S, 125° 26.1'E in 7 m depth.

⚓ Anchorage has also been taken at 14° 35.4'S, 125° 26.6'E in 9 m over mud. There are several pearl farms in the area.

Caution: A long reef extends south-southwest of Messina Island half-way to the mainland. It is awash at mid-tide.

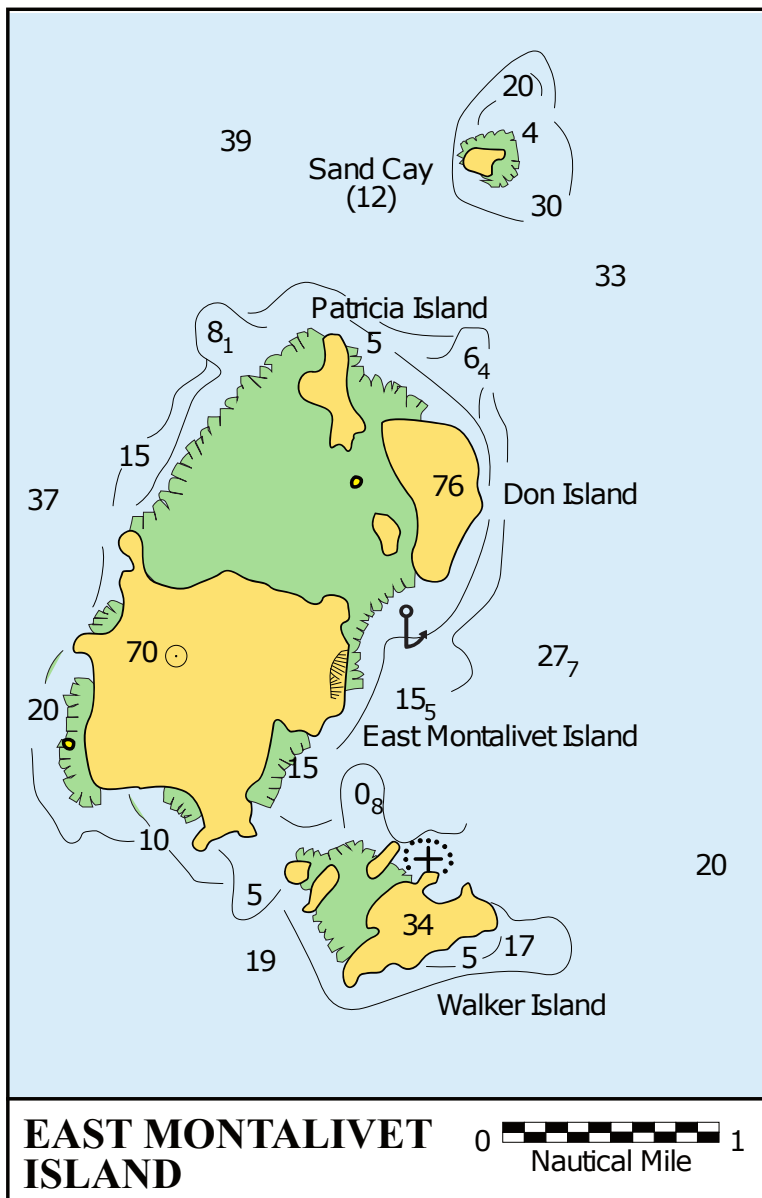
Of interest: The area south of Winyalkin Island is very interesting to explore, with numerous examples of Aboriginal painting. It is also attractive, with a variety of waterfalls and gorges. Access to the southerly areas requires working the tides and using the tender.

Palm Island was circumnavigated by a yacht and reported to be a very scenic island.

11.8.6 East Montalivet Island

14° 17'S 125° 18'E

AUS 320, 729



Chartlet 43

East Montalivet Island is an outside island worth considering in calm conditions. It is an attractive area with clear water, good fishing, turtles, sandy beaches, pandanus palms and thickly wooded higher slopes.

⚓ There is anchorage in 3-4 m over sand and mud east of East Montalivet Island and south of Don Island. It shoals towards Don Island.

Tides: Cape Voltaire. Tidal range about 7 m and setting ENE on the flood and SW on the ebb.

Caution: The pass between Walker Island and East Montalivet Island appears blocked by reef.

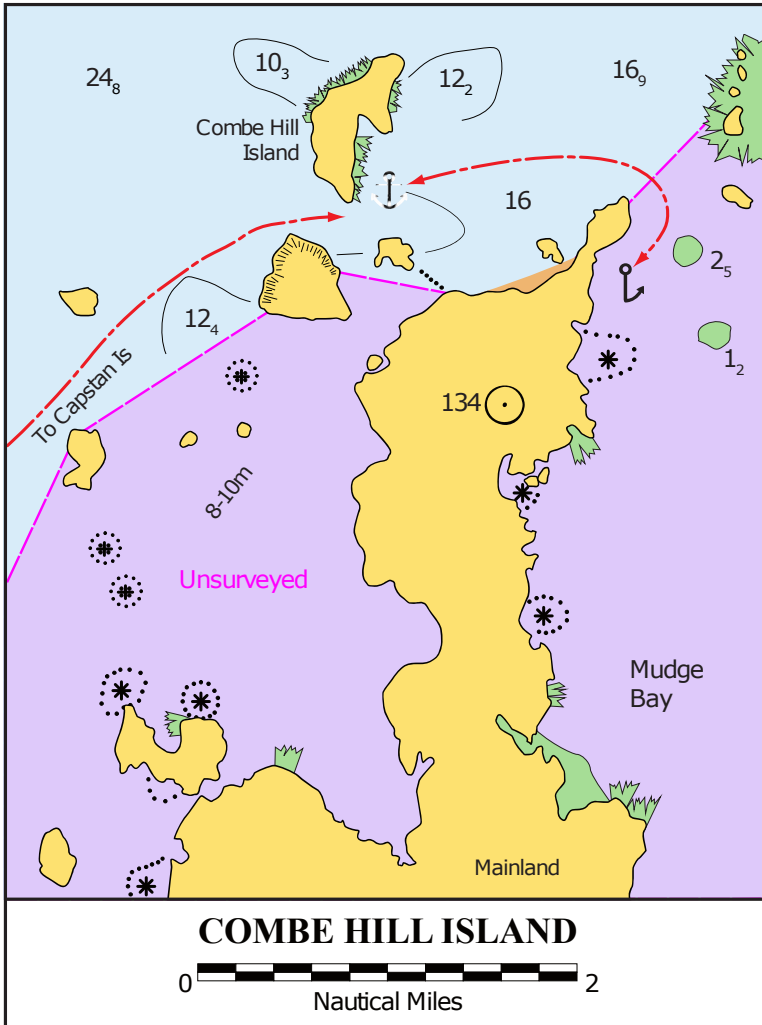
Passage notes

Caution: Two miles east of Combe Hill Island there is a group of small un-named islands. North of these islands, in good charted depths, there is shallow patch with perhaps less than 2.5m depth, at 14° 29.2'S, 125° 22.6'E. There is deep water immediately north of this position.

11.8.7 Combe Hill Island

14° 30.0'S, 125° 20.4'E

AUS 729



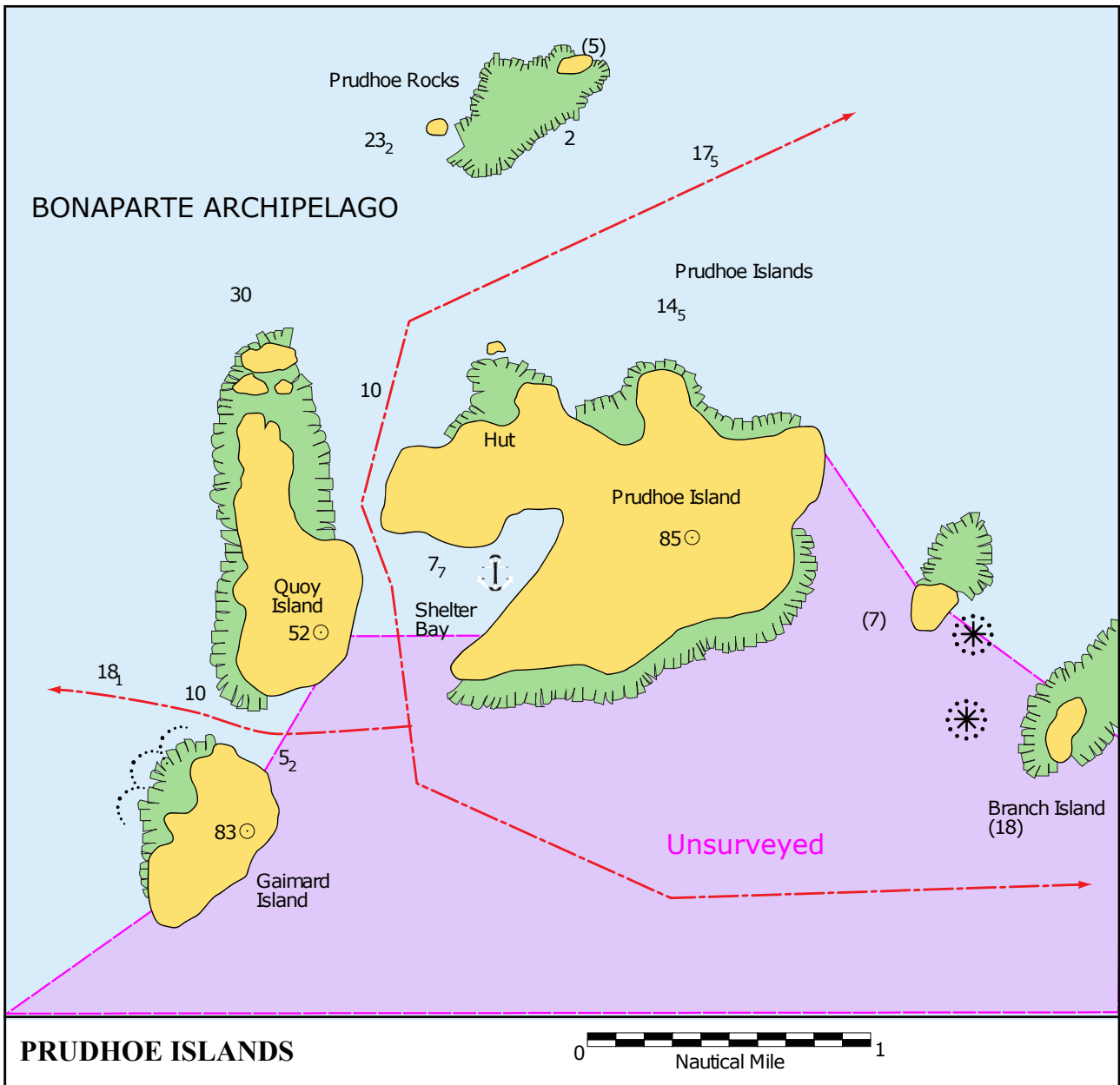
Chartlet 44

⚓ Anchorage can be taken on the east side of the mainland peninsula 14° 30.8'S, 125° 21.9'E.

11.8.8 Prudhoe Islands

14° 25'S 125° 15'E

AUS 320, 729



Chartlet 45

⚓ Shelter Bay is a protected anchorage, almost landlocked and with good holding in mud. Anchorage has been taken at 14° 25.3'S, 125° 15.1'E. It is exposed only to the SW and is free from swell. There is passage north from the anchorage but stay to the east side, to clear several rocks on the west side which dry at LW. Passage between Quoy and Gaimard islands is reported clear.

Of interest: Good walking on Quoy Island.

Tides: Maret Island. Range 8 m.

11.8.9 Maret Islands

(no chartlet)

14° 25'S 124° 59'E

AUS 320, 729

The Maret Islands are about 20 nm off the mainland. They are twin islands linked by a rocky causeway that covers at HWS. They are unusually flat-topped with steep escarpments over beaches. They are rated the best of the offshore islands and worth considering in calm conditions.

⚓ Anchorage is provided in Brunei Bay on the west side of the northern island but anchor well off in 8-10 m LWS to avoid rocky pinnacles. Good protection from E winds.

Caution: A gas installation exists on North Maret (Brunei Bay) and availability of anchorages is now less certain.

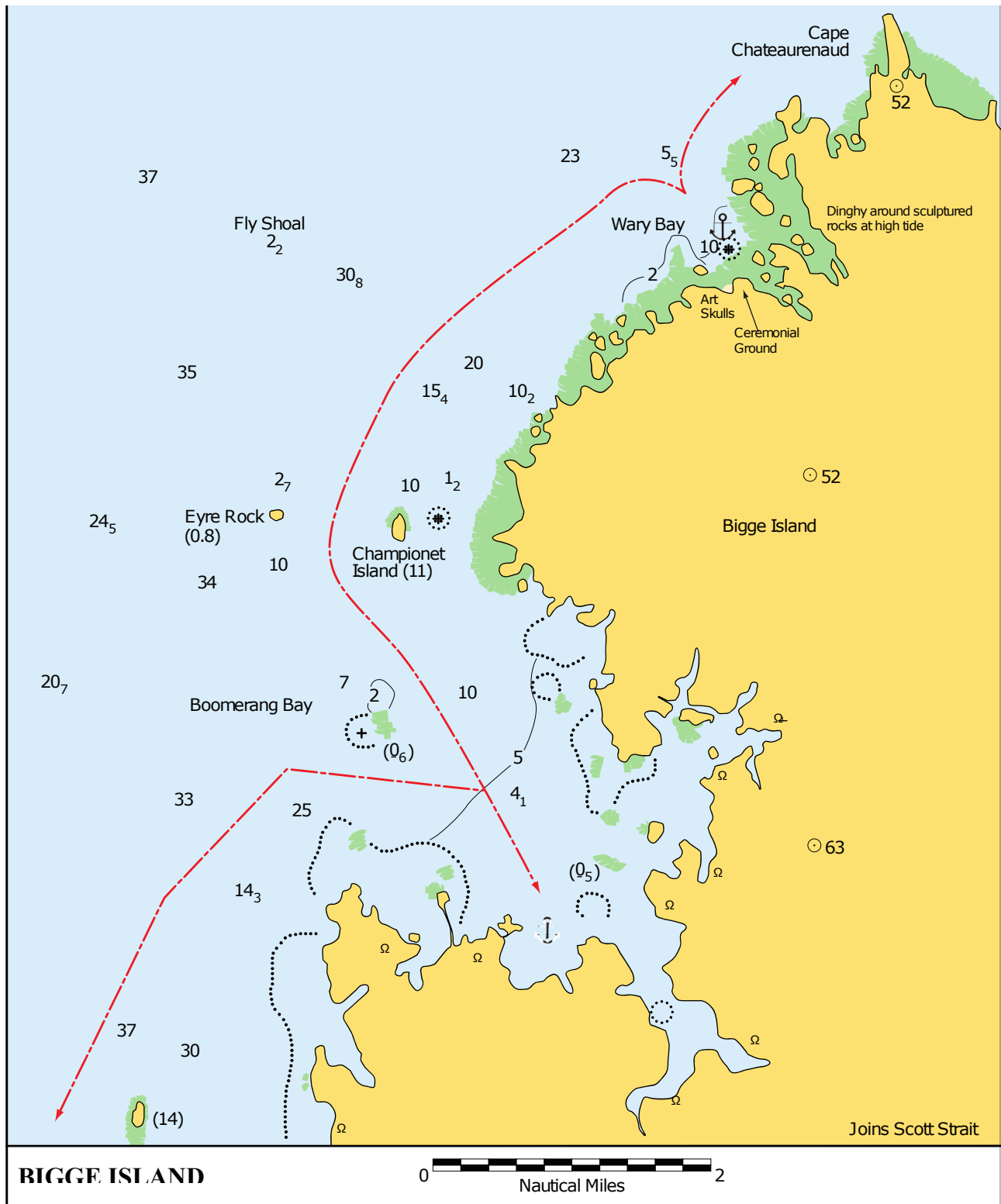
⚓ There is also anchorage on the northeast side of the southern island. The sea is rich with marine life and the beaches are covered with shells.

Tides: North Maret Island. Range 8 m.

11.8.10 Bigge Island

14° 33'S 125° 10'E

AUS 320, 729



Chartlet 46

The general aspect of Bigge Island is one of rugged and barren quartzite. It is a heritage site of

great significance. As with most of this part of the coast, a permit is required before visiting. See section 10.8.

⚓ Wary Bay, on the northwest of Bigge Island, has anchorages at 14° 28.0'S, 125° 08.6'E and 14° 28.1'S, 125° 08.3'E , protected from E and S. The bottom is grey mud and good holding.

Caution 1: An uncharted rock has been reported 50 m distance, on bearing 291°T from position 14° 28.1'S, 125° 08.5'E. The rock is awash when the tidal height is 5.3 m above datum (Cape Voltaire tide).

Caution 2: There are scattered rocks and a wide fringing reef within the bay.

Caution 3: Crocodiles inhabit the area.

Tides: Maret Island. Range 8 m.

Of interest: Aboriginal art adorns the walls and caves and there are some magnificent paintings of Wandjina figures. When visiting the caves take great care not to rub against or touch the paintings. There are two prohibited areas which may be roped off: a burial site located just beyond the caves, and at the northern end of the beach there is a rocky headland known to be an ancient Aboriginal ceremonial ground.

⚓ Boomerang Bay on the west side of Bigge Island is a large but fairly exposed bay that provides good anchorage protected from NE to S. It may be a bit rolly when the tide is high. Anchorage 14° 33.1'S, 125° 07.5'E over sand has been found satisfactory.

⚓ Anchorage has also been taken in a bay at the southern end of Bigge Island, at 14° 39.0'S, 125° 07.5'E. This area is unsurveyed so be wary of surrounding rocks and reef.

Tides: Maret Island. Range 8 m.

History: Named after John Bigge, magistrate in charge of an enquiry into the Colony of New South Wales.

Passage notes

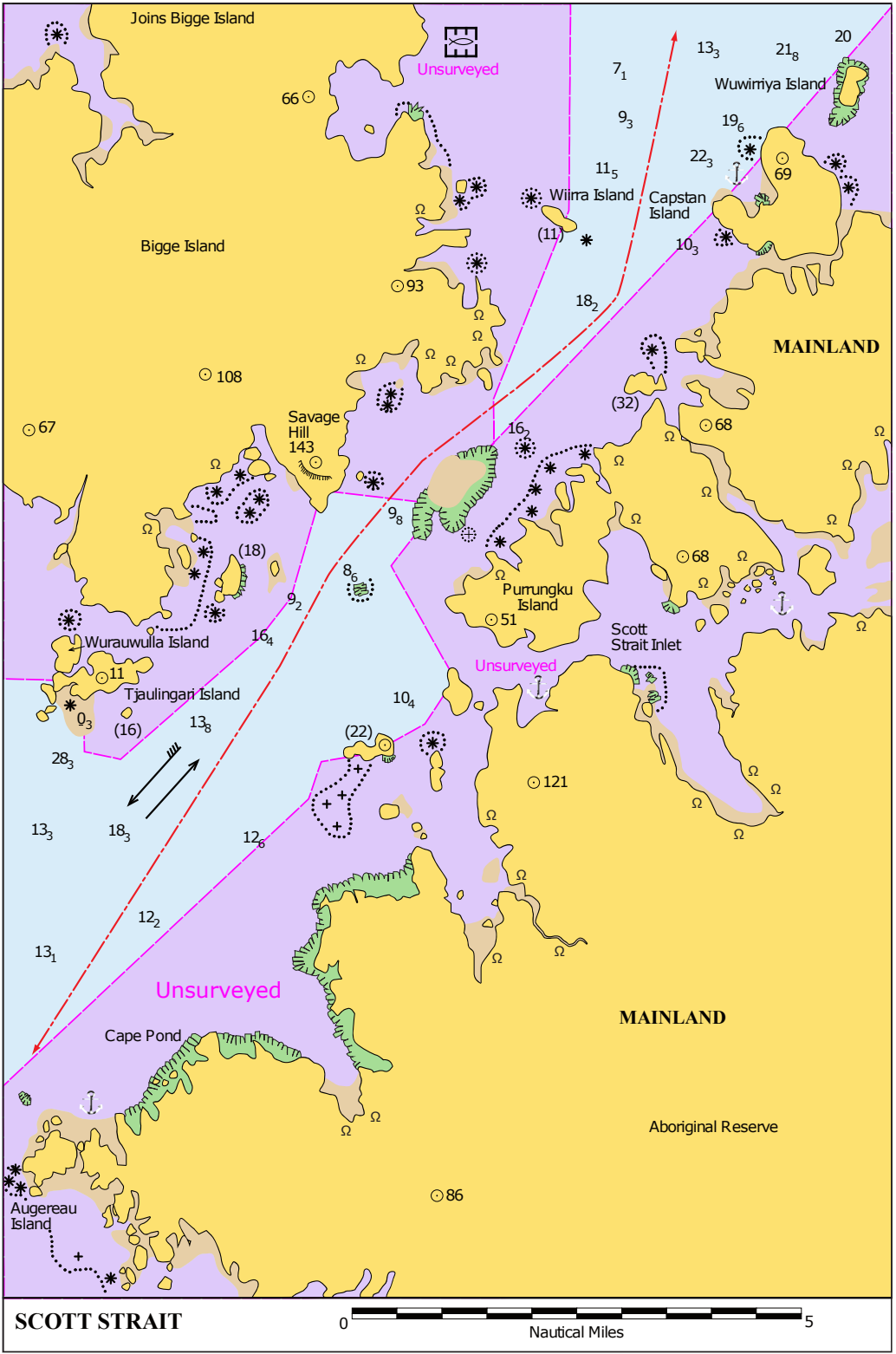
Passage can be taken either side of Queen Island and the small unnamed islet to the north. An uncharted rock, which dries at about half tide, is located 3 nm south of Queen Island in the uncharted area at position 14° 38.6'S, 125° 04.6'E. Tooth Rocks, west of the southern end of Bigge Island, are well described, appearing as a set of dangerous teeth.

See also chartlet for Scott Strait below.

11.8.11 Scott Strait

14° 38'S 125° 12'E

AUS 320, 729



Chartlet 47

11.8.12 Capstan Island

(no chartlet)

14° 35.0'S, 125° 16.0'E

AUS 729

⚓ Capstan Island is northeast of Scott Strait and has a bay with anchorage over sand on its northwest side. Anchorage can be taken at 14° 34.6'S, 125° 15.7'E.

Of interest: Curious rock formation in southern part of the bay.

Tides: Cape Voltaire. Range 7.5 m. There is a two hour delay between high water Cape Voltaire and a change in direction of the current at Scott Strait.

11.8.13 Approaches to Scott Strait

AUS 729

Scott Strait passage between Bigge Island and the mainland is hazardous and is best negotiated at slack water. It is arguably more easily negotiated from north to south as the current will assist with a making tide. The depths through the strait are irregular. It is reported that clear passage is to be found on either side of the large central reef as shown on the chartlet.

Caution 1: NtM for AUS 729 show additional hazards on the south side of the central reef.

Caution 2: Reef extends further offshore than indicated on AUS 729 near the southwest point of Purrungku Island (see chartlet). At this point, the best track is approximately 200 m off Purrungku Island in about 4 m LWS.

⚓ On the southeast side of Scott Strait is the extensive Scott Strait Inlet (mouth at 14° 39.8'S, 125° 13.0'E). Several anchorages can be found if it is necessary to wait for the tide. From the north the best approach is straight down the centre of the inlet. The sandbars near the entrance and further in have a 2 m depth at LWS. Enter on a rising tide. This inlet can also be used as a staging place for the passage of Scott Strait.

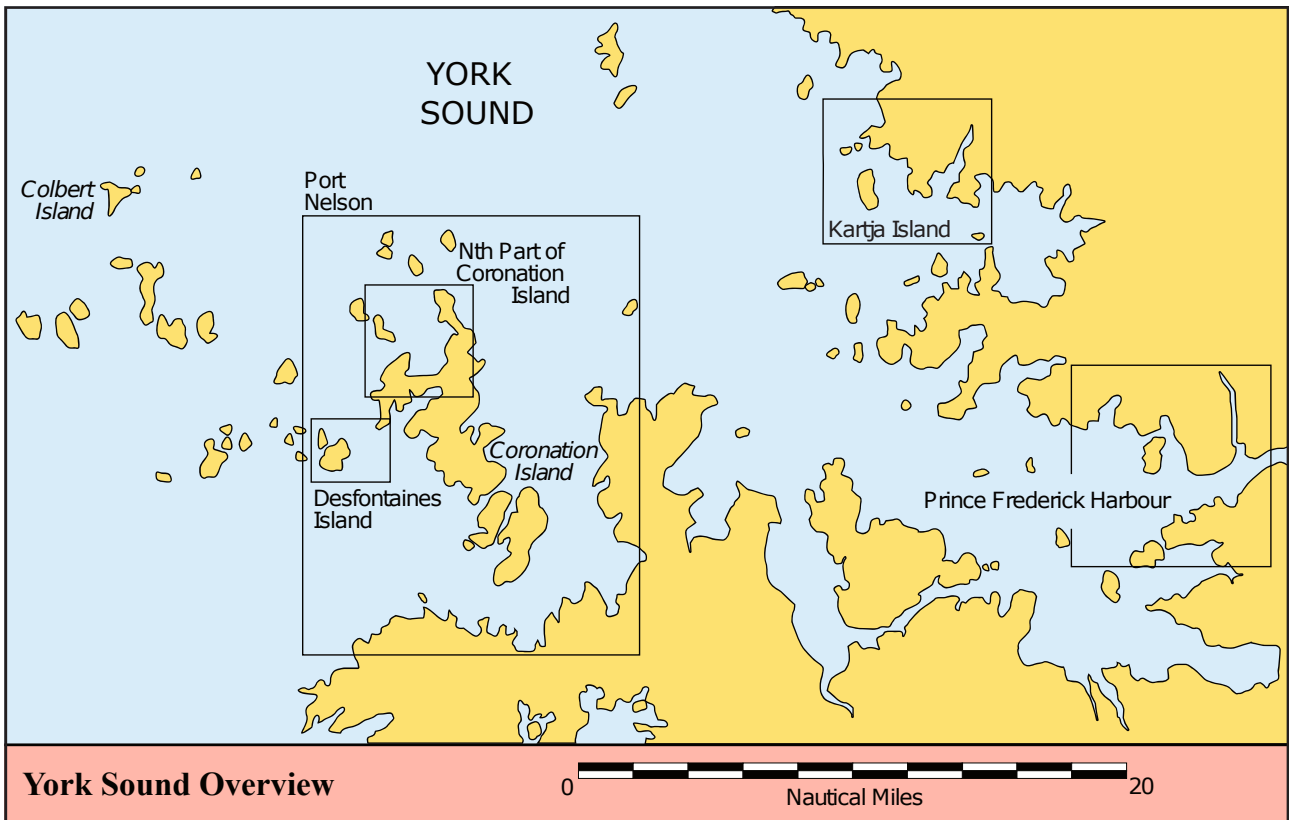
History: Named by Phillip Parker King after the Reverend Thomas Hobbes Scott, the Archdeacon of New South Wales.

⚓ Augereau Island is a picturesque anchorage (14°45'S, 125°08'E) about 1.5 nm southwest of Cape Pond, with protection from SE to SW winds, over shoaling sand north of a large drying inlet. It can be subject to strong currents. From the south, start your approach to clear two drying reefs west of a small rocky islet. There are several drying reefs around the islet. The large drying inlet opens up when clear of the islet before a steep black cliff. Coming from the north, a course of 225° from Cape Pond for about 1.5 nm will bring the inlet to view. This is a reasonable anchorage while waiting for the tide before attempting to either transit Scott Strait or go round Bigge Island when heading north.

Tides: Maret Island. Range 8 m.

11.9 York Sound

Charts: AUS 320, 729, 730, 37



Chartlet 48

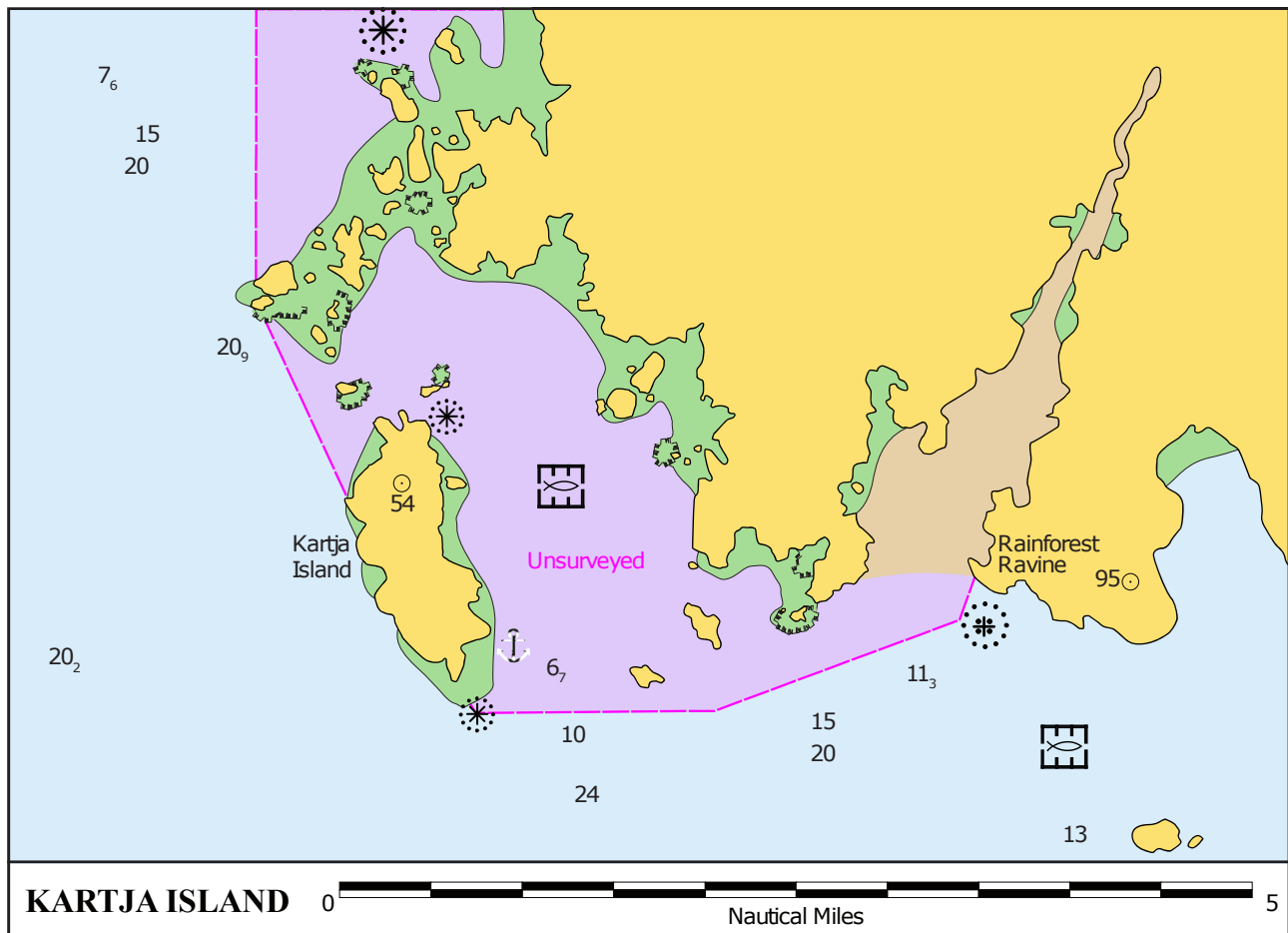
11.9.1 Tjungkurakutangari Island (no chartlet)

14° 48'S 125° 09'E
AUS 320, 729, 730

⚓ A good anchorage has been found in the bay north-northeast of Tjungkurakutangari Island in 7m depth, at 14° 46.8'S 125° 09.4'E.

11.9.2 Kartja Island

14° 52'S 125° 11'E
AUS 320, 729, 730



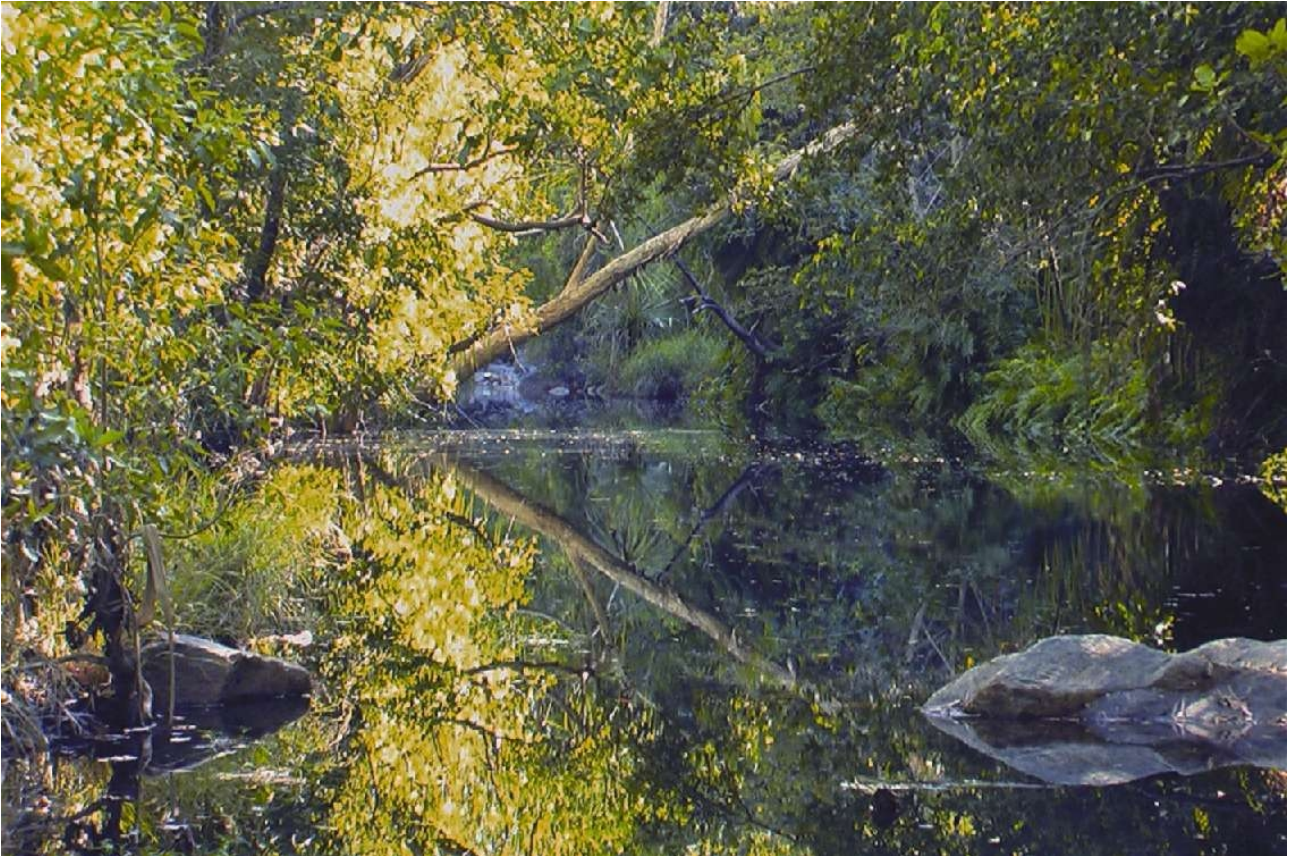
Chartlet 49

⚓ Anchorage has been taken east of the island (14°52.3'S 125°11.4'E) following an approach from the south. Two miles east of Kartja Island there is a drying inlet which extends 3 nm north to Rainforest Ravine. Fresh water runs all season in the mouth of this ravine.

Caution: There is a fish farm lease between Kartja Island and the mainland and a further four leases located in the bay southeast of Kartja Island.

Of interest: Kartja is an Aboriginal name of a tree with red fruit like a fig.

Tides: Maret Island. Range 8 m.

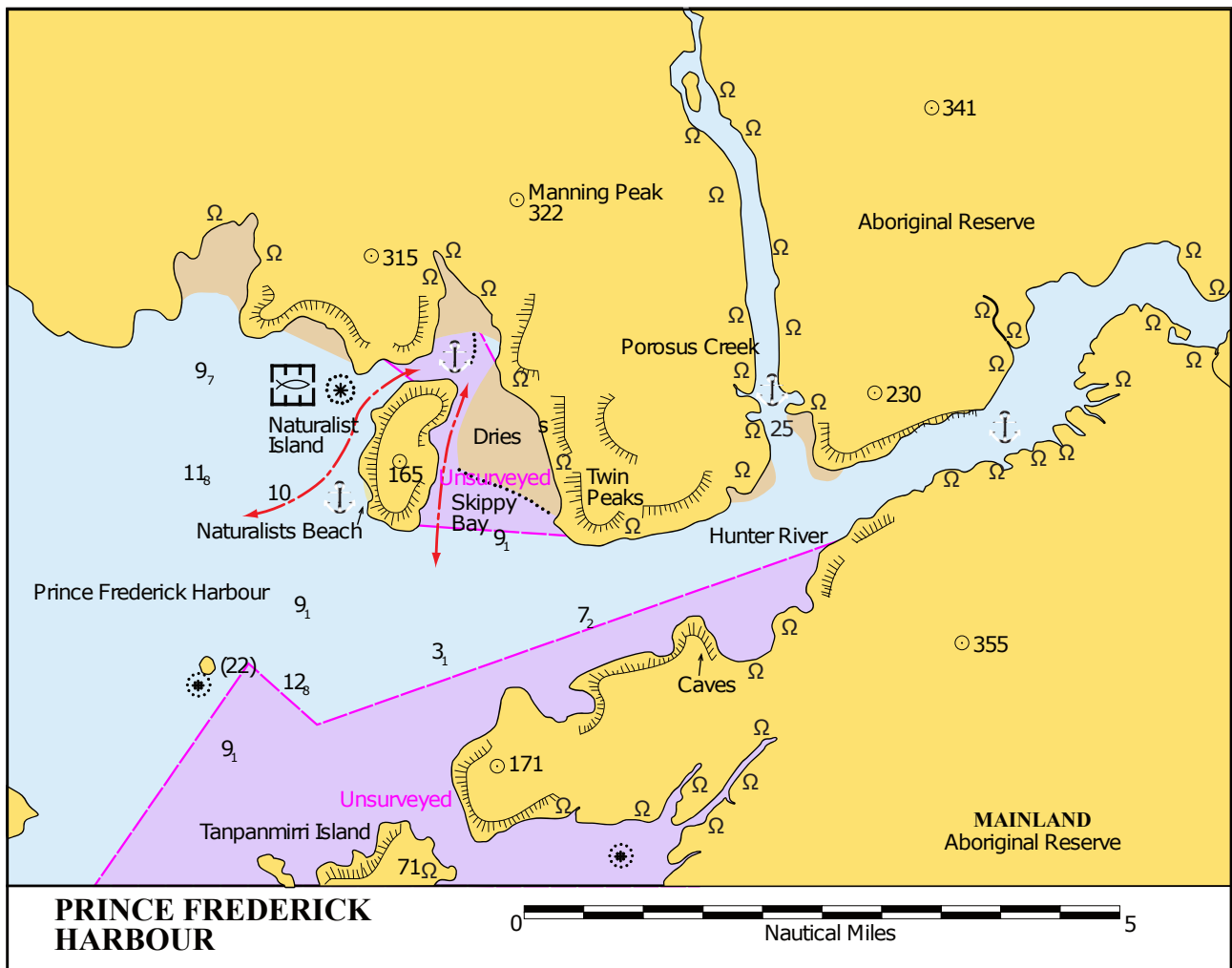


Rainforest Ravine near Kartja Island (D Ford)

11.9.3 Prince Frederick Harbour

15° 01'S 125° 13'E

AUS 320, 730



Chartlet 50

When approaching from the west, beware of the rock about 7 nm west of the Hunter River entrance, depth 2 m at LW neaps, located 0.8 nm southeast of Murrara Island. Naturalists Island lies northwest of the mouth of the Hunter River; it is 165 m high with anchorages to the north and southwest. The Hunter River is not a very large river system so the flow is not great. It is easier to navigate than either the Mitchell or Prince Regent Rivers because it is wider and freer of hazards. The river bed is mostly sand, which dries at LWS from a bend 4 nm upstream from the mouth. Spectacular red cliffs and greenery mark the approach to the mouth of the Hunter River. Twin rocky peaks on the northern point are especially prominent. The river is impressive in its rugged scenic beauty with 100-200 m cliffs. Some say it is the most scenic area of the Kimberley.

⚓ There is anchorage north of the island in Skippy Bay (15° 00.5'S, 125° 22'E) which can be approached from the west or the south. The west entrance is partially barred by reef less than 1 m LWS. Keep 100 m off the island to avoid the reef. The south entrance is through a shallow channel close to the east side of the island with depths of approximately 2 m LWS.

⚓ There is anchorage off Naturalists Beach, in the southern bay on the west side of Naturalists Island. Landing is possible at all tides except at LWS.

Caution: Much of the bay to the east of Naturalists Island dries at LWS.

History: The name of this beach commemorates its use as a camp-site by a party of naturalists in June 1984.

⚓ There is an anchorage in the northwest of Prince Frederick Harbour in the region of Murrara Island, at 14° 58.0'S, 125° 12.2'E. Caution is advised as the seabed probably shoals very quickly not much further in than this position.

⚓ The anchorage in from the entrance to Porosus Creek 14° 59.7'S, 125° 24.7'E is extremely narrow and is initially deep but shelves to 5 m. Thereafter the creek deepens up to 12m, and anchorage has been taken 2 nm up the creek at 14° 59.1'S, 125° 24.6'E in about 6-7 m depth. The upper part of the creek is an attractive waterway and worth exploring by dinghy.

Of interest 1: Porosus comes from the Latin word for crocodile.

Of interest 2: There are caves on the headland to the west of this anchorage which show signs of Aboriginal occupation.

⚓ Anchorage may be found about 4 nm upstream of the Hunter River entrance (in an east-northeast direction) where the river widens and shallows. Depths of 4 m have been found in the area. It is protected and calm. The river is further navigable by dinghy for 5 nm on a rising tide. The 80 m high Hunter Falls are at the extremity of the southern arm and the Donkin Falls are at the extremity of the northern arm.

The Roe River is not recommended for cruising yachts. The tidal flow is very strong and can become dangerous, especially on the ebb. Mosquitoes can be a problem.

Of interest: Edith Falls is at the head of a creek about 12 nm upstream.

Caution 1: A dinghy trip can be extremely dangerous in spring tides.

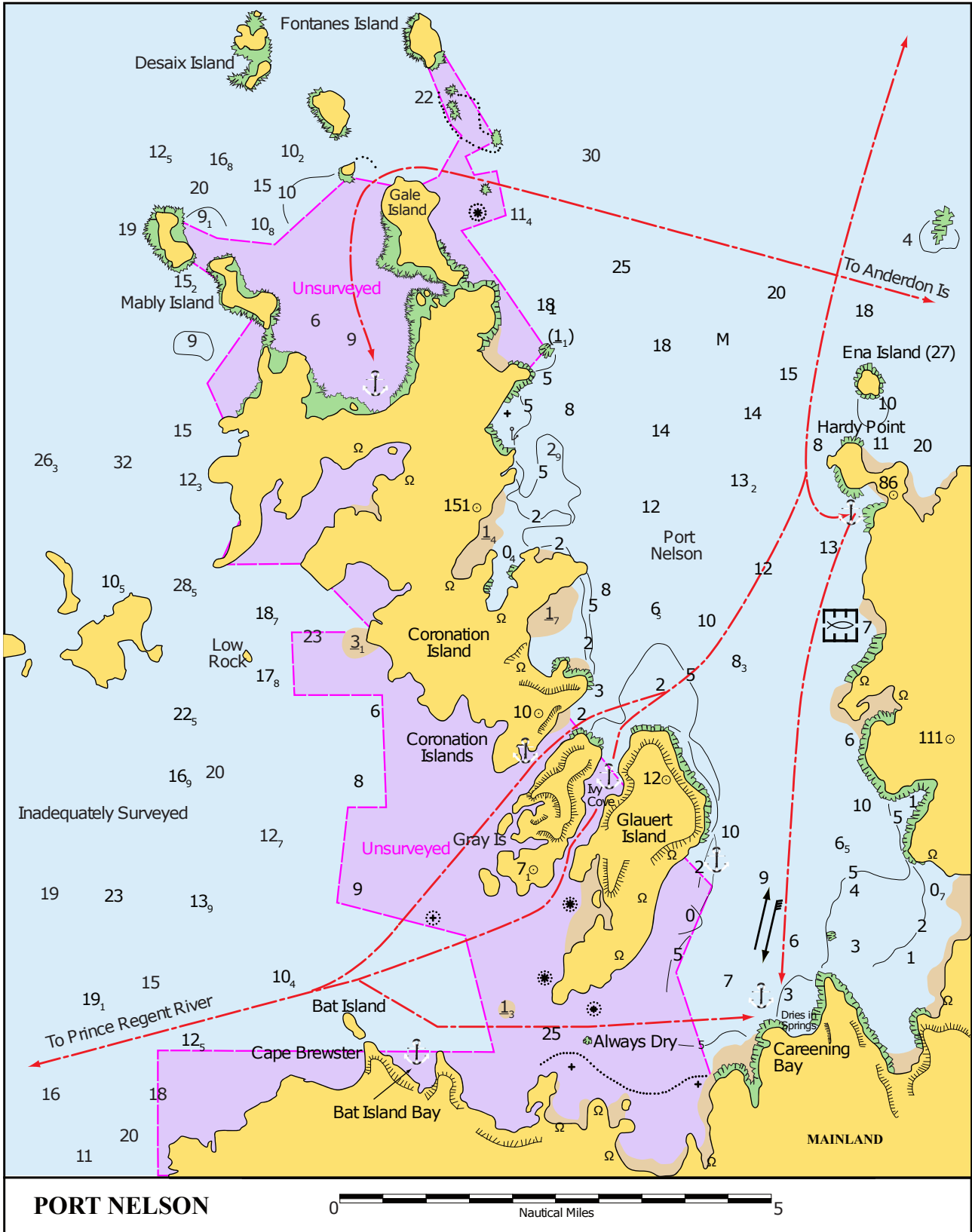
Caution 2: Beware of the large crocodile population.

The conspicuous bay at the eastern end of Boongaree Island has very poor holding and is not recommended.

11.9.4 Port Nelson

15° 00'S 124° 59'E

AUS 37, 320, 730



Chartlet 51

The Port Nelson - Coronation Islands area is attractive and warrants time being spent there. It is frequented by whales.

Coronation Islands

15° 00.0'S, 124° 55.0'E

AUS 729, 730

⚓ Anchorage has been taken in the northern bay (14° 58.3'S, 124° 54.8'E) and the eastern bay (14° 58.6'S, 124° 56.4'E), both over a rock bottom with possibly indifferent holding. Brolgas can frequently be seen in the northern part of Coronation Island.

A rock bar off the southern tip of Malby Island requires half tide or more to clear.

To the south there is an 18 m deep navigable channel between Coronation Island and Gray Island.

⚓ Anchorage has been taken on the west side of this channel in a small shoaling bay (15° 02.8'S, 124° 56.5'E). A sandbar that dries and extends out from the more northern point of the bay offers some protection from the tidal flow.

⚓ There is a deep navigable passage between Gray and Glauert islands. Keep to the centre with a good lookout. On the east side of this passage there is a good anchorage at Ivy Cove (15° 03.3'S, 124° 58'E). It is possible to get out of the tidal flow (1.5 kn) and anchor over thick mud.

Caution 1: A resident crocodile has been blamed for chewing an inflatable dinghy tied astern.

Caution 2: Glauert Island is spelt Glavert on some charts.

Caution 3: The nuts from the Cycad trees are poisonous.

Caution 4: When clearing Coronation Island heading west, beware of a breaking reef (15° 04.6'S, 124° 55.5'E).

Of interest: There is a beach and ashore a large boab tree on which the inscription "Ivy 19.10.1890 or 91 uncertain" has been carved. Ivy was a pearling schooner working in the area under the command of Captain Biddles.



Port Nelson: the inscribed baob tree (P Baker)

Careening Bay

15°06.2'S 125°00.4'E

AUS 729, 730

⚓ Anchorage is good but can be roly in a sea breeze. The holding is in shell, sand and mud. Much of the bay is dry during LWS and it is necessary to anchor well off. There is a flat sandy area where a yacht could be dried out in settled conditions. It gives protection from the NE to SE and is satisfactory in light breezes from other directions. This bay is the southern extension of Port Nelson.

Tides: White Island. Range 9 m.

Facilities: Fresh water is sometimes available from the rocky creek behind the Mermaid Tree.

History: Philip Parker King carved 'HMC Mermaid 1820' into a baob tree during his survey of Australia. It is still clearly visible about 100 m up the tidal creek that enters the bay. His Majesty's Cutter *Mermaid* was launched in Calcutta, India on 23 December 1816. She was 84 tons, 56 ft LOA, had a beam of 18 ft 6 in and draft of 9 ft. She was built in solid teak with English cordage and sheathed with 18 oz copper. Purchased by Governor Macquarie for £200 and assigned to Philip Parker King for the survey of the northwest.

The *Mermaid* spent sixteen days at Careening Bay while repairs were carried out on the keel, stern post, rudder connections, garboard strake and fastenings. Unfortunately, iron nails had been used in her building.

Passage notes

When departing from Careening Bay westward for Cape Brewster the flood tide flows W. Leaving Careening Bay at the start of the flood means transiting the passage between Glauert Island and the mainland at near LW. The passage is about 1 nm wide at its narrowest but the width of the navigable channel is less. A rock bar extends across the gap at the south of the island and a number of drying rocks have been reported. Pass about 200 m north of the rock shown as always dry and then head 270° until the tip of the headland before Cape Brewster bears 180°. Alter course to 290° until the northern tip of Bat Island bears due south and is 0.5 nm clear.

Caution: It was reported in 2013 that C-Map and Navionics charts were inaccurate for this passage. Passage was successfully taken using a waypoint of 15° 06.3'S, 124° 57.4'E which took the vessel 150 m north of the island.

⚓ Bat Island lies off the tip of Cape Brewster. Bat Island Bay is about 1 nm southeast of Bat Island, providing shelter from E to SW winds with little swell. Anchor over mud (15° 06.6'S, 124° 55.0'E).

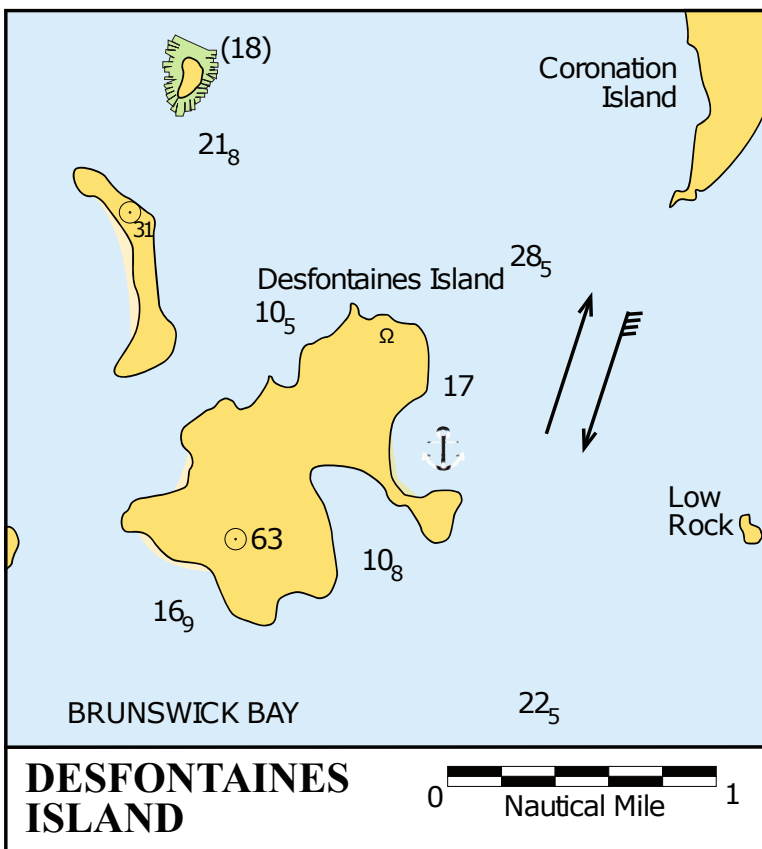
Of interest: A very pleasant spot. There is a white sandy beach and after rain small waterfalls cascade from the cliffs into the sea. Fish and birds are plentiful.

History: Phillip Parker King named Bat Island after he disturbed a flock of bats in a cave.

11.9.5 Desfontaines Island

15° 01'S 124° 51'E

AUS 320, 730



Chartlet 52

⚓ A low, rocky island covered with scrub. It is the largest in a group of islands, lying west of Coronation Island. The anchorage over sand in 5 m is on the northeast side of the island and is influenced by strong currents during spring tides.

Tides: White Island. Range 9 m.

Of interest: Rene Louiche Desfontaines was a French botanist of great distinction.

11.9.6 Colbert Island

(no chartlet)

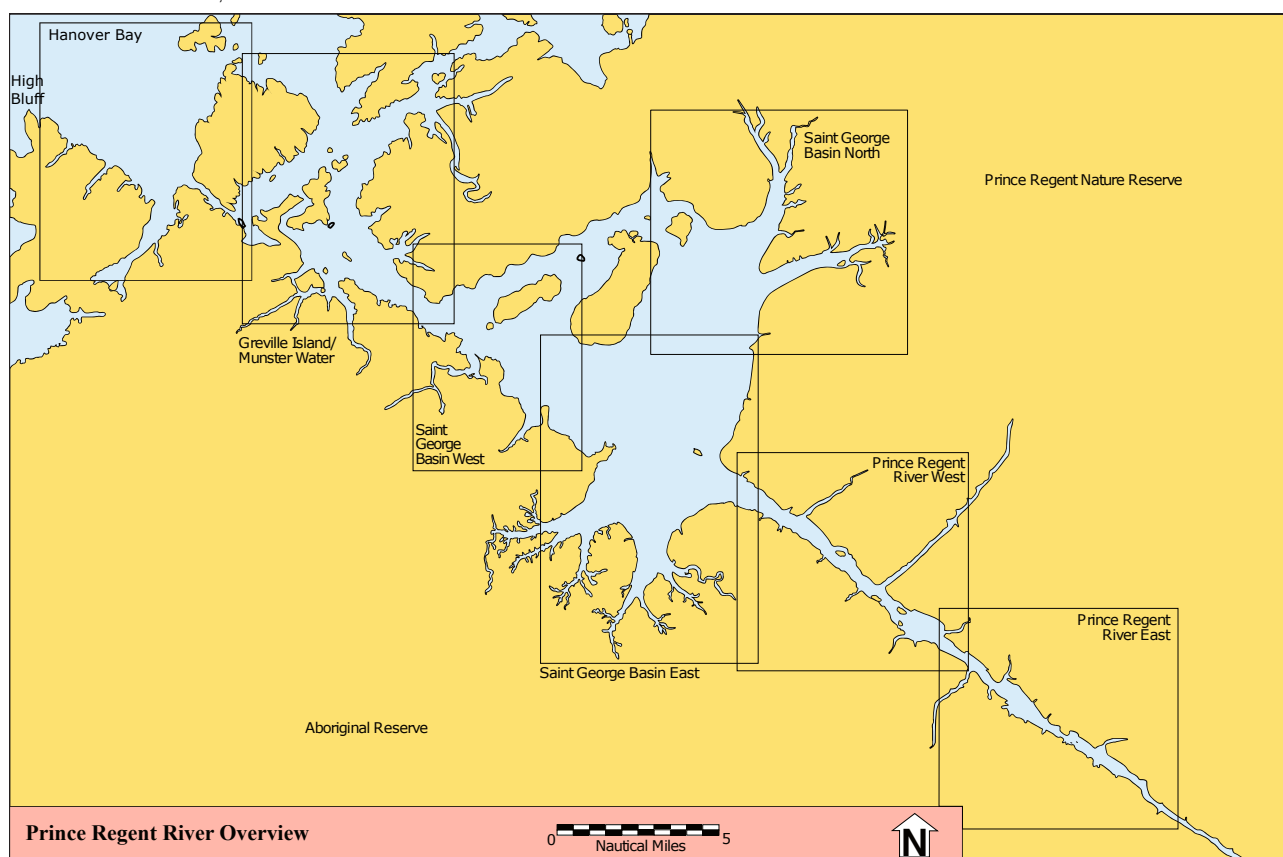
14° 52'S 124° 43'E

AUS 320, 729, 730

⚓ Colbert Island is an outside island worth considering in calm conditions. There is anchorage on the southeast side. Anchorage on the north side is very deep. The west side provides protection from E winds but it can be roly.

11.10 Prince Regent River and Approaches

Chart: AUS 320, 730



Chartlet 53 Prince Regent River Overview



Approach to Prince Regent River (P Baker)

The Prince Regent River is approached from Brunswick Bay through a series of channels leading to the Saint George Basin and finally, nearly 20 nm in from the bay, the river entrance.

Brunswick Bay also forms the approach to:

- - Port George IV, Rogers Strait and Brecknock Harbour, east around Augustus Island.
- Camden Sound via the Heywood Islands, north and west around Augustus Island.

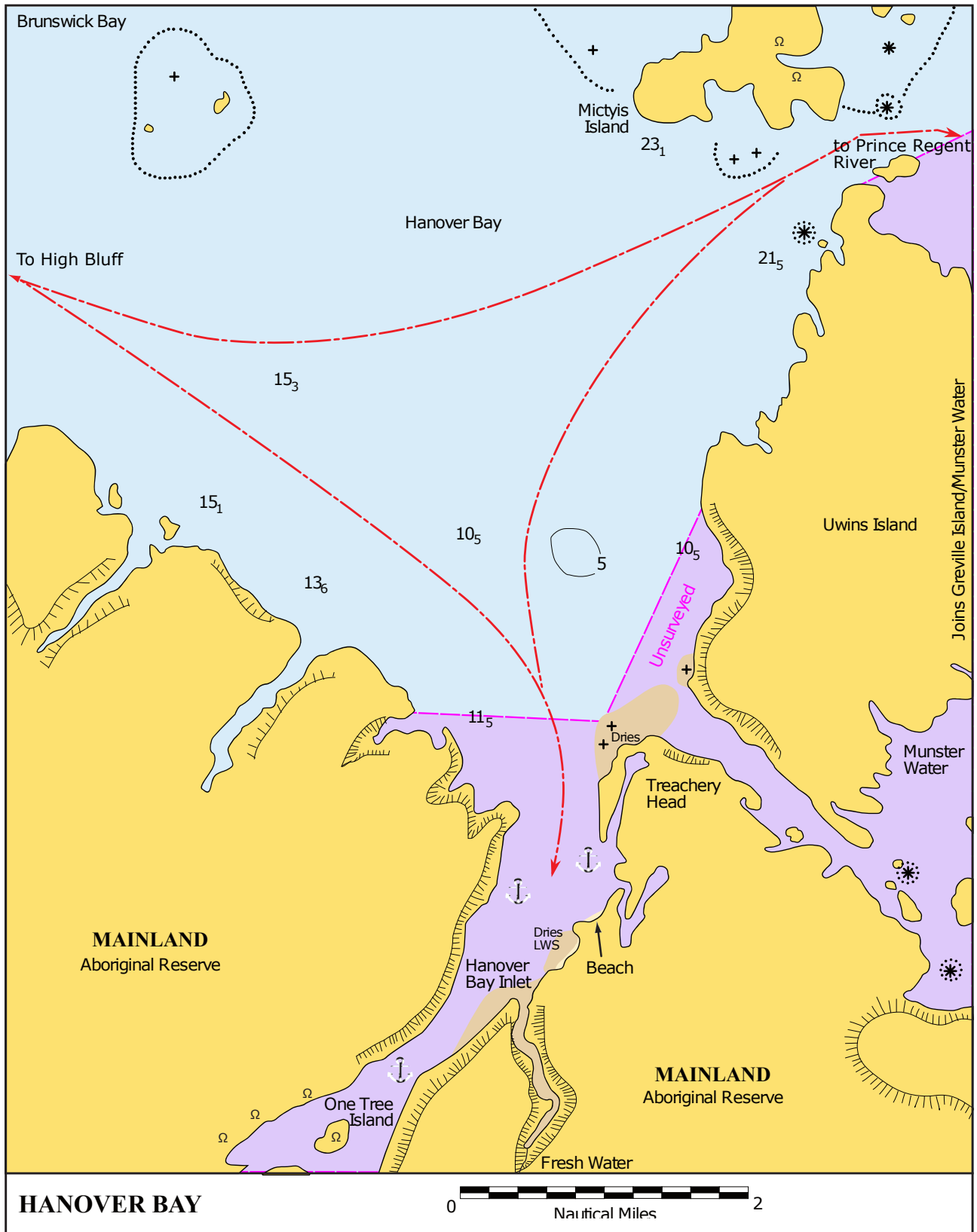


Prince Regent River entrance (R&L Newton)

11.10.1 Hanover Bay

15°15'S 124°45'E

AUS 320, 730



Chartlet 54

In the southern part of Hanover Bay is an inlet often referred to as Hanover Bay Inlet. It extends several miles with sheer, flat-topped red cliffs on each side. There are extensive drying sandbanks at the mouth of the gorge on the southeast side of the inlet. There is a protected anchorage in the narrow part of the inlet within sight of One Tree Island. Reefs off Treachery Head dry at half tide and are easily seen.

⚓ Near the mouth of the inlet there is an anchorage at 15°18.9'S, 124°46.0'E. The bottom is shoaling mud. Anchor in less than 6 m, with protection from SW to N .

⚓ About 600 m to the east-northeast (15°18.7'S, 124°46.6'E) there is anchorage close to a brilliant white sandy beach in 5 m LWS. It is protected from E winds. Approach the middle of the beach with depths of 6 m to 18 m. The water here has been known to be clear at times, but often it is murky. White-trunk gums, green rushes and wildlife abound. Oysters are plentiful.

A gorge extending south about half a mile past the beach is navigable by dinghy. A large rock fall has occurred near the head of the inlet, blocking access to the freshwater spring that feeds into the creek.

Caution 1: A drying reef exists between the beach and gorge. The gorge dries at LWS.

Caution 2: A crocodile inhabits the inlet; swimming is strongly discouraged.

Tides: White Island. Range 9 m.

Fishing: Fishing is good in the gorge by the cliffs and between the gorge and the beach.

History: On 7 August 1821, Aborigines from the Worora tribe attacked Phillip Parker King at Treachery Head. The surgeon Andrew Montgomery was speared in the back. King retaliated by badly wounding one of the assailants and confiscating many artefacts.

Passage notes

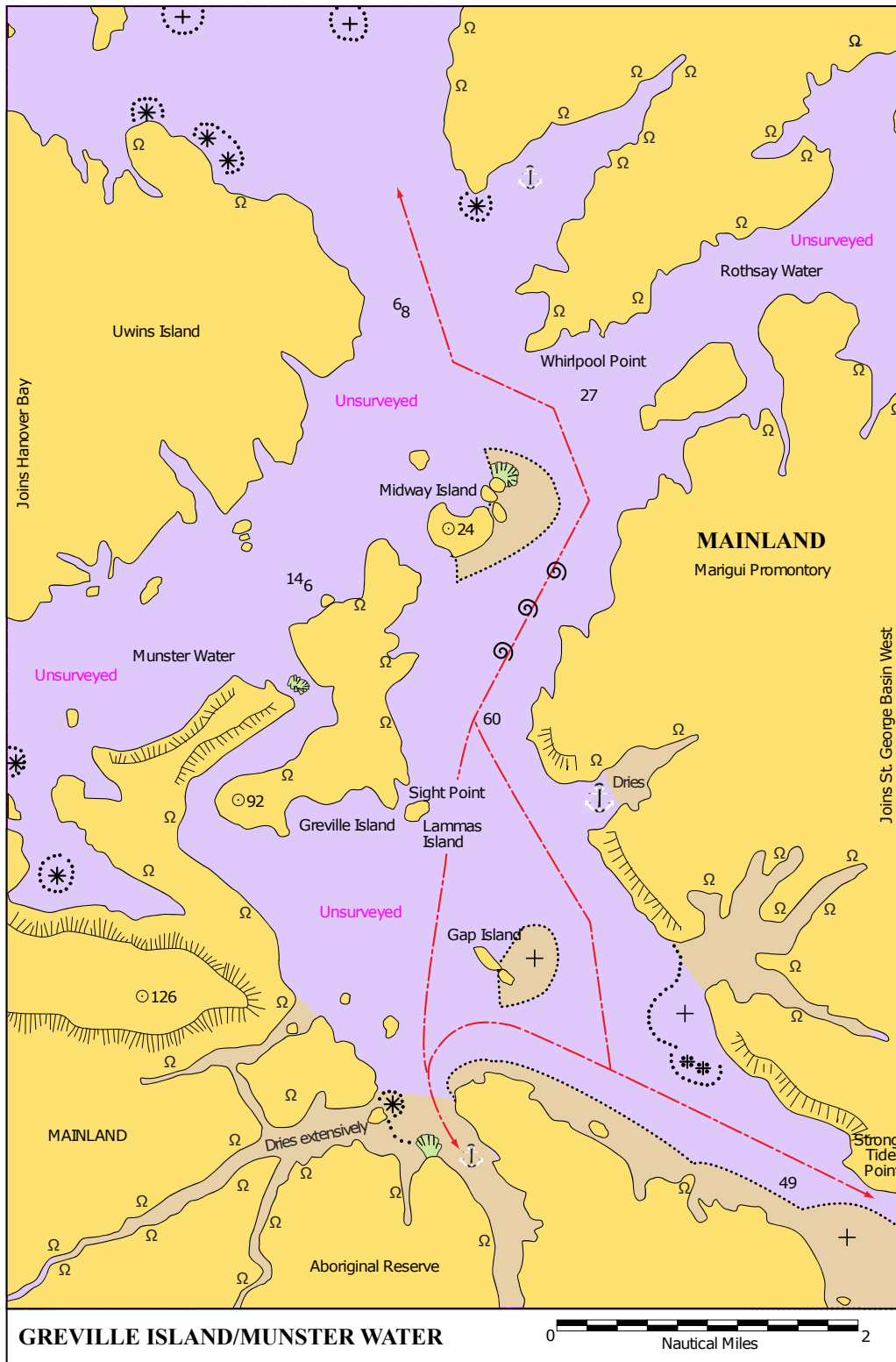
The route from Hanover Bay Inlet to High Bluff to the northwest passes several inlets that dry at LWS but may still be worth investigating by dinghy.

Entry into Munster Water and St. George Basin from either Hanover Bay or Cape Wellington is best navigated on a rising half tide and passing north of Uwins Island.

11.10.2 Greville Island and Munster Water

15° 18.0'S, 125° 51.0'E

AUS 320, 730



Chartlet 55

It is about 20 nm from the northern headland on Uwins Island to where St. George Basin flows into

the Prince Regent River. Mount Trafalgar and Mount Waterloo are prominent to the north of St. George Basin.

The approach from the north may be made between Cape Wellington and two islands - Mictyis and Uwins - to the southwest. From Cape Wellington the way appears to be free of hazards. The passage between Uwins and Mictyis islands is navigable and free of dangers.

Caution 1: The tidal flow may reach 7 kn in some places, creating whirlpools. There are many hazards including low floating tree trunks, reefs and shoals. Numerous extensive rock outcrops and sandbars occur. Use extreme caution.

Caution 2: It is advisable to enter Munster Water from the east side of Uwins Island. The western approach between Uwins Island and Treachery Head is narrow and has strong currents.

Caution 3: The passage between the mainland and (west of) Greville Island is dangerous.

⚓ Anchorage may be taken northeast of and opposite Uwins Island in a small cove to await a favourable tide.

⚓ Anchorage may also be taken east of and opposite Greville Island in a cove on Marigui Promontory.

Caution: The inlet dries at LWS.

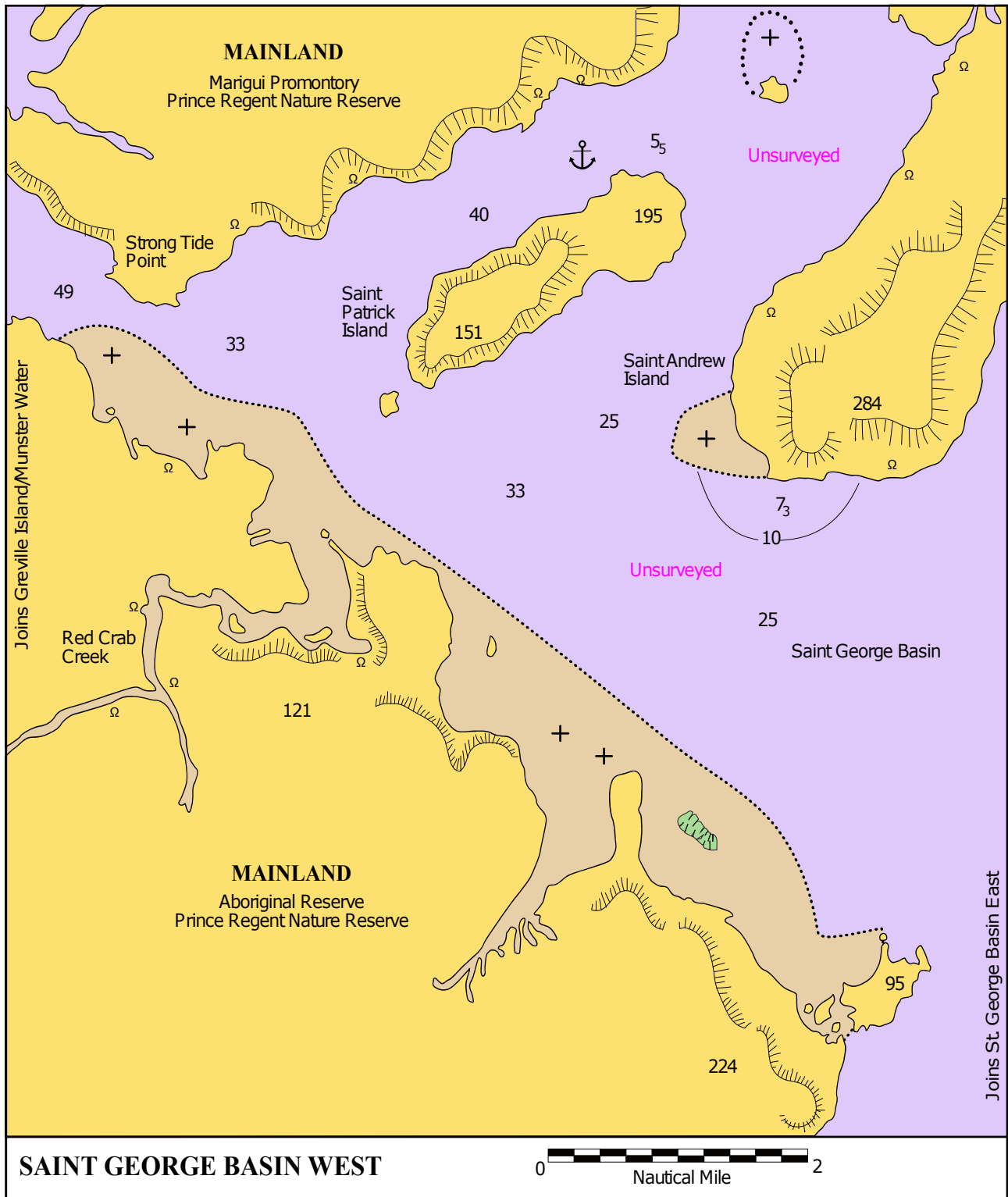
⚓ There is a good anchorage in the entrance to the creek southwest of Gap Island.

Caution: The creek to the west dries extensively.

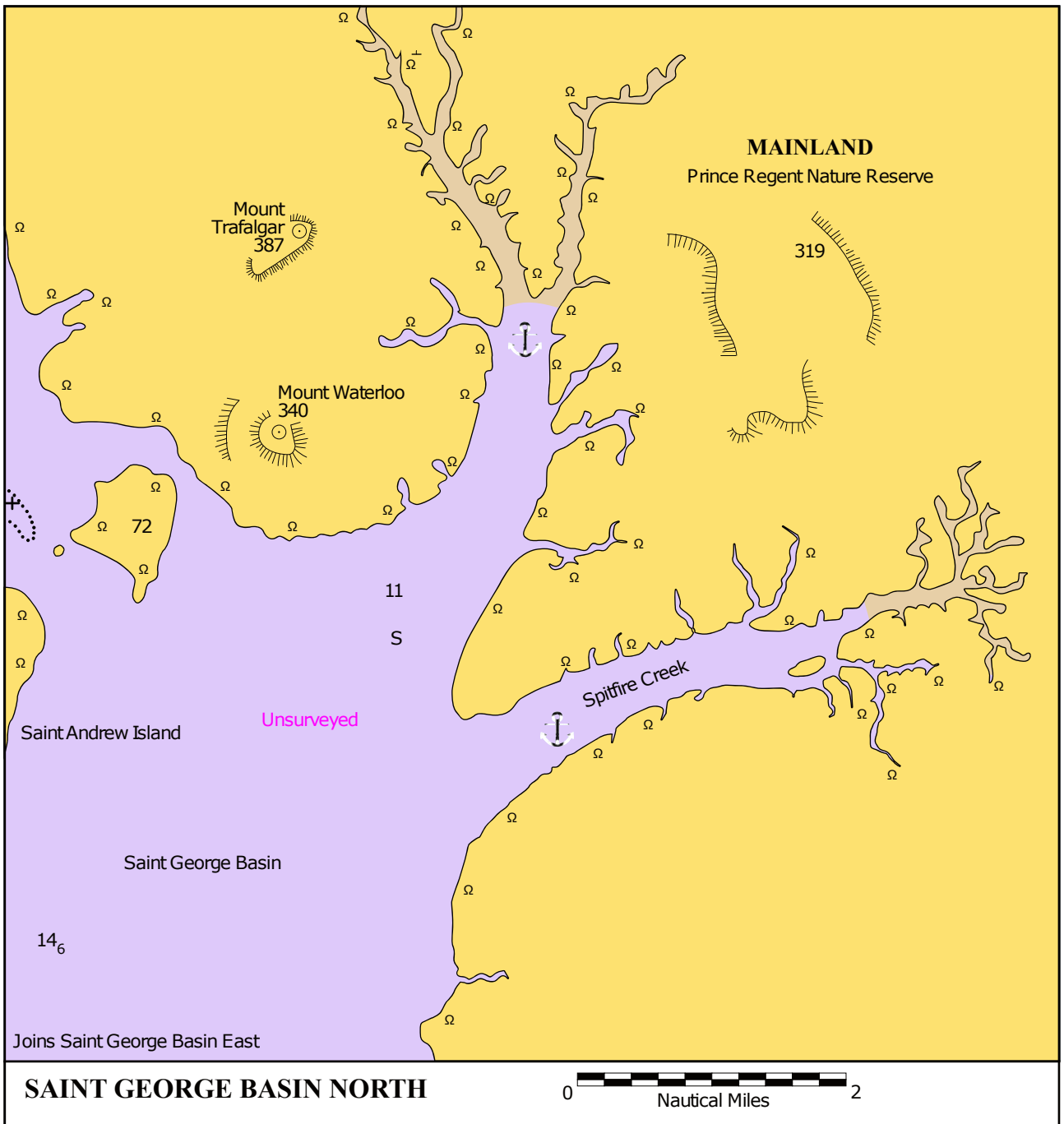
11.10.3 Saint George Basin

15° 25.0'S 125° 02.0'E

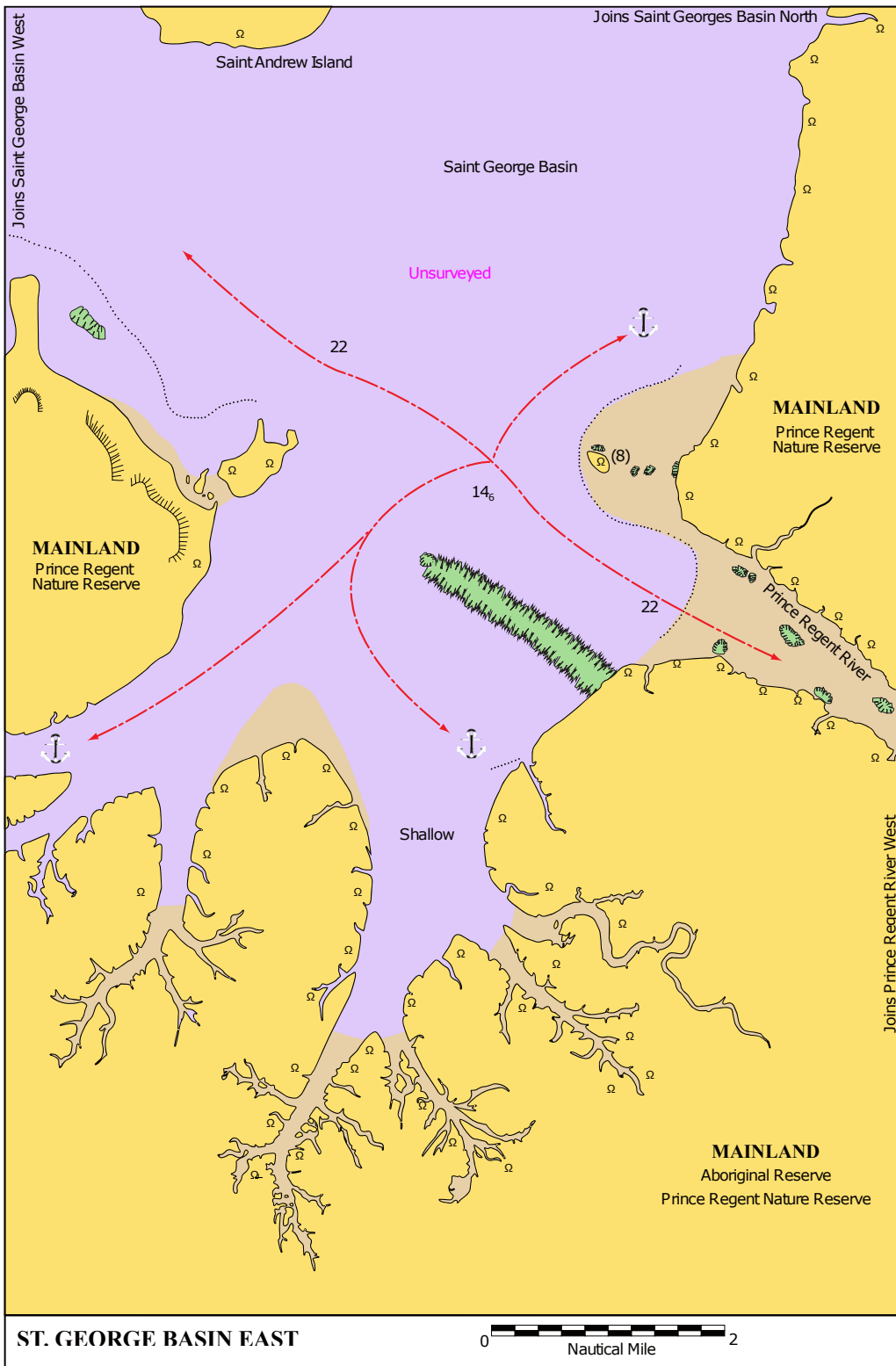
AUS 320, 730



Chartlet 56



Chartlet 57



Chartlet 58

Strong Tide Point needs to be negotiated on a making tide when entering the Basin. Favour the northern side of the channel.

⚓ At the west end of Saint George Basin, anchorage out of the tidal stream may be found about half a mile north of the northeast part of Saint Patrick Island (see chartlet "Saint George Basin

West”).

⚓ Anchorage can be taken in either of the two creeks in the northeast corner of Saint George Basin (see chartlet “Saint George Basin North”). Approach to both creeks is straightforward and there is good holding in mud and sand. Anchorage in the northernmost creek can be taken just before the creek splits into two (15° 17.6’S, 125° 05.8’E). The eastern creek is named Spitfire Creek. Anchor just inside the mouth (15° 20.6’S, 125° 06.0’E).

⚓ Anchorage (15°28.4’S, 124°58.6’E) is available in the creek in the southwest corner of Saint George Basin (see chartlet “Saint George Basin East”). Approach is straightforward and there is good holding in mud and sand.

⚓ Anchorage may be taken north or south of where the Prince Regent River flows into Saint George Basin. The southern part of the Basin is shallow with bars.

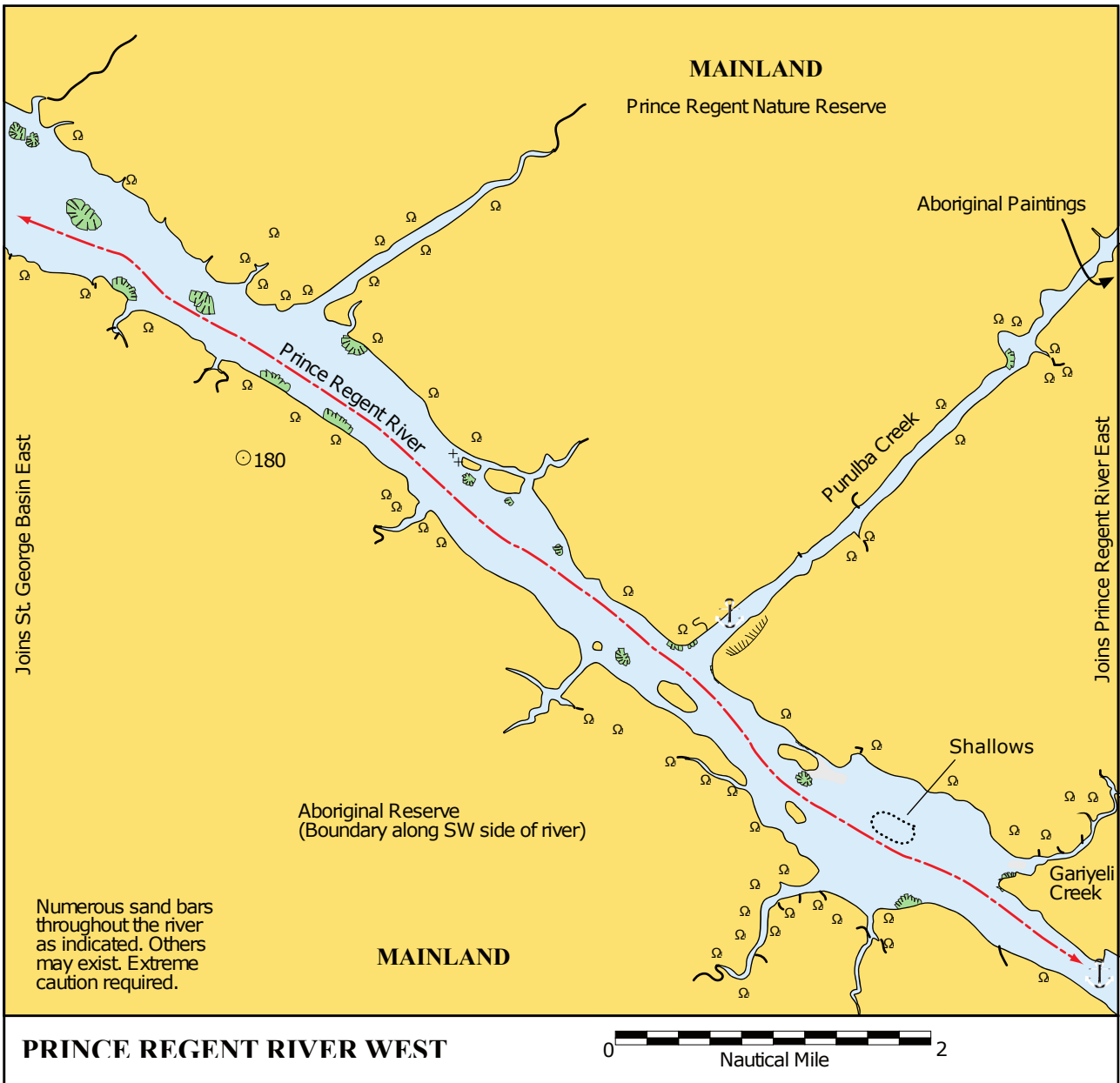
Tides: White Island. Range 9 m.

Fishing: Great for mud crabs.

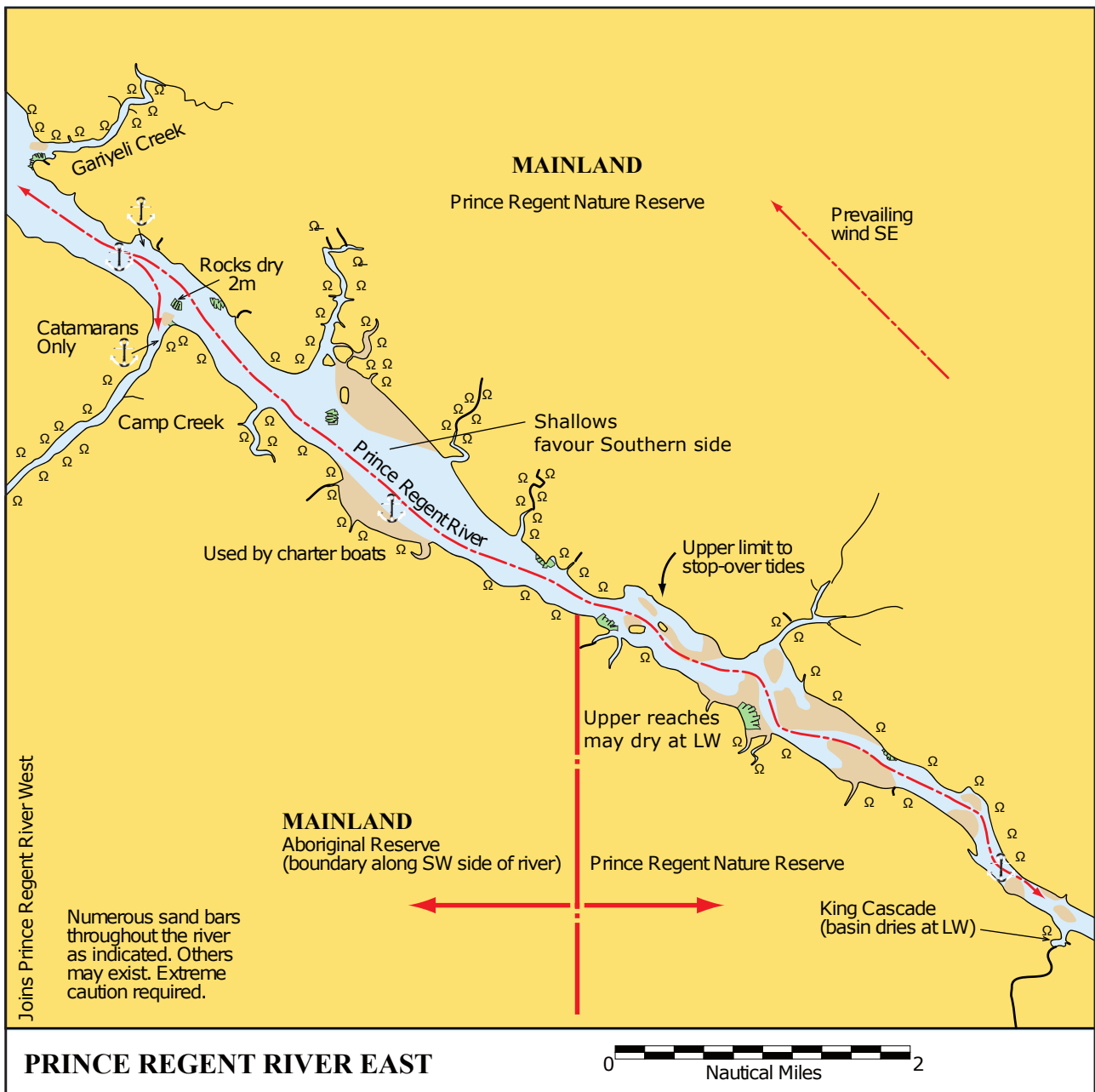
Of interest: The basin has the largest concentration of mangroves in the southern hemisphere.

11.10.4 Prince Regent River

Charts: AUS 320, 730



Chartlet 59



Chartlet 60

The gorge of the Prince Regent River is remarkable for being perfectly straight for its entire 54 nm length. 17 nm of the river is navigable and there are freshwater pools and waterfalls at the head of the river.

Passage notes

Prince Regent River is best visited during spring tides, which is also the time when the charter boats visit. The transit times favour springs to ensure maximum hours of daylight to negotiate the river. There are rocks and sandbanks for the entire length of the river.

The passage will normally require at least one overnight stop. On entering the river favour the southwest side, as far as 1 nm before Purulba Creek. Thereafter stay central in the river. If the reef (15° 33.7'S, 125° 13.6'E) about 12 nm from the basin, is more than 1 m out of the water there will

be insufficient water to clear the shallows a further 2 nm upstream.

Overnight anchorage is best at Purulba Creek or in the main river near Camp Creek (see later notes for these anchorages). If going further upriver to King Cascade, leave on a rising tide to arrive between two and three hours before HW (King Cascade). Leave the Cascade on the turn of the tide to return downstream. If you leave it too late, you will end up stranded.

Caution 1: The river approaches have strong tidal flows and whirlpools.

Caution 2: There is a large rock at the bend off Camp Creek (15° 34.05'S, 125° 11.2'E).

Caution 3: Pay careful attention to tides during anchoring and passage-making.

Caution 4: Crocodiles sighted.

⚓ The best anchorage in the Prince Regent River is at Purulba Creek. Anchor in the middle of the creek off a rock face on the eastern shore. There is sufficient swinging room to use only one anchor.

Of interest: The creek is navigable by dinghy to some Aboriginal paintings about 4 nm upstream.

⚓ There is anchorage in a small bay on the north shore of the Prince Regent River about half a mile downstream from Camp Creek. Unconfirmed advice received suggests that it is a better anchorage than in Camp Creek. Depths are 10 m at LW with enough room to swing on one anchor. The current may reach 4 kn during springs.

Camp Creek

This is a tributary entering Prince Regent River (15° 33'S, 125° 12.2'E) on the southwest side when proceeding from Saint George Basin. It is approximately 10 nm upstream from the Basin.

There is a distinctive saddle in the hills on the northeast side of the river just beyond the Camp Creek outflow. The entrance to the creek is between two steep rocky cliffs and a sandbar extends from the east side part way across the entrance.

⚓ A pool with minimum depth 2 m LWS is about 600 m into Camp Creek and begins alongside the first rocky outcrop on the northwest side.

The head of the creek is about 2 nm further upstream over numerous drying sand ridges. The creek is scenic and well worth exploring by dinghy. Leave on a flooding tide about two hours after LW. Return from the head of the creek 1.5 hours after HW. The creek will start to dry at the head at about half-tide. Walk about 600 m then climb the 40 m to the top of the fresh waterfalls and swim in safety.



Camp Creek (A Gorham)

King Cascade Falls

This is a waterfall tumbling down 50 m amid lush vegetation, located on the southern side of the Prince Regent River about 7.5 nm upstream from Camp Creek. Tide governs passage to the falls and how long one stays. There are sandbanks in several places that are impassable below half-tide.

⚓ A good all tide anchorage is to be found about 0.75 nm before reaching King Cascade ($15^{\circ}36.6'S$, $125^{\circ}17.9'E$). Depths are 3-5 m LWS. DBCA advise it is no longer permissible to stay tied to the mooring ring at King Cascades, or anywhere else at the cliff face.

Hold to port as much as possible for the deepest water on approach to the cliff face. Do not remain in the falls once the tide starts falling, there are rocks and the bottom is soft mud.

Tides: Water levels vary significantly between neaps and springs. Use Hanover Bay as the reference point for determining the tide at points along the Prince Regent River. Hanover Bay Tides are similar to White Island. Range 9 m. A rule of thumb is to add eight minutes to HW Hanover Bay for each mile of navigable water upriver from the basin. HWS at King Cascade Falls is roughly 1.5 to 2 hrs after Hanover Bay.

Fishing: Barramundi, mud crabs.



King Cascade Falls (A Gorham)



King Cascade Falls, Prince Regent River (R&L Newton)

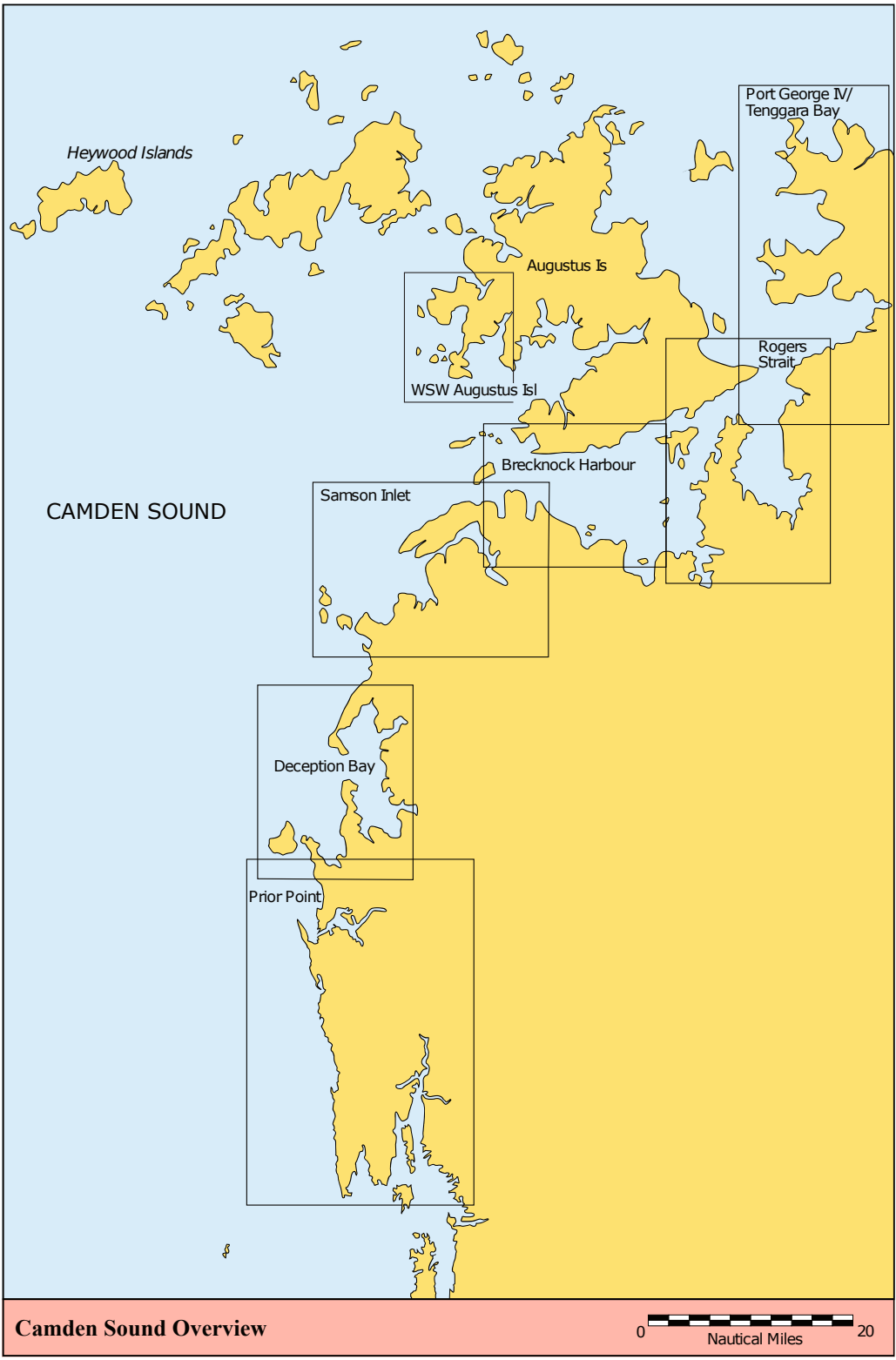
Of interest: Cathedral Falls is on the south side a further 4 nm dinghy ride upstream from King Cascade.

History: Phillip Parker King discovered the Prince Regent River in 1820. He left the *Mermaid* anchored near St Andrew Island and took a small whaleboat up to the cascades, spending the night at Alligator Island. King named Greville Island for the Right Honourable Charles Greville, whose name has also been given to the *Grevillae* family of Australian plants.

On 29 March 1987, the day before her 25th birthday, American model Ginger Meadows was attacked and killed by a crocodile at the foot of the King Cascade waterfall. She was on a rock ledge with a friend while others climbed the falls. The incoming tide was flooding the ledge and she tried to swim to the dinghy.

11.11 Camden Sound and surrounds

Charts: AUS 320, 323, 730, 732



Chartlet 61

11.11.1 General note

Camden Sound is a designated marine park. The quality and biological diversity of the marine environment in the park is largely due to the care it has received over thousands of years from its traditional owners. The joint management of the marine park by Dambimangari (and other traditional owners where appropriate) and the WA government is intended to ensure that the quality and condition of the marine environment is enhanced, and its cultural significance to Aboriginal people is both recognised and protected.

From June to September each year, thousands of humpback whales arrive to breed, calve and nurse their young in the warm tropical waters and protected bays of Camden Sound, after migrating north from their feeding grounds in the Antarctic. It is an ideal area in which newborn humpback calves can build up the blubber they need for the return journey and where they can hide from predators.

The vessel-to-whale approach distance in Lalang-garram/Camden Sound Marine Park has been increased in the Special Purpose Zone (whale conservation) and two sanctuary zones to reduce disturbance to whales and their newborn calves at this vulnerable life stage. The minimum approach distance is 500 m rather than the 100 m minimum for other WA waters. If a mother and its calf do approach a vessel within this distance, the vessel must be operated in neutral gear during the encounter with due consideration given to navigation and vessel safety.

11.11.2 Passage Notes

From the north, the easiest approach to Camden Sound is by staying east of the Heywood Islands group (Champagne, Heywood and Jungula Islands).

An alternative route is to pass north and west of Augustus Island. Make use of the tide (8-9 kn, flooding SW and ebbing NE), as the tidal flow is difficult to stem. There are many uncharted hazards on both sides of this passage but by staying in centre of the passage the route is clear.

11.11.3 Heywood Islands

(no chartlet)

15° 18'S 124° 24'E

AUS 320, 730

⚓ Anchorage has been taken on the south side of Jungulu Island (try 15°19.2'S, 124°25.5'E).

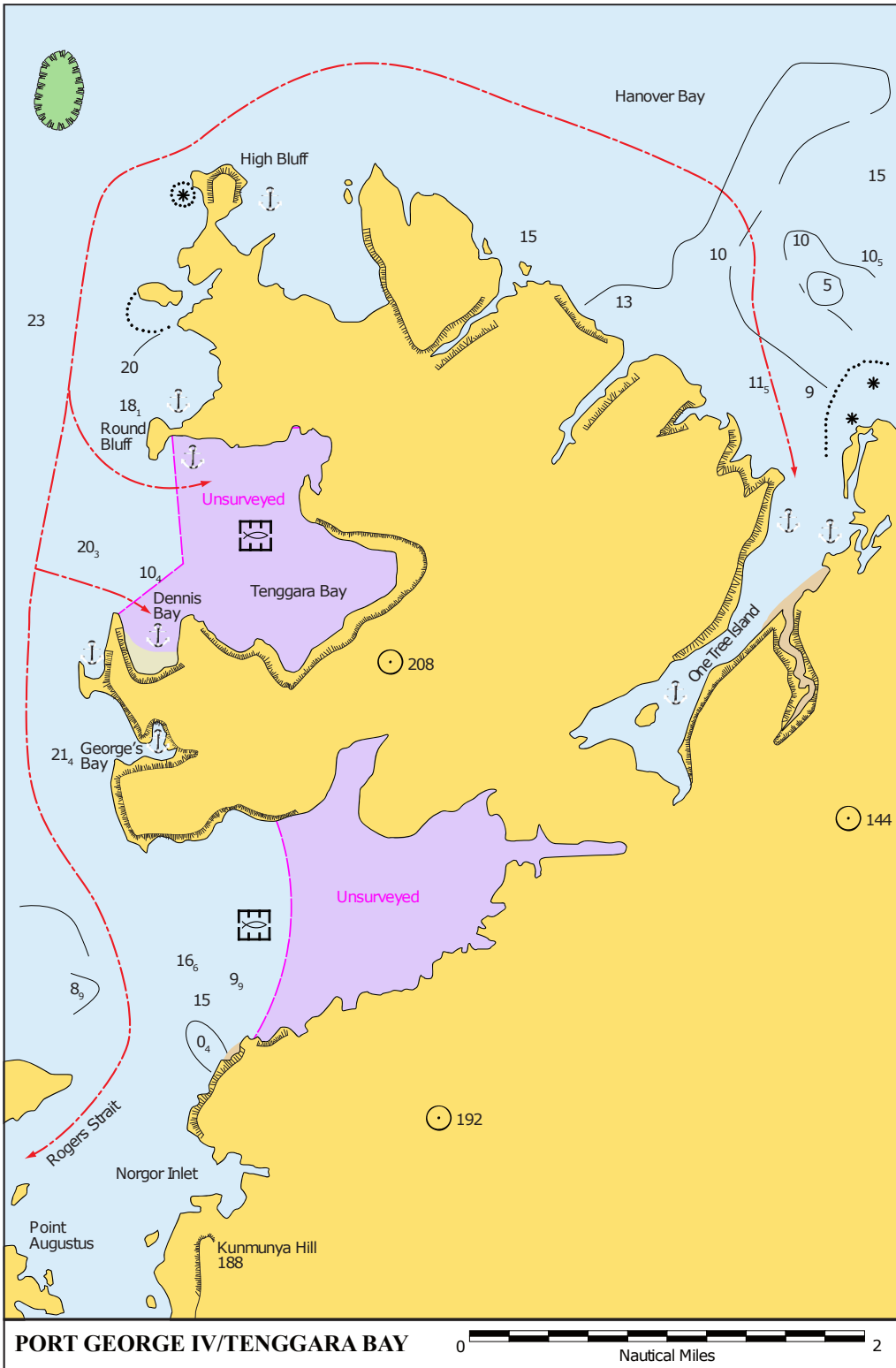
Caution 1: Strong currents reported.

Caution 2: Pearl/fish farm to the south of suggested anchorage.

11.11.4 Port George IV

15° 18'S 124° 38'E

AUS 320, 730



Chartlet 62 Port George IV/Tenggara Bay

Port George IV provides several anchorages. Many of the locations have been given unofficial

names by cruisers. The bay on the east side of High Bluff has a number of uncharted dangers. The fringing reef extends well off the beach. There is a particularly dangerous reef extending northeast for maybe a third of a mile from the narrow peninsula that separates the northern half of the bay from the southern half. This reef covers and dries.

⚓ Anchorage has been taken at 15°15.7'S, 124°41.2'E

⚓ Anchorage has also been taken over shoaling sand in 5 m off the beach immediately southeast of High Bluff. Although a pretty spot, it is fairly open and affected by the swell.

⚓ Anchorage 15°17.5'S, 124°40.5'E has been taken immediately north of Round Bluff over gently shoaling sand. This anchorage is exposed to the N swell and NW sea breeze but is sheltered from W swell.

Caution: There is a lot of pearling activity at the south end of Port George IV.

11.11.5 Tenggara Bay

15° 19.0'S, 124° 41.0'E

AUS 730

This large bay east of Hummock Island and about 4 nm south of High Bluff provides anchorages in its northwest and southwest corners. Pearl leases occupy the western half of the bay.

⚓ Round Bluff lies at the north point of the bay; a low spit joins the bluff to the mainland, allowing the breeze through without any waves. The anchorage (15°18.0'S, 124°40.3'E) southeast of Round Bluff is well-protected in N winds.

⚓ The southern end of this bay provides better protection from winds from SE to W. High cliffs surround this part of the bay and there is an extensive drying beach in the southwest head, called Dennis Bay.

The reef at the outer edge of the beach runs diagonally north to southeast across the bay, allowing anchorage over mud in 5 m, closer in off the rocks in the southeast part (15°19.6'S, 124°40.2'E). There is little current in the bay. Enjoyable ashore and a good spot for a barbecue.

Caution 1: A reef has been reported (15° 15.3'S, 124° 39.5'E) that dries to 1 m. It is approximately 0.8 nm southeast of a drying reef shown on AUS 730. Pass close to High Bluff .

Caution 2: The pearl farm is hazardous when entering Dennis Bay. Lines of floats run north & east of a marker at 15° 19.3'S, 124° 39.7'E .

Tides: White Island. Range 9 m.

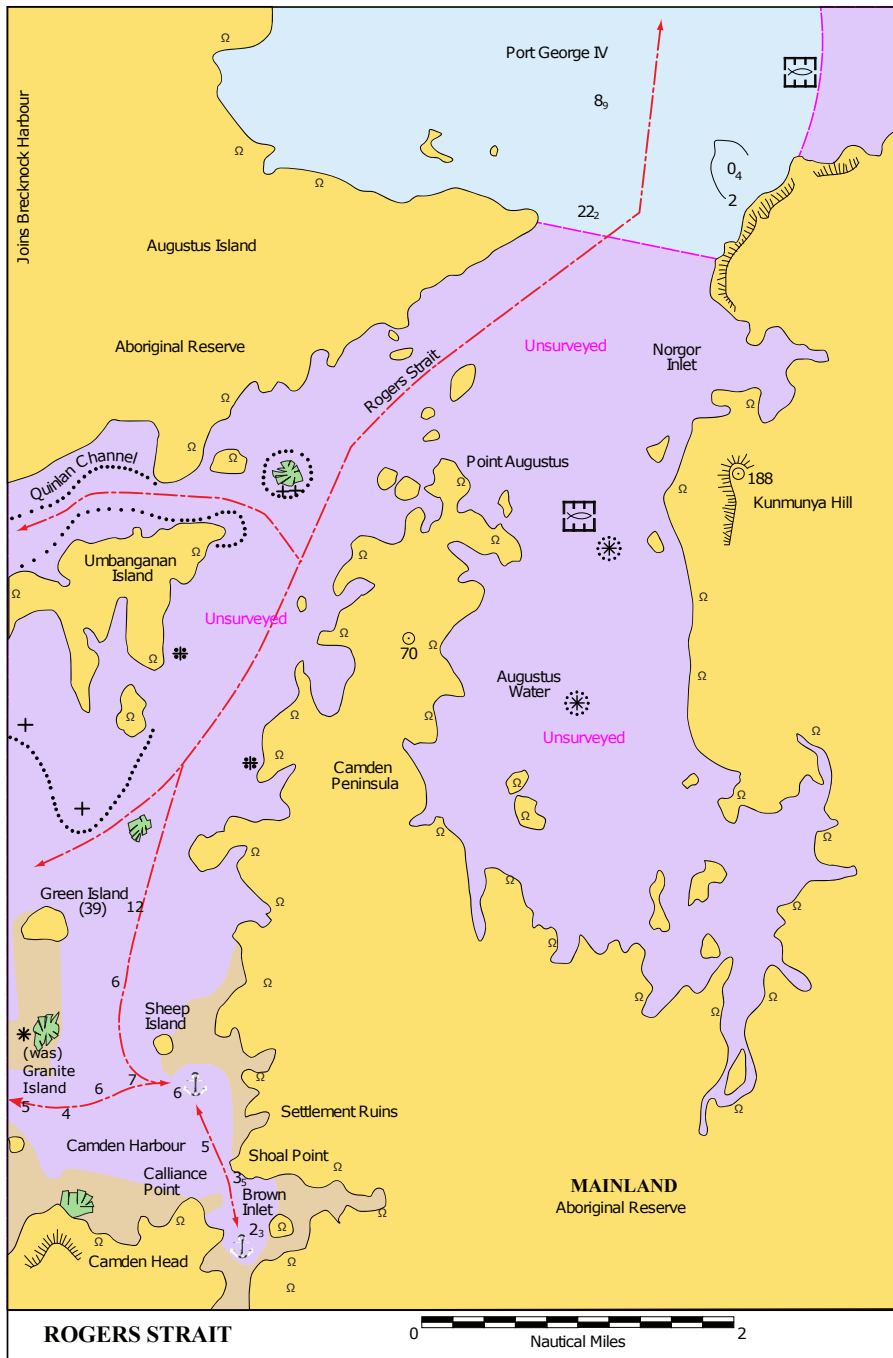
Passage notes

When southbound, Rogers Strait may be favourably negotiated by departing Port George IV two hours before HW.

11.11.6 Rogers Strait

15° 25.5'S 124° 38'E

AUS 320, 730



Chartlet 63

This is a hazardous area but it has some impressive scenery. The area east of Slade Island appears to have shallowed since it was surveyed 40 years ago, so chart AUS730 should be disregarded in the immediate vicinity of Camden Harbour. The Granite Islands no longer exist; they are now reefs that dry about 7 m, covering about 2.5 m at HWS. See notes below on tides for best passage planning.

Passage notes

When approaching from the east, one of the first obstacles is a reef extending northeast from Umbanganan Island (named Brecknock Island on earlier charts). Hold to the mainland (southeast) side of the strait for a safe passage past the reef. After this reef, the strait offers two passages, north or south of Umbanganan Island.

Passage north of Umbanganan Island

The passage north of Umbanganan Island, through Quinlan Channel is narrow. Two white floats, north of the island, usually mark the edge of the reef at the narrowest part of the channel. Pass to the north of these markers.

Passage between Umbanganan Island and Green Island

The other passage, east and south of Umbanganan Island, is challenging (the Australian Pilot calls it treacherous) and is best tackled near high tide. It should be transited by keeping about 0.5 nm off the mainland and passing about 0.5 nm to the north of Green Island. This channel has a least width of 400 m and least depth of 8 m. The area of foul ground on the northern side of this channel (lying northwest of Green Island) is not easy to see and does not dry. There is a drying reef extending 0.6 m northeast of Green Island. Once clear of Green Island, passage may be made in a westerly direction to north of Slade Island (see Brecknock Harbour chartlet), where a gap in the radar beacons marking a pearl lease in the southern part of the harbour opens up.

Passage south of Green Island

There is also a passage south of the reefs that once used to form Granite Island. Pass about 200 m south of these reefs (drying about 7 m) and head for a point about 0.5 m off Slade Island. The deepest channel is close to the reefs on the north side of this channel; the water shoals towards the low mangrove island about 0.5 nm north-northwest of Camden Head. It is possible to carry a minimum of 6 m depth on this route, but close to the route there is at least one rock pinnacle with about 4 m LWS over it; others may exist.

⚓ There is anchorage south of Sheep Island in Camden Harbour. When approaching this anchorage pass Sheep Island to port and keep 0.2 nm south of the island to clear the drying reef before making your turn eastward. The anchorage is in 7-8 m with good holding in muddy grit and shell. It is sheltered from the NW sea breeze waves.

Of interest: Sheep Island is the site of the first burial of a white woman (Mary Jane Pascoe) in the Kimberley. The grave, with a headstone, is beneath the large boab tree on the spit of shelly grit on the east side of the island. There are six other unmarked graves immediately adjacent to this headstone, all from a failed attempt at settlement in 1864-65. The ruins of the Government Camp are on the mainland directly east of Sheep Island. A cleared slipway and ramp leading up from the high water mark are visible from offshore. Land the dinghy at the slipway, walk up the ramp and follow the obvious path about 200 m to the ruins. The resident magistrate, surveyors, police and their Aboriginal assistants occupied this camp. The most obvious ruins are the six stone chimneys. The Alliance Camp at the head of Brown Inlet is harder to find, requiring a path to be made through the mangroves.

⚓ It is possible to anchor anywhere between Sheep Island and Calliance Point, or in the mouth of

Brown Inlet, but it is choppy in a fresh NW sea breeze as the fetch is long.

⚓ Anchorage can also be found in Brown Inlet, depth 3-5 m LWS at the entrance and 2 m LWS further up the inlet. The inlet dries upstream of the rocky islet. Most yachts will have a draft too deep to anchor far enough in to avoid the sea breeze chop.

Tides: The tide floods S and W, meeting around the west side of Umbanganan Island. It ebbs NE and is strong during spring tides. West of Umbanganan Island the tide is similar to Degerando Island. Range 10 m.

If heading south through Rogers Strait, aim to complete your transit just before HW in order to take advantage of the flood tide. If heading north through the strait, start at slack HW so that you can carry the ebb tide through the strait before it strengthens, and on through Port George IV.

Caution 1: Pearl leases with thousands of buoys lie throughout the area. A radar marked channel on the southern side of Augustus Island allows through-passage avoiding the pearl leases.

Caution 2: The passage between Sheep Island and Granite Island has several shallow reefs with less than 1 m at LWS.

Caution 3: There is a drying reef (15° 27.7'S, 124° 36.8'E) northeast of Green Island which is exposed two hours either side of LW.

Caution 4: There is an inquisitive crocodile at the end of Brown Inlet.

Of interest: Many say the scenery is amongst the most impressive in the Kimberley with sheer rock faces, white beaches, boabs, bays and inlets.



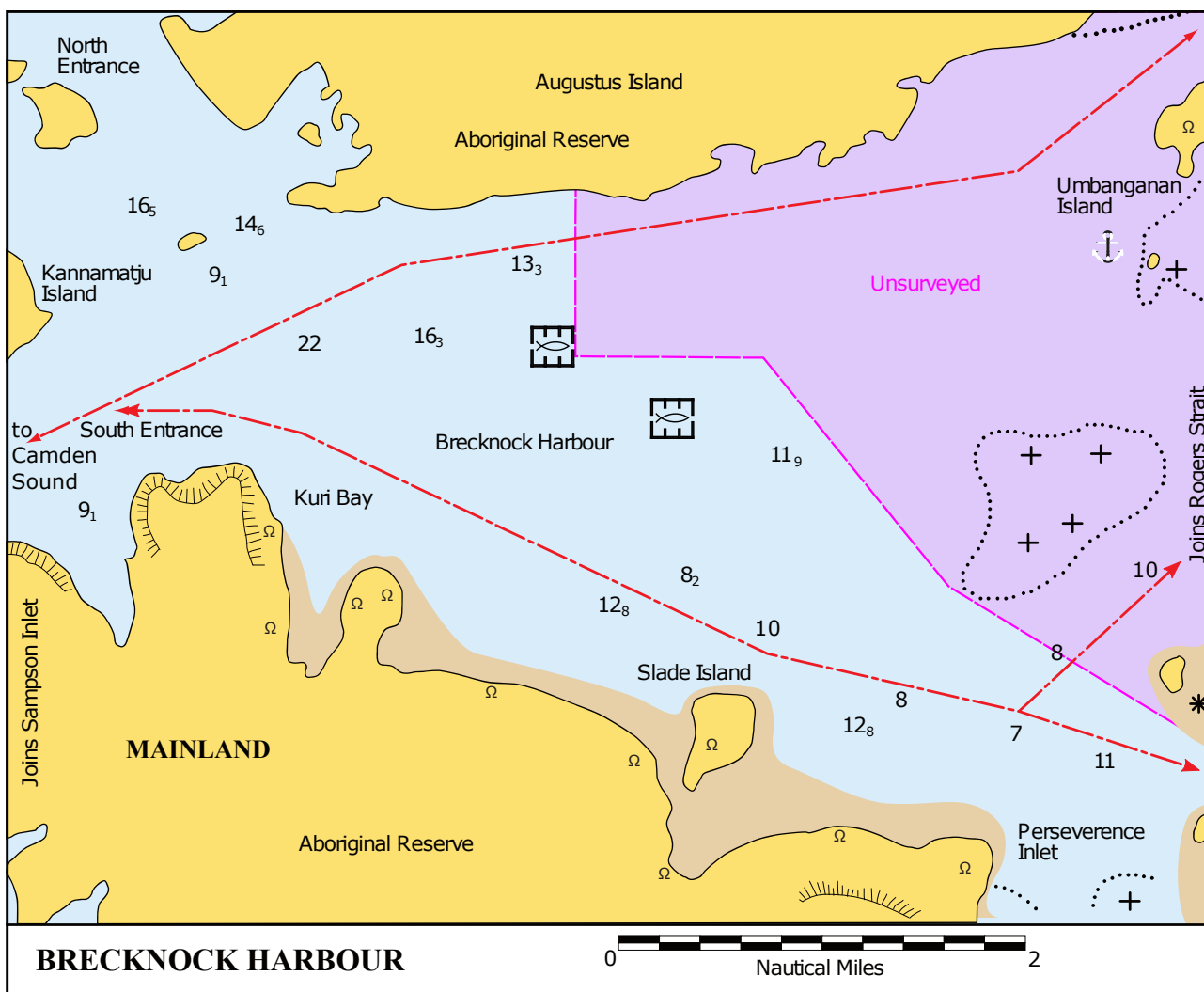
Sheep Island, Camden Harbour (P Baker)



Sheep Island, Camden Harbour (A Gorham)

11.11.7 Brecknock Harbour

AUS 320, 730



Chartlet 64

⚓ Anchorage has been taken in light conditions off the west end of Umbanganan Island at 15° 26.7'S 124° 35.4'E. Kuri Bay is an active pearl farming area full of workboats and barges, with no anchorage. Steep, rugged hills and dense bush surround the area.

Caution: Strong tides flow in the surrounding area. Take care in the approach to the channel.

Tides: Degerando Island. Range 10 m.

Of interest: Officially named Kuri Bay in 1962, an abbreviation of the Japanese pearling industry executive T. Kuribayashi.

Passage notes

When departing Brecknock Harbour for Camden Sound, beware of an uncharted shoal extending about 0.3 m north from Slade Island. Chart AUS 730 is inaccurate east of this shoal and should be disregarded. Heading west past Kuri Bay, pass between Kannamatju Island (formerly New Island) and Needle Rock (conspic) (see Sampson Inlet chartlet). A rocky reef extends about 400 m northwest of Needle Rock; favour the island side of the channel to avoid it. South Entrance has

least depths of 17 m and minimum width 300 m. If the depth falls below 15 m you are probably too close to the south side of the channel. Watch out for pearl leases; there are rows of pearl farm buoys off the south-southwest of Augustus Island. They are well marked by buoys with radar reflectors.



Pearl camp, Kuri Bay (R&L Newton)

11.11.8 West-Southwest Augustus Island

15° 23.0'S 124° 28.0'E

AUS 730



Chartlet 65

The remains of an abandoned pearl camp exist on the most westerly peninsula of Augustus Island.

⚓ Anchorage has been taken in the bay south of camp site (15° 22.8'S, 124° 28.2'E).

Caution 1: This area is heavily populated with pearl farms.

Caution 2: Depth and condition of bottom unknown.

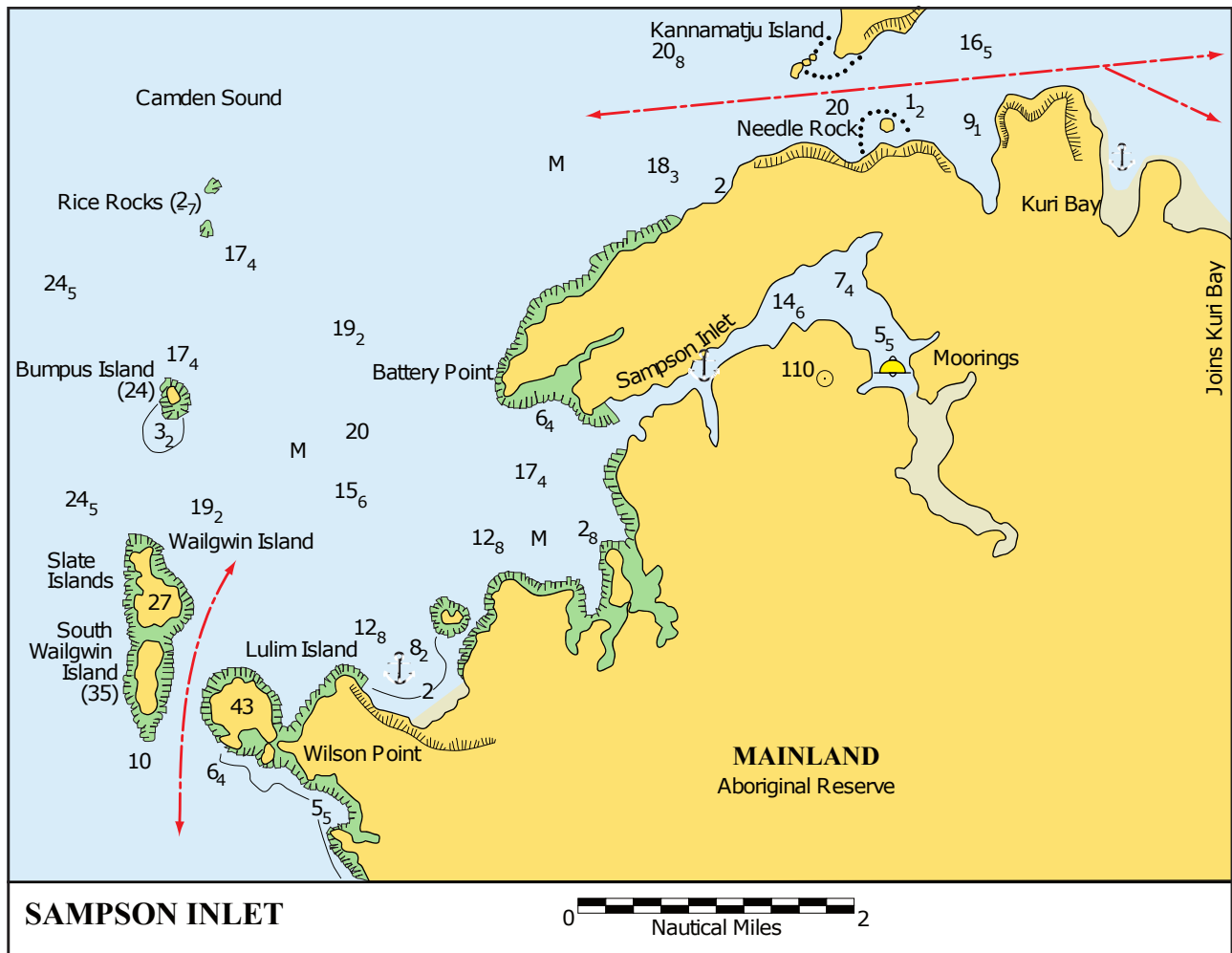
Of interest: Whales are plentiful in the area during the dry season.

History: Augustus Island and Port George IV were both named after George Augustus Frederick, King of England and Hanover.

11.11.9 Sampson Inlet

15° 31'S 124° 27'E

AUS 320, 323, 730, 732



Chartlet 66

Sampson Inlet makes a good cyclone anchorage, with all-round protection and little effect from current. The inlet is about 3.5 nm long, narrowing to 100 m in places. It is about 13 m deep, becoming shallower where the inlet turns southeast. The inlet is land-locked and steep to. Enter down the centre of the inlet. The bottom appears to be generally flat. This is an interesting and enjoyable anchorage.

⚓ About 0.7 nm to 1 nm into the inlet on the southern side is a narrow gorge offering an excellent anchorage.

⚓ Anchorage may be taken in 7 m LWN over mud near the moorings further up the inlet. Beyond this point, exploration by dinghy will lead to a billabong and a waterfall. Fresh water is available.

Of interest: Large blue butterflies inhabit rainforest at the head of the gorge. There is a camp-site near the freshwater soak and paintings under a ledge.

Fishing: Fish and oysters are good.

⚓ There is a well-protected anchorage over shoaling sand off the white sand beach in the bay to the north and east of Wilson Point.

Caution 1: Drying reef lies off the northern point at the entrance to Sampson Inlet.

Caution 2: Crocodiles frequent the inlet.

Tides: Degerando Island. Range 10 m.

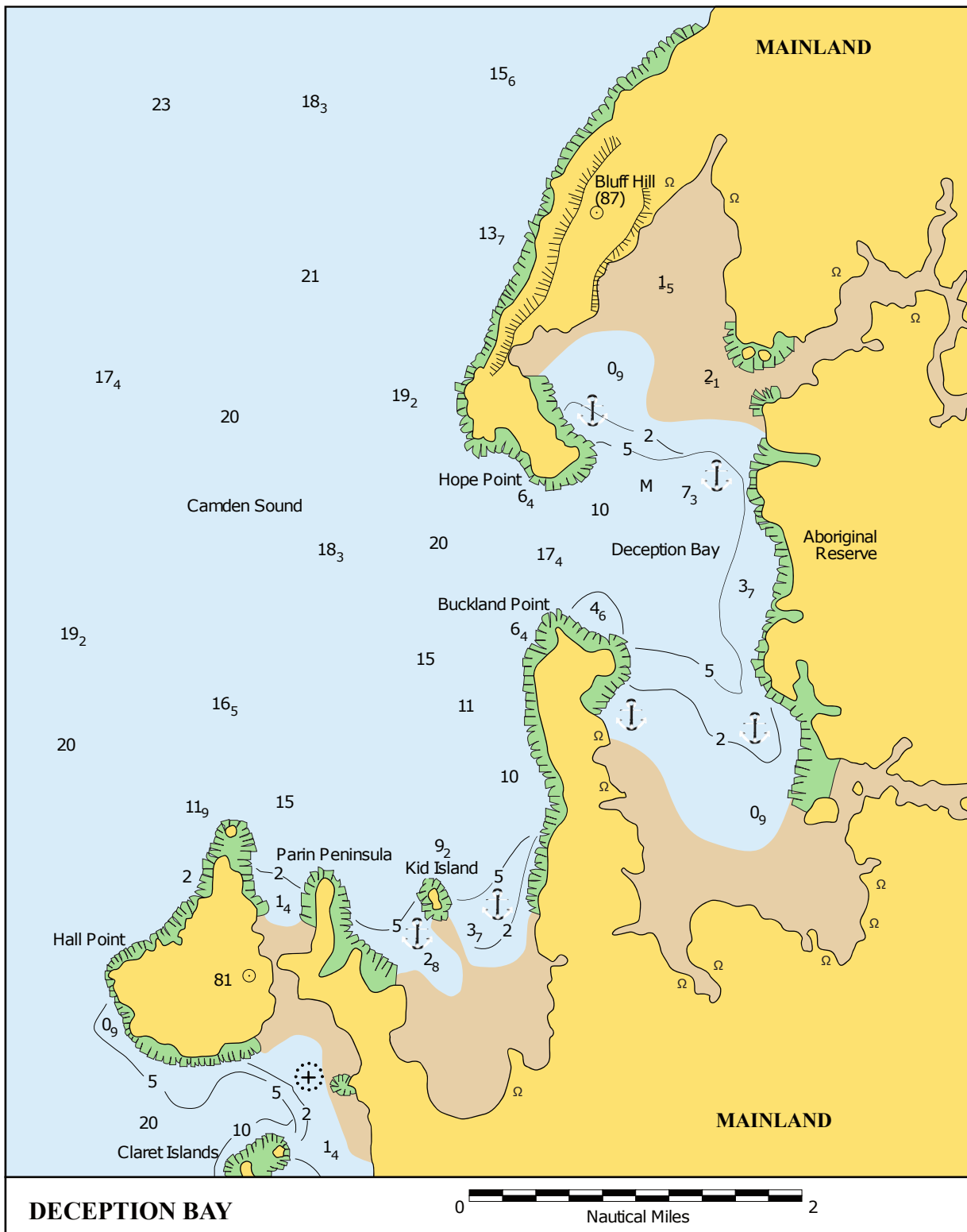
Passage notes

Between South Wailgwin and Lulim there is 14 m depth in the centre of the channel.

11.11.10 Deception Bay

15° 38'S 124° 25'E

AUS 320, 323, 730, 732



Chartlet 67 Deception Bay

Deception Bay provides a good anchorage in all weather and is free of dangers. Tidal stream off the coast is about 2 kn. A slight swell may enter the bay on occasions.

⚓ The northern arm behind Hope Point provides shelter from the NW.

⚓ In easterly weather anchorage at 15° 37.2'S, 124° 25.9'E provides shelter and is a good place from which to explore the nearby creek. Note that the creek mouth dries, which could delay return to your vessel for several hours.

⚓ Anchorage can be taken in the southern end about 1.5 nm into the bay past Buckland Point, over mud and shale.

⚓ Buckland Point offers fair weather anchorage anywhere along the coast south and west of the point. The approach is clear.

⚓ The bays either side of Kid Island (15°40'S, 124°24'E) just southwest of Deception Bay provide good shelter from the E, S and W. The sea bed is sand and rock. Anchorage has been taken in the eastern arm at 15° 40.0'S, 124° 24.4'E, in depths of 4m LWS.

Tides: Hall Point. Range 9 m.

Fishing: Bluebone, snapper and oysters. The creek in the northeast corner is worth exploring by dinghy and has good fishing.

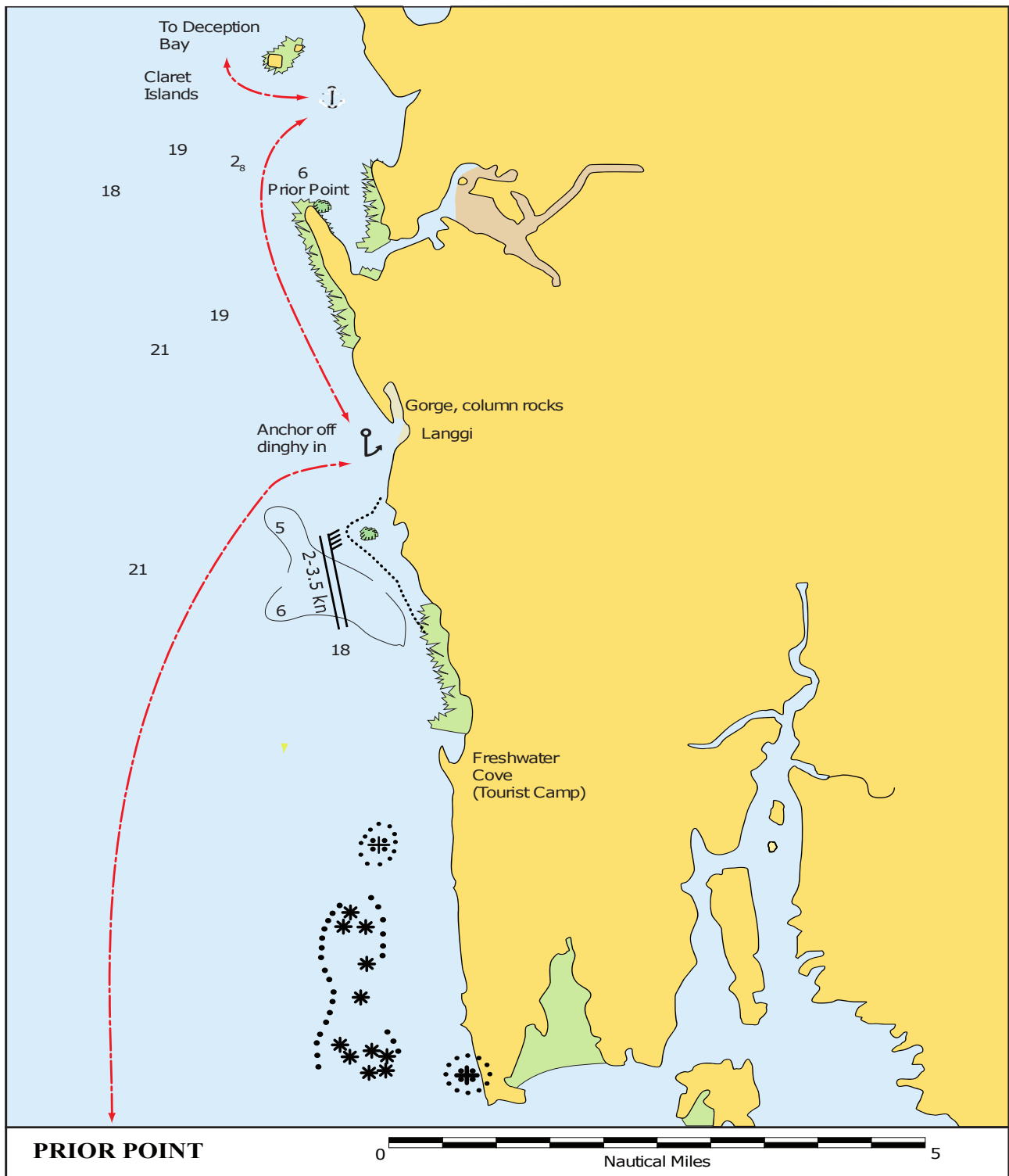
Of interest: Deception Bay appears to be a favourite gathering place for whales.

Caution: The bay immediately northeast of Hall Point dries at LWS.

11.11.11 Prior Point

15° 43 01'S 124° 23.0'E

AUS 323, 732



Chartlet 68

⚓ There is an interesting bay east of Prior Point into which flows a creek through a deep narrow gorge. The bay provides a satisfactory anchorage in light conditions. Anchorage has been taken

behind Claret Island at 15° 41.9'S 124° 23.3'E; some swell comes into the bay.

Caution: Entrance dries 1.8 m.

11.11.12 Langgi Gorge

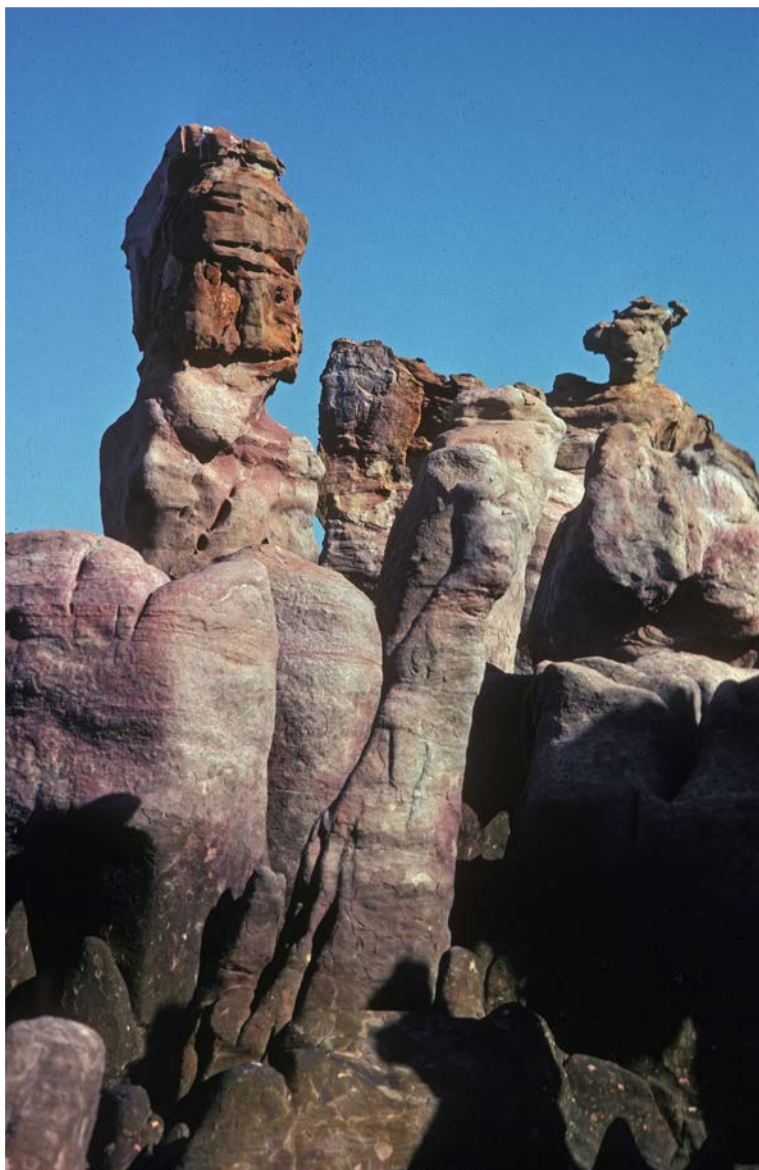
(see Prior Point chartlet)

15° 46'S 124° 24'E

AUS 323, 732

Anchor off and enter the gorge by dinghy. Access on land is only allowed with a permit and if accompanied by an official guide.

Of interest: The rock formations give the impression of a gathering of people. It is a significant Aboriginal site. Best seen at low tide. There is a freshwater gorge above the beach and it is possible to collect water in dinghy at high tide.



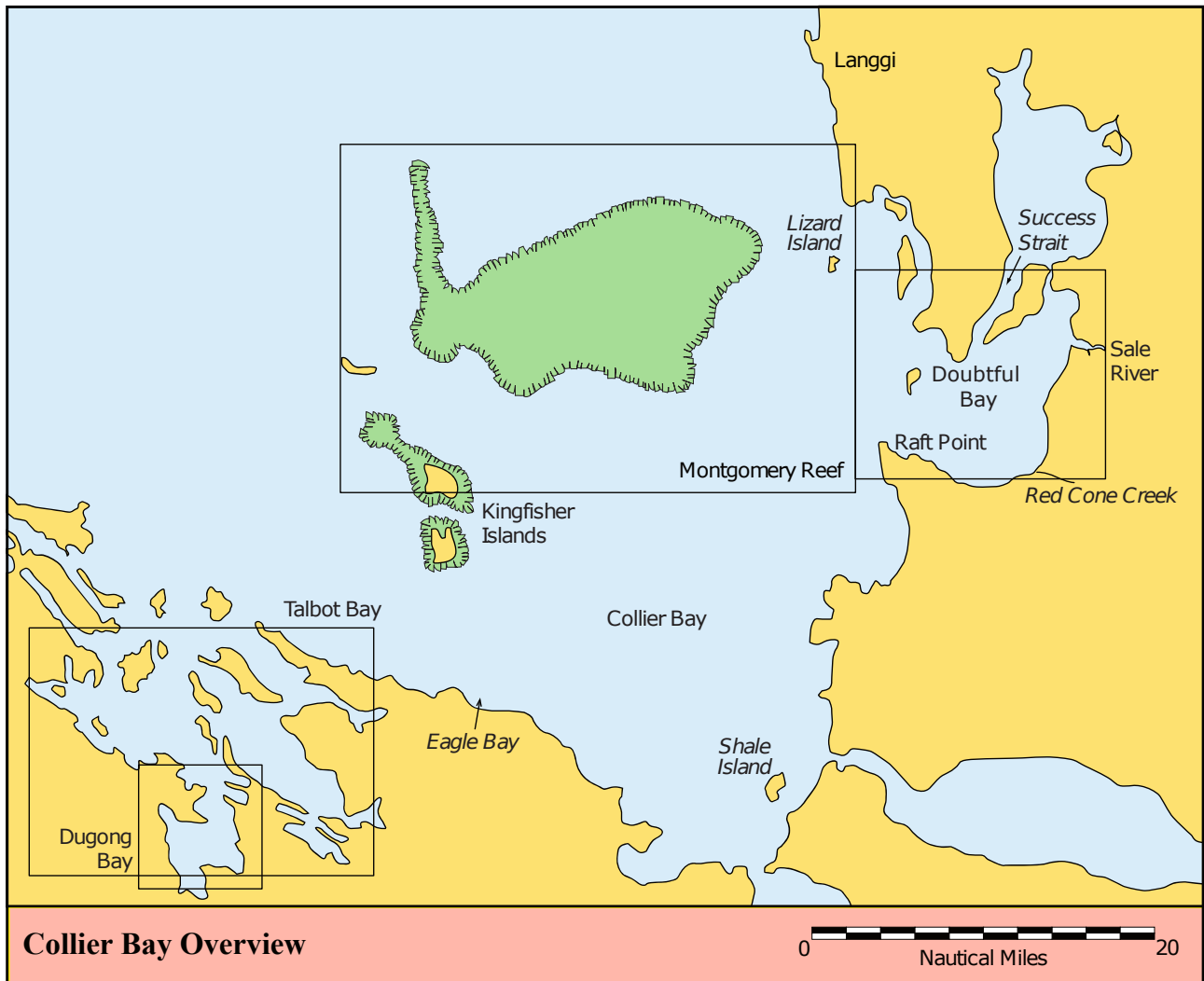
Sculptured rocks, Langgi (P Baker)



Langgi (A Gorham)

11.12 Doubtful Bay, Collier Bay and Talbot Bay

Charts: AUS 323, 732, 733

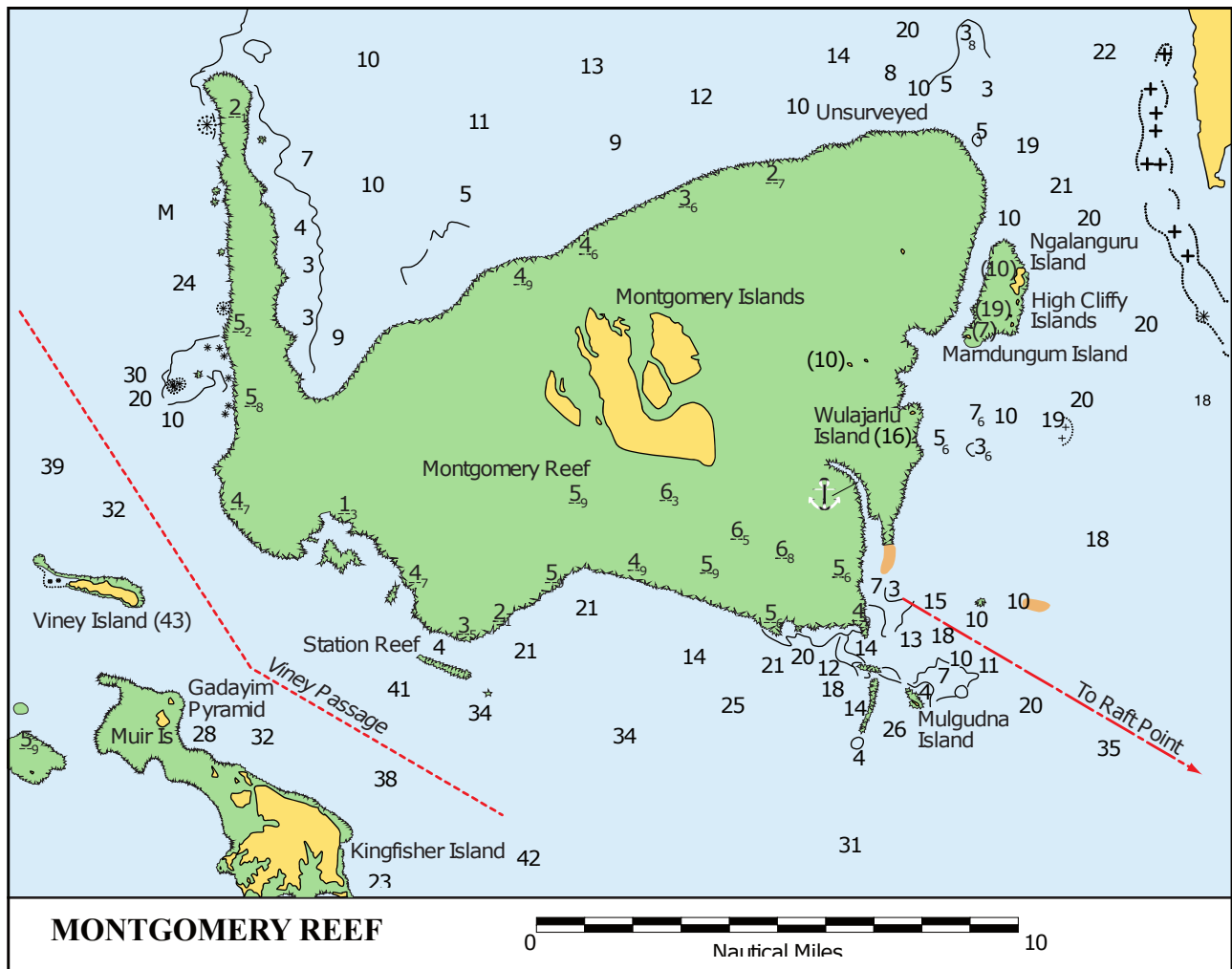


Chartlet 69

Tides: The tide floods into the bay from both the north and the west. It is possible to work the ebb tide out of Collier Bay then the flood tide into Talbot Bay, and vice versa. Tides of 12 m have been recorded at Shale Island tidal station, which lies in the extreme southeast of Collier Bay.

11.12.1 Montgomery Reef

AUS 323, 732



Chartlet 70

Montgomery Reef, between Camden Sound and Collier Bay, is a relatively flat, extensive area of sand, rock and coral that protects Collier Bay from the ocean swells. It is a particularly outstanding, biologically diverse coral reef covering some 300 sq km. The spectacle of the massive Montgomery Reef emerging from the sea at low tide, the water cascading from the reef top, and the abundant wildlife that is regularly observed, is a major tourist attraction. Visitors may enjoy the wonder of Montgomery Reef; however reef walking should not be undertaken as it will damage this fragile ecosystem. The low, sandy, Montgomery Islands lie in the centre of the reef. High Cliffy Islands (which are very low) are separated from the eastern side of the reef by a deep channel about 0.3 nm wide.

The incoming tide sets up a strong southerly current (4 to 6 kn at springs) on the eastern side of the reef and a similar strength easterly current along the southern side of the reef. The best time to visit the reef to witness the water cascading off the crest is during the period two hours before to two hours after LW. The most spectacular area of waterfalls occurs in the deep, narrow gutter on the southeast corner of the reef.



Montgomery Reef (A Gorham)



Montgomery Reef at low tide (R&L Newton)

SE corner of Montgomery Reef

16° 00'S 124° 18'E

AUS 323, 732

Due to the strong currents on the eastern and southern sides of the reef, it is suggested that you make this area a day visit from the anchorage at Raft Point, returning to either Raft Point, Red Cone Inlet or the Sale River.

Passage notes

Leave Raft Point about two to three hours before low water. The westerly ebb will assist your trip across to Montgomery Reef. Mulgunda Island will rise on the port bow and a sand cay will appear to starboard as the reef is approached. Continue until you see a second (much larger) sandbar on the starboard side. The shallowest water is about 3 m LWS, off the southern end of this sandbar. Turn to starboard and follow the channel north into the narrow gutter where the water will be cascading off the reef. The channel between Montgomery Reef and the sandbar is 0.4 to 0.5 nm wide and about 7 m deep at LWS. However, you should hold to the centre of the channel as there are patches of drying coral on the edge of the reef and on both sides of the narrow gutter.

⚓ Anchorage has been taken in the narrow gutter at 15° 58.7'S, 124° 17.2'E. There is a shallower anchorage area, with about 6 m LWS over sand, where the gutter turns from north through northwest to almost due west.

It is quite safe to remain at these anchorages for three to four hours over the low tide period. However, it would be wise to head back to Raft Point before the rising tide tops the reef and causes giant eddies and whirlpools in the deeper parts of the gutter and obscures the edge of the channel.

Caution 1: Rocks have been reported at 15° 59.4'S, 124° 17.6'E and 15° 59.4'S, 124° 17.5E.

Caution 2: Walking on Montgomery Reef is prohibited

Tides: Slade Island or Lizard Island. Range 12 m. Tidal flow in the area is strong.

Of interest: You will be surrounded by waterfalls of all shapes and sizes and the noise on low spring tides will be deafening. Climb the mast to gaze at the extensive areas of drying reef.

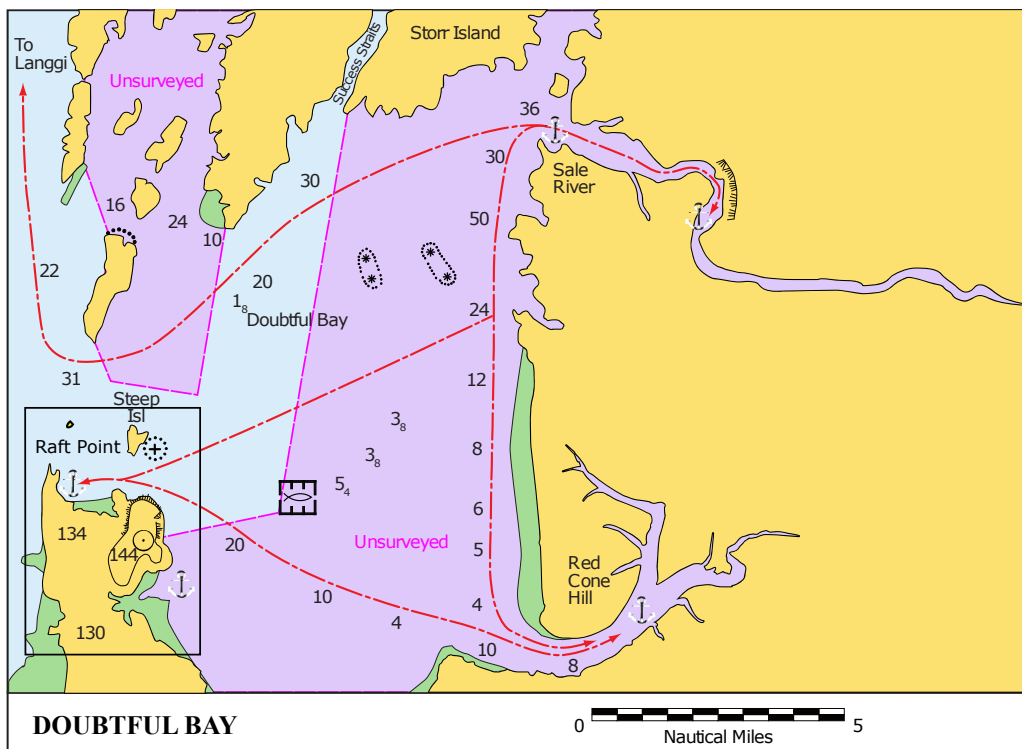
Passage notes

Passage from Raft Point westward may be made through Viney Passage or Caesar Channel. It is also possible to go between the Woninjaba Islands and the mainland with depths of 30 m, going south of Traverse Island. The bays on the mainland side of this strait appear to be shallow, with poor holding reported.

11.12.2 Doubtful Bay

16° 02.0'S 124° 32.0'E

AUS 732



Chartlet 71

Doubtful Bay is entered via Foam Passage in which tidal flow may be 6 kn, with eddies. Doubtful Islands are on the west side of Doubtful Bay. The islands prevent swell from entering the uncharted waters to the east. Doubtful Bay is aptly named since it is an unsurveyed area. However anchorage has been taken at some locations described below. Cautious exploration is recommended. Shallow reef around some islands rises from deep water.

Success Strait and George Water

15° 57'S 124° 32'E

AUS 323, 732

Success Strait is on the north shore of Doubtful Bay. It is the preferred 6 nm passage into George Water on the west side of Storr Island. It is better than the channel on the east side. Success Strait is approximately 0.25 nm wide with 18 m or more depth and steep-to sides. There are two small drying reefs on the west side near the northern end. There are reports of extensive sandbanks blocking entry at other than HW. The depths in George Water are 27 m or greater. There is a 2 kn current through the strait (probably more at times) and the scoured bottom offers poor holding.

⚓ Anchorage is offered southwest of the entrance to Success Strait (15° 58.2'S, 124° 31.0'E) with protection from the NW to NE, but ensure your anchor is well set and you have clearance from the shore in the event of a wind change.

Sale River

15° 59.0'S, 124° 36.0'E

AUS 323, 732

Sale River is in the northeastern corner of Doubtful Bay. Exploration of the Sale River has taken place but is not for the faint hearted. A visit to the Sale River is rewarding if you have sufficient time (four to five days) and patience to work the tides to reach the upper anchorage, 12 nm from the mouth of the river. This anchorage is only accessible to yachts with 2 m draft or less. Access is across the drying sandbars in the upper part of the river within the period of four days either side of spring tides.

Leaving from Raft Point or Red Cone Creek at about half tide, proceed to the mouth of the Sale River where there is a rock bar that dries about 1 m at LWS and almost blocks the mouth from the southern entrance point. This rock bar causes a line of white water and overfalls running north-northeast towards George Water on the incoming tide.

⚓ Anchorage can be taken either just inside the mouth of the river over a sandy bottom, or about 3 nm upstream at 15° 59.2'S, 124° 38.4'E about 400 m south of a rocky point on the eastern bank of the river. Check out the drying sandbars on the following low tide and prepare to head upstream on the incoming tide the following day. Leave either anchorage about two hours before HW (Lizard Island) and follow the incoming tide to the upper anchorage in the deep pool opposite the low mangroves just before the rock bar 16° 01.2'S, 124° 45.2'E.

Due to the blocking effect of the sandbars over the last 5 nm of the river, the tide level at the upper anchorage will only drop between 5 m and 6 m during the first three or four hours of the ebb. The water will not return on the next tide for about another five hours, and when it does, it rises the last 5 m in two to three hours. Despite the large tidal range, this anchorage is quite safe as it has a

'sticky' mud bottom and is not subject to any more than about 3 kn of current even on the highest spring tides.

From this upper anchorage it is possible to explore by dinghy further upstream across the rock bar. There is a sandy beach above the rock bar with a freshwater creek running into the river beside the beach. A 200 m walk up the creek will bring you to fresh water pools in a cool rainforest setting. Be sure to return to the dinghy and cross the rock bar before the tide drops too far.

Caution: Swimming is not recommended. A crocodile attack occurred in the upper freshwater section of the Sale River.

Fishing: Fishing can be good around the rock bar on both the incoming and outgoing tides, and also during the long low tide period.

Red Cone Creek

(see Raft Point to Sale River chartlet)

16° 07'S 124° 35'E

AUS 323, 732

⚓ Red Cone Creek is in the southeastern corner of Doubtful Bay, just south of Red Cone Hill. The depth is about 6 m in the lower part of the creek. Anchor before reaching the branch to the north.

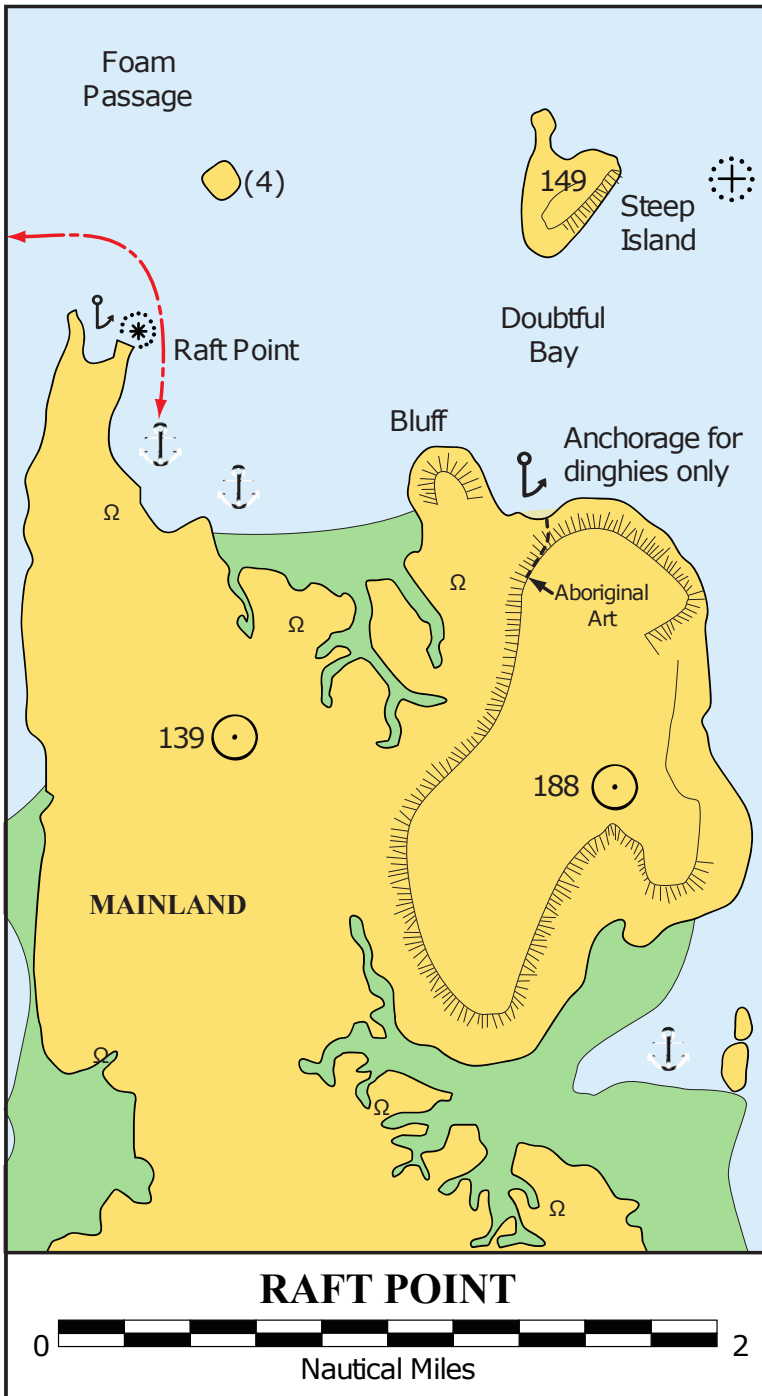
Of interest: There is a permanent waterfall (Ruby Falls) at the head of the creek. Climb past the waterfall to a swimming hole. There is another swimming hole above a waterfall in the creek on the south side of the anchorage.

Caution: Large crocodiles reside at the head of the creek. Be very careful when getting in and out of the tender.

11.12.3 Raft Point

16° 04'S 124° 27'E

AUS 323, 732



Chartlet 72

The headland to the east of Raft Point is high and imposing compared with the surrounding country and may be seen from miles around.

⚓ There is an open anchorage just south of the high headland 16°06.2'S, 124°28.4'E subject to chop and only protected effectively from the SW through to the N.

⚓ Anchorage can be found at 16° 04.5'S, 124° 27.0'E in 6 m LWS over mud, or in 10 m LWS about 200 m to the north, or anywhere in the bay between Raft Point and the high headland immediately to the east. Depths vary from 20 m to 30 m. There is good shelter in SE winds but some slop enters with a W sea breeze.

Caution: The southeast section of the bay is shallow.

Of interest: This area was an Aboriginal meeting and ceremonial ground. Aboriginal art may be found on the west side of the cliffs. Follow a track starting from the centre of the beach. Raft Point is said to be so named because Aborigines rafted from there to Montgomery Reef. Dugong were hunted, caught and then floated back to the meeting grounds.

Many other interesting anchorages are readily accessible from Raft Point. It is useful as a base for day sails.



Raft Pt (A Gorham)



11.12.4 Melomys Island

(no chartlet)

16° 09'S 124° 05'E

AUS 323, 732

⚓ Anchorage has been taken on the west side of the Island in Mangrove Bay at 16°09.6'S, 124°04.3'E in 6 m over mud and coral. The anchorage gets shallow quickly, closer to the shoreline, but it is useful for a short stopover. It is uncomfortable in winds from W to NW.

⚓ There is better protection between Melomys Island and Kingfisher Island. However, the depths in this bay vary erratically. The chart shows the bay to shoal very rapidly, so careful attention should be paid to tidal heights and swinging room. Overall this is a difficult anchorage.

Caution: The eastern entrance is barred at LWS.

The passage between these two islands is navigable but subject to severe tide rips. The following waypoints have been used for this transit: 16° 07.9'S, 124° 05.9'E to 16° 07.9'S, 124° 06.1'E.

11.12.5 Eagle Bay

(no chartlet)

16° 16'S 124° 03'E

AUS 323, 732

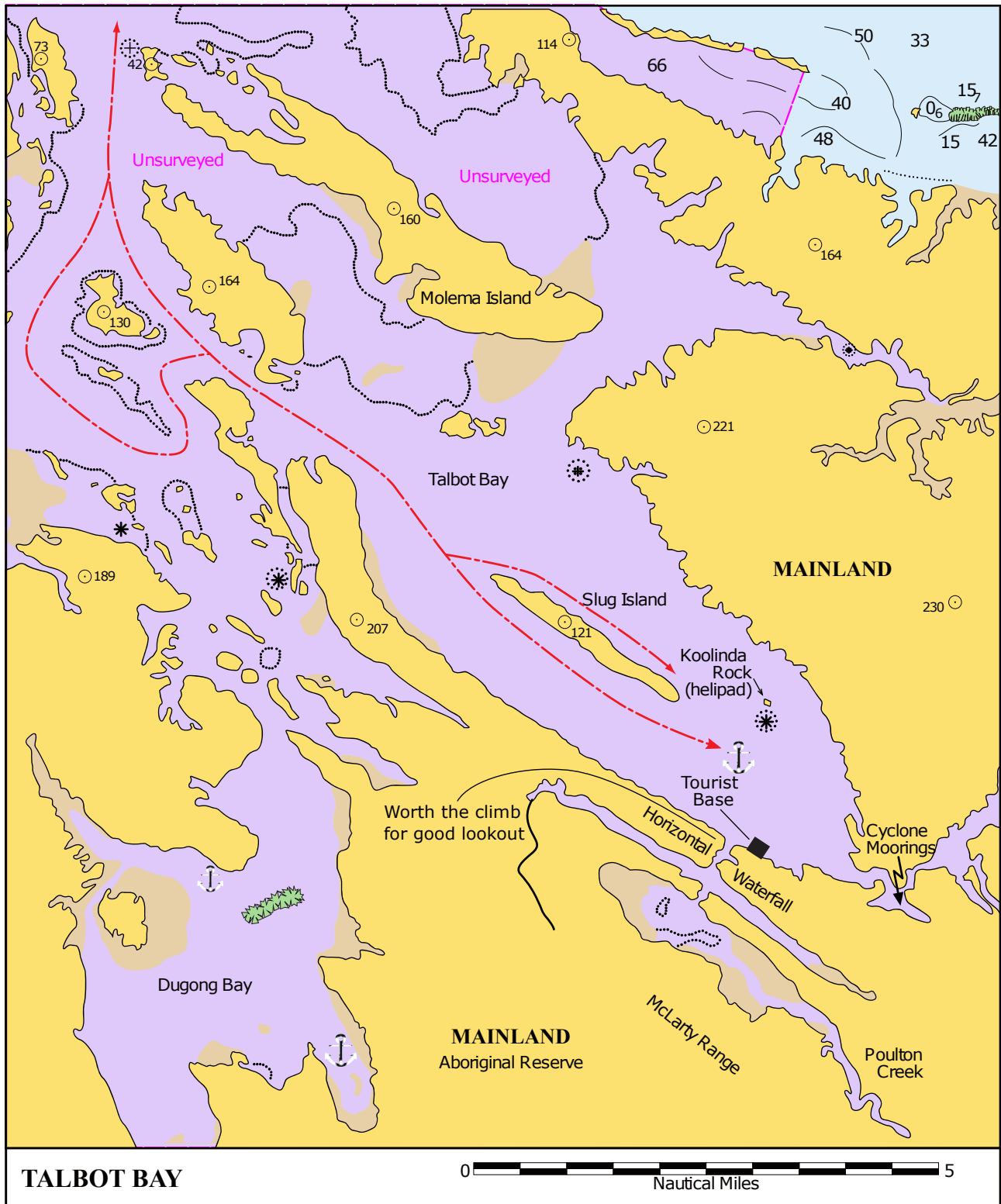
⚓ This bay is not named on AUS charts but it is called Eagle Bay by cruisers. It lies 6 nm south of Melomys Island. The bay dries at LWS but at LWN there is 3-4 m over mud just inside the bay. Protected from the SE to W.

Caution: Extreme caution recommended.

11.12.6 Talbot Bay

16° 18.0'S, 123° 54.0'E

AUS 323, 732



Chartlet 73

Talbot Bay lies about 10 nm southeast of Koolan Island. Although the bay is uncharted, it is mostly deep except as marked (in blue) on the AUS 732 chart. Passage through Talbot Bay should be

carried out on a rising tide, as depths less than 3m occur at LWS. The approach is clear either side of the unnamed islands with heights 97 m and 53 m. Head southward keeping west of both Molema Island and the unnamed island of height 164 m; then continue southeast either side of Slug Island (height 121 m and unnamed on some charts).

Caution: Tourism operators warn of resident bull and tawny sharks.

Horizontal Waterfalls

16° 23'S 123° 58'E

AUS 323, 732

The famous (and dangerous) Horizontal Waterfalls lie at the head of Talbot Bay. The tide flows through two narrow gorges resulting in a tumbling torrent. Transit by dinghy through the gaps in the southern arms is possible at slack water.

Caution: Extreme caution is advised; people have died attempting this activity. Better to book a ride with the local tour operators at the barge (Horizontal Waterfalls Hotel).

⚓ Anchorage has been taken northeast of the waterfalls at 16° 22.0'S, 123° 58.2'E, downstream of the seaplane landing area.

Caution: The anchorage just east of the tourist base that was recommended in previous editions of this guide, is now the seaplane landing and taxi area. Be aware that the landing area changes with the weather, so boats may be asked to move if necessary.

⚓ Further east of the Horizontal Waterfalls there is a bay with cyclone moorings used by pearl producers. The pearl leases have been removed. The creek beyond the moorings is scenic and can be navigated by dinghy at high water.

Of Interest: There is a permanent (seasonal) hotel at the waterfalls. Seaplanes operate from this location and RIBS can be hired to take visitors to the Horizontal Waterfalls.

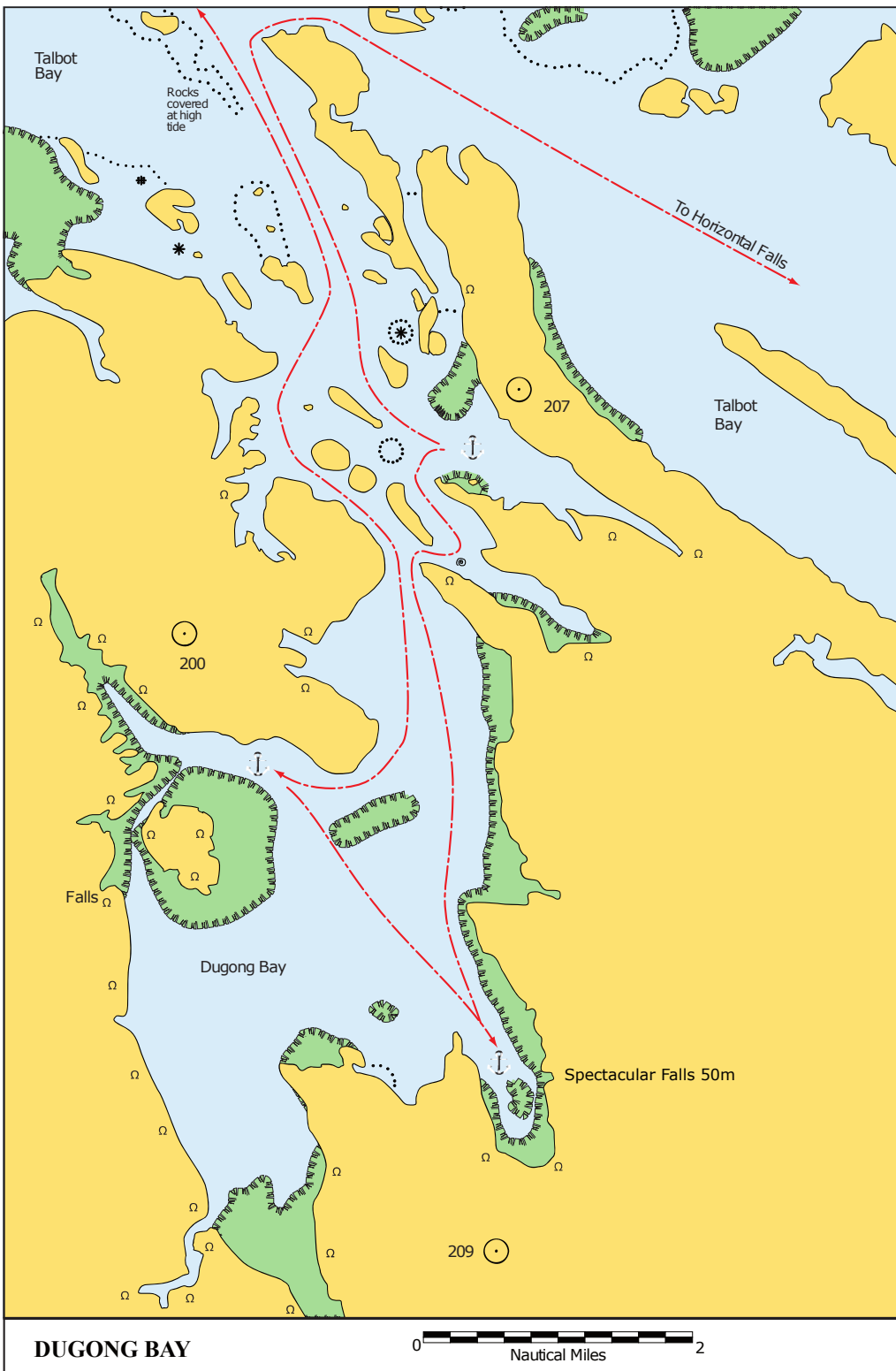


Horizontal Falls (R&L Newton)

11.12.7 Dugong Bay

16° 24.0'S, 123° 52.0'E

AUS 323, 732



Chartlet 74

Entry into the bay is through a narrow entrance subject to strong currents during spring tides.

⚓ Just before the entrance to Dugong Bay there is a good anchorage to wait for a favourable tide at 16° 20.3'S, 123° 53.2'E over mud, with depths greater than 4m LWS.

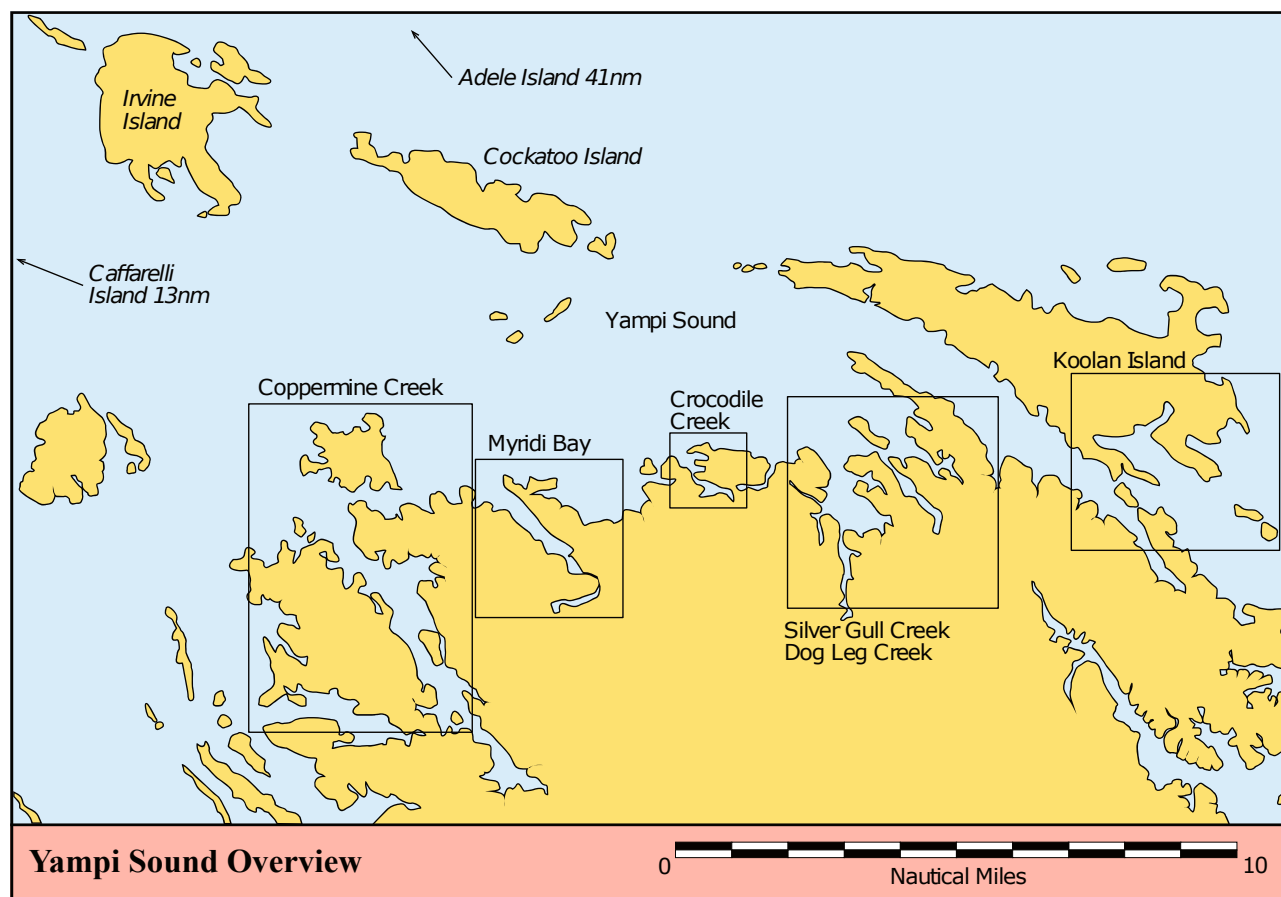
⚓ Anchorage has been taken at 16° 22.6'S, 123° 51.7'E in the northwest part of the bay and at 16° 24.7'S, 123° 53.6'E in the southeast part of the bay, opposite a spectacular gorge. However, the bottom is uneven and needs careful sounding. Exploration by dinghy is well worthwhile. A permit is required for access to Banyon Falls on the eastern side of the bay, a lovely spot.

⚓ There is an excellent anchorage in the southeast corner of Dugong Bay at 16° 24.4'S, 123° 53.5'E in 1.8 m LWS over mud, near a gorge with fresh water. Shoal draft vessels can go further south into the inlet; however, caution should be exercised by keel boats.

Of interest: Very good water is accessible from the tender. The local tawny nurse sharks will adopt you and enjoy a feed if you are catching fish.

11.13 Yampi Sound

Charts: AUS 732, 733, 40, 41



Chartlet 75

Yampi Sound, an Aboriginal word meaning 'deep water', contains many anchorages.

Passage notes

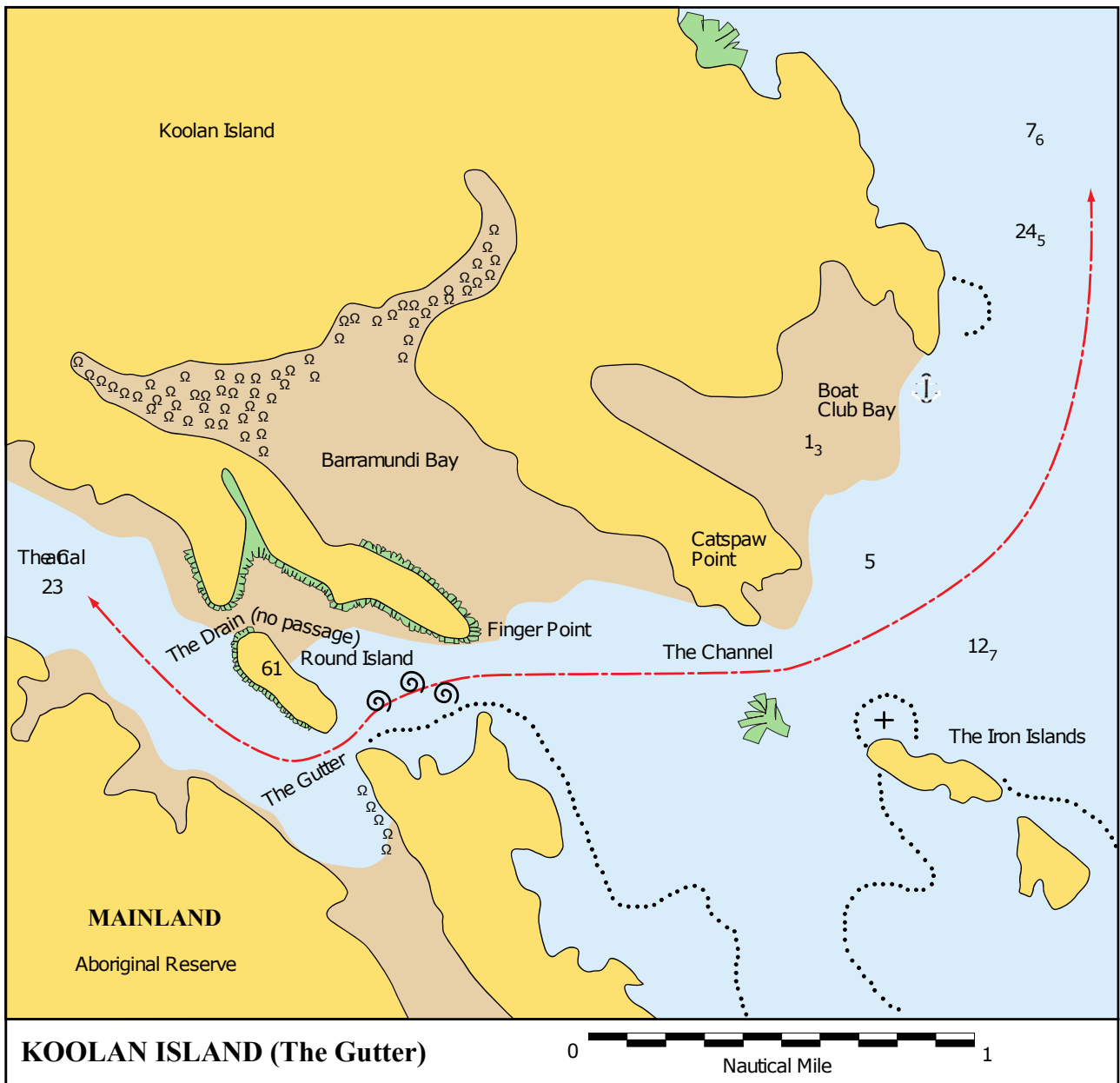
If travelling west, Yampi Sound is best entered from the southeast end of Koolan Island. Enter through The Gutter, pass south of The Drain and then proceed westward along The Canal between

the island and the mainland.

11.13.1 Koolan Island

16° 08'S 123° 45'E

AUS 40, 323, 732, 733



Chartlet 76

Passage notes

Passage through The Gutter and The Canal in either direction is best negotiated at slack water. The Canal is narrow but deep (25 m). The ebb tide runs east out of The Gutter as well as through The Canal. It is not entirely clear when slack water is; a yacht has reported a 1.5 kn west-going stream at what was supposedly slack water.

Mt Gibson Iron Ltd. operates Koolan Island. It was an iron ore mine site until late 2014, when the

mine was mothballed as a result of the collapse of a seawall. There are now plans to establish a supply base there to service the offshore oil and gas industry. In the event of an emergency Koolan Island has a sealed airstrip capable of landing RFDS aircraft.

⚓ Anchorage can be taken in Boat Club Bay at the eastern end of Koolan Island (16° 09.0'S, 123° 47.7'E) in 10-15 m, as it shoals rapidly. Swell wraps around the eastern point of the island. This bay was the site of the original Koolan Island Boat Club.



Koolan Island (A Gorham)

11.13.2 Cockatoo Island

(no chartlet)

16° 06'S 123° 37'E

AUS 40, 323, 732, 733

⚓ There is open anchorage off Collins Cove 600 m offshore at 16°06.0'S, 123°35.4'E. A drying reef runs along the shore. There is a sharp drop-off 400 m offshore.

This island is a mine site that was active until 2016. As at March 2017 the company running the mine, Pluton Resources, was in receivership. In the meantime, a resort was established in March 2017 by a group that also runs the fuel barge at Dog Leg Creek. The resort will have a bar that welcomes yachties, and a light aircraft that may be chartered for crew transfers and getting supplies in from Broome. Contact "Cockatoo Island Resort" on VHF Ch 16.

The original guide entry from the 4th edition (2014) is retained below, in case the mine restarts:

4th Edition entry: *"The island is an active iron ore mine site. The mine site and accommodation village are operated by Pluton Resources. Access to the island is prohibited without prior permission. This can be sought by contacting the mine manager on (08) 9191 7511 or by calling on VHF Ch 16. No facilities are available from the island, though in the case of a medical emergency the island's resources will be made available, including paramedics and the airstrip. It should be noted that as an active port, Maritime Security Zones are in place that restrict boat movement in the area from the ship loader to Collins Cove and out 50 m from the shore. Vessels should stay outside this zone unless permission is granted. This is particularly important if a ship is in port."*

Anchorage off the jetty in Collins Cove is unsatisfactory. southwest of the jetty there is a mud bottom at 9 m LW. Anchorage is exposed to fresh easterlies which can arise overnight.

Caution: *The jetty dries at LWS and some areas of the fringing reef have only 1-2 m at LWS. Approach the jetty at HWN.*

Tides: Yampi Sound. Range 10 m.

Passage notes

If travelling west across King Sound suggest departing Cockatoo at HW.

11.13.3 Irvine Island

(no chartlet)

16° 05'S 123° 32'E

AUS 40, 323, 732, 733

This starkly beautiful island rises 156 m, it is largely high-grade iron ore.

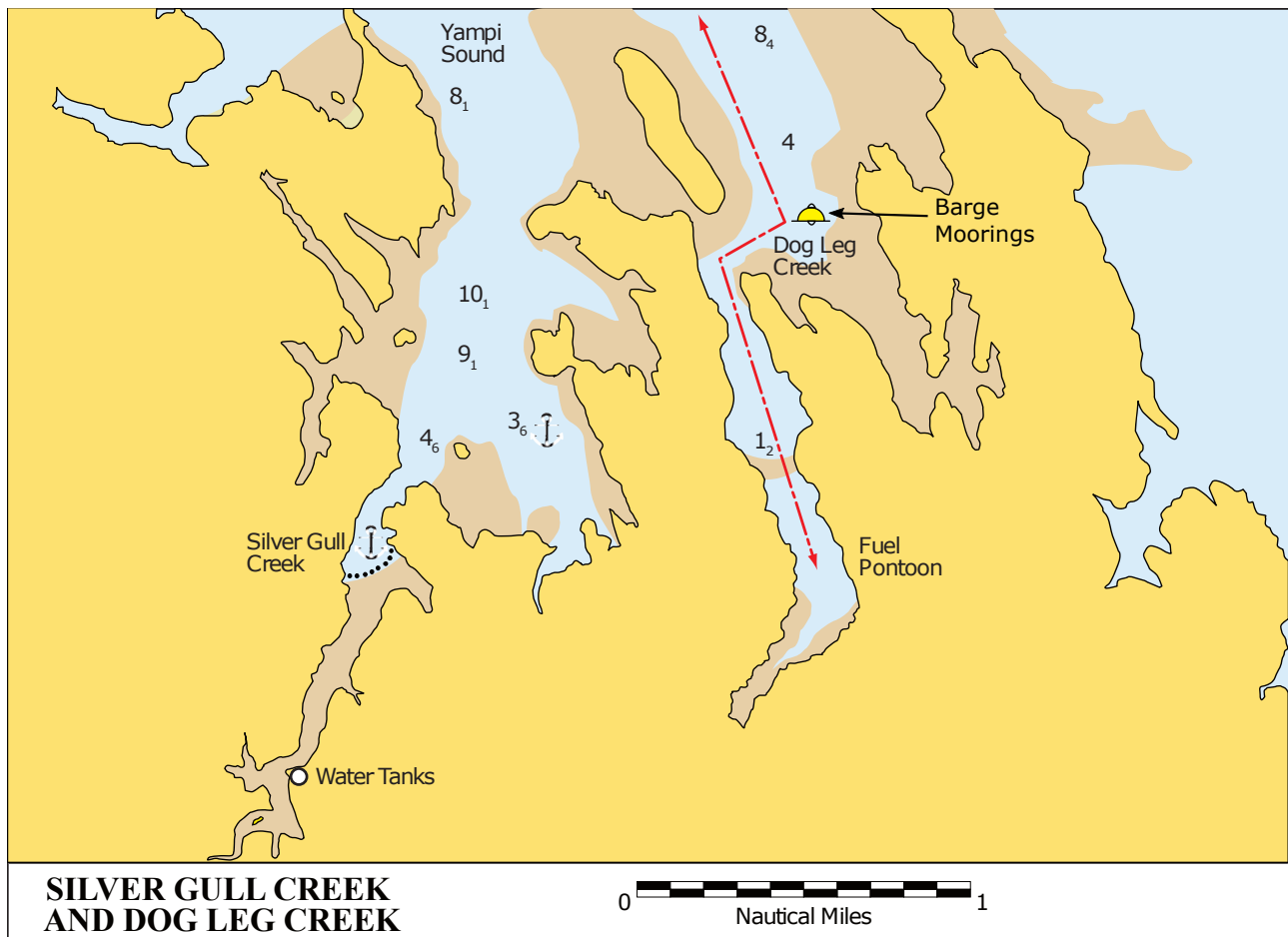
⚓ There is an anchorage just south of Jonas Point and west of Galah Channel, providing an alternative to Collins Cove in SW to W winds. Approach as indicated on AUS 733. Keep to the northern side of the bay and edge in as far as possible. Anchorage is between 200 m and 400 m off the rocky shore to the north and half a mile off the beach in the northwest. The sea bed can vary between light mud and coral.

Tides: Yampi Sound. Range 10 m. Current through the anchorage reported to reach 2 kn.

11.13.4 Dog Leg Creek

16° 09.3'S 123° 42.7'E

AUS 40, 323, 732, 733



Chartlet 77

Dog Leg Creek on the mainland of Yampi Sound is the name given to the creek that is located immediately east of Silvergull Creek. The creek is entered by holding a centre course around the “dog leg” section and the straight section of the creek. Several large barge moorings are located in the initial deeper section of the creek, with long trailing lines. The creek dries at LWS upstream of the moorings. The fuel pontoon used to be located about 0.6 nm upstream of the barge moorings, but in 2016 it was moved downstream to the dog leg.

Purchasing fuel: Diesel and ULP can be purchased at the fuel pontoon. They accept only cash or possibly Baileys Fuel Cards; there is no credit card facility. 2017 prices were \$3.00 per litre for diesel, \$3.75 for petrol. The fuel barge is operated by Dean Kemp, who runs a barge service out of Derby, mainly servicing the iron ore mines on Koolan and Cockatoo Islands. It is accessible at all tides, but they prefer to load fuel in daylight hours only. The barge is topped up from Dean’s barge trips from Derby to Koolan Island. To ensure he has sufficient fuel for your needs, phone Dean on 0427 951 491 a few weeks before your ETA at Dog Leg Creek to give him your approximate arrival date, and how much fuel you are likely to need. Call “Dog Leg Creek” on Ch 16 to request a booking time for fuel and advise the type and quantity required. General supplies might also be brought here by the fuel supplier. Ice cream is also available! (\$5 each).

Caution: The resident crocodile in the creek is quite aggressive and sometimes chases dinghies.



Dog Leg Creek (D Ford)



Taking on diesel, Dog Leg Creek (R&L Newton)

11.13.5 Silver Gull Creek

16° 09'S 123° 42'E

AUS 40, 323, 732, 733

⚓ Silver Gull Creek offers a safe, pleasant anchorage over mud. Although it is quite possible to travel 2 nm upstream on a rising tide, anchorage is best taken in the bay outside the creek entrance (16° 09.9'S 123° 42.3'E has been used), or where the creek flows into the bay. The reef on the western side of the bay extends a little further offshore than charted. There is a mooring at the all-tide limit for anchoring, which anyone may use. It is only a 22 kg anchor with a short scope, so treat it with caution.

Facilities: There is a camp here, famously known as the Squatters Arms Boat Club. It comprises a house, garden and a freshwater swimming tank. Visitors are encouraged to join the Club for a \$10 donation. The caretaker is Scott O'Brien nirjy68@gmail.com and he has souvenirs for sale. The previous caretaker, Phil, still visits for a few weeks at a time. Please call ahead on VHF Ch 16 to advise of your arrival time. Water is available and swimming in the freshwater tank is possible. The facilities are accessible by dinghy with minimum tide 3.5 m (Koolan Island). Whilst it is possible to get up to the camp with less tide, this requires knowledge of the sea bed.

Caution: There is a 2 m crocodile that lurks close to the camp. It is reportedly timid around dinghies, but is not afraid of people foolish enough to go wading.

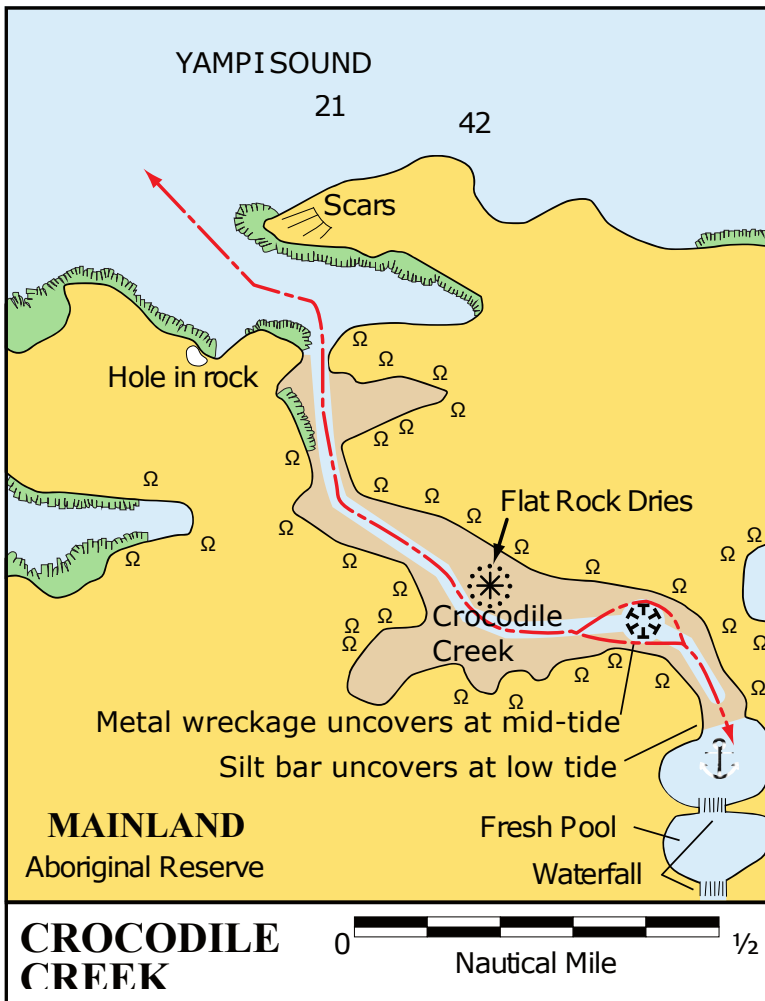


Water pipe at Silver Gull Creek (R Campbell)

11.13.6 Crocodile Creek

16° 09'S 123° 40'E

AUS 40, 323, 732, 733



Chartlet 78

The entrance to Crocodile Creek is on a transit from Collins Cove on Cockatoo Island to midway between the two main islands of The Piccaninnies. There is a hillock with three prominent scars on the east side of the entrance, which appears at first to be an island. On the west side, on the shore, there is an isolated rock with a neat round hole visible at half tide.

Enter on a rising and near full tide. There is an underwater rock mid-channel after passing over a mud bank which dries at LWS; leave it to port. The rock is normally marked by a buoy attached with a long line. There is a sand bar just before entering the main pool which dries 2 m at LW leaving the pool landlocked. Keep to port when entering the pool. The deepest water is close to the ladder and waterfall.

⚓ The deep pool at the head of the creek can accommodate three or four yachts at LW. Rafting up with others may be required. Drop the bow anchor on the bar and take a stern line to the ladder. Given the limited space and the increasing number of visitors, it may be worth inspecting the anchorage and securing lines by dinghy before entering.

Caution 1: A large metal structure has been observed just underwater at high water, position 16° 09.7'S, 123° 40.4'E. Safe passage was found to the north when the tide is high enough to enter Crocodile Creek Basin.

Caution 2: Locals report saltwater crocodiles have been seen in the lower freshwater pool on a high spring tide.

Of interest: A 10 m ladder provides access to a fresh water pool. There is a barbecue site used in the past by boating people from Cockatoo and Koolan islands. There is a gallery of yacht names on plaques, carved or painted on wood brought in for the purpose.



Crocodile Creek (A Gorham)



Crocodile Creek high tide (R Campbell)

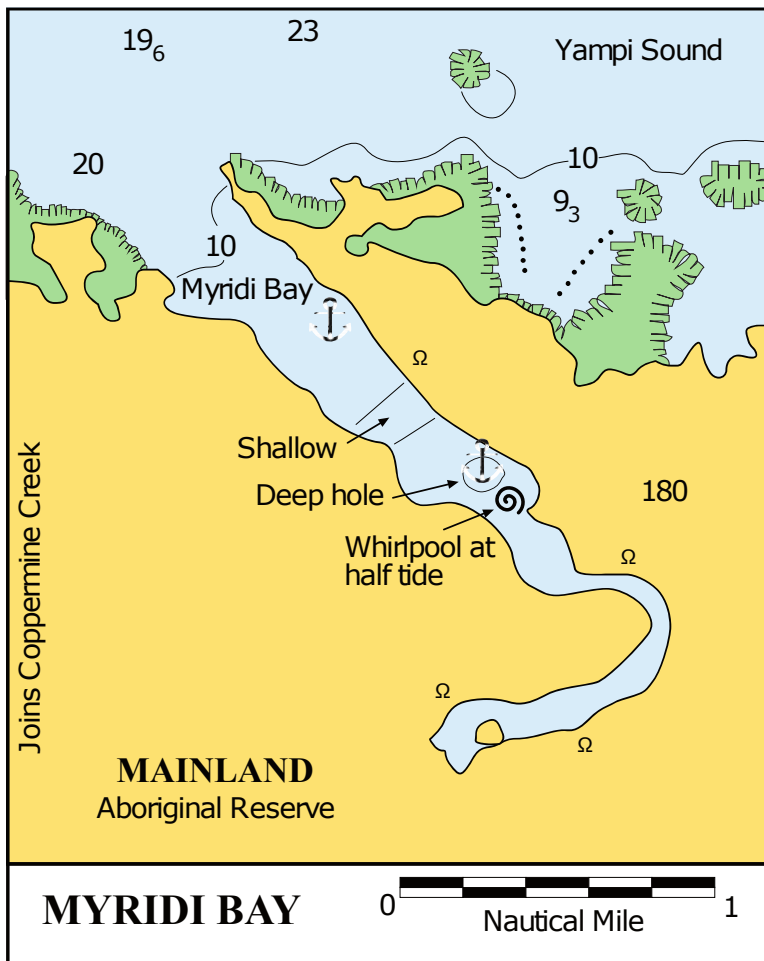


Crocodile Creek low tide (R Campbell)

11.13.7 Myridi Bay

16° 10'S 123° 37'E

AUS 40, 323, 732, 733



Chartlet 79

Myridi Bay is 3 nm west of Crocodile Creek. The inlet extends 2 nm in a southeast direction and provides a good cyclone shelter. A sandbar is located 1 nm in from the entrance to the inlet. It dries for a short period at LWS.

⚓ Anchorage may be taken up near the entrance to the bay or further in where there is a hole over mud. Both anchorages are exposed to the NW.

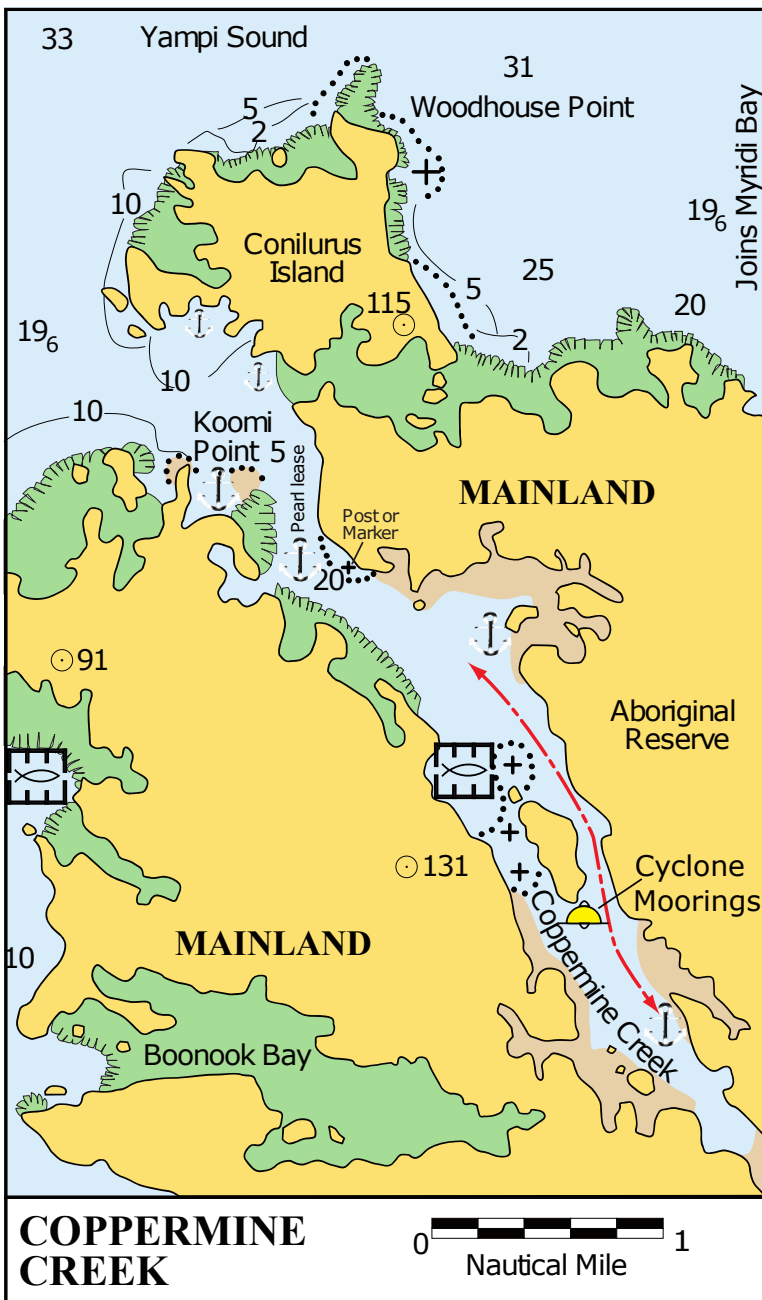
Caution: There are rock ledges each side of the entrance.

Tides: Yampi Sound. Range 10 m.

11.13.8 Coppermine Creek

16° 10'S 123° 35'E

AUS 40, 323, 732, 733



Chartlet 80 Coppermine Creek

This area is worth a few days' stay. Coppermine Creek is a deep, scenic inlet. Near the entrance, the depths are around 30 m.

Caution 1: There is a rock at the northern end of the reef off Woodhouse Point (the northerly point of Conilurus Island) which is apparent only at LW. A 1 nm clearance from the island is recommended to clear this rock.

Caution 2: A shallow ridge exists off Koomi Point (depth uncertain) at approximately 16° 10.0'S,

123° 34.8'E. Pass at least 100 m north and east of this position.

Keep to the port-hand side (i.e. the inside of the bend) on entering the creek, because rock bands radiating from the cliff (where the building is) run underwater and form reefs. Anchor clear of any pearl leases that might be present (reported absent in 2017).

⚓ Anchorage is available at the southwest of Conilurus Island in a small bay. Anchorage has also been taken just west of the south tip of Conilurus Island.

Fishing: Good fishing and black-lipped oysters large and plentiful.

Of interest: There are World War II gun emplacements on the island. Conilurus Island off the entrance was previously named Margaret Island.

⚓ There is a fishing camp opposite Conilurus Island near Koomi Point, where anchorage may be taken. The camp appears to be abandoned, although a shack is still there.

There is an anchorage in the creek at 16°10.8'S, 123°35.8'E with good holding over mud. It has a depth of about 5 m LWS, despite showing as drying on CMaps and Navionics charts.

⚓ Anchorage can be taken upstream, after passing east of the unnamed island, at 16° 12.6'S, 123° 36.6'E in 3m LWS over mud. A family of snub fin dolphins lives in the inlet.

There are places to explore further in but a pearl lease may occupy a good deal of the inner reaches.



Coppermine Creek (A Gorham)

11.13.9 Caffarelli Island

(no chartlet)

16°02'S 123°17'E

AUS 323, 732, 733

Anchoring at this island is not recommended. The bottom is a mixture of coral, reef with jagged rocks and strong tidal flow with overfalls. Anchors have been lost.

Tides: Bedford Island. Range 10 m.

11.13.10 Adele Island

15° 31'S 123° 09'E

AUS 320, 323, 732

Adele Island and Adele Reef lie well offshore from the Buccaneer Archipelago and Yampi Sound. Entry to the anchorage is through Fraser Inlet on the northeast corner of the fringing reef. It is best to enter at low tide, so that the edge of the reef is exposed. Fraser Inlet, being quite deep, is easy to follow. There are two isolated dangers; low water makes them more visible in good light.

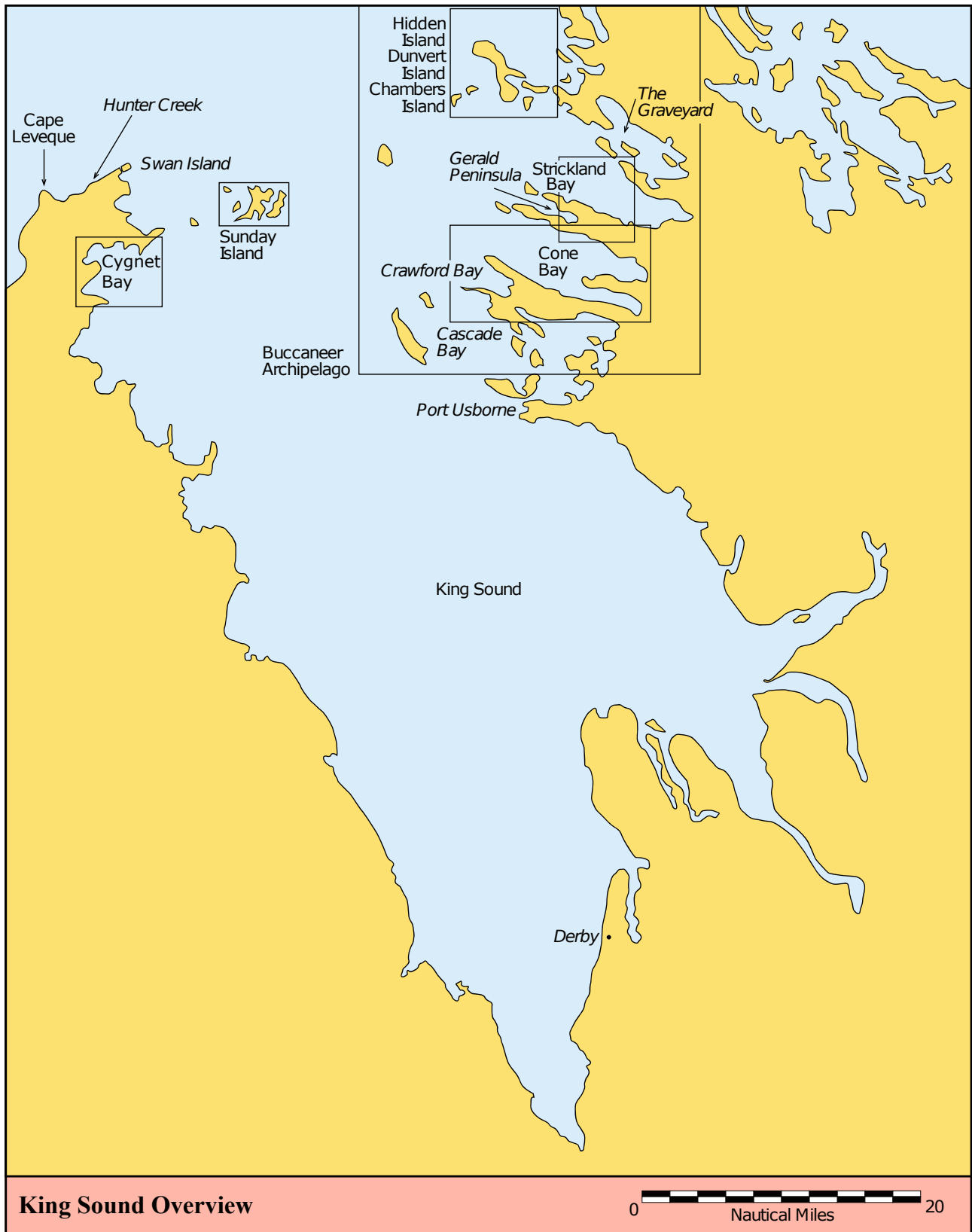
⚓ Anchor over sand in the southeast end of Fraser Inlet 15° 28.7'S, 123° 09.4'E. The anchorage depth varies from 5 to 10 m over a large area. There is no protection from the wind, but it is often light in this region during the winter (dry) season. Any swell is blocked by the extensive coral flats. The water is clearer during neap tides. It is possible to swim in the area, and a dinghy can be taken to the small sand cay northwest of the main island.

Tides: Adele Island. Range 8 m.

Of interest: Adele Island is an important site for breeding seabirds, including cormorants, Australian pelicans, lesser frigate birds, boobies, grey-tailed tattler and red-necked stint.

11.14 King Sound

Charts: AUS 323, 733



Chartlet 81

King Sound is entered between Hidden Island on the eastern shore, and Swan Island 28 nm to the

west. It extends 60 nm south-southeast to Derby and the Fitzroy River mouth. The entrances are deep.

Tides: The tidal streams are very strong, up to 10 kn in places. This suggests that low-powered craft should operate only near slack tide. The flood tide flows into King Sound from Cape Leveque in the west and Yampi Sound in the east, turning south as it enters the sound. The ebb flow reverses i.e. emptying north out of the sound.

Of interest: In Aboriginal culture the West Kimberley is the home of the Wandjina, powerful creative beings of the Aboriginal dreaming. The Wandjina created the earth and geological features. They control the weather and set down cultural laws.

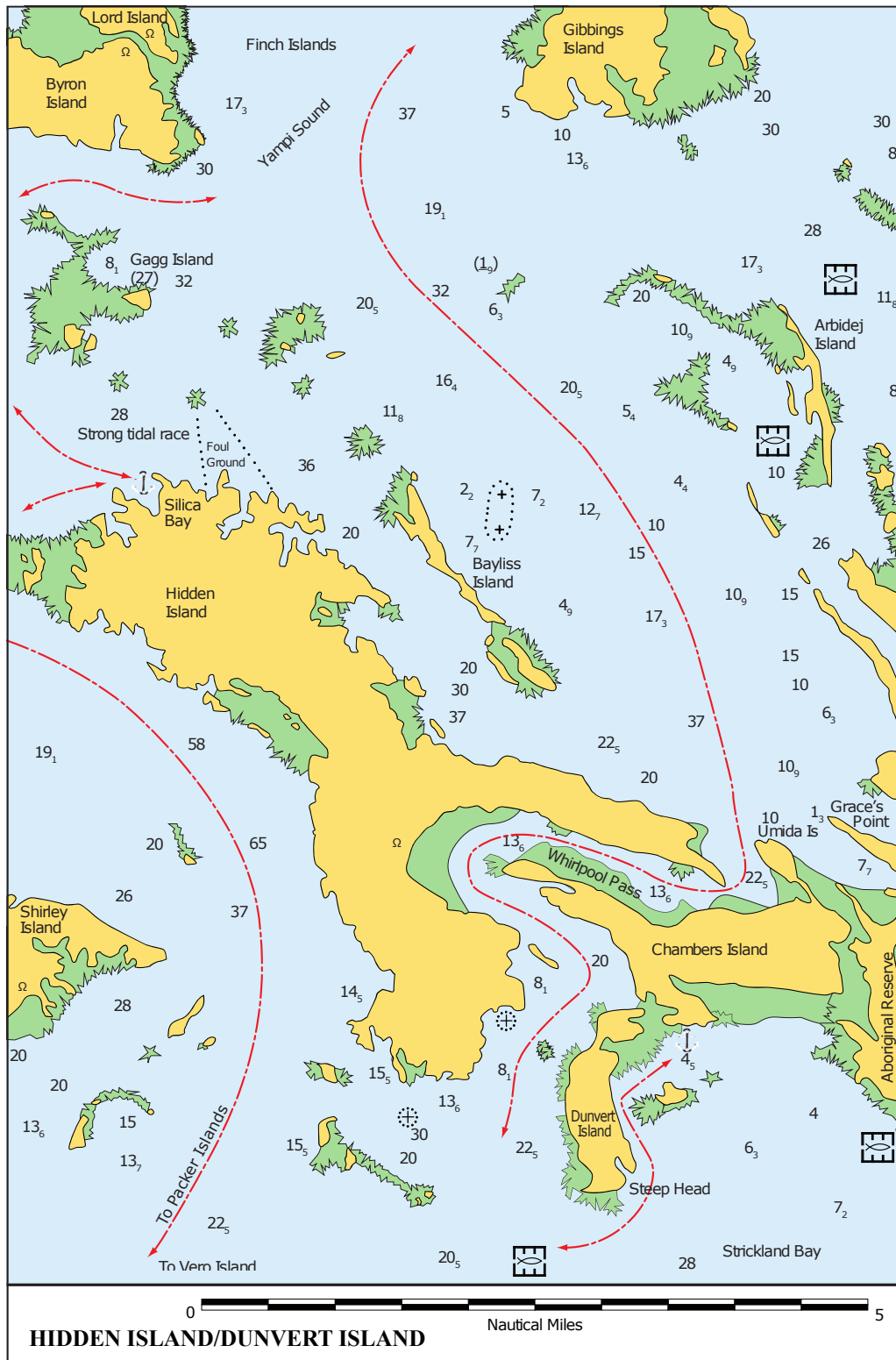


Chartlet 82

11.14.1 Hidden Island (Silica Bay)

16° 14'S 123° 29'E

AUS 323, 732, 733



Chartlet 83

⚓ Limited anchorage (16°12.7'S, 123°27.3'E) over rubble can be found at the northern end of Hidden Island. The area is known as Silica Bay because of the extremely fine white sandy beach. Outside the bay, the tidal flow reaches 5-6 kn.

Caution: Watch for bommies and do not go too far into the bay.

When approaching from the northeast, the passage between Byron Island and Gagg Island is recommended. The passage east of Gagg Island has uncharted isolated dangers.

Tides: Sunday Island. Range 8 m.

Of interest: From this bay it is possible to walk to the southern end of the island to see Whirlpool Pass.



Silica Bay (A Gorham)



Silica Bay (A Gorham)

11.14.2 Dunvert Island

16° 17'S 123° 31'E

AUS 323, 732, 733

⚓ Provides shelter from NE through N to SW winds over mud, snug behind a rock and out of the current at 16° 17.8'S, 123° 31.4'E. Subject to some chop with wind from SE to S.

Caution: Pearl leases.

11.14.3 Whirlpool Pass

(see Hidden Island/Dunvert Island chartlet)

16° 15.0'S 123° 30.0'E

AUS 733

Whirlpool Pass is an impressive sight when the tidal flow is at its strongest.

Whirlpool Pass should only be navigated at slack water. There are many whirlpools, strong rips, 7 kn currents and overfalls. Not for the faint-hearted.

Caution: There is a reef (16° 16.6'S, 123° 30.7'E) in the southern entrance to the pass that dries LWS.

Tides: Sunday Island. Range 8 m.

11.14.4 The Graveyard

(no chartlet)

16° 20'S 123° 39'E

AUS 323, 732, 733

The southeastern entrance to The Graveyard (off Strickland Bay) is preferable. Approach the entrance near HW slack to avoid whirlpools and strong currents. The entrance is straight and clear of dangers, with a least depth of 40 m, and least width 100 m. The tide runs through the entrance at about 4 knots maximum on neaps and perhaps twice that on springs, but the flow is seldom too turbulent for a low-powered yacht to enter at any stage of a favourable tide. If it is necessary to anchor to wait for the tide before entering, the best place is immediately southeast of the entrance where depths are moderate, holding is good and it is out of the worst of the tide stream.

Once inside The Graveyard, there is a reef that dries about 5 m (i.e. is covered about 4 m at HWS) lying 0.6 nm east of the entrance. To clear the reef, keep about 150 m south of the line of small islands that run west from the 120 m high island. Thereafter, a mid-channel course between the 120 m high island and the island to the southeast is clear of dangers, and leads to the best anchorage in The Graveyard. This anchorage is off the 88 m high island, immediately northwest of the conspicuous headland on the southwest side of the island, in 4-8 m with good holding. A drying bank extends 0.2 nm out from the 88 m island on the northwest side of the anchorage.

There are other possible anchorages, but those in the northwest end of the bay are only accessible near high water as a drying bank extends from the 121 m island to the northeast shore of The Graveyard.

The bottom shelves steeply in places, which necessitates a bit of searching for suitable anchoring depths. The bay has some submerged hazards. Drying reefs join a number of the islets.

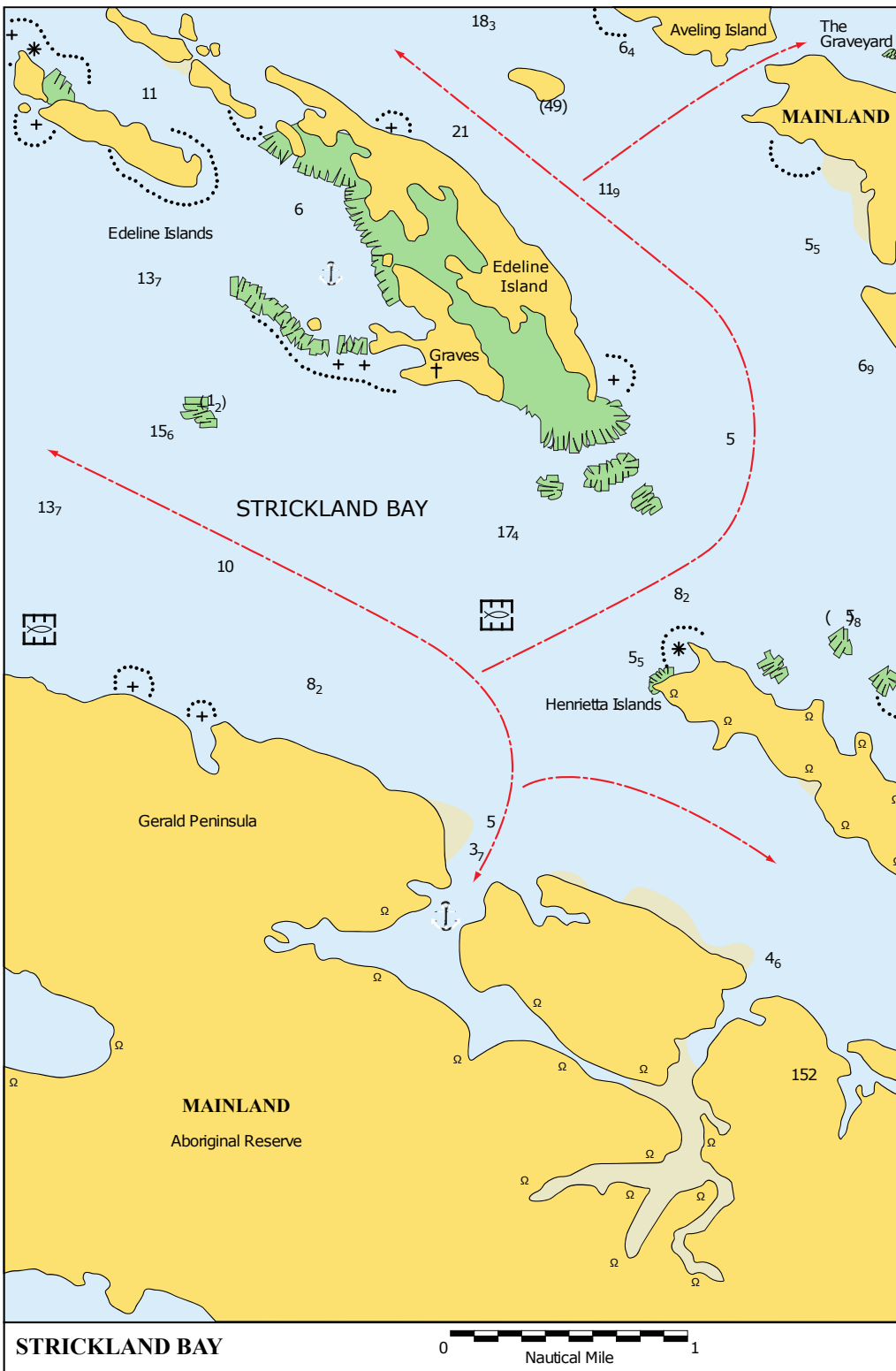
Of interest: The scenery is spectacular.

History: The bay earned its name from the pearl divers who lost their lives there. Graves may be found on the unnamed island in the southeast corner (the island southeast of the 120 m high island).

11.14.5 Strickland Bay

16° 22.0'S 123° 33.0'E

AUS 323, 732, 733



Chartlet 84

⚓ Anchorage can be taken in a small cove about 8 nm east of the western tip of Gerald

Peninsula, on the southern shore of Strickland Bay at 16° 25.0'S, 123° 36.4'E. It is protected from swell and all winds except from the N. There is little current. Insects are plentiful.

Of interest: There are graves above the coral beach on the south side of the southern island of the Edeline Islands.

11.14.6 Gerald Peninsula and Inlet

(no chartlet)

16° 24'S 123° 31'E

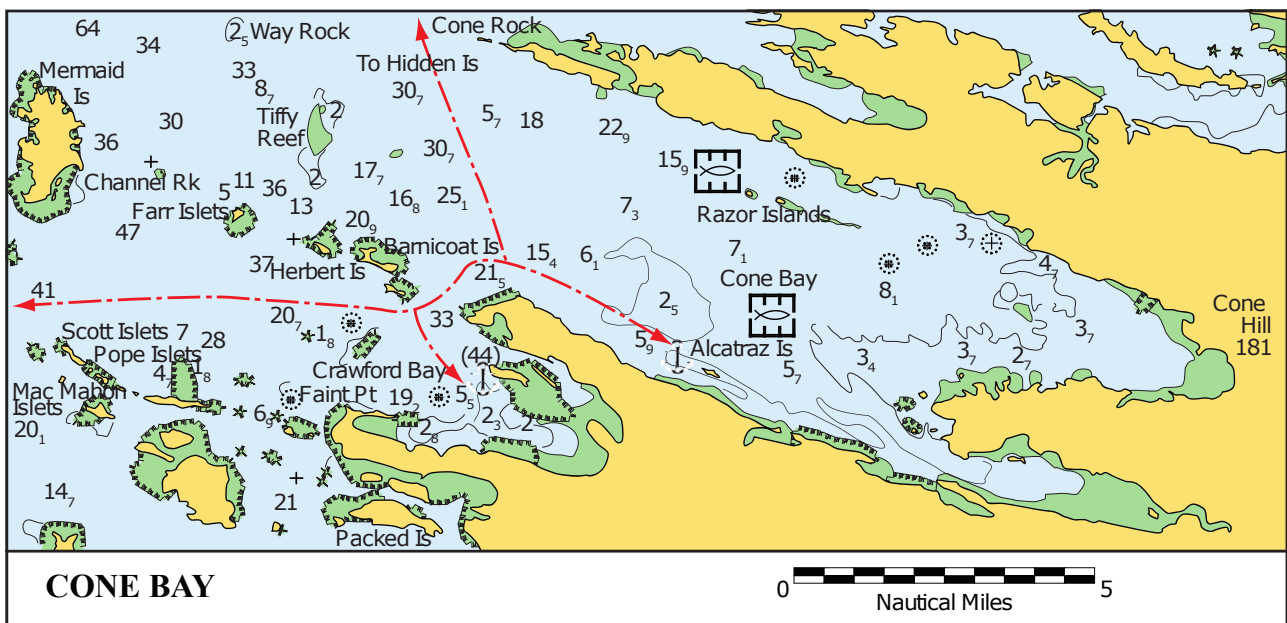
AUS 323, 732, 733

⚓ Anchorage is available in the large inlet to the south and west of Gerald Peninsula. Enter either side of the 40 m high island which has reef extending to the northwest.

11.14.7 Cone Bay

16° 28'S 123° 31'E

AUS 323, 733



Chartlet 85

⚓ Anchorage can be taken to the southwest of Alcatraz Island. The island is not named on the AUS chart but it is 24 m high.

Caution: When anchoring, be aware of a PVC pipe obstruction which was reported to protrude from the water.

11.14.8 Crawford Bay

(see Cone Bay chartlet)

16° 30'S 123° 27'E

AUS 323, 733

⚓ Good anchorage is available in Crawford Bay, southwest of a high unnamed island, as shown

on the chartlet.

⚓ Anchorage has also been taken a mile further east at 16°29.4'S, 123°29.1E, tucked up under mainland.

11.14.9 Port Usborne

(no chartlet)

16° 39'S 123° 30'E

AUS 323, 733

⚓ Within Port Usborne, McKellar Bay provides anchorage near the entrance and just south of Brolga Strait, just out of the main tidal stream. The tidal streams in the western entrance are strong.

Of interest: There is a large protected waterway worth exploring by dinghy for its bird and marine life. Enter via the passage south of Lachlan Island.

11.14.10 Derby

(no chartlet)

17°19'S 123°38'E

AUS 45, 323, 733

Derby is a port seldom frequented by small craft. It is far off the track and is a relatively unattractive site almost surrounded by mud flats. Derby has the distinction of having the highest tides of any commercial port in Australia, peaking at 10 m.

⚓ Much of the bottom is reported as coffee rock of doubtful holding. Allow plenty of depth and scope for the large tidal range. Dinghies must be tied to the jetty on long lines to ensure they stay free of the steps and piles, or the flood tide may overturn them.

Facilities: There are the usual facilities of a small town, including a hospital (see section 7.5). Fuel is available at normal service station prices i.e. much cheaper than most places along the Kimberley coast.

Of interest: Derby is known as the home of the boab tree (*Adansonia gregorii*). The boab is a deciduous tree with gourd-like fruit rich in protein and vitamin C. These trees give a distinctive character to its streets.

History: Derby was founded in 1883 and is a regional centre for the west Kimberley. It was the first town to be settled in the Kimberley.

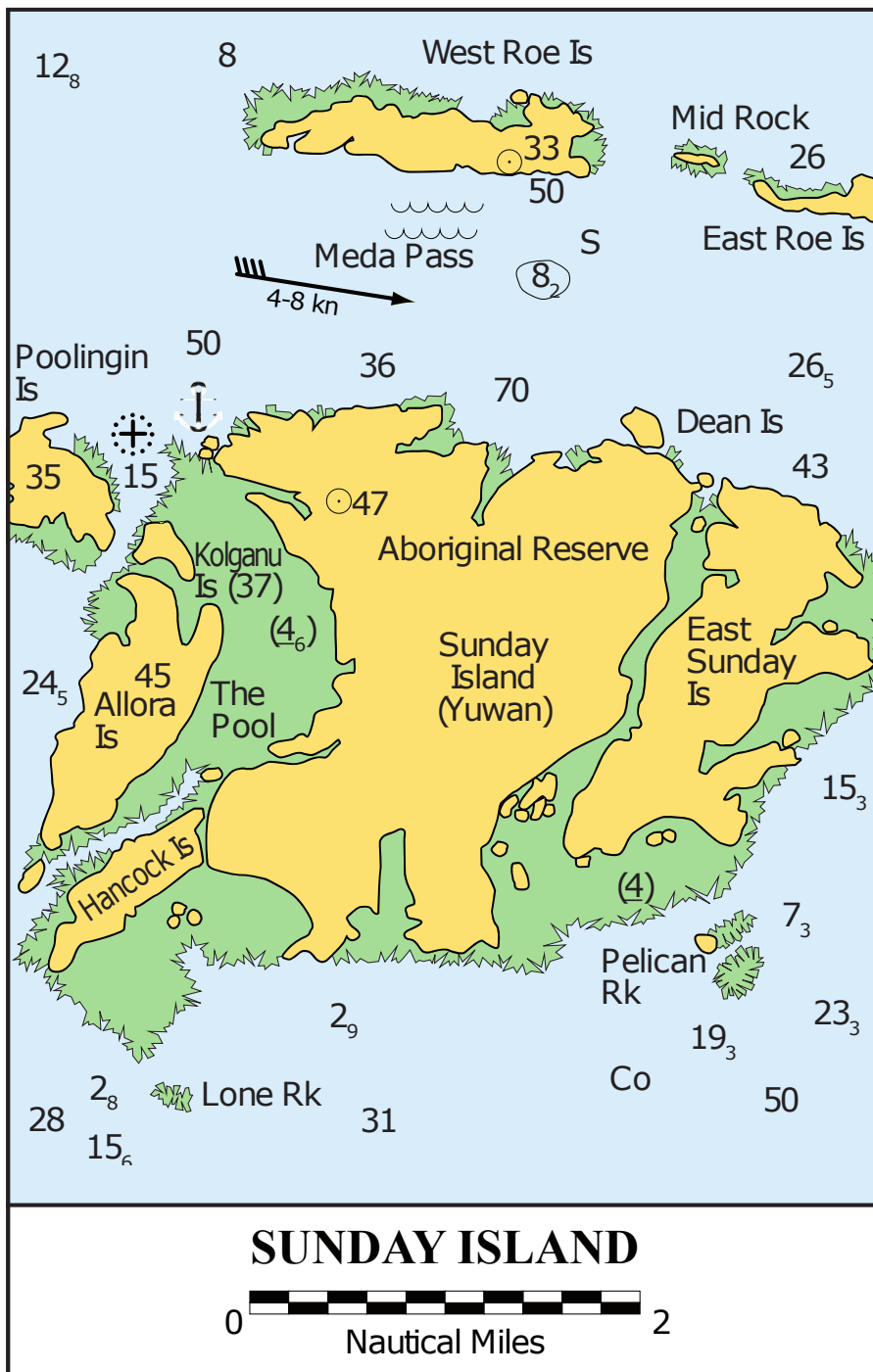
The Royal Flying Doctor Service started here in 1934.

The Aborigine Jandamarra, also known as Pigeon, led a resistance group against the encroachment of tribal lands by Europeans. He was finally tracked down and killed near Tunnel Creek in 1897. The infamous Prison Boab Tree still stands 7 km south of town as a reflection of this time. Aboriginal prisoners were chained here en route to the Derby Lockup.

11.14.11 Sunday Island

16° 25'S 123° 11'E

AUS 323, 732, 733



Chartlet 86

Sunday Island can be approached from the northwest through Meda Pass along the north side of the Island. Although Escape Pass to the west of the island is deep, it is subject to strong eddy currents, white water rips and dangerous overfalls. If making for Derby use Meda pass to the north then Sunday Strait to the east of Sunday Island. Sunday Island is a heritage site for the local Bardi

people. Permission is required to visit.

⚓ Anchorage can be taken in the bay on the northwest tip of the island. A small beach gives access to the island and the heritage site.

Caution: The anchorage is probably only tenable during neap tides.

Of interest: The 'Pool', a deep inlet between Allora and Hancock Islands, was once used by luggers. It is not recommended for yachts.

History: Commander John Clements Wickham named Escape Pass while conducting a survey in the *Beagle*. It commemorates Phillip Parker King's lucky escape on the *Bathurst* while being forced through the passage by the tide in calm conditions.

11.14.12 Swan Island

(no chartlet)

16° 21'S 123° 03'E

AUS 323, 732, 733

⚓ Tidal flow past Swan Island can reach 7-9 kn over a distance of 3 nm. Anchorage in 14 m over reef has been used at Swan Point. Better depths over sand have been found further out.

11.14.13 Hunter Creek

(no chartlet)

16° 23'S 122° 59'E

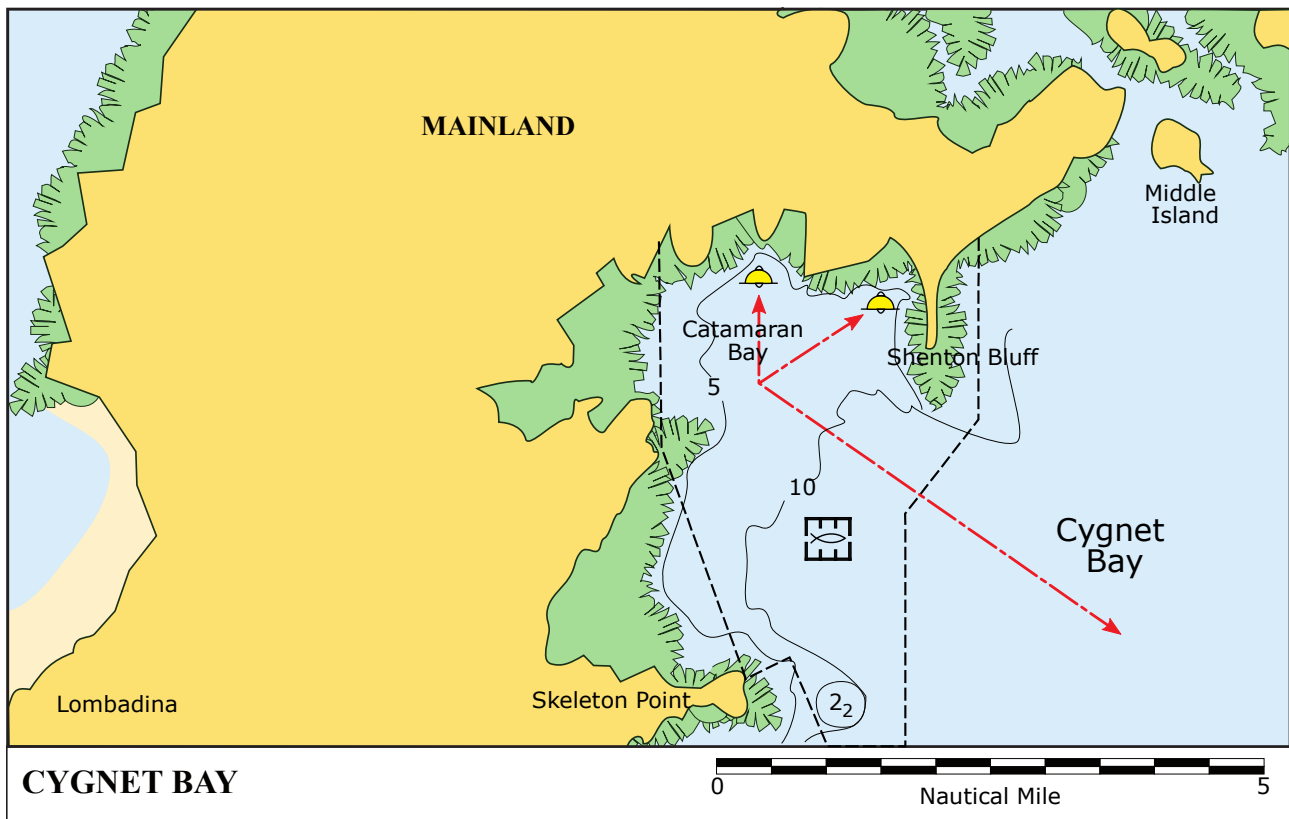
AUS 323, 733

⚓ Hunter Creek dries, but can be entered with local knowledge at HW with about 4-6 m over the bar. The creek has extensive sand areas which would allow a multihull to dry out.

11.14.14 Cygnet Bay Pearl Farm

16° 27.0'S 123° 02'E

AUS 733



Chartlet 87

Cygnet Bay Pearl Farm is a fully operational pearl farm and its operators claim it is the only one open to the public. The pearl farm monitors VHF Ch 71 and Ch16; call sign "Cygnet Bay". Please provide advance notice of arrival. Care is needed when navigating through the pearl farm lease area and assistance is available from the farm, including transfers through the large intertidal zones on their amphibious vessels (expensive).

Facilities: The pearl farm is also a tourist resort, with accommodation and a restaurant. Fresh water, ice and moorings are available by prior arrangement. Spare parts can be mailed to the farm for collection on arrival - Australia Post delivers three times a week. Fuel may be available by prior arrangement.

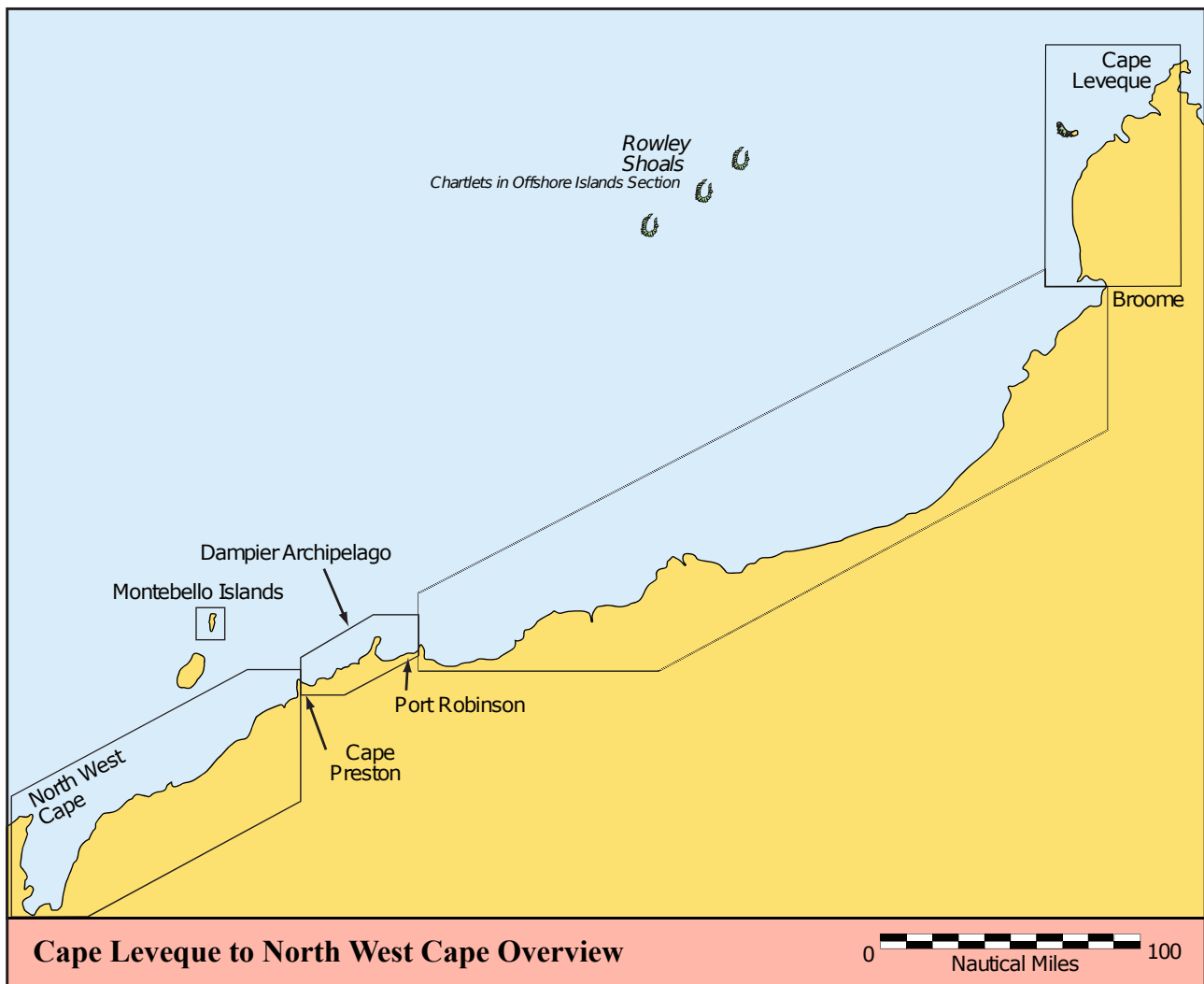
Access to Cygnet Bay airstrip is also available and road access to Broome via the Cape Leveque Road takes about 2.5 hours.

Phone: (08) 9192 4283

Email: reception@cygnetbaypearls.com.au

Website: www.cygnetbaypearls.com.au

12 CAPE LEVEQUE TO NORTH WEST CAPE



Chartlet 88

12.1 General note

Charts AUS 4722 and 4723 cover the entire 600 nm length of this section of the coast. The land is generally barren and backed by low sand hills. Offshore, the Rowley Shoals (see 16.3) and Montebello Islands provide interesting alternative destinations.

Pearl leases and fish farms are found on this stretch of the coast. They may be floating or fixed structures, buoys or beacons which may or may not be lit, nor shown on the relevant charts. There are numerous exploration and drilling rigs along and off the coastline; a quick examination of AUS 4723 will indicate the extent and location of this industrial activity. It has dramatically changed the feeling of remoteness that once existed. Seismic survey vessels towing scientific instruments will be encountered; a call on VHF Ch 16 should quickly resolve the preferred course to avoid the vessel.

Contrasting with the oil and gas exploration, there are now Marine Conservation Reserves in the Dampier Archipelago and along the Pilbara and Eighty Mile Beach coasts. Humpback whales migrate northeast along this coast (mostly between the 50 m and 200 m depth contours) in May

and June. They return south between August and September, mostly along the 50 m contour. Whale aggregation areas occur at the Lacepede Islands, Dampier Archipelago and Exmouth Gulf. The Gulf is the major aggregation area in August-September when upwards of 600 whales have been recorded at any one time. See 6.6.4 and 9.10 for details.

12.1.1 Weather

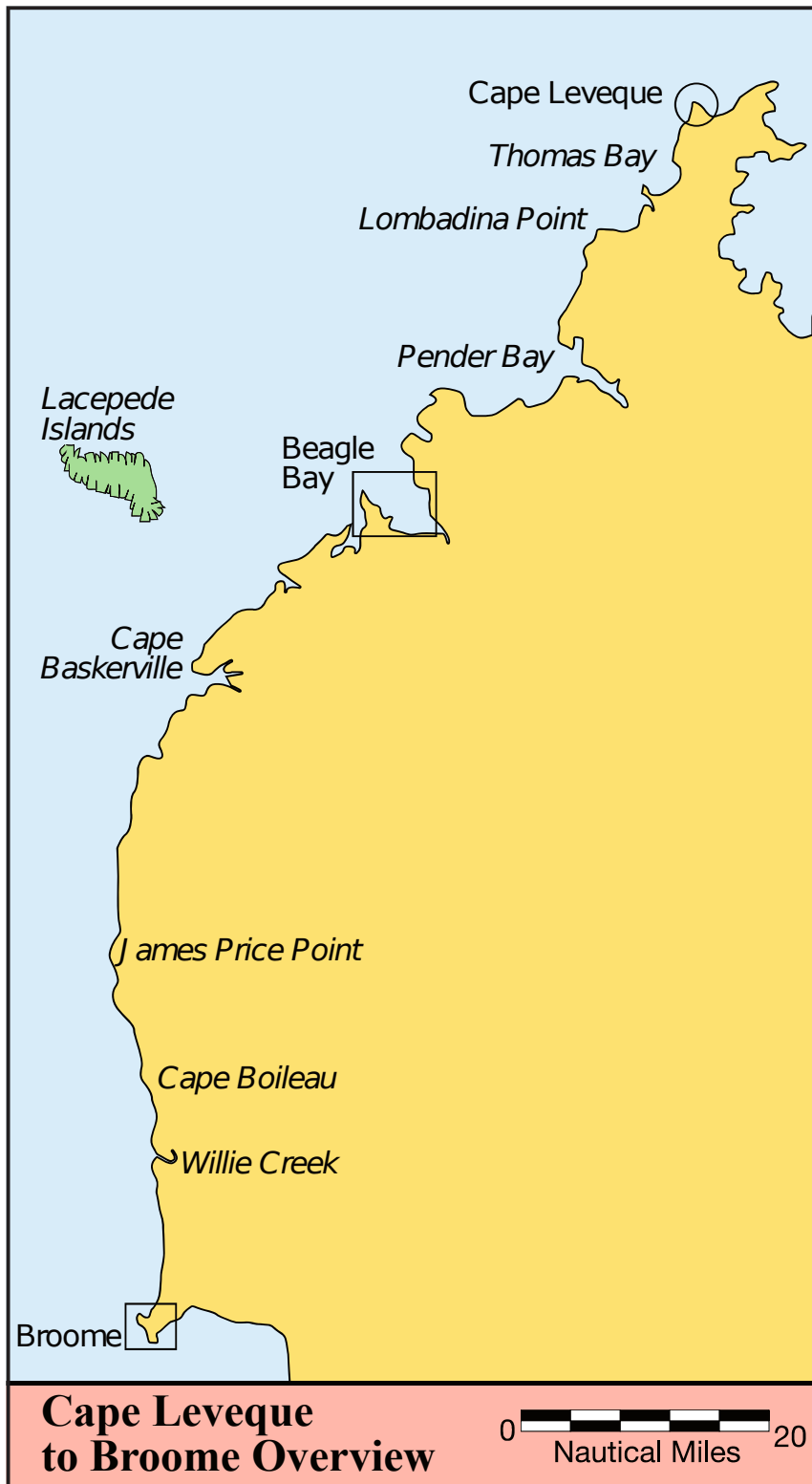
The notes below are based in large part on weather records over decades. The advent of climate change has made predictions based on past records less reliable, so what has happened in the past is no longer a reliable indicator of what might happen now. Please bear this in mind when reading these notes.

The principal winds over this area are the SE trades and the NW monsoons. The former are well-established from April to September. These may be strong when associated with a strong high in the Great Australian Bight. Within 20 nm of the coast sea breezes modify the trades. The north facing coast causes the sea breeze to trend NW. Where the coast faces W, the sea breeze tends to be more southerly.

The NW monsoon prevails mainly between December and March, and cyclones may occur. Between these months, winds are variable but tending to the NW and W, and rarely calm. Autumn (April and May) is the season when the wind is the lightest. See 3.5.2 for more detail.

12.2 Cape Leveque to Broome

Charts: AUS 732, 733, 323, 24, 49, 50

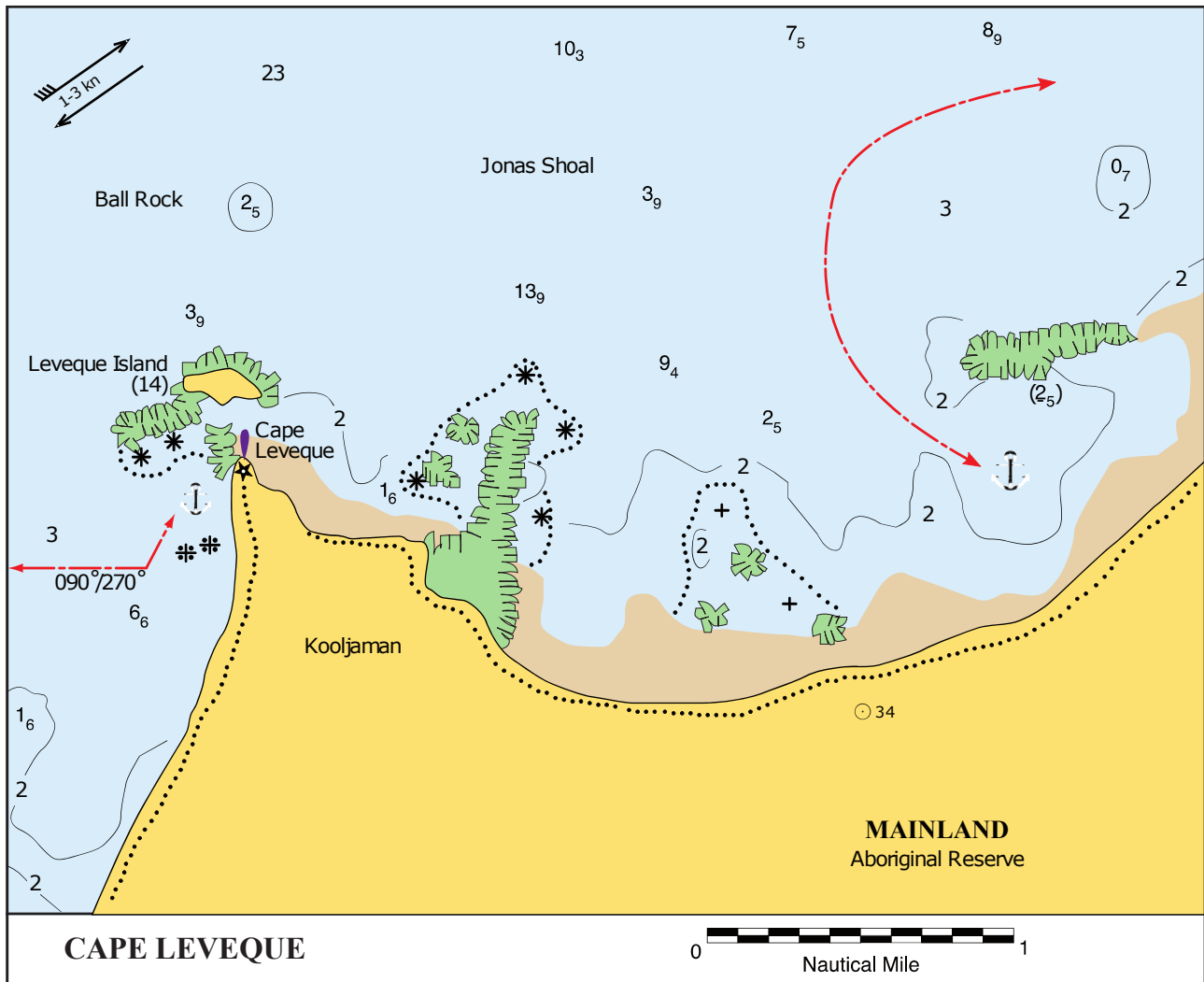


Chartlet 89

12.2.1 Cape Leveque

16° 24'S 122° 56'E

AUS 323, 732, 733



Chartlet 90

Approach from the north, preferably with someone aloft and another crew watching the depth sounder. Tidal flow may be considerable on the approach. Be careful of Alarm Shoal which lies about 4 nm north of the Cape. In calm conditions pass over Alarm Shoal then Jonas Shoal, avoiding their shallow spots. At other times keep west of Alarm Shoal but be careful to avoid Ball Rock.

Approach from the east is possible between Alarm Shoal and Karrakatta Rock off the mainland, but the passage is comparatively narrow and requires careful navigation.



Cape Leveque and lighthouse (R&L Newton)

⚓ Anchorage can be taken approximately 2.5 nm east of Cape Leveque at 16° 23.5'S, 122° 58.2'E in 3-4 m LWS. Approach from west-northwest of the drying reef to seaward.

⚓ Anchorage over sand and some rock has been taken west of the cape at 16° 23.7'S, 122° 55.2'E. Approach with the lighthouse bearing 090°, heading across a sandbar (4 m at LWS), into deeper shoaling water inshore. It can be a wet landing in the tender if there is heavy surf running. The water is clear and the beach pleasant, though it is rocky in places at LWS. The lighthouse is automated.

Tides: Karrakatta plus 1.5 hrs. Range 9 m.

Facilities: There is a camping resort named Kooljaman at Cape Leveque with a small store (frozen but not fresh produce), ATM facility at reception, cafe and BYO restaurant. Fuel is from One Arm Point 18 km away; water is available at the campsite. The logistics of getting these supplies to the beach can be difficult. <http://www.kooljaman.com.au>

History: The Cape was named after the Frenchman Pierre Leveque, a hydrographer on board the *Geographe*. The *Geographe* was en route for Kupang in 1803.

12.2.2 Thomas Bay

(no chartlet)

16° 29'S 122° 53'E

AUS 323, 733

Thomas Bay is about 5 nm south of Cape Leveque. Approach with care as there is an isolated reef near the entrance, but once into the bay there appear to be no hazards.

⚓ Anchorage has been taken by a yacht drawing 1.2 m at 16° 29.2'S, 122° 53.2'E A deep draft yacht has anchored at 16° 28.8'S, 122° 53.3'E over sand. Conditions were slightly roly. The approach is best taken at HW. The bottom is mainly sand of reasonable depth except right in the southeast part.

The bay offers some protection from the NE to SE with hardly any swell.

⚓ Anchorage has also been taken outside the reef at 16° 29.7'S, 122° 51.6'E.

12.2.3 Lombadina Point

(no chartlet)

16° 33'S 122° 49'E

AUS 323

⚓ Limited anchorage can be taken east of Lombadina Point in 2-3 m. It is recommended to enter near HW, watching for the sand spit extending north from the point. Lombadina Point is almost connected to the reef extending south from Chile Head. Much of the bay dries at LWS. Some swell enters at HW.

⚓ Lombadina Creek enters the bay at the northeast corner. It is a suitable location for a multihull to dry out.

Of interest: Lombadina Mission is just north of the bay.



Church at Lombadina (R Campbell)

12.2.4 Pender Bay

(no chartlet)

16° 44'S 122° 40'E

AUS 323

⚓ Perpendicular Head (not named on AUS 323) lies on the southern side of Pender Bay.

Anchorage under Perpendicular Head at 16° 46.4'S, 122° 37.4'E is satisfactory. The bottom is reported rocky with some bommies. Protected from SE to SW winds.

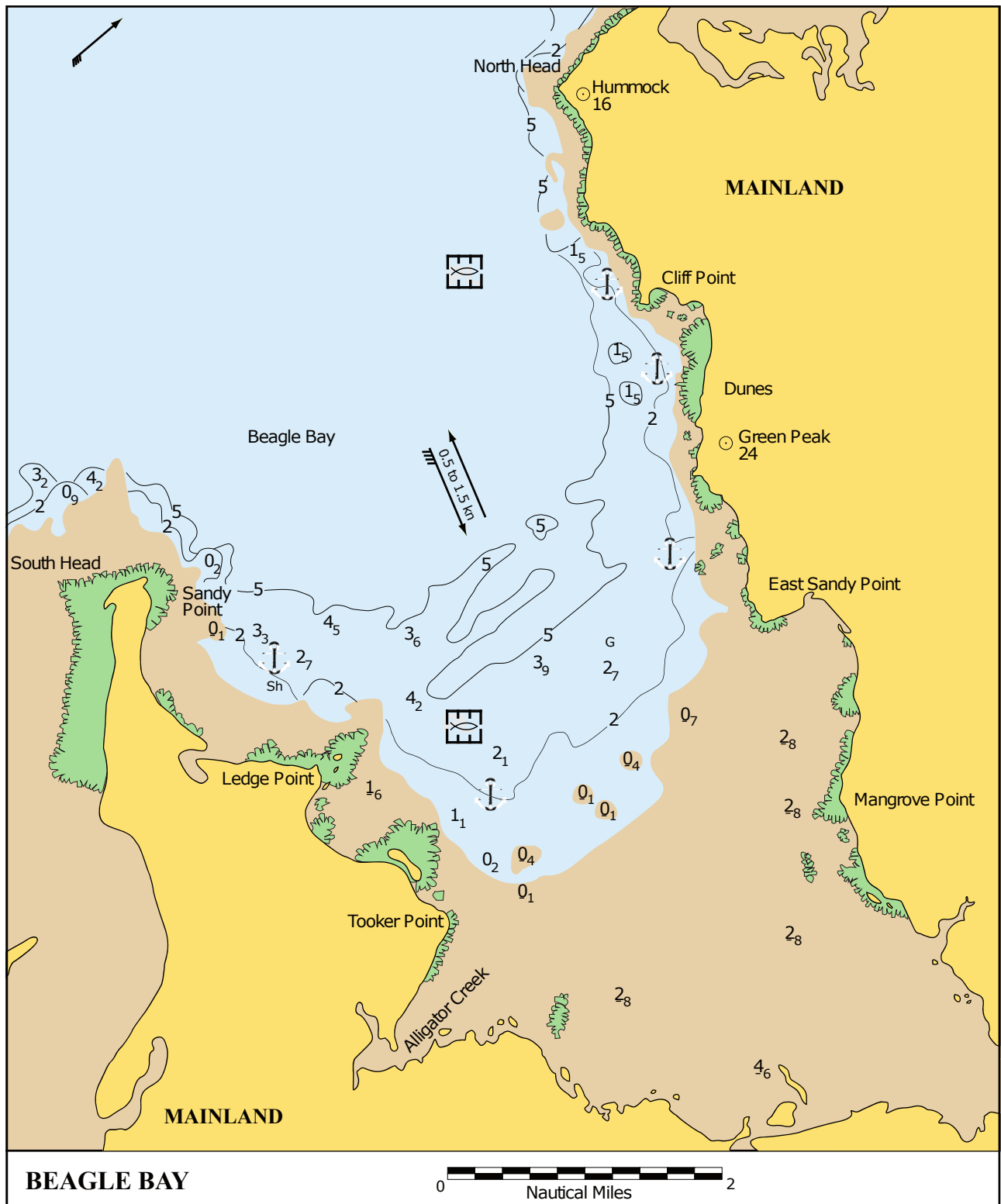
Caution: Pearl leases west of Cape Borda.

Of interest: This is the southern-most point of Kimberley-type scenery. There is a freshwater lake inhabited by many water birds and crocodiles, about a 500 m walk over sand, south from Bell Point.

12.2.5 Beagle Bay

16° 53'S 122° 31'E

AUS 323, 49



Chartlet 91

This scenic bay is the site of a missionary settlement.

⚓ There is anchorage under South Head a little over 200 m southeast of Sandy Point. Anchor over sand and weed but not too close in because of poor holding. There is little swell. Good holding has been found in 4.8 m LWS at 16°53.9'S, 122°29.6'E, and also at 16° 52.3'S, 122° 32.5'E.

⚓ Alternative anchorages with an attractive beach can be found between Cliff Point and East Sandy Point. They provide excellent protection from the E, but are exposed to the N and W.

Caution: Many crocodiles have been sighted in this bay.

Of interest 1: The pearl farm at Tooker Point grow basic algae and oysters in a laboratory environment for supply to other areas remote from Beagle Bay. Visitors are welcome.

Of interest 2: The remains of an old pearling lugger are located at 16° 57.5'S, 122° 34.9'E. This area can only be visited at or near High Water as sand bars will limit even a dinghy's progress into this area.

Tides: Red Bluff. Range 8 m.

12.2.6 Lacepede Islands

(no chartlet)

16° 51'S 122° 06'E

AUS 323, 324

Lacepede Islands are three sand and coral islets connected by drying reef which offers an indifferent anchorage. Weather permitting these island gems are well worth a stopover. They are 70 nm from Broome and 55 nm from Cape Leveque. They lie between 10 nm and 20 nm northwest of Red Bluff (17°03'S, 122°19'E).

⚓ Anchor in 4 m on the north side of the centre of West Island between 200 and 400 m offshore over sand among coral lumps. The holding is suspect and the anchorage is exposed to swell. Conditions can be roly and untenable in easterlies.

Caution: Beware of a sandbank off the eastern end of West Island.

Tides: Red Bluff. Range 8 m. There is strong tidal flow past Red Bluff.

Fishing: Prohibited.

Of interest and importance: Lacepede Island is a nature reserve and home to many protected species of birds and turtles. It is the largest green turtle rookery on the west coast of Australia and also an extremely significant nesting site for frigate and brown booby birds. There is no camping or fires allowed on the island. Please keep a 10 m distance from the nesting birds and turtles. These animals are easily scared from their nests or when they are laying, which means easier predation on eggs and hatchlings. Also please avoid the use of torches and lights as these disrupt the nesting activities. Look out for whales during June and July.

History: An historic wreck lies on the West Island.

12.2.7 Red Bluff

(no chartlet)

17° 02'S 122° 19'E

AUS 323, 324

Anchorage has been taken at 17° 01.8'S, 122° 19.3'E in 6 m over sand. In mild conditions there was low swell creating a slight roll.

12.2.8 Cape Baskerville (Carnot Bay)

(no chartlet)

17° 08'S 122° 15'E

AUS 323, 324

⚓ Cape Baskerville is about 50 nm north of Broome and there is anchorage on the west side between the cape and Red Bluff. Red Bluff has a light tower at 17° 03.5'S, 122° 19.0'E, and is not to be confused with same-named Red Bluff 46 nm further south.

From the north, approach between a shallow sand patch and the outer reef. From the south an approach may be made with Red Bluff bearing about 065°. Pass through the middle of a gap in the reef to an anchorage inshore in 4-6 m over sand. The fringing drying reef is steep to. Good protection from E to SE winds, exposed at HW to the S, W and N and can be rolly and uncomfortable.

⚓ Anchorage has been taken at 17° 05.3'S, 122° 15.5'E.

Caution 1: Several fish farms exist between Red Bluff and Cape Boileau, with a large one reported off Cape Berholet.

Caution 2: Beware of Panton and Tangier Shoals.

History: Named by Phillip Parker King after Percival Baskerville, a midshipman aboard the Bathurst.

12.2.9 James Price Point

(no chartlet)

17° 30'S 122° 09'E

AUS 324

⚓ James Price Point consists of low cliffs and red sand hills. Satisfactory anchorage has been taken south of the point over sand 17° 32.1'S, 122° 08.4'E.

Caution: Off-lying fish farms.

Tides: Red Bluff. Range 7m.

12.2.10 Cape Boileau

(no chartlet)

17°41'S 122°11'E

AUS 324

Cape Boileau is the southern extremity of a conspicuous red cliff (3-6 m high).

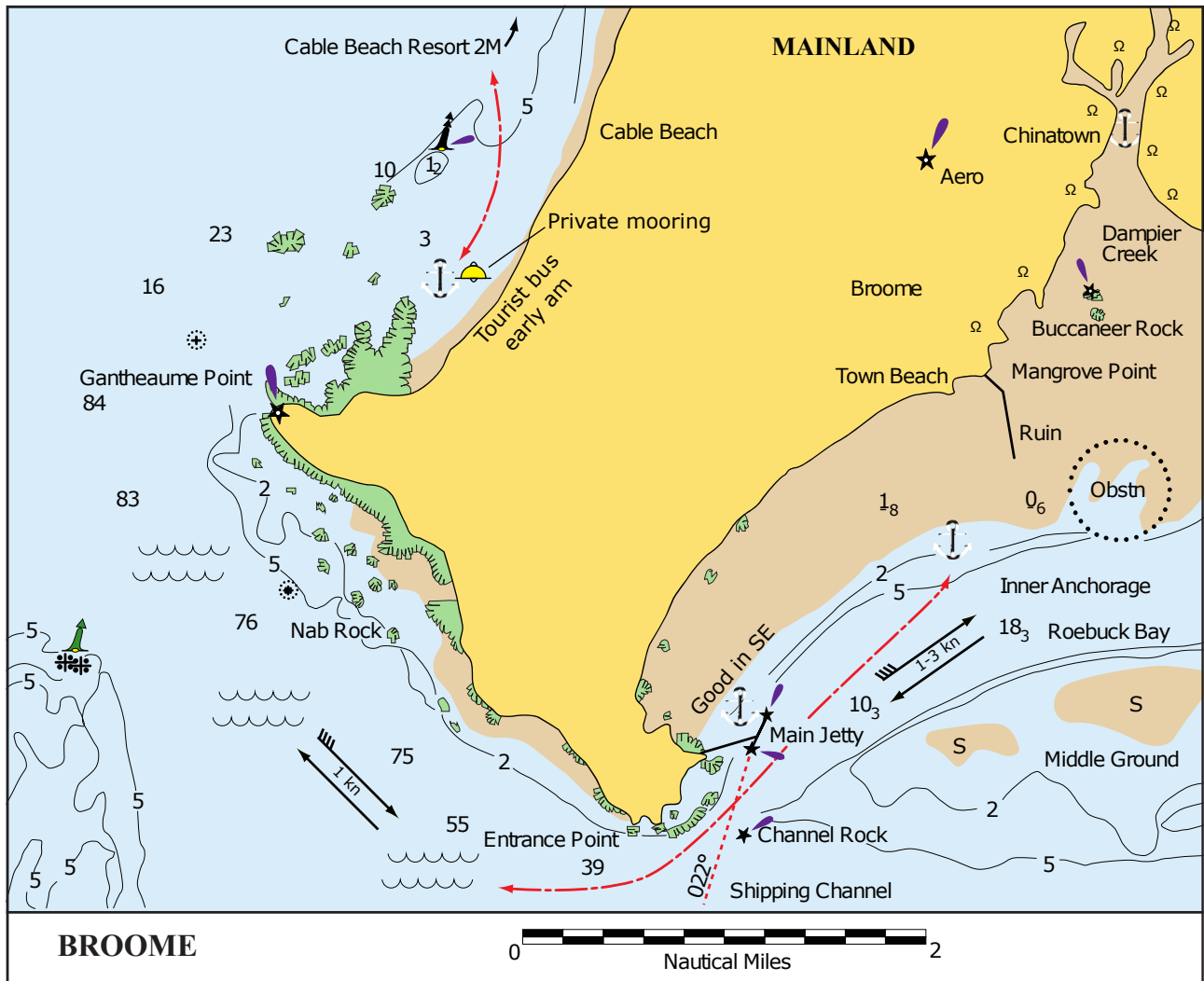
⚓ Anchorage can be taken in light easterly conditions at 17°41.0'S, 122°11.5'E. It is a roly anchorage.

History: Named by Baudin in 1801 in honour of the French poet and author Gilles Boileau.

12.2.11 Broome

18° 00'S 122° 13'E

AUS 324, 50



Chartlet 92



Pearling Lugger Intombi off Cable Beach, Broome (W. Duiker)

Broome is a port and a major tourist centre, with a population of 15,000. The large tides and strong currents make this a difficult anchorage for deep draft boats. Access to shore facilities is a long walk and/or a long row from all the deep water anchorages.

There are two broad areas for anchoring or mooring: Roebuck Bay Inner Anchorage on the southeast side of the town and Gantheaume Point/Cable Beach on the northwest side of town. Gantheaume Point/Cable Beach is better than Roebuck Bay until around the middle of August, when the easterlies usually ease; Roebuck Bay then becomes the preferred anchorage.

Tides: Broome. Range 9 m springs. Slack water periods are 2.5 hours before HW and at LW.

Broome town facilities: There is a hospital (see section 7.5) and all the usual facilities of a large town. Paspaley Plaza in Chinatown has a large supermarket. Broome Meat Supply provides vacuum packing. The Boulevard Shopping Centre has a launderette. Email access is provided at the Broome Community Centre (Dampier Terrace). Regular air links and coach lines run between Broome and Perth.

Caution 1: If heading north, check for diesel availability in the Kimberley whilst in Broome.

Caution 2: There are many moorings in all the anchorages; take care when manoeuvring, especially at night.

History: Broome was a gathering place for several indigenous tribes but it is thought that the Malays were the earliest non-indigenous visitors to Roebuck Bay. They probably came in search of turtles, dugong and pearls. William Dampier was the first European to visit in 1688. Roebuck Bay was named after his ship *H.M.S. Roebuck*. Dampier is said to have careened his boat at Buccaneer Rock in the entrance of Dampier Creek.

In 1883 the town was named after the Governor of Western Australia, Sir Frederick Broome. It became the most famous of the pearling ports established on the northwest coast in the second half of the 19th century.

The pearl oyster *Pinctada maxima* was discovered in 1861 and was the basis for Broome's mother-of-pearl industry in the late 19th century; Broome was the world's biggest producer of mother-of-pearl for knife handles, jewelry and buttons. Around the time of World War 1 Broome hosted 400 pearling luggers. When plastic became popular after World War 2, mother-of-pearl was no longer valuable. However, in the 1950s some enterprising individuals started to look at producing cultured pearls. and by the 1970s Broome had become the world's top producer of cultured pearls.

In 1942 Broome became the target for Japanese air-raids. Three Dutch East Indies seaplanes carrying women and children refugees were stranded while at anchor in Roebuck Bay. Remains of the wreckage can still be seen on a very low tide.

Roebuck Bay overview

Roebuck Bay appears spacious at HW, but at LW a large part of the bay is occupied by drying sandbanks, which can extend up to 7 nm from the southern side. The anchorage area ('Inner Anchorage' on charts) extends about 4 nm east-west inside the Middle Ground drying sandbank. The preferred approach is from approximately south-southwest towards the main port jetty, but stay in the shipping channel. Anchorage is best during neap tides. Movement to and from an anchorage in Roebuck Bay is easiest if made an hour or so either side of slack water. At the entrance to the Inner Anchorage, tidal streams attain 4-5 kn during springs. It can be difficult to leave the anchorage against a making tide.

Caution: Pearl and fish farms have been established in Roebuck Bay, and inshore and offshore between Roebuck Bay and Gourdon Bay to the south.

Roebuck Bay, main port jetty

⚓ The main port jetty anchorage is the first in Roebuck Bay after the approach is made. Anchorage amongst the moorings is available inside the jetty, in 3-10 m at spring tides. The anchorage is protected from SW to N winds. A dinghy may be landed just east of the jetty on the rocks.

Note: There have been amendments to the prohibited anchorages and the forbidden anchorage area has been increased, so a check on the current situation is advised before arriving. The Port Authority requires vessels to keep a listening watch on their operations channel VHF Ch 14.

Tidal flow in the anchorage can reach 3 kn.

Facilities: The jetty is about 10 km from town by road. Provisioning therefore requires road

transport (a taxi or a friend). There is a telephone and a small kiosk at the jetty. Fuel and water are available at the main jetty but permission is required from Kimberley Port Operations (KPA) before coming alongside. Contact them on operations@kimberleyports.wa.gov.au or ph: (08) 9194 3100. A very high fee applies. Coming alongside the jetty is not recommended but if there is no alternative then do so at HW. At LW vessels can be tied only to the large piles. Calm weather is also required because of the risk of fouling rigging on the jetty. The alternative is to fill jerry cans at the fuel depot 1 km from the base of the jetty, or from suppliers in town.

Roebuck Bay, Town Beach

⚓ Anchor off Town Beach in the vicinity of the moorings at 17°59.3'S, 122°14.0'E. Holding is good in mud. The area is protected from the SW through W to N. Wind against tide conditions can make this anchorage uncomfortable. Anchorage further east at Black Ledge (17° 59.5'S, 122° 18.5'E) will be more comfortable in a strong easterly, with the disadvantage of being more remote from the town. Permission from the harbour master may be required for an extended stay.

Facilities: Roebuck Bay Caravan Park is located at Town Beach and offers showers for a small fee. There is a boat ramp next to the caravan park, at which a dinghy may be left. There is a water tap in the park near the ramp. For provisioning it is possible to anchor 200-400 m off Mangrove Point for two hours either side of HW. This provides the closest available access to shops. Fong's Store is 1 km from the beach along Saville Street. There is a service station nearby for fuel and gas. Taxis are available. It is a five minute car ride or twenty minute walk to the town centre.

Of interest: The remains of wrecked World War II flying boats rest in the mud flats about 0.5 nm off the town beach. These are only visible when tide heights are negative (i.e. less than chart datum). Staircase to the Moon: on a cloudless night the reflection of a full moon on the exposed tidal flats produces a dramatic 'staircase' effect when viewed from Town Beach.

Roebuck Bay, Dampier Creek

⚓ Dampier Creek dries at low tide and vessels sometimes dry out here to avoid bad weather. With a spring tide of at least 7 m it is possible to anchor off Streeters Jetty in Dampier Creek (17° 57'S, 122° 15'E) for a few hours. The approach should be on a bearing of 015° leaving Buccaneer Rock 250 m to port. It is good holding but the tides are strong.

Facilities: Take your dinghy to Streeters Jetty to load supplies from town a few minutes walk away. Note the jetty is narrow and access is via a ladder.

Gantheaume Point

⚓ Anchorage north of Gantheaume Point (17° 57.8'S, 122° 11.3'E) is sheltered from E winds but it is remote from facilities. It is better than Roebuck Bay until around the middle of August, when the easterlies usually ease. Anchorage is over sand and coral, but some areas have poor holding with shallow sand over rock. The reef is almost continuous north from Gantheaume Point for about 1.5 nm and provides some protection from swell at most states of the tide. Anchorage is untenable even in the lightest of NW weather and it is very roly in SW to W winds. LW exposes a large expanse of beach. The beach is hard packed sand, providing good dinghy access, especially if wheels are fitted.

There are several moorings in Gantheaume Bay. Contact Antony Burton of Broome Mooring Hire Ph: 0406 938 540 info@broomemoorings.com.au

Facilities: The mooring operator at Gantheaume Point has a large runabout with a fuel bladder. For \$50, plus the fuel cost, he will fill this at a service station and bring the amount you order to your boat at the anchorage.

The daily bus from the beach runs from May to mid-October one way only - into town - and leaves early in the morning. Taxis are available (\$25 one way in 2017); Chinatown Taxis will return you to the beach and they will take you to your dinghy on the sand.

A good arrangement is to share the cost of a hire car with the other yachts in the anchorage for provisioning and sight-seeing. It may also be possible to arrange transport with one of the buses that service the charter boats.

If leaving Australia from here, Australian Border Force officials have been very helpful in allowing boats to clear out from the anchorage rather than having to go to the main port jetty.



Gantheaume Point from Cable Beach (R Campbell)

Cable Beach

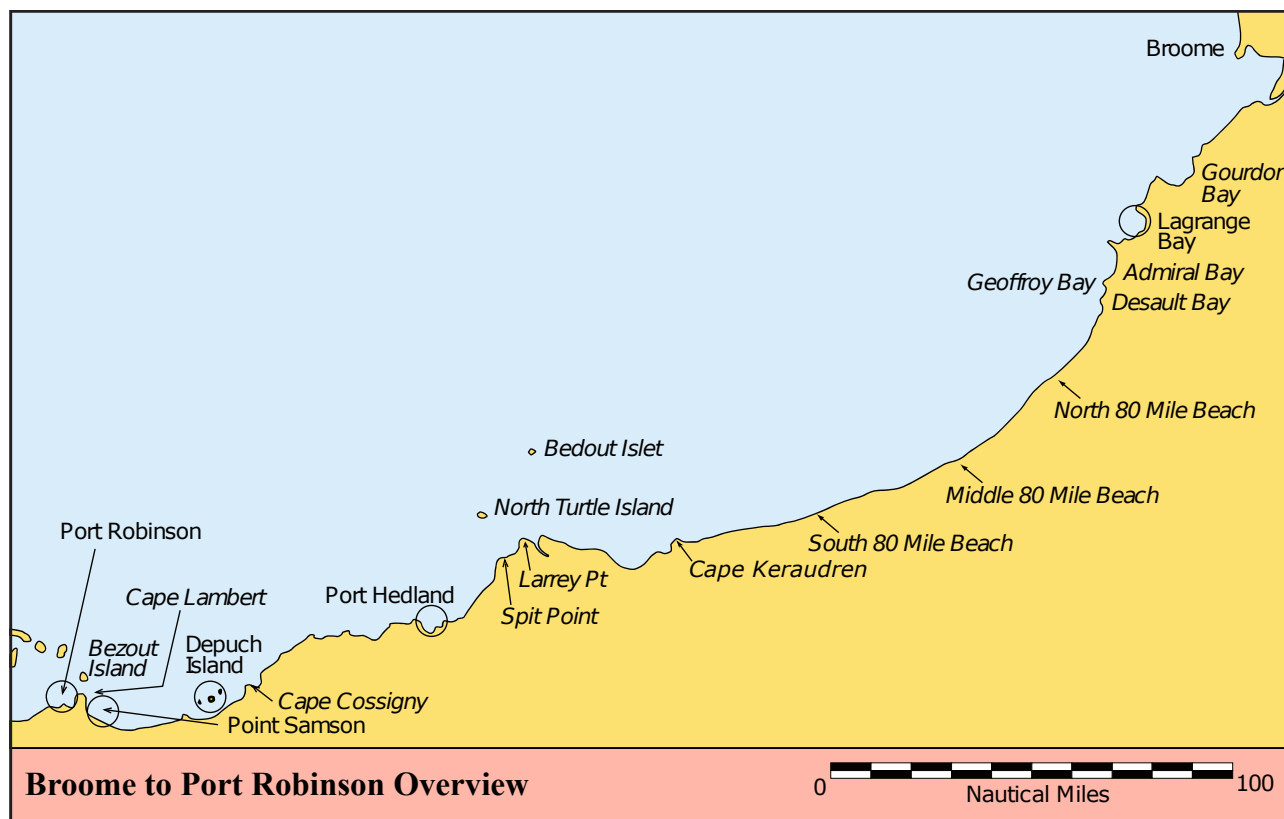
⚓ Cable Beach is ranked among the best beaches in the world. You can anchor off near the Cable Beach Resort. To enter the anchorage, round the cardinal marker at the northern end of the

reefs, taking care to avoid the rocky patches. The anchorage has been reported rocky in SW conditions. With any swell running, landing on the beach may be difficult. Wheels on the dinghy greatly assist negotiating the wide beach at LW.

Facilities: There are several resorts, restaurants and a general store at the beach. A bus service runs between Cable Beach and Broome town.

12.3 Broome to Port Robinson

Charts: AUS 324, 325, 326, 327, 739, 740, 741, 49, 50, 52, 53, 54, 55, 56



Chartlet 93

Passage Notes

The distance between Broome and Port Robinson is approximately 400 nm. The eastern part (east of Cape Keraudren) is characterised by the low sand hills of the Great Sandy Desert. West of Cape Keraudren the coast becomes a series of low limestone islands protecting mangrove embayments behind them. A number of seasonal rivers drain the Pilbara region inland.

The primary centres along this stretch of coast are Port Hedland (population 15,000) and the tiny township of Port Samson. The former is a major iron ore exporter and the latter is a small fishing community. Port Samson supports a commercial small boat harbour at John's Creek. Cossack is a deserted historic coastal town about 5 km west of Port Samson. The town of Roebourne is a further 20 km from Port Samson.

The direct sea route from Broome to Dampier takes you up to 60 nm offshore. Passage making can be uncomfortable if the easterly freshens. With a strong high in the Great Australian Bight persistent 25-35 kn easterlies can occur. To avoid this discomfort, a route close along the shore

enables shelter to be taken near the coast and does not add greatly to the distance. Day-sailing then becomes an option.

Local wisdom suggests that the time to set out from Broome to Dampier or vice versa, in suitable weather avoiding strong easterly winds, is when a fairly strong front is approaching the south of the State. This often coincides with a weaker easterly flow during the mornings.

There are few recognised anchorages and in suitable weather the suggestion is to anchor anywhere off Eighty Mile Beach. Much of this coast shoals for some distance offshore. The risk is that it may be roly. It is possible to anchor anywhere off the beach in settled conditions. Many new fish farms have been established, the greatest density being immediately southwest of Broome, becoming less frequent further southwest. Whales are plentiful, so vigilance is required as they appear to prefer the inshore passage from July to September.

12.3.1 Gourdon Bay

(no chartlet)

18° 27'S 121° 53'E

AUS 324

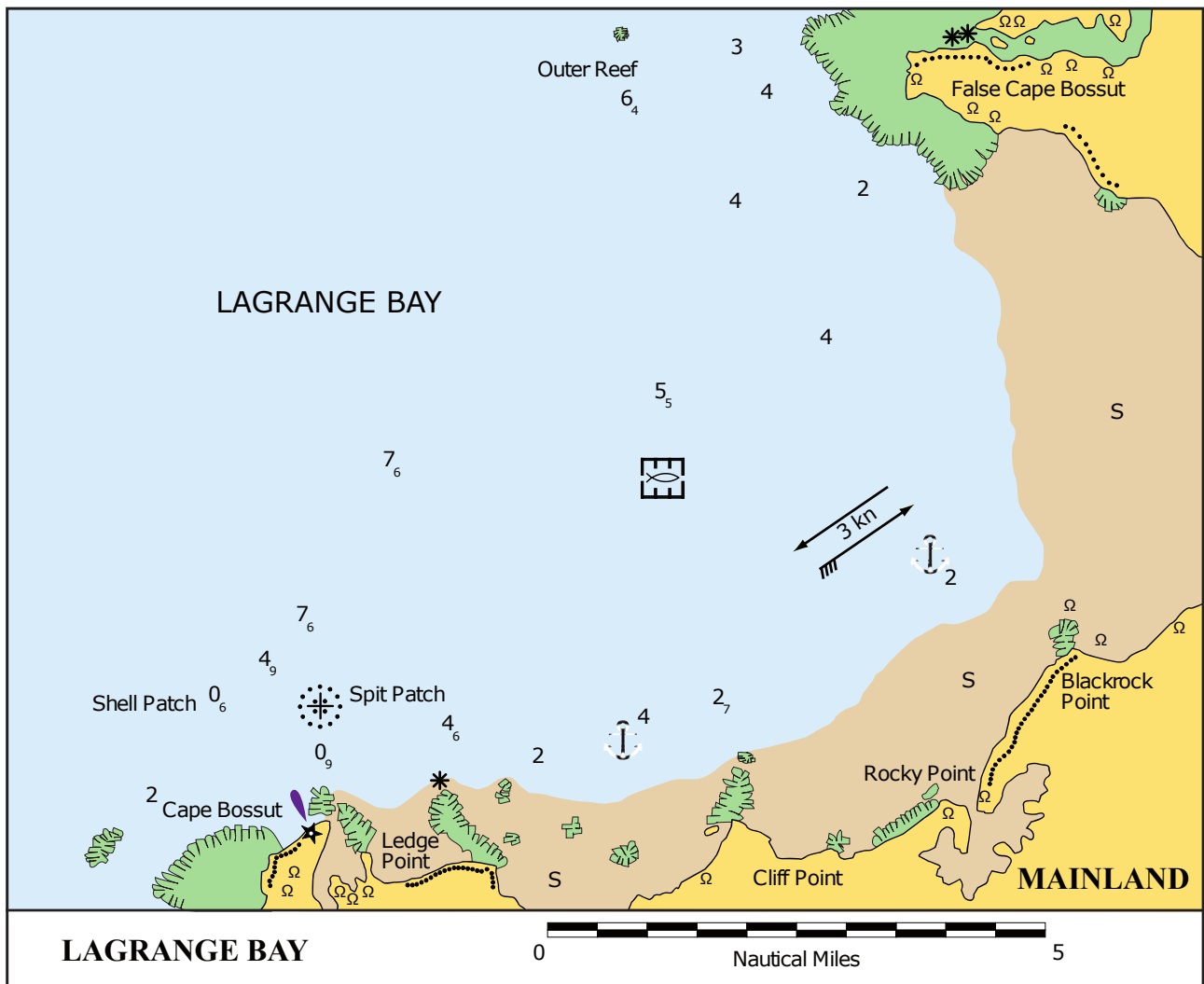
⚓ Anchorage can be taken at 18°26.5'S, 121°52.0'E over sand, with protection from the SW. It is possible to move further east for protection from the SE but be cautious, as the bay shoals.

Caution: There is a fish farm offshore.

12.3.2 Lagrange Bay

18° 38'S 121° 40'E

AUS 324



Chartlet 94

⚓ Anchorage northwest of Cliff Point, opposite a creek which dries, can be found at 18° 41'S, 121° 41'E. Protected from the S. The sea bed is sand.

⚓ An alternative anchorage is 18° 39.0'S, 121° 43.6'E.

With little shelter from the tidal flow, which can reach 3 kn during springs, both anchorages can be roily.

Caution: There are fish farms offshore from the bay.

Tides: Lagrange. Range 8 m.

12.3.3 Admiral Bay

(no chartlet)

18° 46'S 121° 38'E

AUS 324

⚓ Anchorage can be taken just south of Lagrange Bay and Cape Bossut in Admiral Bay.

Caution: Two fish farms close by.

12.3.4 Eighty Mile Beach

(no chartlet)

Eighty Mile Beach is the longest uninterrupted beach in Western Australia, extending over 120 nm from Cape Missiessy in the northeast to Mulla Mulla Down Creek in the southwest. Eighty Mile Beach is a designated marine park. There are seemingly endless stretches of white sand scattered with tropical seashells, in contrast with the rocky shores, seagrass meadows, narrow sandy beaches, tidal creeks and mangrove-lined muddy bays around Cape Keraudren and Blaze Bay in the southwest corner of the marine park.

www.parks.dpaw.wa.gov.au/park/eighty-mile-beach

⚓ Anchorage can be taken just about anywhere along the Eighty Mile Beach subject to a favourable wind direction. Care needs to be taken to avoid shallow spots which can extend well offshore. There are fish farms at least as far west as 19° 19.8'S, 121° 06'E.

12.3.5 Mt. Blaze/ Cape Keraudren

(no chartlet)

20° 00'S 119° 41'E

⚓ Anchorage has been taken roughly mid-way between Mt. Blaze and Cape Keraudren at 19° 57.6'S, 119° 42.6'E. Blaze Bay west of Mt. Blaze is unsurveyed. Shallows extend well out into the bay and there is a reef in the middle of the bay. During spring tides there may be insufficient depths for yachts to enter the bay near LW. Northerly swell can affect the bay.

Fishing: Oysters, mangrove crabs and sharks.

Of interest: Turtles.

12.3.6 South of Amphinome Shoals

(no chartlet)

19° 45.0'S 119° 18.0'E

⚓ Anchorage has been taken 19° 49.0'S, 119° 23.0'E.

12.3.7 Larrey Point

(no chartlet)

19° 58.0'S 119° 06'E.0'E

⚓ Anchorage has been taken at 20° 00.0'S, 119° 02.0'E.

Caution: Reported shallow.

12.3.8 Off Spit Point

(no chartlet)

20° 02.0'S 118° 59.7'E

⚓ Anchorage has been taken 4 nm west of Spit Point.

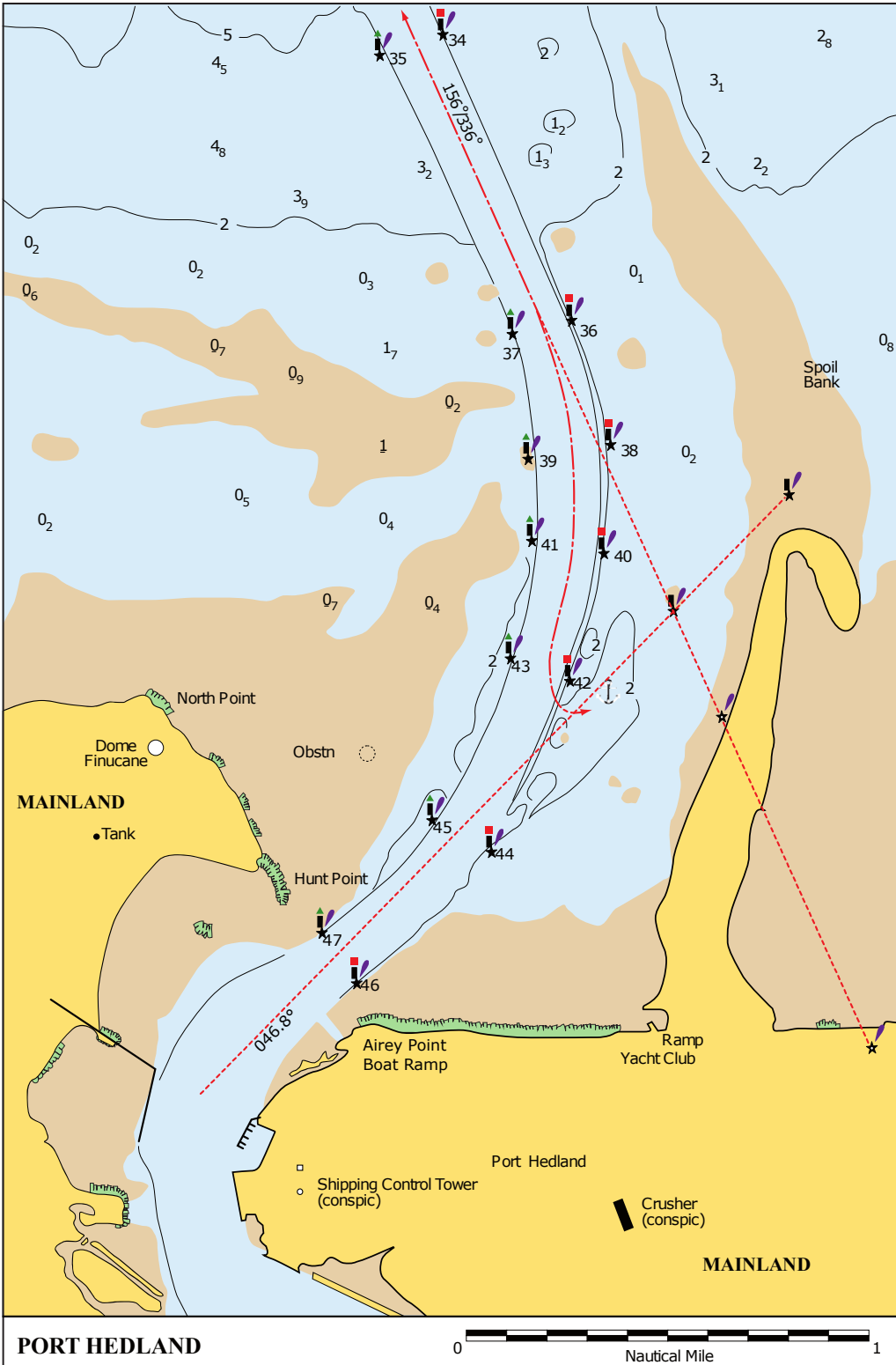
⚓ Safe anchorage has also been reported 4 nm south-southwest of Spit Point at 20° 05.8'S, 118° 57.2'E.

Caution: Passage between Mt. Blaze or Cape Keraudren and Spit Point is beset by varying depths and hazards.

12.3.9 Port Hedland

20° 18'S 118° 35'E

AUS 52, 53, 54, 326, 739, 740



Chartlet 95

Port Hedland is a major iron ore loading port and a town with a population of 15,000, providing a

wide range of services.

When approaching from the east there are shallow banks extending north from Spoil Bank; these must be cleared. Aim for beacon number 26 in the main shipping channel. Approached from the west the way is clear: make for beacon number 32 in the main shipping channel. The iron ore crushers in the port are conspicuous and the shipping channel is well marked and lit. Call the port authority on VHF Ch 12 for advice before entering the channel; there can be 8 or 9 shipping movements at the top of each tide.

⚓ Anchorage may be taken outside the harbour entrance in front of the Port Hedland Yacht Club. After passing beacon 42 turn to port as indicated on the chartlet and anchor over sand and mud near other yachts usually moored there. It is possible to anchor closer in during neaps. It has protection from the E but is exposed to the ever-present ocean swell. The ore carriers create large wakes, which cause a yacht to roll heavily. A tide greater than 4 m allows dinghy access to the lagoon at the yacht club; otherwise land on the spoil bank or head round to the concrete boat ramp just off Airey Point.

Caution 1: There is reef in the area.

Caution 2: Port Hedland, like other ore loading ports is noted for red dust which tints white sails and decks in fresh easterly weather. Wash the decks immediately after departure.

⚓ The harbour master may grant permission to anchor at the head of the harbour. Strict guidelines will then apply. There must be a strong wind warning current and the vessel must be manned at all times with a radio watch on VHF.

Tides: Port Hedland. Range 6.5 m. Tidal streams can reach 6 kn on the ebb.

Fishing: Spanish mackerel, queen fish and trevally.

Facilities: Showers, toilets, water, telephone, barbecues, washing machine and meals are available at the yacht club. The club welcomes visitors and the caretaker lives next door. There is a supermarket 2 km east of the yacht club. Fuel and water are available at the jetty at the west end of the town, upstream from the Airey Point boat ramp. There is a bus service to the shopping complex and hospital (see section 7.5) at South Hedland. Heavy lifting gear is available and yachts have been lifted out - arrange with the harbour master. Port Hedland has an airport with daily air services to and from Perth and Darwin.

History: In 1628, while taking a shortcut through uncharted waters to avoid the oncoming monsoons, Gerrit Frederickszoon de Witt ran the *Vianen* onto the sandbanks near Port Hedland. After lightening the load the ship was freed, and de Witt sailed westwards along the coast for 200 nm. He described it as foul and barren with barbarous natives. The name, de Witt's Land, was used for the next two hundred years to describe this section of coast.

Port Hedland was settled in 1829 but it was not until 1864 that the Pilbara's first sheep station was set up on the nearby De Grey River. By 1870 the port was home to one hundred and fifty pearling luggers. The port was used to export wool and pearls to international markets. The early 1960s saw a massive population explosion when Port Hedland became the port for exporting iron ore mined at nearby Newman, Shay Gap and Goldsworthy. The latter two towns have been closed down. Salt is also mined here.

Passage notes

Passage inside Geographe Shoals is safe.

12.3.10 Cape Cossigny

(no chartlet)

20°29'S 117°57'E

AUS 326, 740

⚓ This provides the first acceptable anchorage westbound from Port Hedland. The approach is from the west and south of Reef Island. The reef extension off the southwest end of Reef Island tends to block the swell to some extent, making this a better anchorage than might be expected.

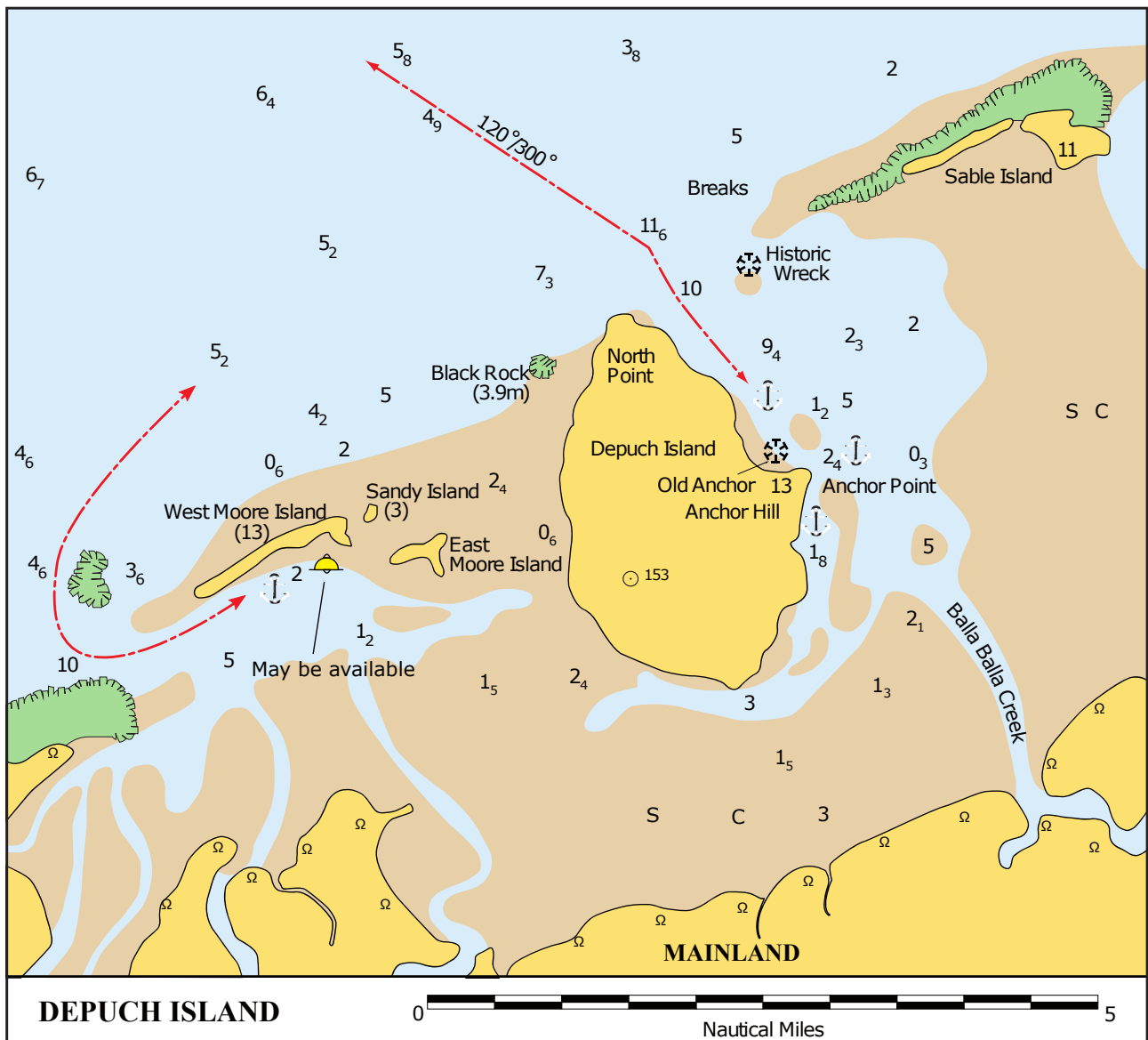
Caution: The bottom is suspect, probably rock. Take extra care when anchoring.

Of interest: Reef Island has many kangaroos and a trip ashore is pleasant.

12.3.11 Depuch Island

20°38'S 117°44'E

AUS 326, 740



Chartlet 96 Depuch Island

Depuch Island consists of an irregular pile of reddish-brown hills rising to 153 m. It is an Aboriginal reserve and landing is prohibited without permission.

⚓ The best places to anchor appear to be 0.6 nm north of Anchor Hill in 2-3 m, or about 0.5 nm east of Anchor Hill. This gives good protection except from the NE. Anchor over sand with some rock. The middle of the anchorage is subject to tidal flow of up to 3 kn.

⚓ With care, it is possible to round Anchor Hill closely and take anchorage in good depth out of most of the tidal flow.

Caution: There is an old anchor north of Anchor Point (see chartlet) that will damage a dinghy. It is usually buoyed.

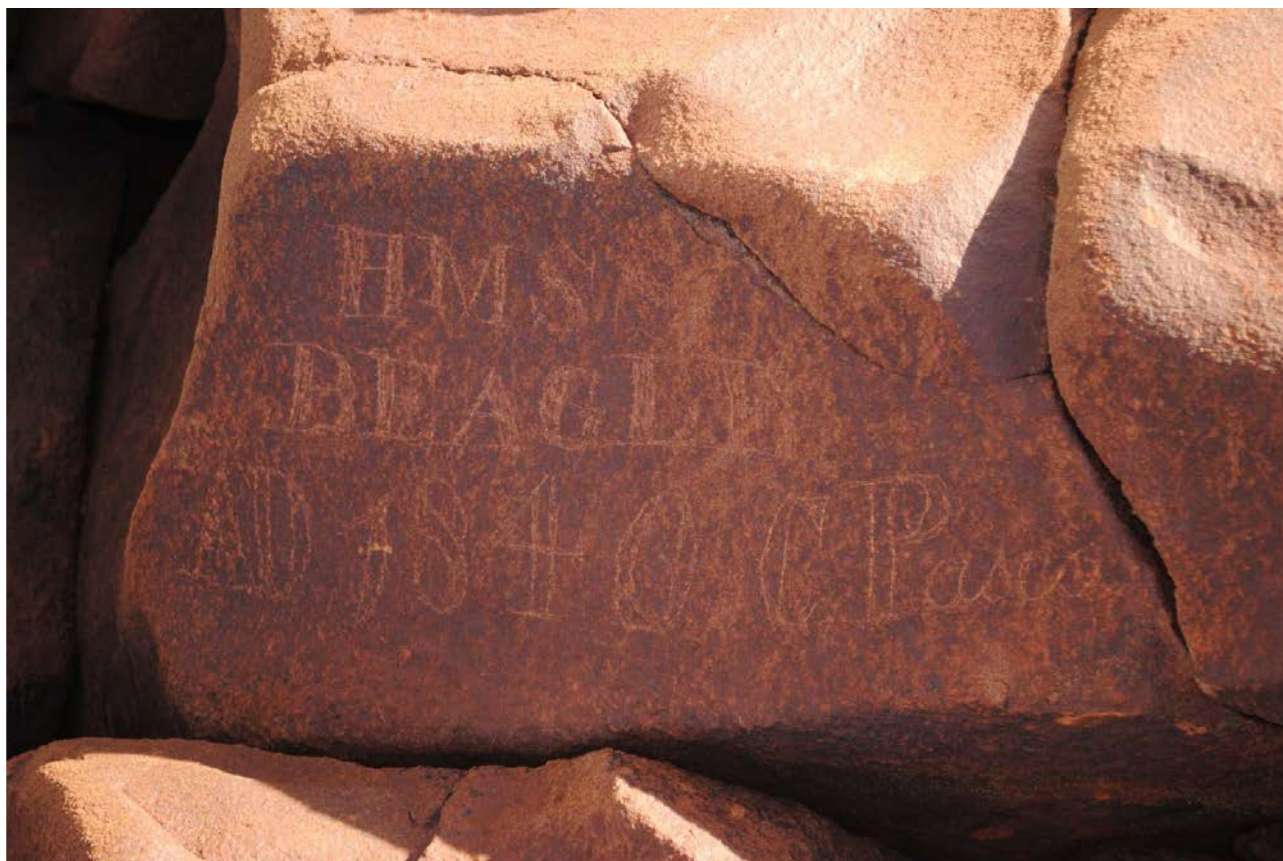
⚓ On a suitable tide it is possible to anchor in Balla Balla Creek (it dries in springs). One report indicated it was uncomfortable in a NE wind.

Caution: Crocodiles have been sighted in Balla Balla Creek.

Tides: Depuch Island. Range 6 m.

Of interest: There are Aboriginal rock carvings near the cairn on Anchor Hill.

History: Depuch Island was discovered in 1801 by Baudin and named after the mineralogist Louis Depuch. In 1840 Commander J. C. Wickham of *HMS Beagle* found a treasure of Aboriginal art and hundreds of stone figures carved by the Ngaluma artists. He left graffiti there, still visible today.



Depuch Island, graffiti from HMAS Beagle "HMS BEAGLE AD 1840 C.Pascoe" (R&L Newton)

12.3.12 West Moore Island

(see Depuch Island chartlet)

20° 38'S 117° 40'E

AUS 740

The best anchorage is just west of the moorings where the fishing resort boats are kept. It is quite choppy in fresh easterlies, with wind against tide.

This former pearl farm is now a low-key fishing resort. A listening watch is maintained by the resort on VHF Ch 16 to render assistance or advice about moorings: call sign "West Moore Island Base". Accommodation may be booked at the resort. Fuel can be arranged if given at least one week's

notice.

www.westmooreisland.com.au/index.php/west-moore-island-lodge

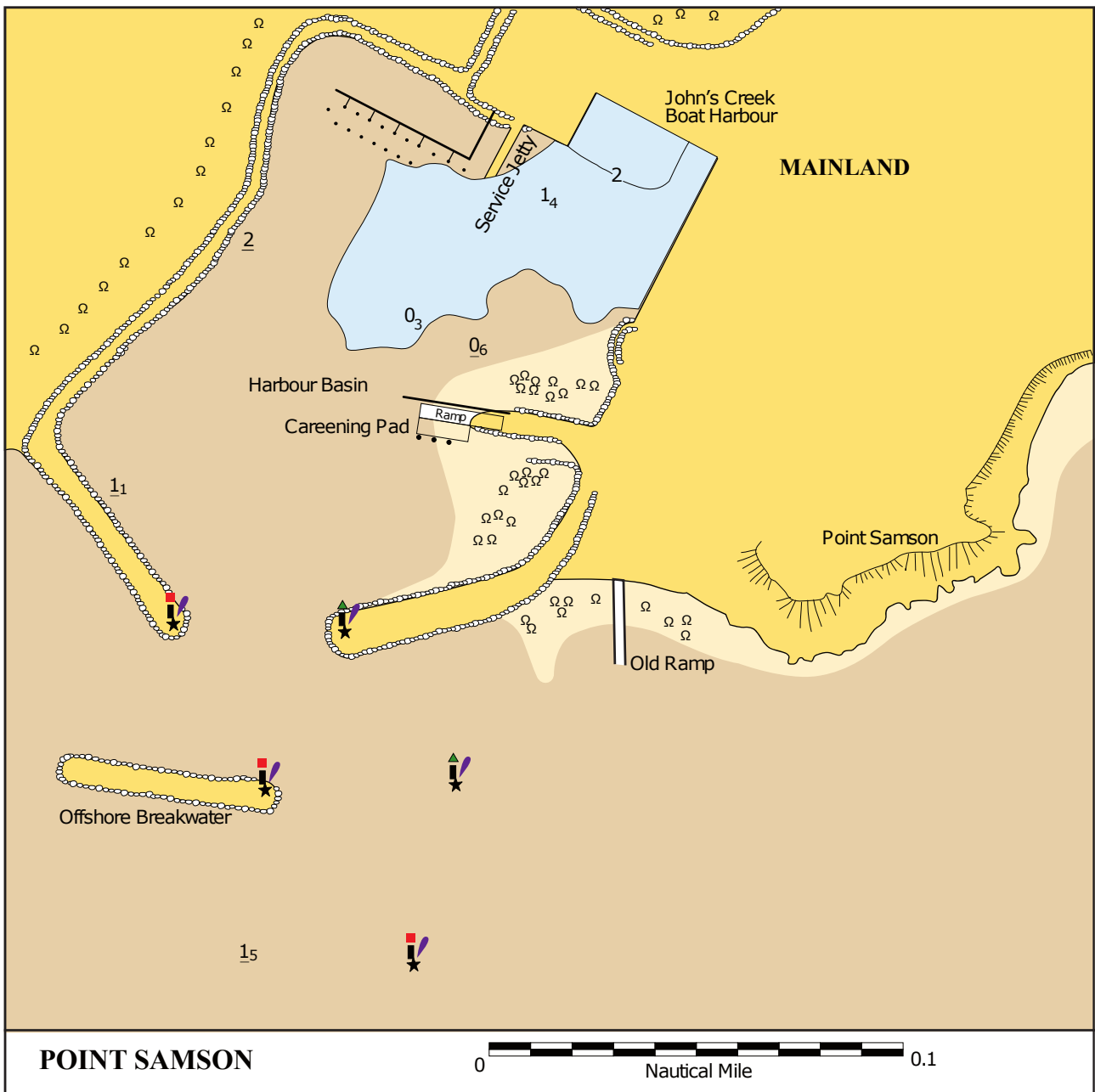
email: fish@westmooreisland.com.au

ph: (08) 9184 5145 or 0417 901 207

12.3.13 Point Samson

20° 38'S 117° 12'E

AUS 55, 56, 326, 327, 740, 741



Chartlet 97 Point Samson

⚓ Just west of Point Samson and south of the small village there is a small commercial fishing harbour at Johns Creek run by DoT. It is accessible at better than half tide and protected by

breakwaters. Part of the harbour basin has been dredged to a depth of 2.0 m below chart datum. There are cyclone mooring points in the harbour. Once in the harbour, it may not be possible to get out if strong easterly winds are blowing, because waves across the entire entrance may break.

www.transport.wa.gov.au/imate/point-samson-facility.asp

Harbour Manager. Ph: 0467 801 205

Facilities: The small village of Point Samson about 1 km away contains the port authority office and a popular seafood restaurant. Water is available in the harbour. A Baileys fuel card is required for diesel but local fishermen may be able to help. Access to small boats in the berths can be awkward as the whole facility is designed for large vessels. No showers and one toilet.

There is a bus service from Point Samson to Karratha. While it takes longer than the same trip from Dampier, it is a more convenient service as it is difficult to bus both ways from Dampier and the cost of a taxi is very high. The small town of Wickham is about 7 km inland which has a hospital (see section 7.5).

Tides: Depuch. Range 6.5 m

12.3.14 Cape Lambert

(no chartlet)

20° 36'S 117° 10'E

AUS 55, 56, 326, 327, 740, 741

⚓ The west side of Cape Lambert offers good protection from easterlies. There are long, high loading jetties extending 1.5 nm off Cape Lambert, and a tug harbour is situated on the west side of the cape. Restrictions apply.

12.3.15 Bezout Island

(no chartlet)

20° 33'S 117° 10'E

AUS 55, 56, 326, 327, 740, 741

West of Bezout Island there is a sandy shoal that provides open anchorage. It can be rolly and is not recommended.

12.3.16 Port Walcott Yacht Club

(no chartlet)

20° 37.1'S 117° 08.8'E

AUS 327, 55

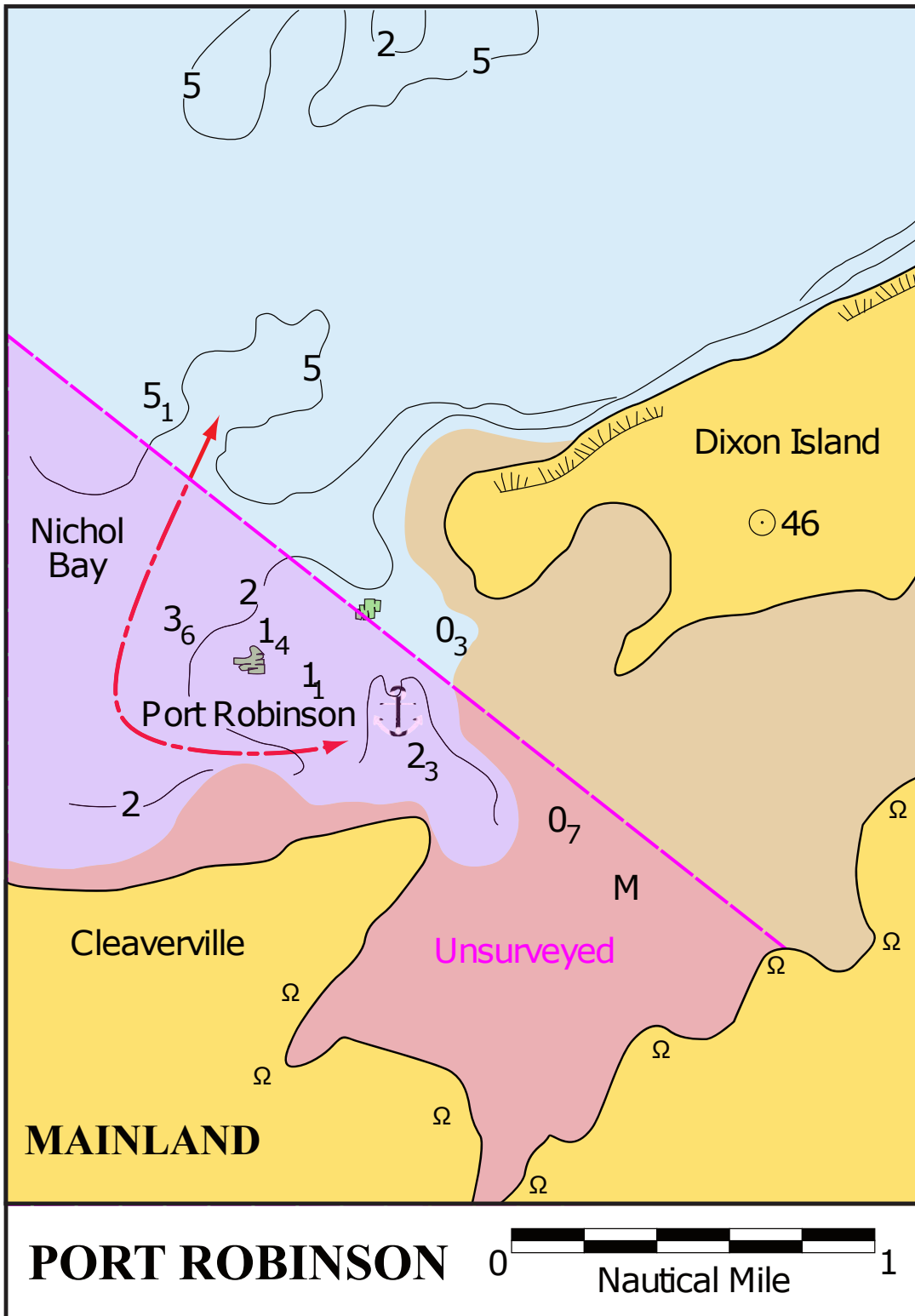
Dinghies and trailer-sailers only.

Caution: Unsurveyed area.

12.3.17 Port Robinson

20° 39'S 117° 02'E

AUS 327, 741, 55, 56



Chartlet 98 Port Robinson

⚓ There is anchorage over mud and sand near the southwest end of Dixon Island. It is inshore of

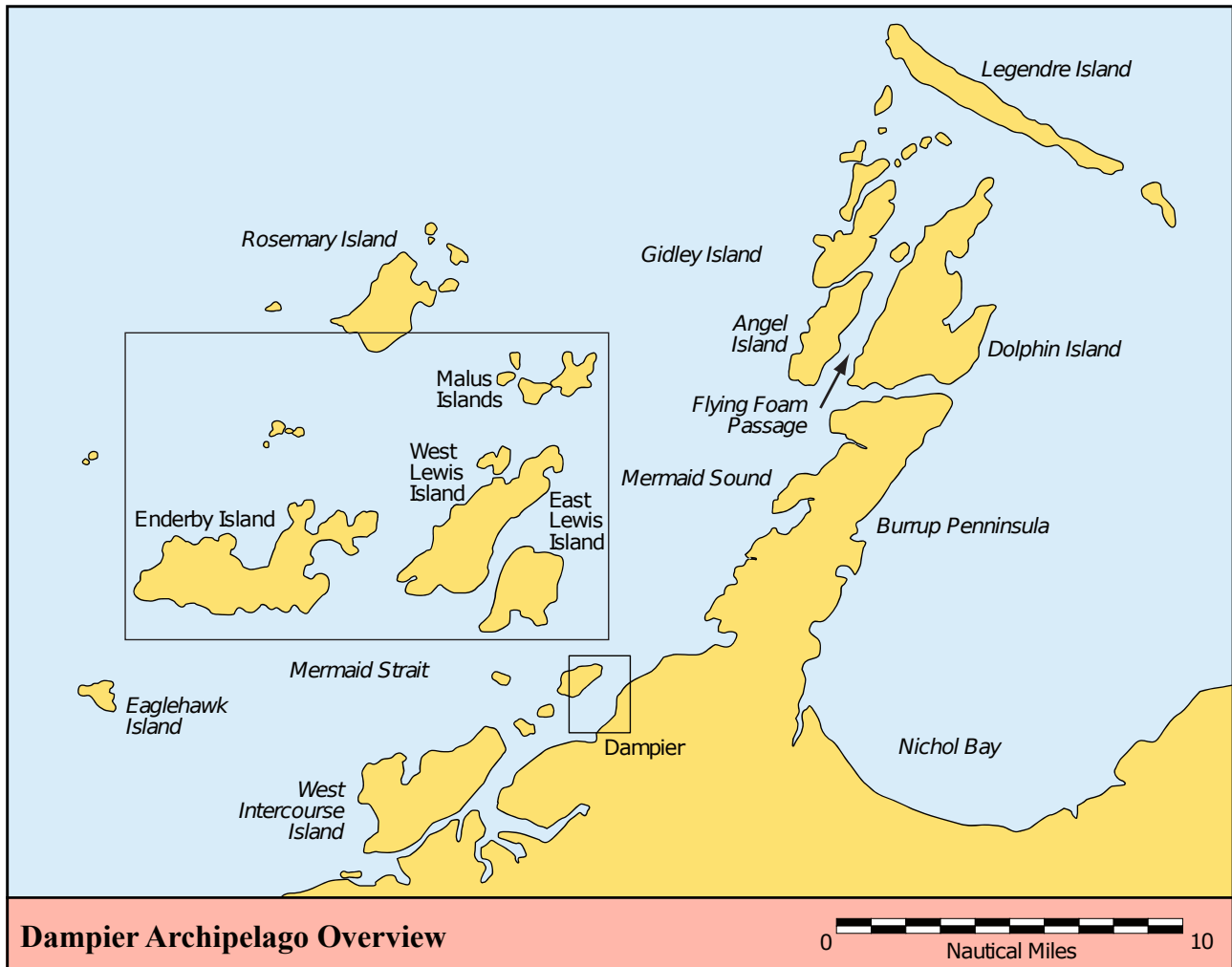
a reef that extends from the southwest end of the island. This is suitable for vessels with less than 2 m draft. There is a minimum depth of 1.1 m on the way in and 2.3 m in the anchorage. There is good shelter from the NE to S. Mangrove and mud flats line the shore.

Caution: Approach from the west is in unsurveyed waters.

Tides: Port Walcott. Range 6 m.

12.4 Port Robinson to Cape Preston (incl. Dampier Archipelago)

Charts: AUS 328, 327, 741, 56, 57, 58, 59, 60



Chartlet 99 Dampier Archipelago Overview

The Dampier Archipelago comprises forty-two islands and islets lying within a 25 nm radius of Dampier. Twenty-five of the islands are incorporated into reserves for the conservation of flora and fauna. The islands feature historical shipwrecks, pristine beaches, Aboriginal rock engravings and superb fishing. The Archipelago was formed 6,000 - 8,000 years ago when rising sea levels flooded what were once coastal plains. The underlying rocks are amongst the oldest on earth, formed in the Archaean period more than 2,800 million years ago.

The Dampier Archipelago marine park and adjacent regional marine management area has been established. The Dampier Archipelago has the richest known marine biodiversity in WA. The islands have been zoned to provide a balance between conservation and recreation. Some areas

are set aside for day trips and camping, while others are sensitive seabird and turtle nesting areas. Please respect these zones.. Fishing is prohibited in sanctuary zones. Anchoring, fishing and foot access may be restricted. For full details contact the DBCA office in Karratha on (08) 9182 2000 or <http://parks.dpaw.wa.gov.au/park/dampier-archipelago>

Another source of local information is the Hampton Harbour Boat and Sailing Club at Dampier. Members will be able to advise on visiting the outlying islands.

12.4.1 Flying Foam Passage

(no chartlet)

20° 30.0'S 116° 49.0'E

AUS 327, 57

Flying Foam Passage is an optional route for entering or leaving Dampier, which requires catching a favourable tide during daylight hours. It is best traversed at slack tide. If Flying Foam Passage can be used, it saves going round Legendre Island. The fish farms marked on charts are no longer operating, but these areas are now full of moorings. The passage runs between Dolphin, Tozer and Wilcox islands to the east and Angel and Gidley islands to the west. It is about 0.5 nm wide decreasing to about 200 m at its narrowest point. There are numerous rocks and coral reef between Gidley and Legendre Island. In general keep to the centre of the passage. The shallowest part is near Wilcox Island where yachts should stay closer to the island. The bottom through much of the passage is rock and poor holding.

Yachts going towards Dampier wait in a small bay on the east or west side of the northern tip of Dolphin Island. Navigate with caution as this is a mooring area. Do not go far into the bay on the west side because it shoals and is foul. Anchorage has been taken at 20° 25.9'S, 116° 52.3'E in 3.5 m over mud.

Tides: Hauy (north) and Dampier (King Bay). Spring tide range 4.5 m and neaps 2.8 m. The current in Flying Foam Passage during a spring tide flows in the opposite direction to what may be expected. The large volume of water flowing southward into the bay (Dampier) causes the flow of water in southern section of Flying Foam Passage to run northwards. The two opposing flows meet near the passage between Angel and Gidley islands. The passage is subject to whirlpools and the tidal flow reaches 3-4 kn during springs.

History: Flying Foam Passage was not named for its strong tidal flow but after the vessel *Flying Foam* which explored the passage in 1863. From about 1870 to 1900 the passage was a major pearling ground on the northwest coast. The remains of the pearler's camp can be seen at Black Hawke Bay on Gidley Island.



West end of Legendre Island (R&L Newton)

12.4.2 Dolphin Island

(no chartlet)

20° 30.0'S 116° 51.0'E

AUS 327, 57

⚓ Anchorage can be taken at the northern tip of Dolphin Island while waiting for a suitable tide to transit Flying Foam Passage to the south.

Caution: A fish farm lies close to the north entrance to Foam Passage.

Of interest: Excellent Aboriginal rock art and standing stones. Freshwater pools after rain.

History: Named after Gregory's ship, who landed in 1861 to determine the potential of the northwest for agriculture.

12.4.3 Angel Island

(no chartlet)

20°30'S 116°47'E

AUS 327, 57

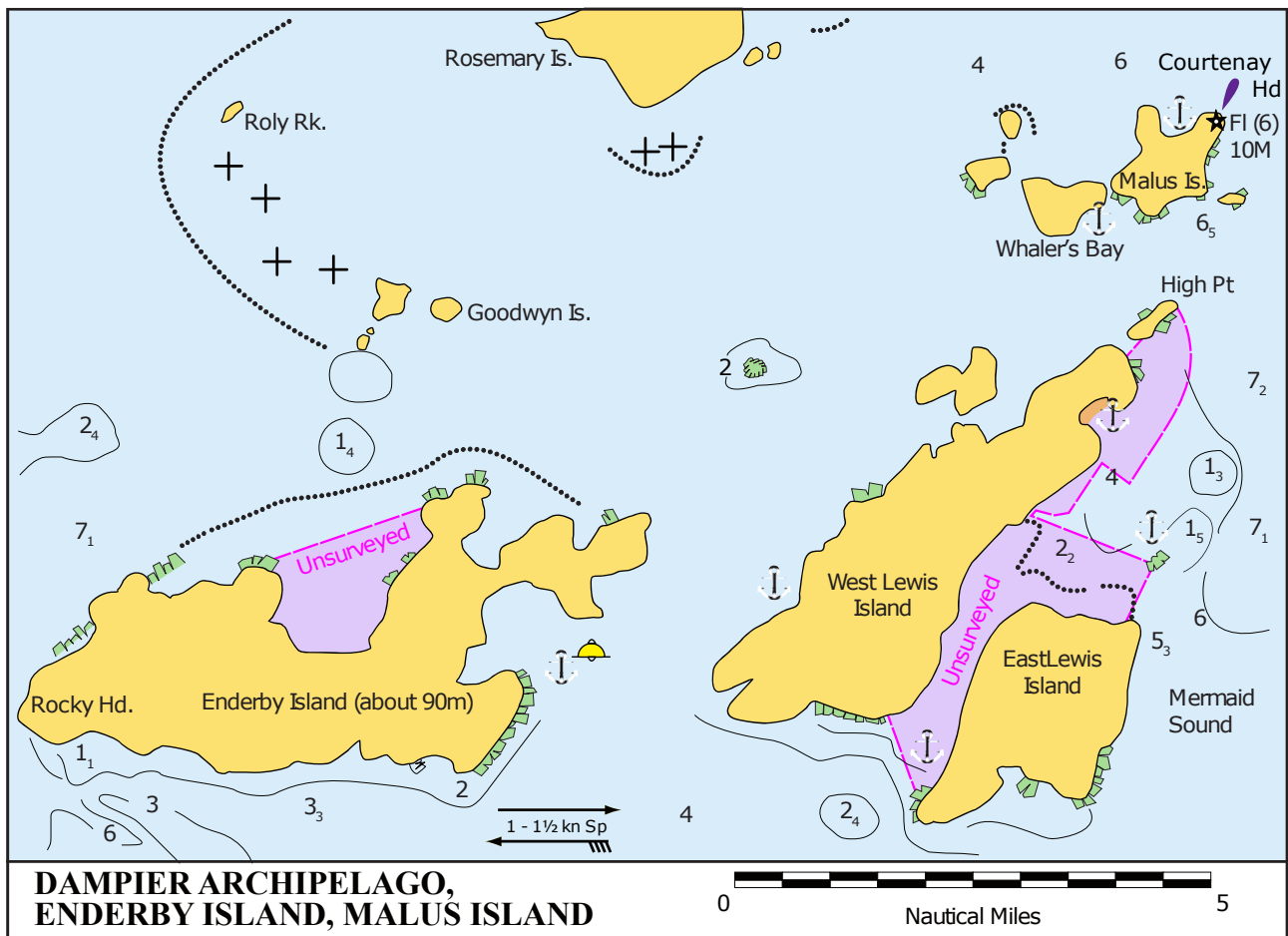
⚓ There is anchorage in the first bay from the south on the west side of the island protected from the E. Reef is exposed along the shore at low tide.

Caution: Beware of bommies at southern end of Angel Island.

12.4.4 Malus Islands

20° 31'S 116° 40'E

AUS 327, 57



Chartlet 100 Malus and Enderby Islands

⚓ Anchorage in 5 m depth can be taken west of Courtenay Head in Marney Bay. The anchorage is off a sandy beach and is exposed to the N.

⚓ An alternative anchorage is the western side of Whaler's Bay.

Of interest: Commanding views from Courtenay Head.

History: In the 1870s, whalers operated a shore station and processing plant at Whaler's Bay. Some remnants are visible at the southeast of the island.

12.4.5 West Lewis

20° 35.0'S 116° 38.0'E

AUS 327, 57

⚓ Anchorage has been taken in the bay at the northeast end of the island.

⚓ Trawlers anchor west of West Lewis Island.

Caution: A fish farm lies to the west of the island.

12.4.6 East Lewis

20° 37.0'S 116° 39.0'E

AUS 327, 57

⚓ Anchorage has been taken north of the island.

⚓ Trawlers anchor west of East Lewis Island.

12.4.7 Enderby Island

20°36'S 116°30'E

AUS 327, 57

⚓ Anchorage has been taken in the eastern bay.

Of interest: Good examples of Aboriginal engravings can be found on the island. On the east side of Enderby Island is the wreck of a Catalina flying boat. It was operated by the United States Navy between 1942 and 1944. The yacht *Sedjatra* was wrecked to the northwest of the island, whilst fleeing from Indonesia after the Japanese invasion.

History: Named by Phillip Parker King in honour of his friend, Samuel Enderby, one of New Zealand's first settlers.

12.4.8 Eaglehawk Island

(no chartlet)

20° 39'S 116° 26'E

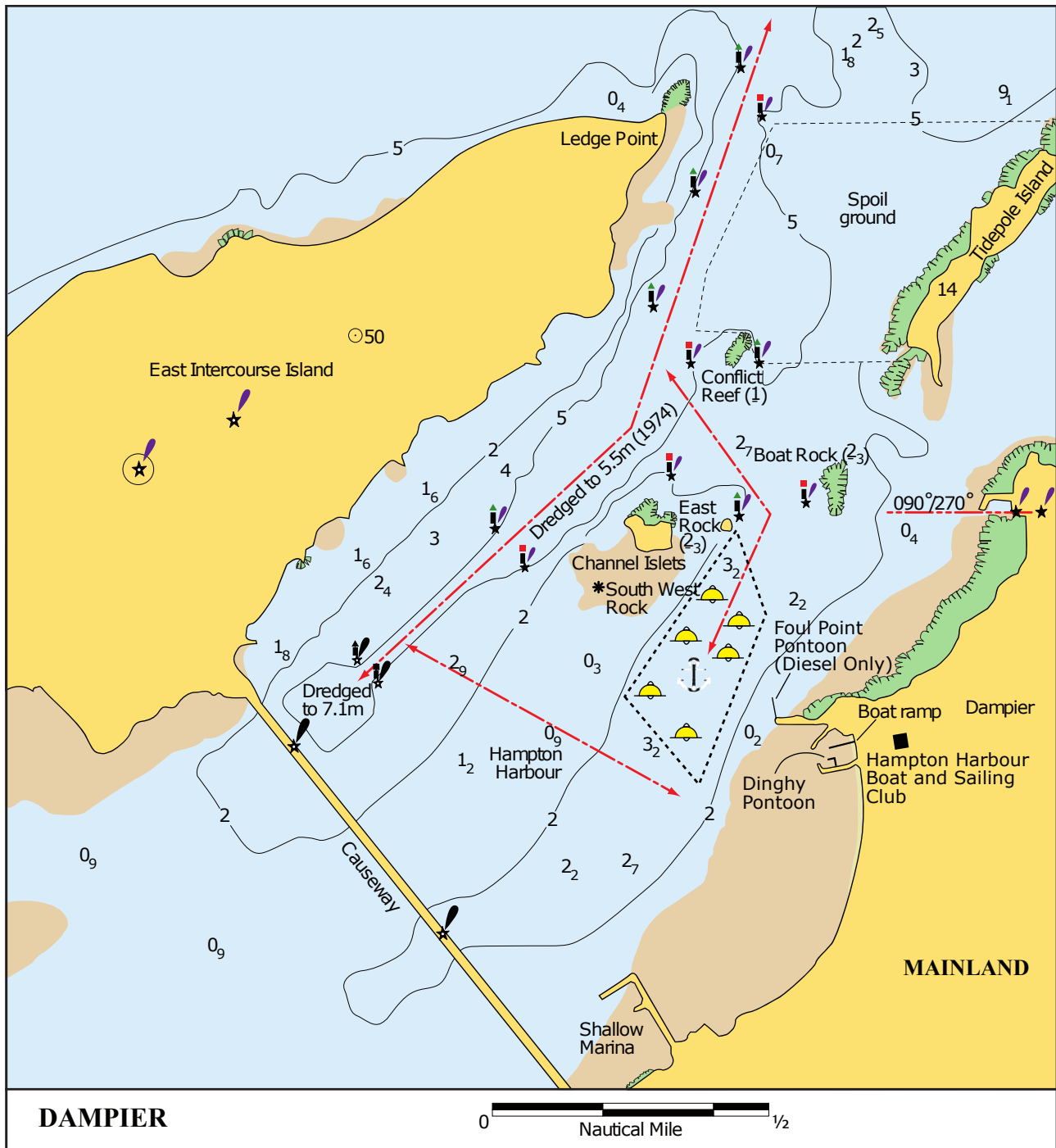
AUS, 327, 57

⚓ Trawlers anchor north of Eaglehawk Island over coral.

12.4.9 Dampier

20° 40'S 116° 42'E

AUS 32, 57



Chartlet 101 Dampier

Dampier has a population of 1,300 and is the major port for Karratha (population 19,000). Hampton Harbour is the main harbour for small vessels and the home of the Hampton Harbour Boating and Sailing Club. Dampier is a busy privately owned commercial port; a courtesy call to Port Control on VHF Ch 16 is advisable, to let them know you are moving in the area..

The approaches are marked by a profusion of beacons. From the west, approach via Mermaid Strait south of Enderby, West and East Lewis islands. The area along the north side of Mermaid

Strait is full of moorings, some of them weakly lit. There are also some unlit barges and workboats. From the north, approach via Mermaid Sound. There is also an approach from the east via Flying Foam Passage (see 12.4.1), which requires catching a favourable tide during daylight hours.

⚓ The approach to Hampton Harbour starts in a channel east of East Intercourse Island. Follow the marked channels until the mooring area off the yacht club (near Foul Point) is reached. Anchorage over mud may be taken up with permission from the harbour master, if a spot can be found between the numerous moorings. Keep a good lookout on the final leg into the mooring area because there are many navigation and mooring buoys which are not easily identified. An alternative approach may also be made at better than half tide: follow the channel beside East Intercourse Island until near the causeway and then bear to port towards the mooring area.

The anchorage is closed during the cyclone season.

When going ashore dinghies can be left tied to the yacht club pontoon.

Facilities: There are showers and a laundry at the back of the big green shed marked VMR, open all the time. More showers, a telephone and a bar are available at the very hospitable Hampton Harbour Boating and Sailing Club on the Esplanade. The Club office is open Mon, Wed and Fri and the bar opens at 1700 Thurs-Sun. They like visitors to register. Visitors are welcome at the nearby Seafarers Centre which has a lounge area, TV, library etc.

Fuel and water can be arranged by the club at the nearby floating jetty. Ring the duty officer whose number is at the clubhouse. The depth of water surrounding the jetty is only adequate at half tide or better for deep draft yachts, so pick a rising tide for fuelling and watering as the flow rate of each is slow. For small amounts of fuel, visitors may find it more convenient and cheaper to get it from the service station nearby.

Drying out piles are available. They require a spring tide to fully dry out. The club manages a marina which nearly dries at LWS. There are several other locations where a yacht may be craned in or out.

Dampier is an excellent place to replenish stores. There is a supermarket, a hotel and a restaurant near the club. Email facilities are provided at the town library. There is excellent shopping, a hospital (see section 7.5) and engineering services at Karratha about 17 km away. There is a limited bus service from Dampier to Karratha, but it is difficult to bus both ways. A taxi service is available but it is expensive. A lift into Karratha is also a possibility; try phoning Tony on 0457 979 919. Overall, access to Karratha is probably easier from Point Samson further east (see section 12.3.13).

History: In 1699 William Dampier explored the islands of the Dampier Archipelago but was not impressed with this area. The town of Dampier was originally built by Hamersley Iron Ore in 1966.

Of interest: The islands of the Dampier Archipelago are nature reserves and are surrounded by a marine park. The northern end of the Burrup Peninsula is a recreational and conservation reserve. The name Karratha, is Aboriginal for "good country". The Burrup Peninsula is one of the most prolific Aboriginal art sites with an estimated one million petroglyphs (rock carvings). They are the only reminders of the Yapurrara people, a coastal tribe who failed to survive after the arrival of Europeans.

The multi-billion dollar NW Shelf Gas Project started in 1971 and gas is piped ashore to the Burrup Peninsula. On the peninsula there is the Woodside Natural Gas Visitors' Centre. Salt is also exported.



View from Hampton Harbour Boating and Sailing Club, Dampier (J Dixon)

12.4.10 West Intercourse Island

(no chartlet)

20° 42'S 116° 37'E

AUS 327, 57

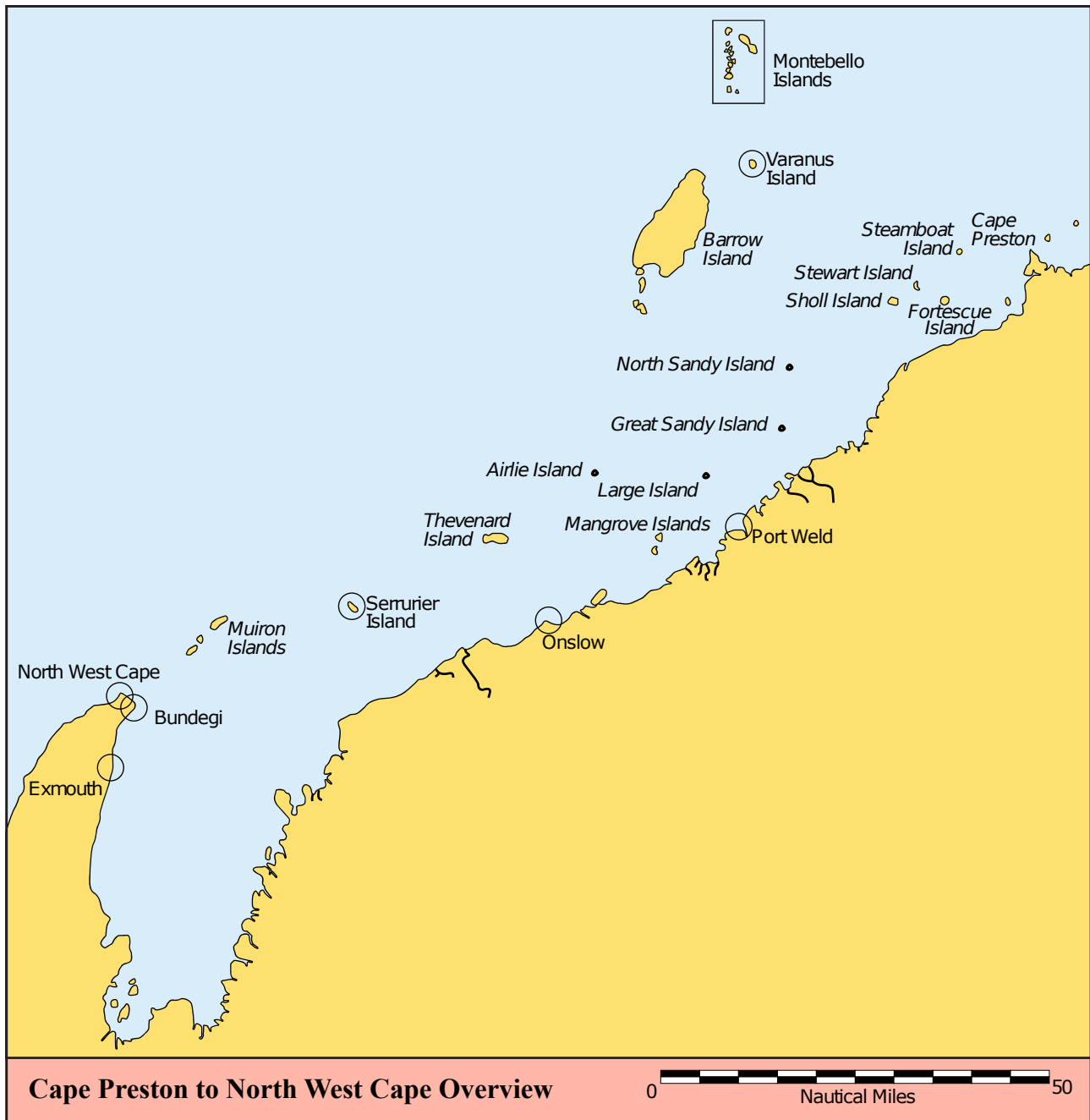
⚓ There is anchorage between West Intercourse Island and the mainland in 6 m at LW. The passage between West Intercourse Island and West Mid Intercourse Island may be entered at HW. There is good depth up to the southern causeway wall.

Fishing: Threadfin salmon have been caught here.

History: Phillip Parker King named the Intercourse Islands after a meeting with the Indigenous people.

12.5 Cape Preston to North-West Cape

Charts: AUS 328, 329, 742, 743, 744, 63, 64, WA 900



Chartlet 102 Cape Preston To NW Cape Overview

Between Dampier and Onslow there are several small islands which form part of the Mary Anne Passage. Many of these islands are nature reserves managed by DBCA.

Tides: Large Island. Range 3.5 m. Tidal streams in the passage reach 1-2 kn and change with the times of high and low water. The flood tide sets NE and the ebb SW. There is very little slack water time. Strong winds affect the flow and quickly whip up a short sea.

12.5.1 Cape Preston

(no chartlet)

20° 50'S 116° 13'E

AUS 327, 742, 743

There is a commercial harbour for exporting iron ore at Cape Preston. Pleasure craft are not allowed in the harbour other than for an emergency.

There is no satisfactory anchorage at Cape Preston because of extensive drying at low water. The water recedes up to 500 m around Cape Preston at LWS.

12.5.2 Steamboat Island

(no chartlet)

20° 49'S 116° 04'E

AUS 327, 742, 743

⚓ Acceptable anchorage has been taken on the southwest side of the island.

12.5.3 Fortescue Island

(no chartlet)

20° 55'S 116° 02'E

AUS 327, 742, 743

The sandy spit from the south of the island offers little protection and there are rocky heads throughout. Not recommended as an anchorage and dangerous to enter at night or in poor visibility.

12.5.4 Stewart Island

(no chartlet)

20° 53'S 115° 56'E

AUS 327, 742, 743

⚓ Fair weather anchorage off the northeast corner of the island over sand and rock in 3m.

Caution: A reef with depths less than 5 m extends 1.5 nm north of the islet. Stewart Rocks (depth 0.1 m) lie on the northwest extremity of the reef. Reef also extends between 0.7 nm and 0.8 nm south from Stewart Island.

Fishing: Lobster and oysters.

12.5.5 Sholl Island

(no chartlet)

20° 57'S 115° 54'E

AUS 327, 328, 742, 743

⚓ There is poor anchorage on both the east and the south side. Easterly winds make the anchorage uncomfortable or unsafe. Anchorage at 20° 57.1'S, 115° 54.2'E has been used.

⚓ Anchorage over sand and coral has also been taken on the west side of the island.

Caution: A fish farm lies to the west of Sholl Island.

Tides: Large Island. Range 3.5 m.

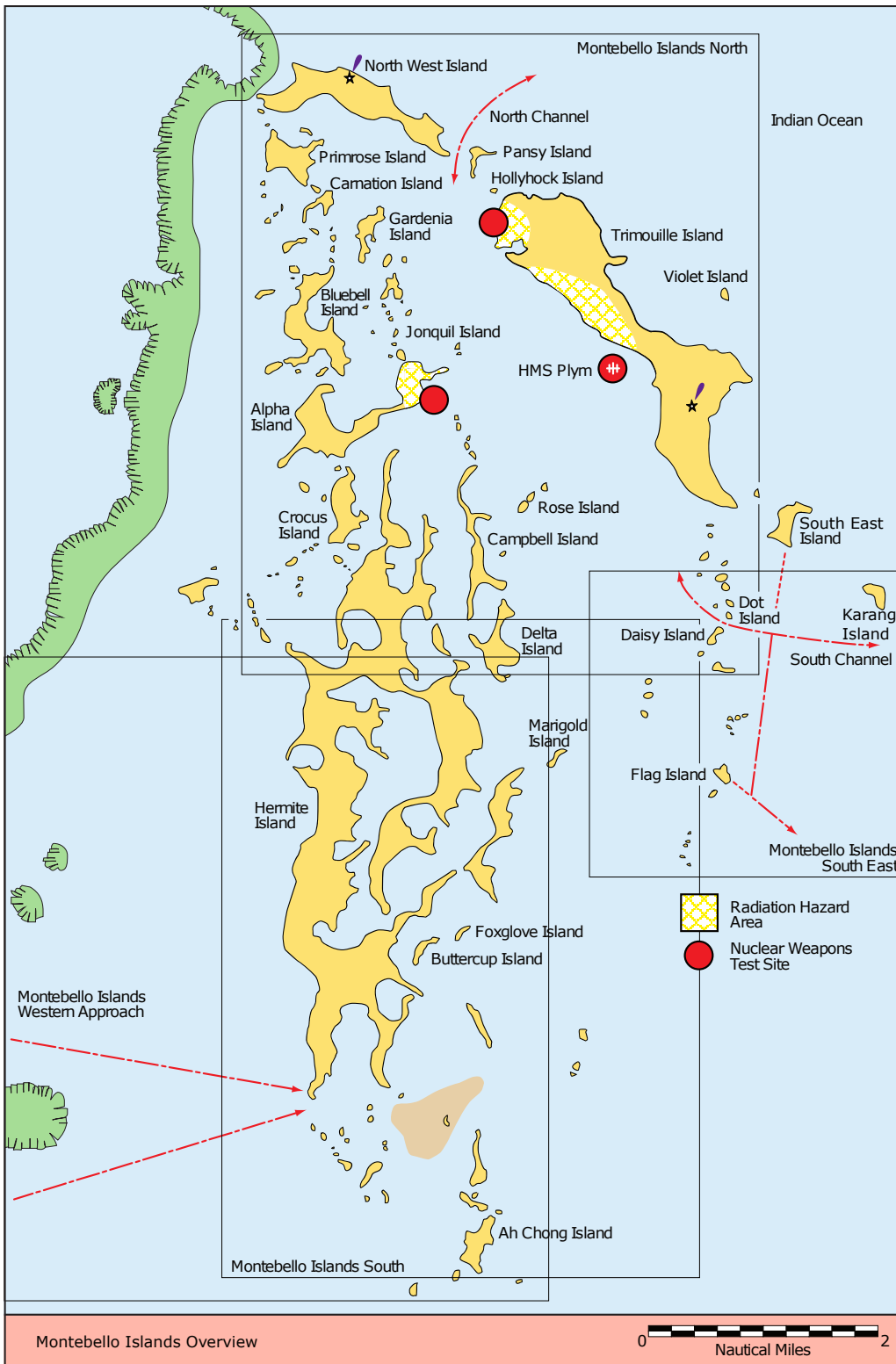
Fishing: Lobster and oysters.

Diving: Some excellent diving over coral available on west side of the island.

12.5.6 Montebello Islands

20° 26.0'S 115° 33.0'E

Charts: AUS 328, 742



Chartlet 103 Montebello Islands Overview

The island group is about 10 nm from north to south and comprises about 250 limestone islands and islets, with cliffs up to 12 m high interspersed with white sandy beaches. The highest hill is

37 m. These islands are a conservation reserve (Montebello Islands Marine Park) under the management of DBCA. Firearms, pets and open fires (including heat beads) are forbidden. Like other island conservation reserves, the Montebello Islands provide an important refuge for native animals that are threatened or no longer found on mainland Australia. It is critical that non-native animals and plants, even small insects and seeds, are not carried to the islands. Best practice quarantine procedures are that you:

- Keep your boat clean and check it before launching or leaving the mooring.
- Ensure your boat is free of all soil, seeds, pests, native animals like geckos and crickets, and that hull fouling is kept to a minimum.
- Maintain rat and mouse poison (wax blocks are best for damp places) in your boat and replace regularly, before it becomes unpalatable. Read and abide by manufacturer instructions for recommended replacement times and safe use of baits.
- Watch out for ant, wasp, bee and termite nests on boats and destroy them if found. Surface insecticide sprays in dry areas can be useful.
- Check your clothing and footwear are not carrying soil or seeds.
- Check your containers and food to ensure they are clean and free of pests and insects.
- Don't take pets.
- Take all rubbish with you on departure and dispose of it on the mainland.

There are no public moorings available amongst the islands but there are many anchorages. The most frequently used anchorage is along the southwest side of Trimouille Island as the water is quite deep with a sandy bottom, and there is ample room for several yachts along Main Beach. Stephenson's Channel is also a common place for yachts, especially when the weather is unfavourable, as it is well protected. However care must be taken as some areas are unsurveyed and can get very shallow at low tide, with sandbars emerging - best to enter and exit on high tide. With fish farms now occupying many of the bays, some of the anchorages and passages referred to in the text may no longer be an option.

A charter company has a base camp in Claret Cove at the south end of Hermite Island.

Tides: Trimouille Island: range 3.3 m. North West Island: range 3.0 m.

Fishing: Fishing and snorkelling are excellent. Fishing is prohibited in the three sanctuary zones (Northern Montebellos Sanctuary Zone, Southern Montebellos Sanctuary Zone, and Willy Nilly Lagoon Sanctuary Zone). Surface trolling is permitted in the Northern Montebellos Special Purpose Zone (Benthic Protection) in the northwest of the marine park. Full details are available from the DBCA website or the Karratha Regional Office on (08) 9182 2000.

History: Three nuclear weapon tests were carried out by the British military at the Montebello Islands: Hurricane, a 25 kilotonne ocean surface blast aboard *HMS Plym* anchored 400 m off Trimouille Island on 3 October 1952; Mosaic G1, a 15 kilotonne blast at the top of a 31m tower on Trimouille Island on 16 May 1956; and Mosaic G2, the largest nuclear weapon ever tested in Australia. It was a 98 kilotonne tower blast on Alpha Island on 19 June 1956.

Caution: Radiation levels are now considered low but visits to the test sites should be restricted to one hour per day. Do not handle or remove any objects as they may be radioactive. Avoid causing

dust as particles may be radioactive. Because of low levels of radiation, camping is prohibited on Trimouille and Alpha islands.

<http://parks.dpaw.wa.gov.au/park/montebello-islands>

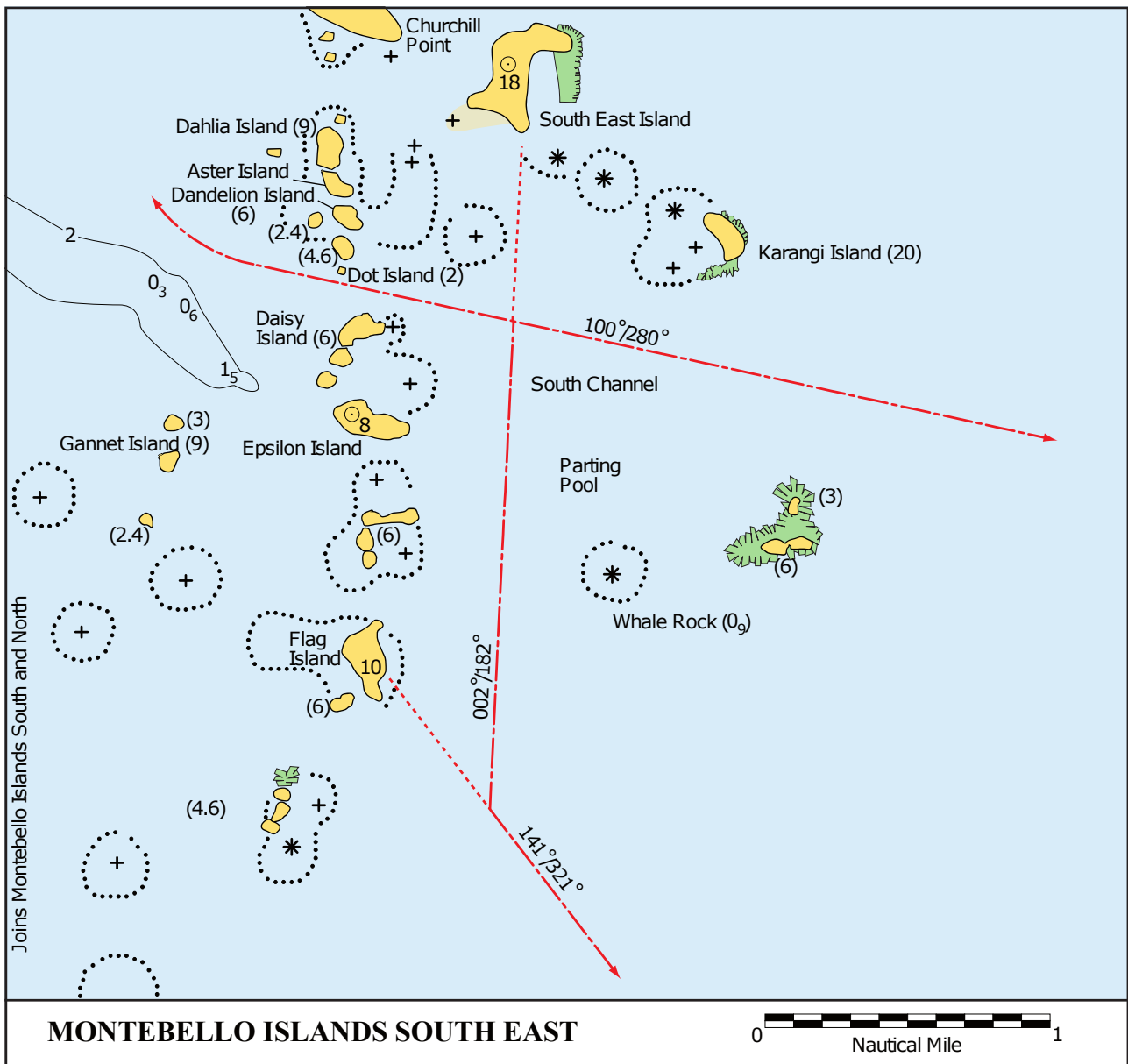
Passage notes

The entrances to the Montebello Islands are from the southeast, west and north. The southeastern and western entrances require working the tide and some eyeball navigation.



Montebellos panorama (A Gorham)

Approach from the SE:



Chartlet 104 Montebello Islands Southeast

Start the southeastern approach from position 20°30.6'S, 115°37.3'E. Approach Flag Island on a heading of 321°. Flag Island is 10 m high and about twice as high and large as nearby islands. When 0.75 nm from the island, turn to starboard and make for South East Island on a heading of 002° leaving Whale Rock to starboard. Whale Rock consists of seven dark, jagged, distinctive rocks. When the passage between Daisy and Dot islands bears 280° turn to port and remain on the heading of 280°. On your port side, as Daisy Island opens up it will become two islands. On your starboard side, the distinctively loaf-shaped Dot Island, 50 m wide, is the smallest island. When Dot Island is about 400 m astern, turn slowly and progressively to starboard to enter Main Bay off Trimouille Island (see Chartlet 106 Montebello Islands North).

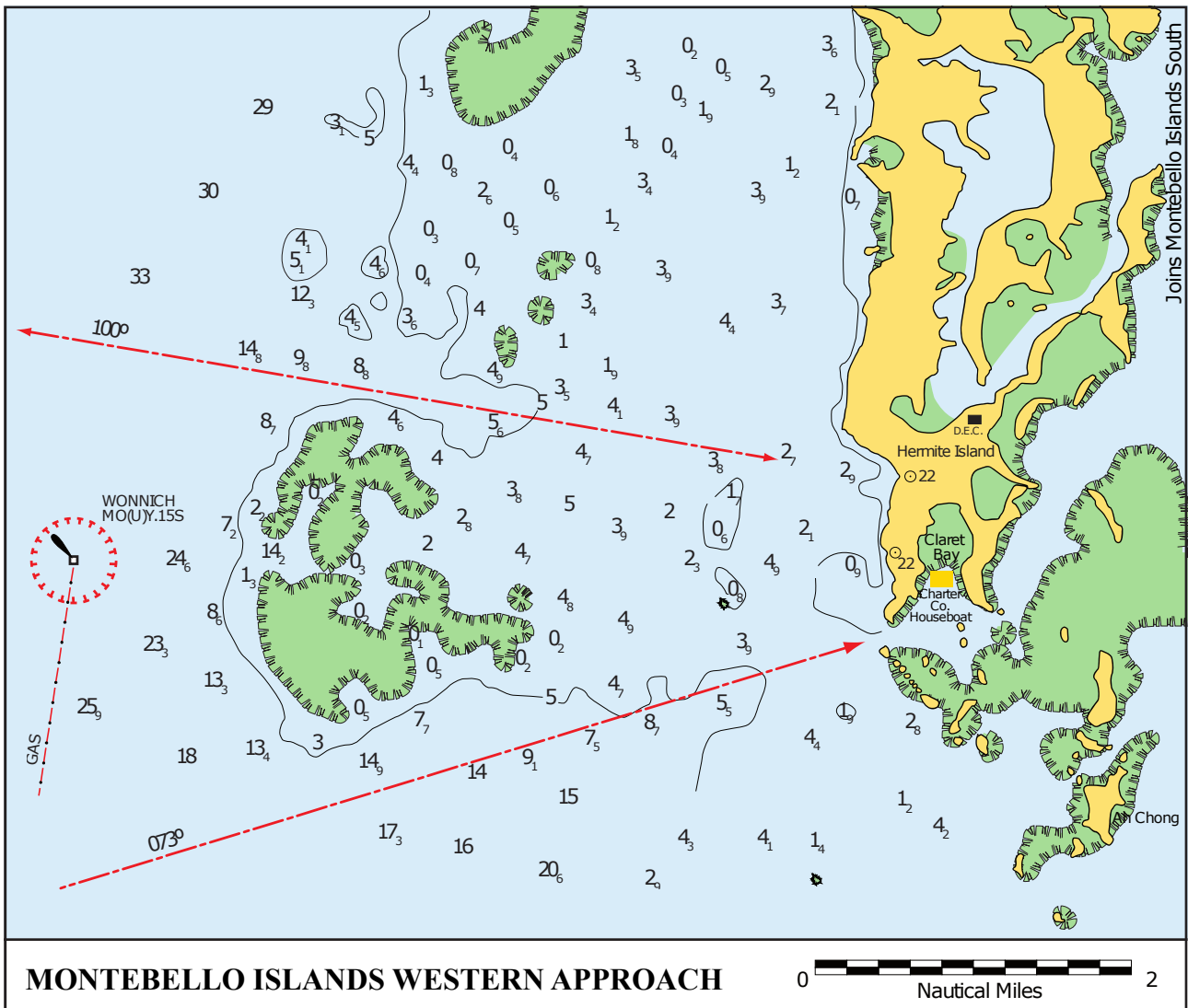
An alternative eastern approach may be made south of Karangi Island on a bearing of 280° to the passage between Daisy and Dot Islands.

Caution: It has been reported that some of the hazards east of the Montebello Islands have not been plotted accurately on the AUS charts.



Montebellos (A Gorham)

Approach from the west:



Chartlet 105 Montebello Islands Western Approach

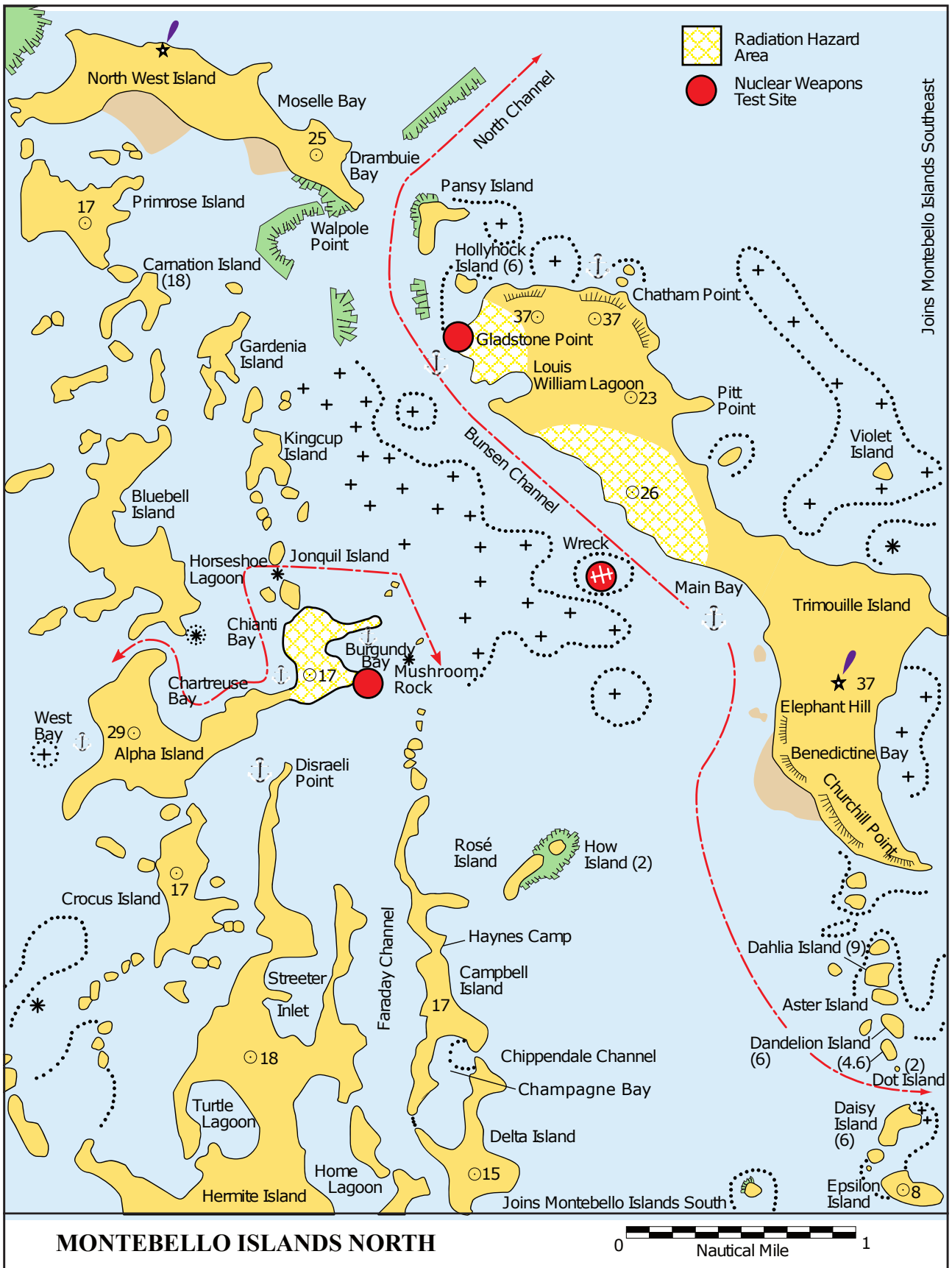
There are two options:

- a) From position $20^{\circ} 28.5'S$, $115^{\circ} 25.2'E$ (due north of Wonnich oil platform) approach on a bearing of 100° to $20^{\circ} 29.3'S$, $115^{\circ} 30.0'E$.
- b) From position $20^{\circ} 32.0'S$, $115^{\circ} 25.8'E$ (2 nm south of Wonnich oil platform) approach on a bearing of 073° to $20^{\circ} 30.7'S$, $115^{\circ} 30.6'E$.

From either of these positions it is possible to pass either north or south around Hermite Island, albeit with caution. Eyeball navigation is necessary (polarised sunglasses help).

Caution: Neither of these approaches is recommended in conditions of heavy westerly swell.

Approach from the north:



Chartlet 106 Montebello Islands North

The northern passage is through North Channel, which lies between North West island (lit) and Pansy Island immediately to the east. It has ample water but is not easy to find. Approaching the

light on a bearing of 215° will bring the channel into view. In N winds it may be subject to heavy swell. Tidal flow through the passage can reach 3 kn in springs. Once past Pansy Island, pass close to the northern end of Trimouille Island. Keep Trimouille Island close abeam, whilst following its western shore southwards.

Caution: Breakers have been reported at the entrance during ebbing tides and strong E winds.

Montebello Islands - North

20° 24'S 115° 33'E

AUS 327, 328, 742

⚓ There is an anchorage protected from S winds near Chatham Point, north of Trimouille Island (20° 22.6'S, 115° 33.5'E). This becomes unsuitable when the wind swings E. Entry into the group may be made from here, through North Channel.

⚓ There is anchorage to the west of Trimouille Island in Main Bay, just out of Bunsen Channel. The beach is steep but anchorage can be taken in 3-5 m over sand. This is a good anchorage in easterly weather but less pleasant in winds from S to W. Re-anchoring to the northeast off Gladstone Point is an option.

⚓ There is anchorage in West Bay off Alpha Island.

⚓ There is anchorage in Chianti Bay north of Alpha Island. The text in the previous edition states "Approach is south of Alpha Island, through West Bay and then around the northwest of Alpha Island." However, the chartlet in the previous edition shows a different route, northabouts. We have as yet been unable to resolve this conflicting advice, but we can confirm that the passage between Alpha Island and Crocus Island to the south, is passable by vessels of at least 1.5 m draft.

⚓ Burgundy Bay on the east side of Alpha Island provides anchorage in 3-5 m over sand. Anchor due north of the southern point, but in the northern half of the bay. Approach from the southeast or northeast since there is a shallow bank immediately east of the bay.

Caution: The remains of an old pier may be seen at the northern end of the beach.

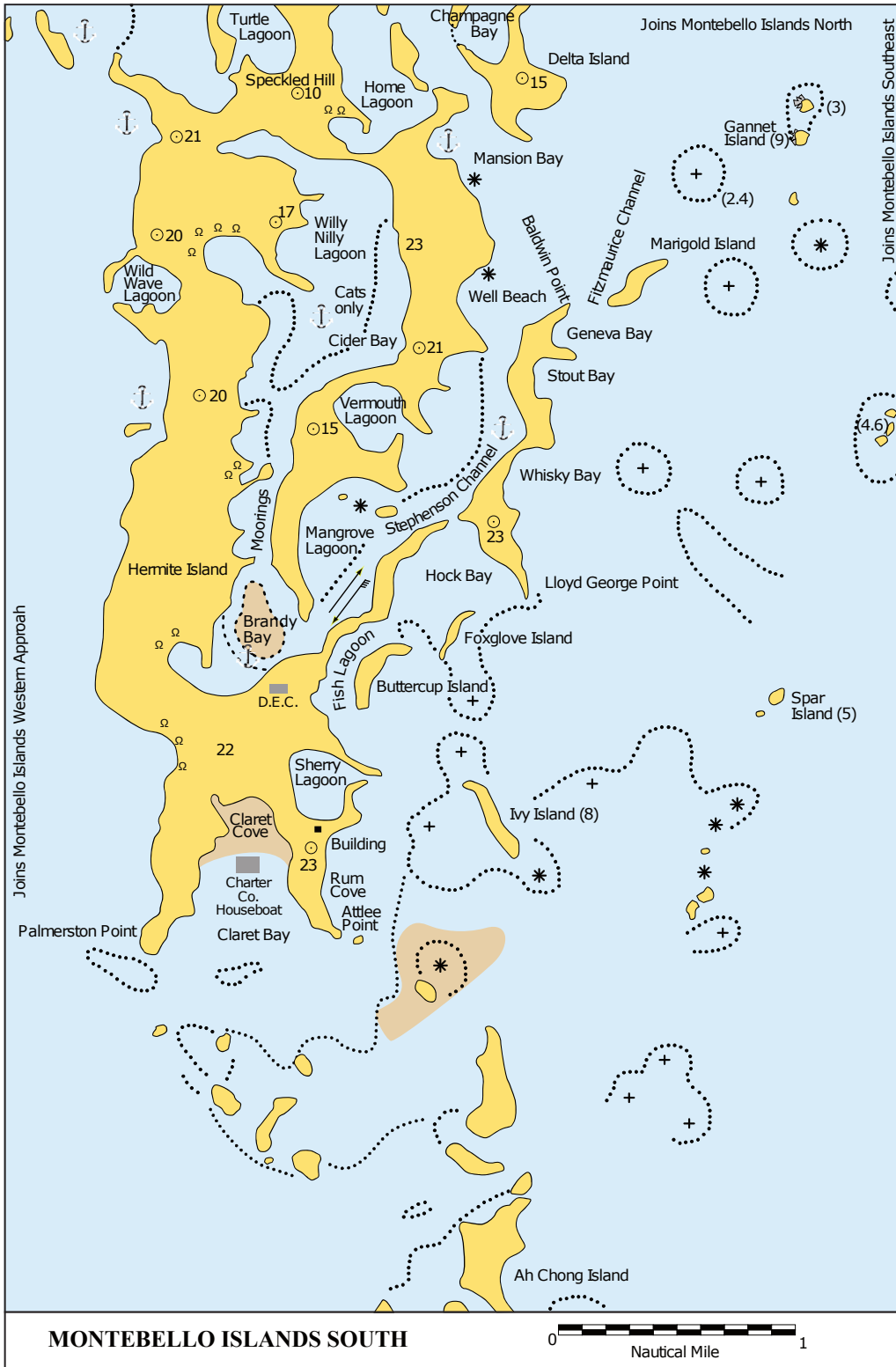
Of interest: There is a cairn marking the nuclear test 200 m southwest of the beach.

⚓ Anchorage has been taken west of Disraeli Point (SE of Alpha Island) in 7m sand at 20°24.9'S, E115°31.8'E, providing 360°protection. There is a sandy beach nearby, and a pearl farm might be operating there. Approach by skirting the visible northern rocks on a heading of about 270°. (Note: this advice was offered despite appearing to contradict charted information.)

⚓ Champagne Bay west of Delta Island may be entered via the northeast entrance only with extreme caution and with shallow draft. The entrance is too narrow and shallow for most yachts. Approach the entrance from the northeast, keeping a lookout for isolated bommies. A bank and rock bar obstruct the southwest entrance on lower tides so proceed with caution. Some acceptable depth may be found in the northeast corner. Use a line to shore to restrict swinging.

Montebello Islands - South

20° 27.5'S 115° 32'E



Chartlet 107 Montebello Islands South

⚓ There is anchorage in Mansion Bay, but the bottom appears to be rock swept clear by the tidal flow.

Caution: There is an isolated shallow patch and ledge, marked by a white spar buoy, extending

west-southwest from Delta Island towards Mansion Bay.

⚓ There is anchorage over rock in 6m at HW (20° 27.9'S, 115° 32.7'E) in the first bay on the east side of Stephenson Channel, protected from N through E to S .

Tides: Tidal flow reported to be less than at Brandy Bay.

⚓ The approach to Brandy Bay through Stephenson Channel requires staying very close to the east side of the channel. There were cyclone moorings in Brandy Bay for commercial craft from Barrow Island, reportedly gone in 2017. DBCA have a basic research facility in Brandy Bay. There is room to anchor in the narrow channel, but there is a drying sandbar in the middle of the bay. It is sheltered but a current up to 2 kn has been experienced.

Tides: Reported to be the same time but a greater range than at Trimouille Island (about 0.7 m higher).

Caution: DBCA have advised that all moorings other than those referred to above have been removed. Anything remaining must be considered as suspect.

⚓ Hermite Island surrounds Willy Nilly Lagoon (a sanctuary zone) which is entered through Brandy Bay. It provides excellent protection although it is shallow and only suitable for very shallow draft vessels.

Anchorage can be taken along the west coast of Hermite Island:

⚓ The anchorage west of Turtle Lagoon is over sand, well-protected and in clear water. It is fairly shallow. Passage north from this anchorage towards Alpha Island is possible. Enter on a rising tide, avoiding the black clumps of weed and rock.

⚓ The anchorage north of Wild Wave Lagoon is a good starting point upon arrival from the west.

⚓ Anchorage has been taken, by vessels of 2.1 m draft, just south of Wild Wave Lagoon. There may be some swell on the beach there.

Home Lagoon, at the northern end of Hermite island, is reported to be shallow.

Of interest: The marine life in Turtle Lagoon makes exploring in a dinghy worthwhile.

History: There is archaeological evidence of Aboriginal occupation of the Montebello Islands, from about 30,000 years ago until the sea level rose about 7,000 years ago.

On 25 May 1622, the British East Indiaman *Trial* was wrecked on rocks that lie 9 nm northwest of the northern end of the Montebello Islands, while on her maiden voyage under Captain John Brookes. The *Trial* was abandoned and 46 survivors of the ship camped on the northern islands before setting sail for Batavia (Indonesia). Brookes and seven of his crew took off in a skiff. They took with them a precious cargo of 500 reales (Spanish silver dollar coin) and gold spangles. The first mate, Thomas Bright, and thirty-six crew escaped in a longboat. The four unaccounted crew perished. Both parties independently reached Batavia. A subsequent inquiry acquitted Brookes of falsifying records. The wreck of the *Trial* was discovered in 1969.

The *Wild Wave*, a wooden brig, was wrecked in 1872 on the reefs to the west of the Montebello Islands. All passengers and crew reached shore and were rescued by the *Mary Ann*.

Nicolas Baudin named the Montebello Islands to commemorate the French victory over the

Austrians at the battle of Montebello.

Thomas Haynes had a pearling licence from 1902-1913 and camped on Campbell Island (also called North Delta Island). He constructed an experimental pearl farming pen in 1906, which can be seen in Faraday Channel.

Turtle fishing leases were granted in the 1870s and commercial turtle fishing continued until 1973.



Drying sandbar in Brandy Bay looking east at low tide. DBCA house on right (P McHugh)



Montebellos (A Gorham)

12.5.7 Barrow Island

(no chartlet)

20° 47'S 115° 24'E

AUS 328, 742, 743, 66, 67

Barrow Island is a Class A nature reserve and home to an oil and gas field managed by Chevron Australia. Public access to the island is prohibited for safety reasons. All flora and fauna is protected. Strict quarantine measures are in place for personnel, goods and equipment travelling to Barrow Island.

The Barrow Island Marine Park and Management Area surrounds most of Barrow Island (the most protected area is located in Bandicoot Bay, a conservation area for seabed fauna and seabird protection). Barrow Island Marine Park lies around Turtle Bay on the western side of Barrow Island. The marine park is a sanctuary zone (100% no-take zone).

To the south of Barrow Island lie Boodie and Middle Islands, part of Boodie, Double and Middle Islands Nature Reserve. As with Barrow Island, camping, lighting of fires and the bringing of pets onto these islands is prohibited.

The Port of Barrow Island is operated by Chevron Australia who maintain a listening watch on VHF channel 10. Permission should be sought from the Port of Barrow Island before entering port limits.

⚓ Anchorage can be taken in Flacourt Bay on the west side of Barrow Island. Anchor in about 8 m

due east of the off-lying reef. Some swell may enter the bay. Be aware of where you are anchored in relation to the marine park boundary if anchoring in this bay.

⚓ Anchorage has also been taken southeast of Cape Dupuy on the north side of Barrow Island.

⚓ Fairly well-protected anchorage can be found on the east side of Barrow Island, west of the north end of Double Island. Note that Double Island is within the port limits, so permission is required to use this anchorage.

Fishing: Fishing is prohibited in the Barrow Island Marine Park.

History: Phillip Parker King in the *Mermaid*, named the island in 1818 after Jon Barrow, a secretary of the Admiralty. Later, as the result of interest generated by naturalists in the unique fauna and wildlife, the island became a nature reserve.

Passage notes

The area between Barrow Island and the Montebello Islands is hazardous. For a safe passage to the Lowendal Islands from Surf Point on Barrow Island, aim for the centre of Varanus Island (marked by large brown tanks) on 072°.

12.5.8 Varanus Island

(no chartlet)

20° 39'S 115° 35'E

AUS 327, 328, 742,

Varanus Island is a centre for extensive gas exploration and production. There are Restricted Areas.

The occupiers of Varanus Island respond to a call on VHF Ch 9 and permission from the Terminal Superintendent is required before entering the areas.

Of interest: Varanus Island is named after the population of Spiny-tailed Goanna (*Varanus acanthurus*) which lives there. Abutilon Island is so named because the shrub *Abutilon cunninghamii* (common name beautiful lantern flower) occurs on the island. It has yellow hibiscus-like flowers and is also found on other islands of the Lowendals group.



Varanus Harriet A platform (A Gorham)

12.5.9 North Sandy Island

(no chartlet)

21° 06'S 115° 39'E

AUS 63, 327, 328, 743

⚓ North Sandy Island has fair anchorage, exposed to swell in all but westerlies.

12.5.10 Great Sandy Island

(no chartlet)

21° 12'S 115° 38'E

AUS 63, 327, 328, 743

⚓ Great Sandy Island has anchorage in sand on the east side (21° 11.5'S, 115° 39.3'E) and on the west in about 8 m. Swell may be evident at HW. The anchorage has a shallow fringing reef that extends towards the south from the western and eastern ends, so the island needs to be approached with caution. The reef prevents landing on the southern side of the island. It is recommended to anchor in about 7 m depth after checking your swinging circle for bommies. Depths of 5 m are only 50 m from the fringing reef.

Caution: Not recommended in unsettled weather.

Tides: Large Island. Range 3.5 m.

12.5.11 Large Island

(no chartlet)

21° 18'S 115° 30'E

AUS 63, 327, 743

⚓ Large Island, in the Mary Anne Group, has shelter out of the tidal stream to the southwest side.

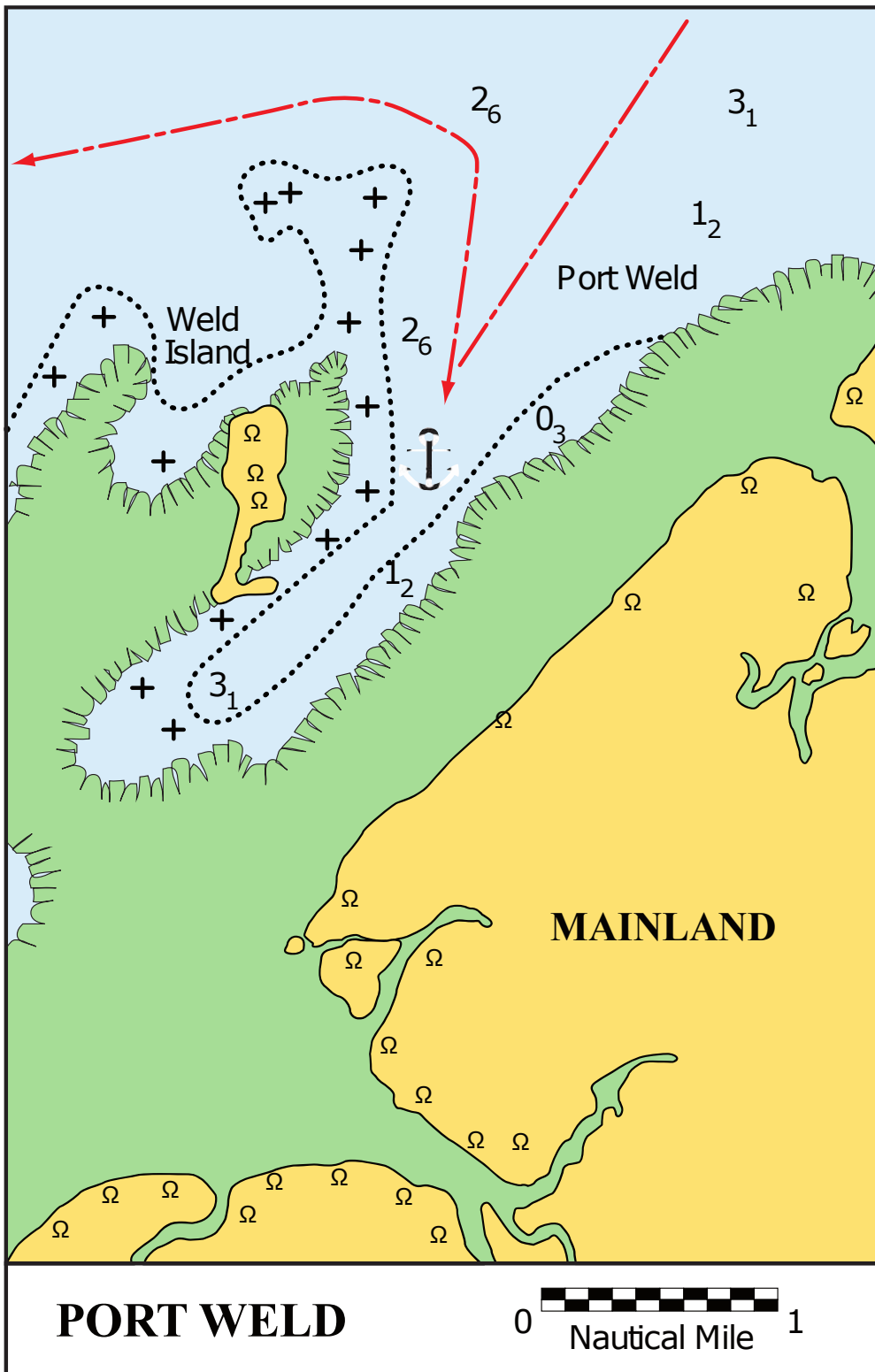
There can be wave chop at HW.

Tides: Large Island. Range 3.5 m.

12.5.12 Port Weld

21° 23'S 115° 33'E

AUS 327, 328, 743



Chartlet 108 Port Weld

⚓ Good protection will be found between Weld Island and the mainland. Port Weld gradually

shoals to the south but the bottom appears to be free of hazards. Anchorage can be found in 3.5 m over coarse sand and mud.

Caution: A rocky shoal with depths less than 1.2 m extends 1 nm north of the island.

12.5.13 Mangrove Islands (North Island)

(no chartlet)

21° 28'S 115° 21'E

AUS 328, 743

⚓ Provides fair weather anchorage northwest of North Island at 21 ° 27.0' S, 115 ° 21.0' E. A bommie has been reported with depth less than 1 m below chart datum at 21° 27.2'S, 115° 21.6'E .

12.5.14 Airlie Island

(no chartlet)

21° 19'S 115° 10'E

AUS 63, 328, 743

⚓ Anchorage on the northern side of the island is possible in light weather. It is untenable in fresh southerlies and high tides. The depth is about 2 m.

12.5.15 Thevenard Island

(no chartlet)

21° 27'S 115° 00'E

AUS 328, 743, 744

⚓ Anchorage has been taken at the southeast end of the island, close inshore. Protected from W to NW winds, exposed from the E to S. A lit commercial mooring is now shown at this location.

Caution: Centre for oil and gas extraction with rigs to the north, east and south, with tankage on the island plus moorings to the east of the island.

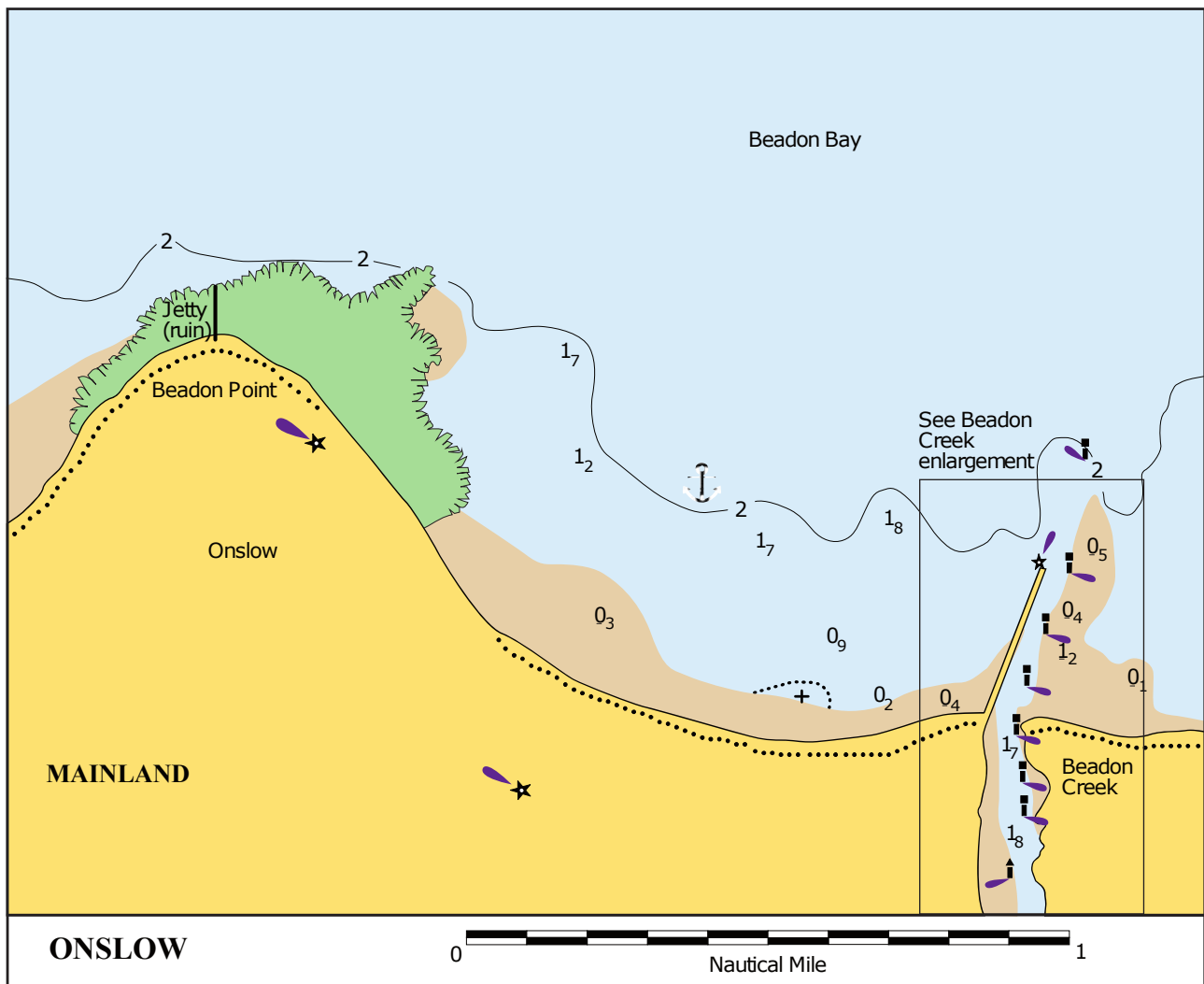


Thevenard Island rig (R&L Newton)

12.5.16 Onslow

21° 38'S 115° 07'E

AUS 328, 743, 64



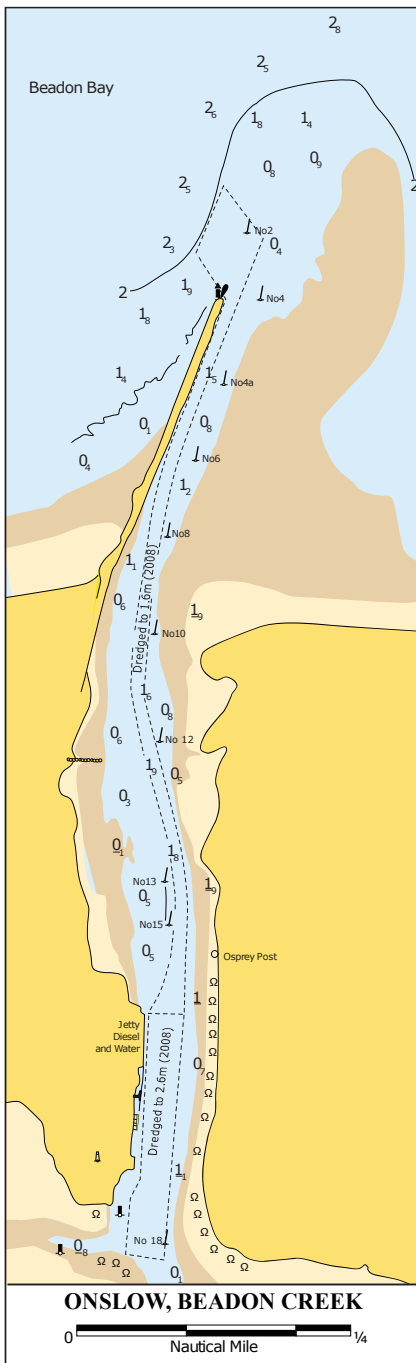
Chartlet 109 Onslow

Onslow (population 650) is a base for supplies to oil rigs, oil exploration, and salt production..

⚓ From the west the approach is to Beadon Point on a bearing of 151°. The anchorage is off the township where fishing boats frequently moor. It is protected from SE to SW winds but it is exposed in winds N of E and is subject to swell. Pleasant and convenient in light weather. Anchor in 3m over sand and mud, beyond a reef on northeast side of Beadon Point (21° 38.1'S 115° 07.3'E).

Caution: Some of the mooring buoys in the bay are black so they might not be visible at night.

Tides: Onslow. Range 2.8 m.



Chartlet 110 Onslow, Beadon Creek

⚓ Berths are sometimes available in Beadon Creek; however, they are usually occupied. There is a minimum depth above chart datum of 1.6 m in the creek, thus requiring attention to the state of the tide. There are port and starboard spar marks indicating the channel.

There are privately owned wharves and piles on the western side, usually occupied by commercial vessels. There is a small dredged area just beyond the piles which provides anchoring space for one boat. Before entering the creek always contact Ashburton Marine on VHF Ch 14 to obtain traffic information and to check if space is available, irrespective of whether your visit is casual or an emergency. The Creek is run by DoT who have an office at the creek, staffed part-time. Contact them prior to arrival on ph: 0467 811 543 or Email: beadoncreek@transport.wa.gov.au

Charges will apply. Beadon Creek is about 2 km from the town. Sandflies and mosquitoes abound.

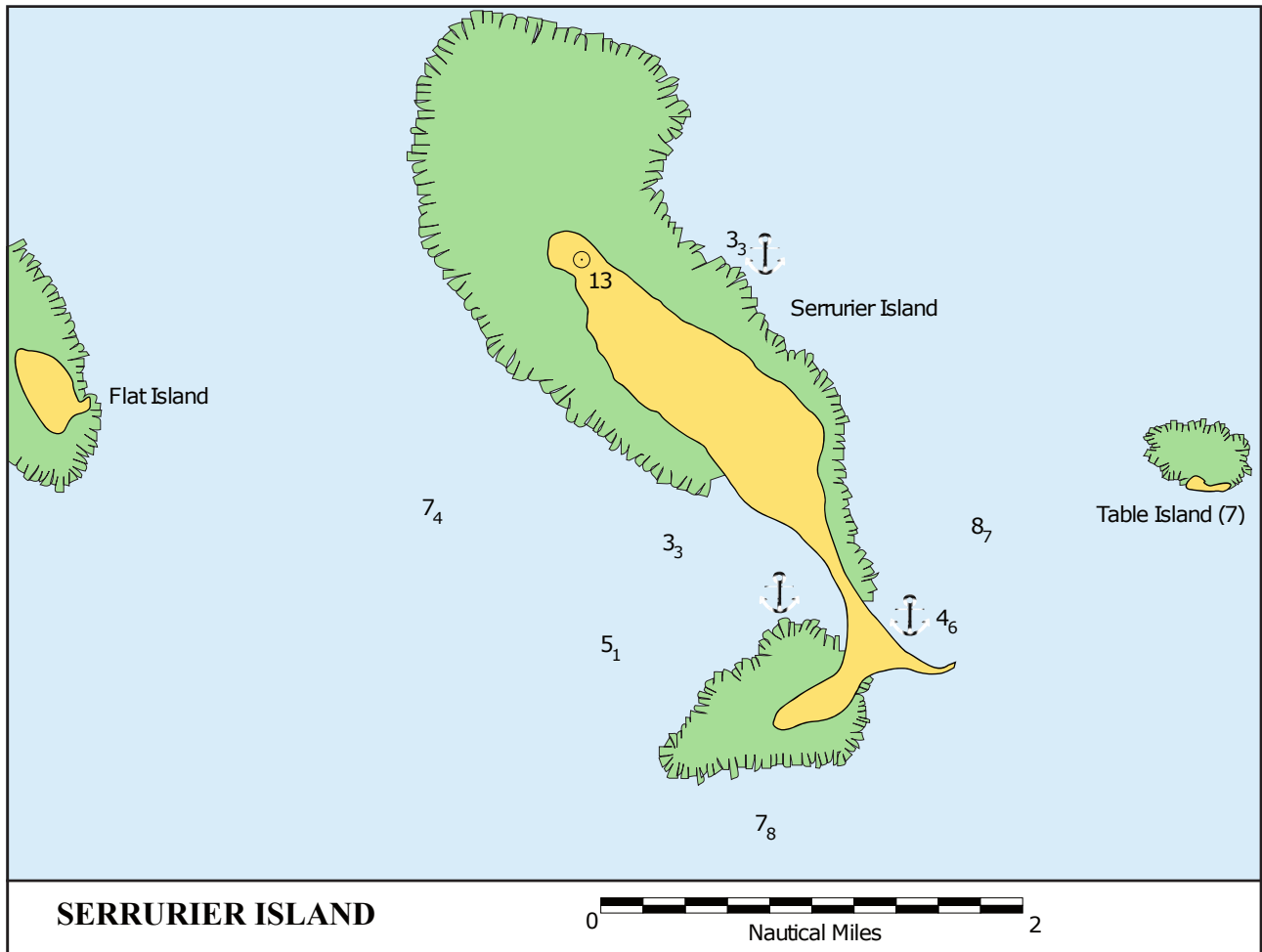
Facilities: All basic facilities in the town including fuel, water, post office, laundry, small supermarket, chemist, hardware store, museum, restaurants and a hospital (see section 7.5).

History: Since 1883 the town has been the centre for pearling, mining and pastoral industries. During World War II Onslow became an Allied naval base.

12.5.17 Serrurier Island (Long Island)

21° 36'S 114° 41'E

AUS 328, 743, 744



Chartlet 111 Serrurier Island

This island is widely known among boaters as Long Island and should not be confused with other islands of that name further north.

⚓ There is anchorage on the southwest side, where there is a break in the reef, protected from the NE to SE. Ocean swell, if any, will come in. Work in towards the shore, near the neck of the island, to a depth of about 4 m over sand. In S to SE winds this anchorage on the western side of the island is less comfortable than the one on the south eastern side because at low tide the exposed reefs cause the swell to refract around, bringing them beam on to the yacht.



Serrurier Island western anchorage (A Gorham)

⚓ Anchorage over sand east of the neck at the southern end of the island. Unprotected from the N and tends to be roly. There is a private mooring close in to the beach.

⚓ Anchorage over sandy bottom on the northeast of the island has been found satisfactory in strong southerly weather. The reef here is closer to the shore than shown on the charts.

Caution 1: This area is prone to strong SE winds developing overnight, especially from August onwards.

Caution 2: Use an anchor light, as fishing boats sometimes anchor here after dark.

Tides: Muiron Islands. Range 1.3 m.

Facilities: None.

Fishing: Fishing is excellent.

Of interest: Turtles come in at night.

Diving: Good diving with extensive coral on the southwest side. Beware of tiger sharks during turtle nesting season (Oct-Dec).

History: Baudin named the island Serrurier after Napoleon's military commander.

Passage notes

Crossing Exmouth Gulf is usually wet and choppy, owing to the wind against tide conditions likely to be experienced.



Turtle on Serrurier Island (A Gorham)

12.5.18 Muiron Islands

(no chartlet)

21° 40'S 114° 20'E

AUS 328, 329, 744, WA 900

⚓ Provides satisfactory day anchorage. The channel between the islands has poor holding.

Tides: Muiron Islands. Range 1.3 m.

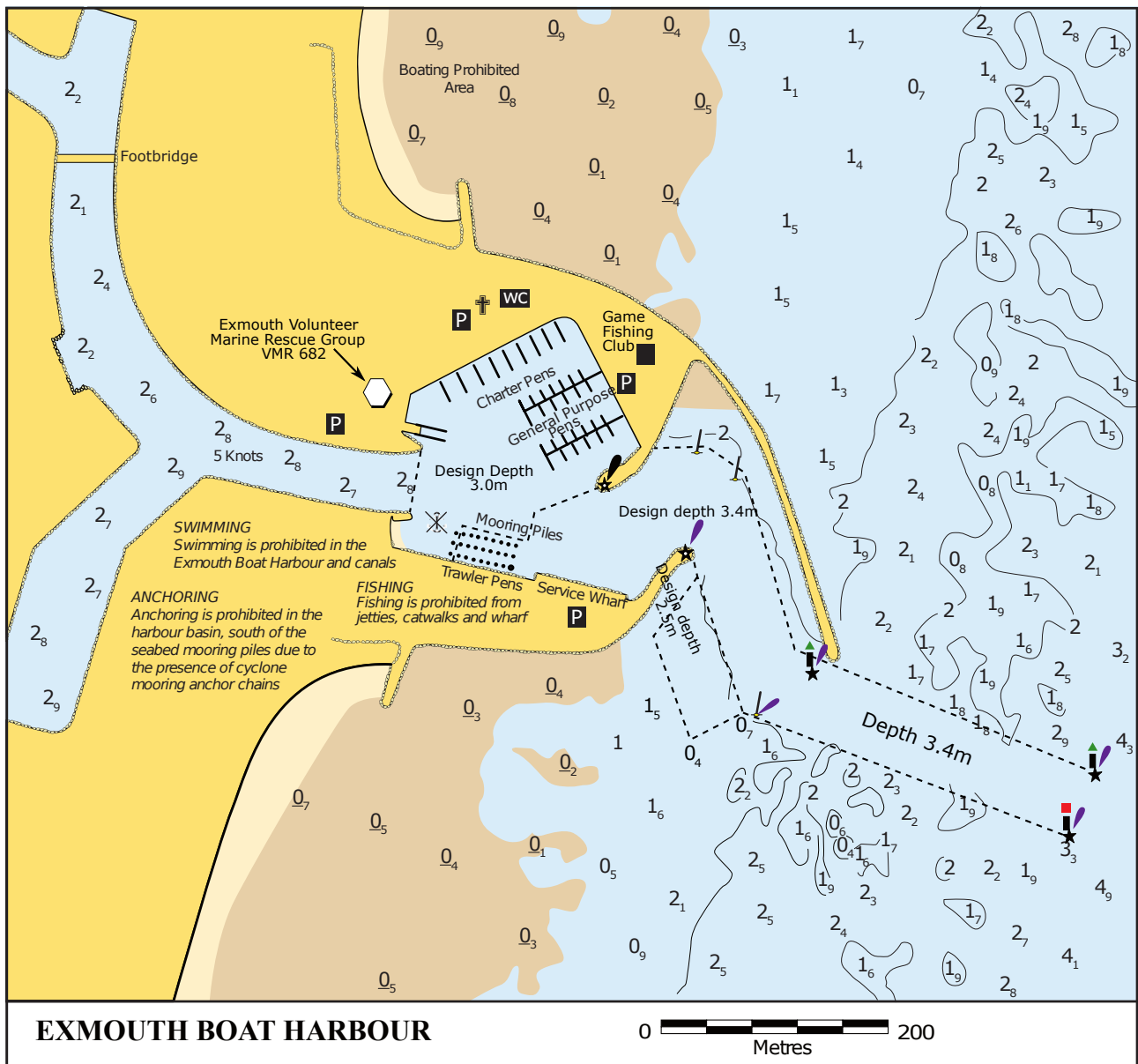
Diving: Hard and soft corals may be found just off the shore in depths of 3-20 m, teeming with marine life. Suitable for divers and snorkellers. Large potato cod can be hand-fed.

Fishing: Muiron Islands Marine Management Area encompasses the Muiron and Sunday Islands. There are a number of sanctuary zones and conservation areas where fishing is prohibited.

12.5.19 Exmouth

21° 57'S 114° 08'E

AUS 328, 329, 744, 745, 72, WA 900



Chartlet 112 Exmouth Boat Harbour

⚓ Exmouth Boat Harbour 5 km south of the town was built in 1997 and includes boat pens, service wharf and a boat ramp. The marina was rebuilt after being destroyed by Tropical Cyclone Vance in March 1999. The basin and entrance are maintained to 2 m depth below chart datum. There is a private canal development beyond the head of the harbour with depths of less than 2.5 m. Yachts more than 12 m long are not allowed into the canals. The harbour is run by DoT. Contact the Maritime Officer prior to arrival, on (08) 9949 4284 or 0447 856 774.

<https://www.transport.wa.gov.au/imagine/exmouth-facility.asp>

As at 2016 a jetty had been removed, possibly temporarily. Visitors are put in whatever berths are available.

Marina facilities: Showers, power, water, telephone and diesel fuel (trawlers have priority for the diesel). There is a 4-star hotel with restaurant and bar next to the marina.

Tides: Exmouth. Range 2.5 m.

Town facilities: The town is 5 km north of the marina and has excellent facilities for provisioning, and a hospital (see section 7.5). It is possible to take the dinghy up to the last jetty in the canal development; from there it is only about 2 km into town. There are several car rental places along the road into town.

Of interest: Exmouth is the closest sports fishing harbour in Australia to the Continental Shelf. The closeness to the shelf explains the abundance of fish and marine life in the surrounding waters.

Exmouth is the northern tourist base for the Ningaloo Marine Park, which is located on the western shore of the North West Cape. Ningaloo Marine Park extends from Bundegi, just north of Exmouth, around North West Cape and south to Red Bluff. Within the park there are sanctuary zones with fishing restrictions. It is famous for the annual aggregation of whale sharks which occurs April-June each year. Exmouth Gulf is also a major resting area for humpback whales during their southbound migration.

The Naval Communications Station at North West Cape is an operational facility whose presence is a tourist attraction with its huge communications towers dominating the skyline. The highest of the thirteen towers rises to 388 m and is the tallest structure in the southern hemisphere (the Sky Tower in Auckland is only 328 m high). The station was operated by the U.S. military until 1993, and it is now run by the Australian Defence Materiel Organisation.

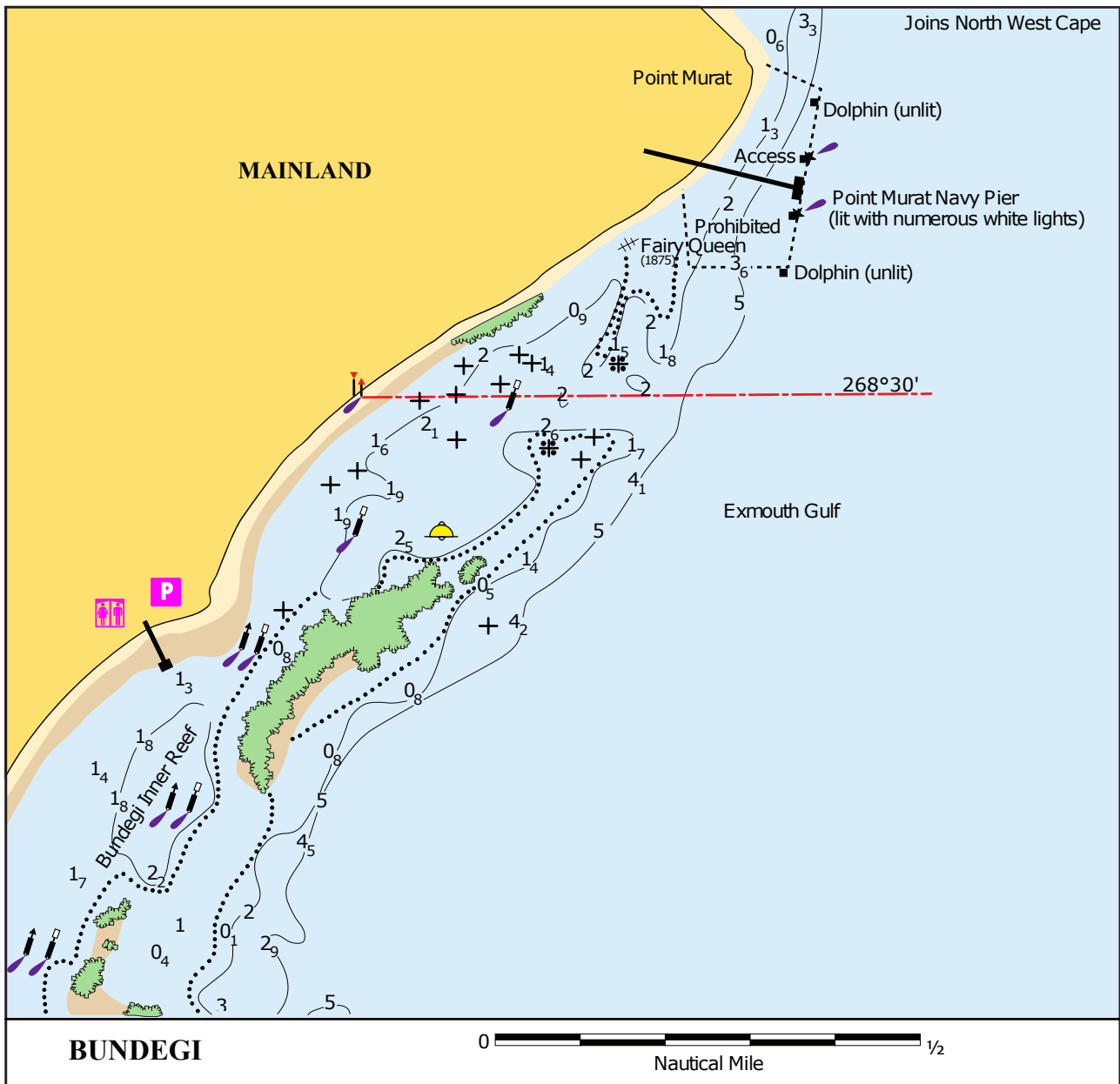
Cape Range National Park is spectacular with rugged limestone ranges and deep canyons. There are two scenic drives; Shothole Canyon Road and Charles Knife Canyon Road which are 16 km and 23 km from Exmouth respectively.

Diving: The Exmouth Navy Pier is rated by many as one of the top ten shore dives in the world. As the pier remains a working defence facility, diving here can only be conducted with a licenced dive operator. Contact the Exmouth Visitors Centre to book a dive <http://www.visitningaloo.com.au/dive-ningaloo> Other dive sites include the Labyrinth and Blizzard Ridge. The Labyrinth is a maze of crater-like enclosures with a variety of mysterious coral outcrops. Blizzard Ridge is a fault line running parallel to the coast at depths of 12-15 m. Many and varied marine creatures inhabit this site.

12.5.20 Bundegi

21° 49.26'S 114° 11'E

AUS 328, 329, 744, 745, 72 WA 900



Chartlet 113 Bundegi

⚓ Bundegi Reef south of Point Murat gives a little shelter from much of the chop and groundswell from NE through W to S winds. This anchorage is uncomfortable in SE weather (which usually freshens overnight) but is satisfactory in SW to NW conditions. The holding is poor (broken coral over rock) and permission should be sought to pick up a mooring. There are no public moorings. Depth at LWS may be less than 2 m in places.

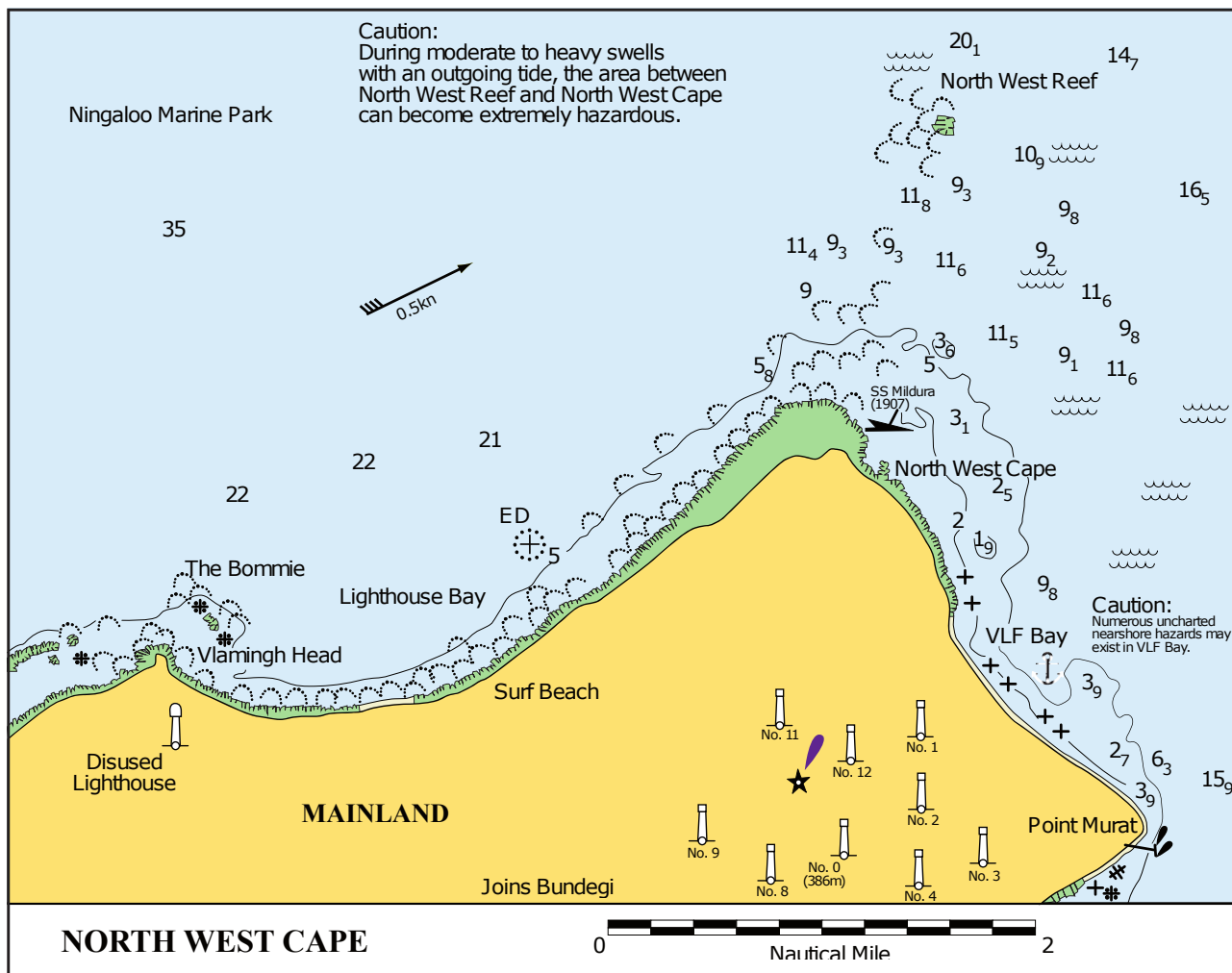
Facilities: Boat ramp, jetty and water.

There is little to recommend Bundegi anchorage with Exmouth marina being nearby.

12.5.21 North West Cape

21° 47'S 114° 10'E

AUS 328, 329, 744, 745, WA 900



Chartlet 114 North West Cape

⚓ Protection from the southeast can be found in VLF Bay on the north side of Point Murat (21°48.1'S, 114°10.7'E). The anchorage is exposed to the N and reports on holding vary. One report advises that holding is good for an overnight stay in southeasterly winds; others suggest the sea bed probably suffers the same disadvantage as Bundegi with broken coral and poor holding. Even in southerly winds swell can enter. Satisfactory in light winds and low swell, but wind against tide can create a short chop.

Tides: Point Murat. Range 2.5 m.

Caution 1: Several boats have dragged on to the beach.

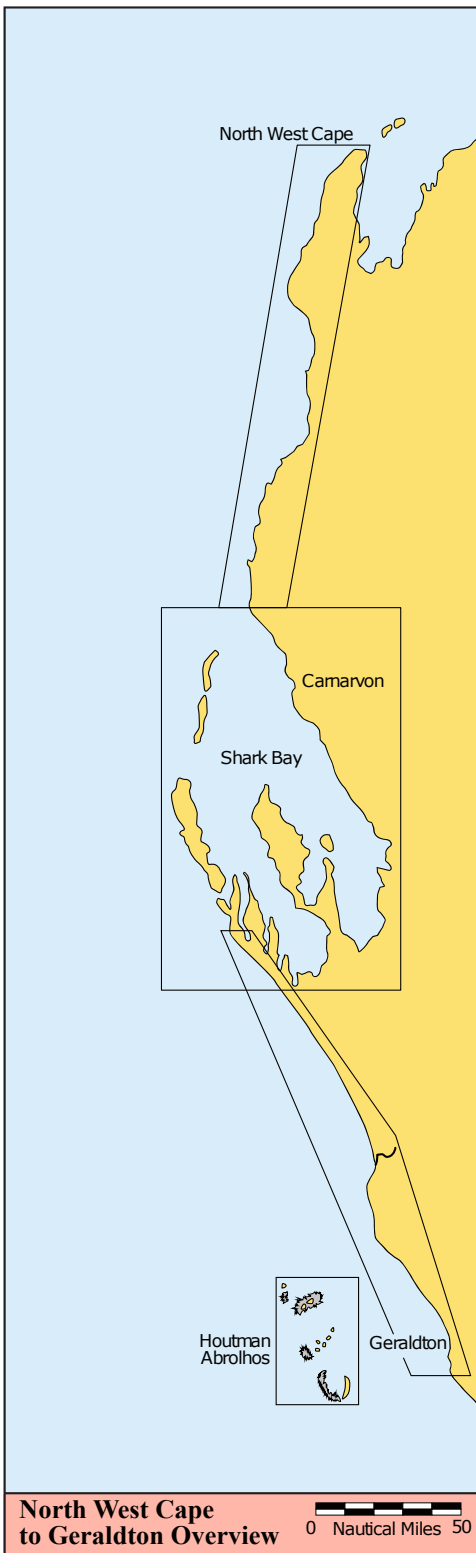
Caution 2: The area between North West Reef and North West Cape can become extremely hazardous during moderate to heavy swells with an outgoing tide.

Of interest: The wreck of the cattle ship *SS Mildura* can be seen at the northern end of the beach. The ship was lost in a cyclone in 1907 when it hit the reef. No lives were lost.

History: Point Murat was named by Baudin after Joachim Murat, King of Naples, who married

Napoleon's sister Caroline. The first recorded landing on the cape was by the Dutch Captain Jacobsz of the *Mauritius* in 1618. Philip Parker King visited in 1818 and named the peninsula North West Cape. He also named Exmouth Gulf, after an officer of the British Royal Navy.

13 NORTH WEST CAPE TO GERALDTON



Chartlet 115 North West Cape to Geraldton Overview

13.1 General Note

The Gascoyne region of Western Australia extends from the North West Cape to Shark Bay,

covering about 144,000 sq km. AUS 4725 covers the entire length of this part of the coast. The major centre is Carnarvon (population 4,500).

This region is not subject to the same extreme tides encountered in the Kimberley. Winds along this part of the coast are generally from a southerly quarter and in summer they are persistently from this direction. Occasional wind from the NW, which may be strong and accompanied by rain, interrupts the regularity of these winds. See 3.5.3 and 3.5.4 for weather details.

The majority of the coast from Vlamingh Head on the tip of North West Cape (21° 47'S) to Amherst Point (23° 30'S) is protected by Ningaloo Reef. The reef lies 1-3 nm offshore and the swell breaks on it heavily. The reef is steep to on the west side. It is the largest coral fringing reef in the world.

The entire Ningaloo Reef, including the Muiron and Sunday Islands, is a marine park. Ningaloo Marine Park extends from Bundegi, just north of Exmouth, around North West Cape and south to Red Bluff. Within the park there are sanctuary zones with fishing restrictions. The areas most likely to affect cruisers are the Cloates and Maud sanctuary zones. Some of the Ningaloo sanctuary zones extend several miles offshore, where fishing, including trolling, is prohibited. For more information see <https://parks.dpaw.wa.gov.au/park/ningaloo:charstyle:Hyperlink>

This is a beautiful, unique and fragile environment to explore, supporting over 550 species of fish and more than 200 species of coral. Consequently the Ningaloo Coast is a mecca for scuba divers and snorkellers. It is visited by giant whale sharks - the world's largest fish, growing up to 21.5 tonnes and 12.5 m long. They come to feed on the plankton and coral blooms from March through May.

DBCA has a number of public day-use moorings on dive sites and a number of public overnight moorings in the marine park. The overnight moorings need to be booked prior to use, and conditions apply.

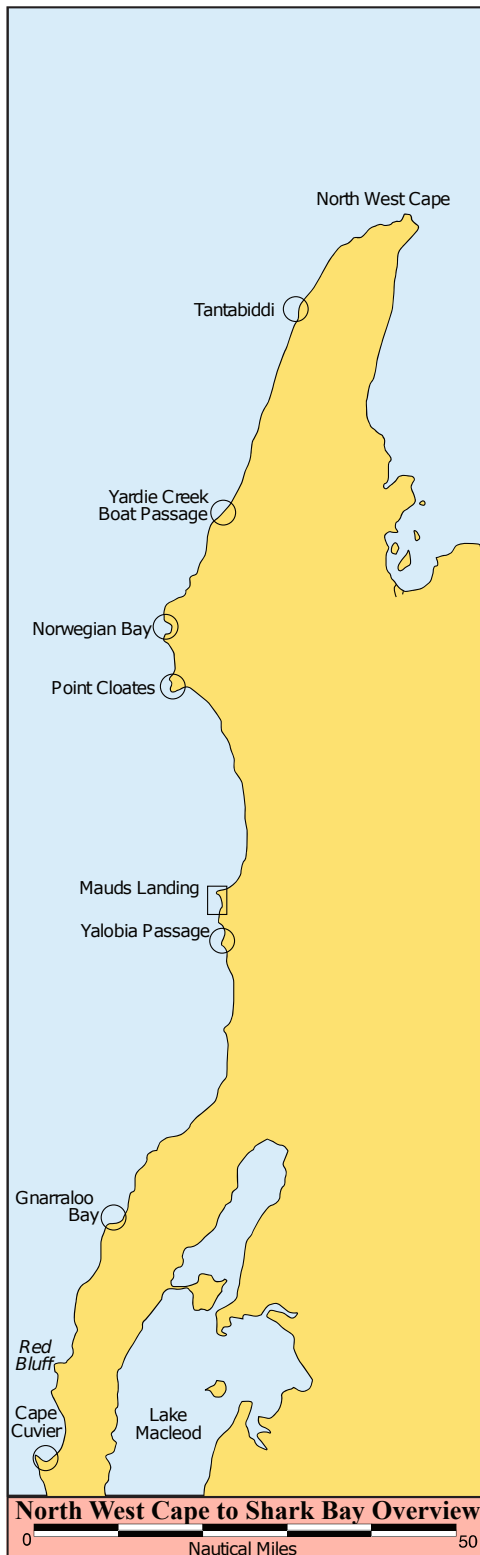
For bookings or further information, please contact the DBCA Exmouth office on (08) 9947 8000. Mobile phone coverage is unlikely from Exmouth until Mauds Landing/Coral Bay to the south.

Ningaloo natural events:

| | |
|-----------------------|------------------|
| Feb (after full moon) | coral spawn |
| Mar/June | whale sharks |
| May/Nov | manta ray |
| June/Nov | humpback whales |
| Sept/April | reef sharks |
| October | turtle mating |
| November | turtle nesting |
| February | turtle hatchings |

13.2 North West Cape to Shark Bay

Charts: AUS 329, 331, 332, 744, 745, 746, 72, 4725, WA 900, 1108



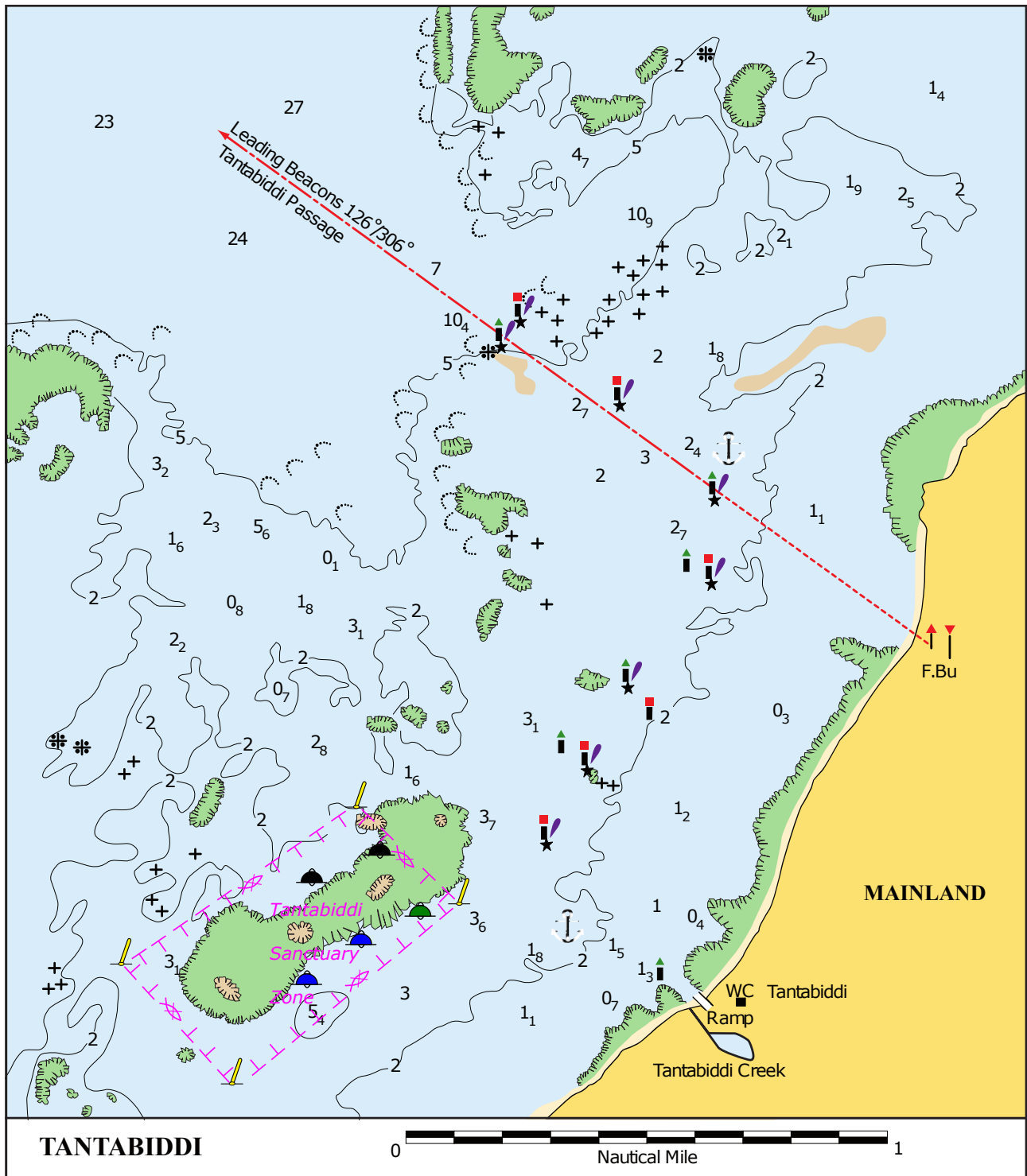
Chartlet 116 North West Cape To Shark Bay Overview

Sections of the coast south from Tantabiddi are very close to the Continental Shelf. Swell builds rapidly as the depth of water decreases and this situation needs to be taken into consideration, especially when approaching a shallow entrance through the reef.

13.2.1 Tantabiddi

21° 54'S 113° 59'E

AUS 329, 745, WA 900



Chartlet 117 Tantabiddi

Tantabiddi has an anchorage southwest of North West Cape and south of Jurabi Point which offers all round protection from the swell. However, with winds over 20 kn from NE through W to SW, the anchorage is very exposed and can get very rough due to the fetch. The reef offers some protection from seaward.

The entrance is a gap of about 1 nm wide in the reef where there are no breakers. During moderate swells waves may break in depths over 6 m. There are large red lead markers (lit) on the foreshore dunes 1.5 nm south-southwest of Jurabi Point, which bears 126°.

⚓ Anchorage may be taken in any sandy hole in this area which offers the required protection. There is good holding in sand extending out from the shore just north of the leads. Anchorage in depths of 3 m may be found throughout this area but keep an extremely good lookout for rocky heads. The anchorage is roomy but contains numerous coral reefs. Sand is shallow over rock in places, which necessitates extra care when anchoring. Strong currents run through the bay, either north or south flowing. When wind is against current, the boat can end up beam on to the wind.

⚓ DBCA have three overnight public moorings at Tantabiddi. Two of them, for vessels up to 18m (blue buoy) and 25 m length (orange buoy) respectively, are located about 0.5 nm offshore close to the Tantabiddi sanctuary zone (marked by yellow buoys). The 18 m buoy is at 21° 54.6'S, 113° 58.2'E. The 25 m buoy is at 21° 54.6'S, 113° 58.2' E. They are fairly exposed in winds from all directions. The large plastic floats can bang on the side of the boat when wind is across the current. The third overnight mooring is for vessels up to 12 m length (green buoy), situated close to the boat ramp at 21° 54.7'S, 113° 58.6' E. The large diameter mooring strops can be very hard to attach to the small cleats on many yachts. These overnight moorings need to be booked with DCBA Exmouth office prior to use Ph: (08) 9947 8000, or the Senior Marine Ranger on 0429 685 110. There also some moorings in the sanctuary zone for day use only, with blue or green buoys. The rest of the moorings in the area are privately owned, mostly by charter operators.

Caution 1: Ensure your chart WA 900 is current: old editions had incorrectly positioned an isolated reef ("bommie").

Caution 2: The approaches are subject to sand movement and siltation.

Tides: Tantabiddi. Range 1.8 m.

Facilities: Boat ramp, toilets. A caravan park is 10 km north towards Exmouth by road. Tantabiddi is very isolated and has very poor mobile phone coverage. Text messages go most of the time but voice transmission and email over the mobile network is intermittent.

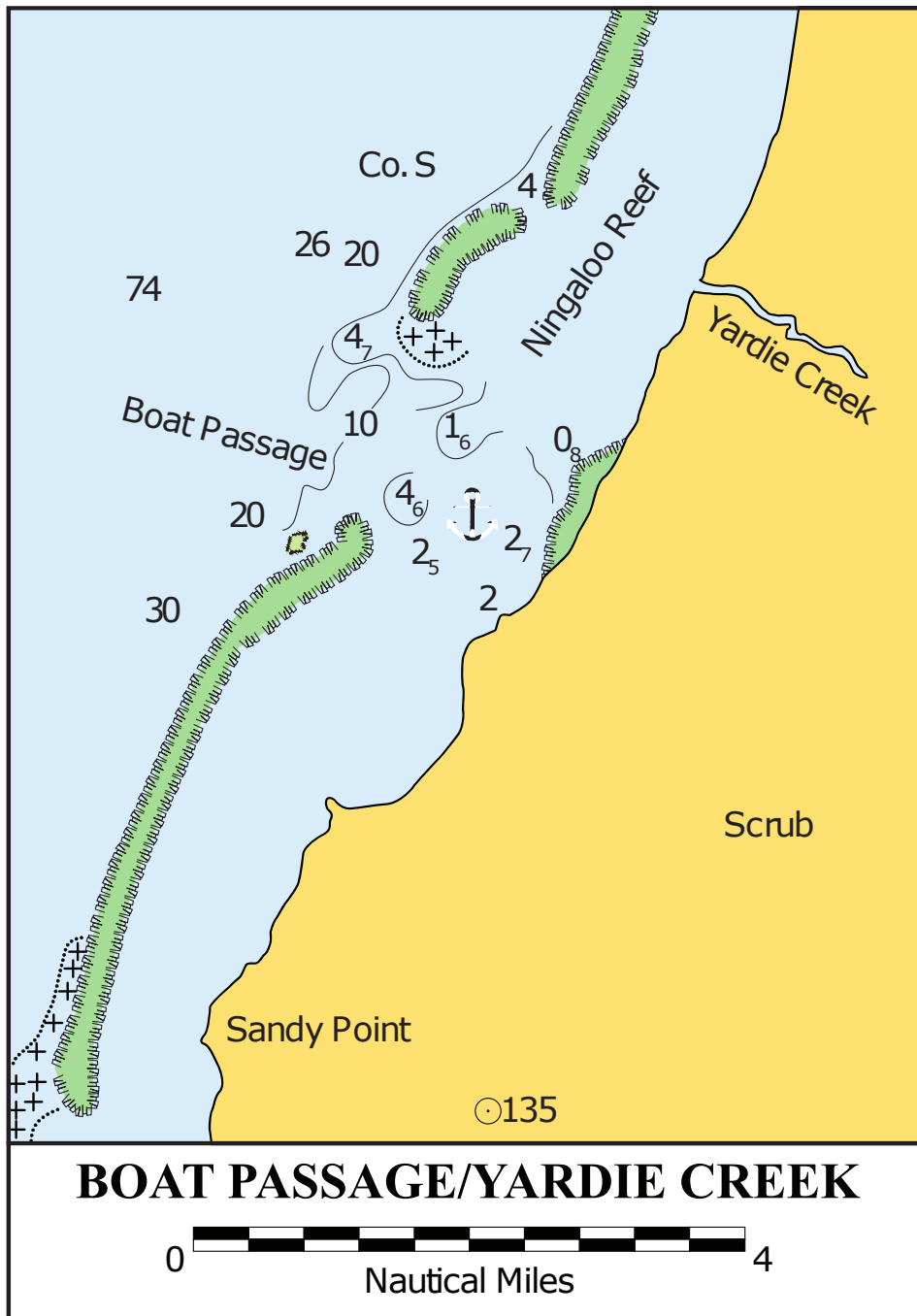


Tantabiddi boat ramp (R Campbell)

13.2.2 Yardie Creek

22° 19.5'S 113° 48.6'E

AUS 329, 745



Chartlet 118 Boat Passage

A boat passage just south of Yardie Creek is shown on chart AUS 745 (22° 20.5'S 113° 45.0'E). The anchorage should only be approached in light conditions and moderate swell. Proceed at slow speed, keeping a good lookout for coral heads and shallow areas. The following waypoints have been used when entering: 22° 20.0'S, 113° 45.0'E to 22° 21.0'S, 113° 47.0'E.

⚓ Fair anchorage over sand and coral (22°21.5'S, 113°47.1'E has been used). Tantabiddi is a better anchorage.

⚓ Anchorage has been taken 4 nm south of Yardie Creek at 22°23.0'S, 113°46.1'E, under the lee of a sandy outcrop. A good lookout is required on the approach because of the numerous coral heads and shoals. This was considered a better anchorage than Tantabiddi.

Facilities: Toilets and picnic area 1.5 km to the north of the anchorage, at the southern extent of the sealed part of the road from Exmouth .

Of interest: Yardie Creek Gorge is spectacular. No motorised dinghies are allowed in the creek. DBCA run regular boat trips up the gorge. Alternatively, there are some excellent walk trails.



Yardie Creek anchorage (N&H Remy)

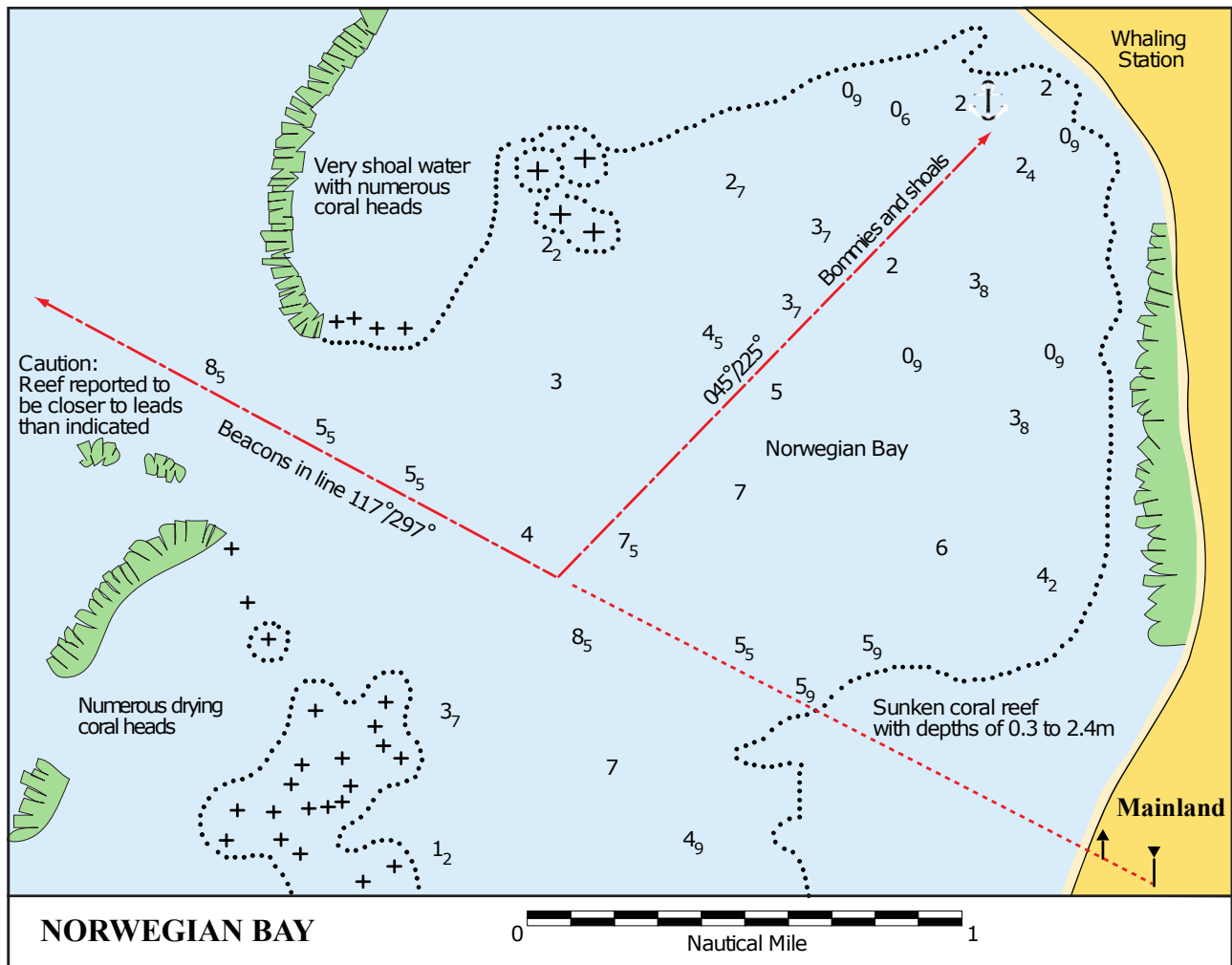


Yardie Creek (R Campbell)

13.2.3 Norwegian Bay

22° 36'S 113° 39'E

AUS 72P1, 329, 745



Chartlet 119 Norwegian Bay

The entrance is deep and marked on either side by breakers. Approach the lead markers on a bearing of 117°. The leads are not easily seen at any time and especially in the morning sun; they are located near the southern end of a sandy point which shows on radar. Visually they can be seen as the only location where the sand hills run down to the beach. Because the leads can be difficult to see it has been suggested that the following waypoints can be used, with caution, when entering: 22° 36'S, 113° 37.7'E to 22° 36.9'S, 113° 39.3'E.

When the remains of the whaling station come into view, which can also be difficult to see, on a bearing of about 045°, turn towards them and carefully edge up into the anchorage. There are some bommies and shoal areas within 1 nm of the whaling station.

Norwegian Bay is a large open anchorage and can be uncomfortable during boisterous conditions. The reef provides fair shelter from the swell but not from onshore winds. The size of the bay and distance of the anchorage from the shore often results in a short chop, and some swell does enter.

⚓ A satisfactory anchorage at 22° 35.9'S, 113° 39.3'E has about 5 m depth over sand. Nearby there is variable holding over sand amongst flat coral and some weed.

⚓ Inspection of AUS 72P1 suggests an alternative and possibly better anchorage further south at 22° 38.0'S, 113° 39.0'E.

Exmouth Sea Rescue monitor VHF Ch 21 via a repeater.

Caution 1: It has been reported that when following the leads on a heading of 117° the vessel will pass uncomfortably close to the northern edge of the southern reef (which has a couple of outlying bommies). Clear water can be found 200 m to the north.

Caution 2: Waves are reported to break across the entrance when swell is over 3 m.

Tides: Norwegian Bay. Range 1.6 m.

Fishing: Squid is plentiful.

Of interest: The remains of the old whaling station are worth a visit and there is a good beach. The whaling station was established in 1912 and closed in 1957 due to pressure to reduce the kill of humpbacks. In the first year whalers killed 2,000 whales and in the four year period 1925-28 they took nearly 3,500 whales. The station was a well constructed building.

Ningaloo Station shearing shed is near the south end of the bay.



Abandoned whaling station machinery, Norwegian Bay (R&L Newton)

Passage notes

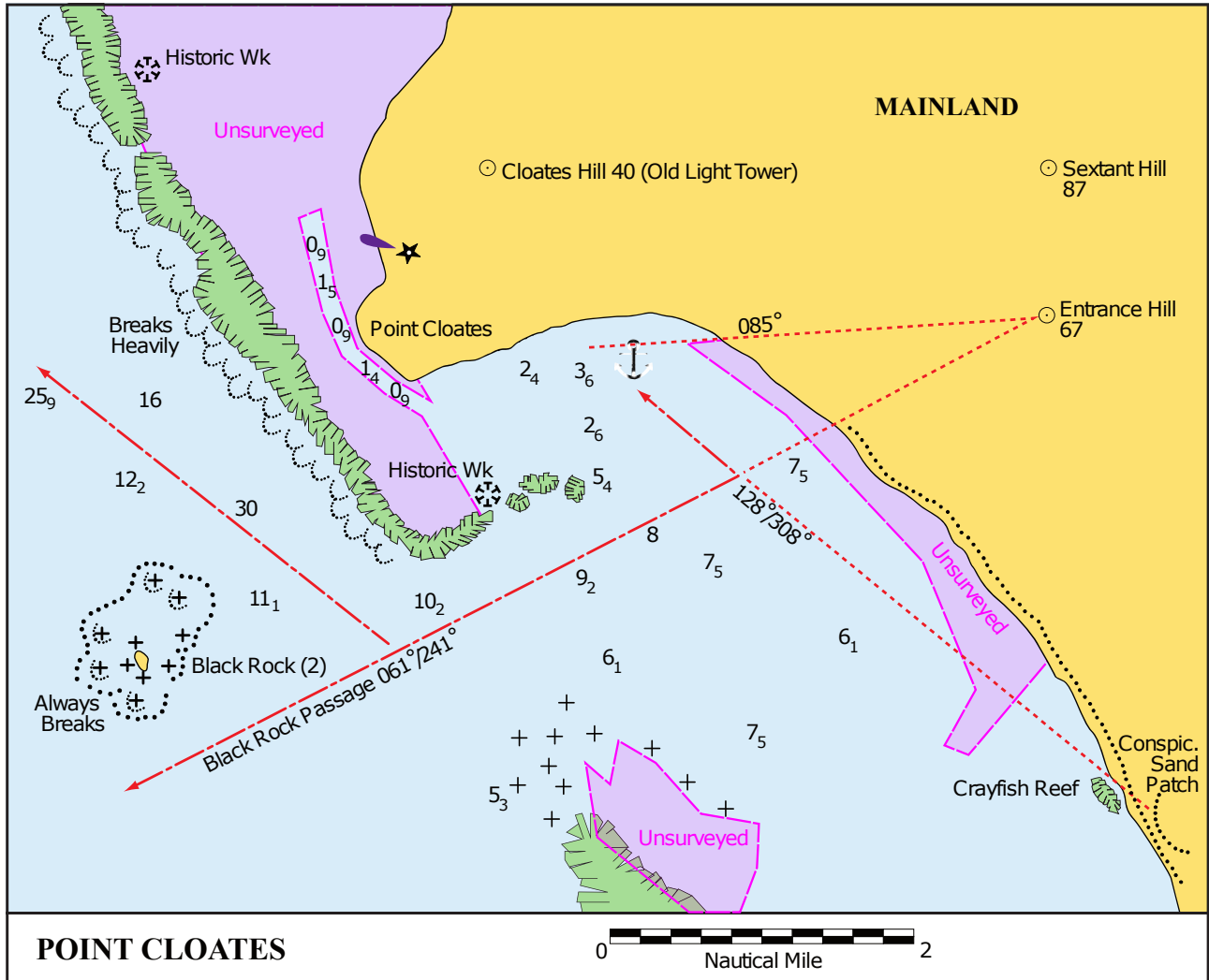
There is a difficult route for shallow draft vessels only, from Norwegian Bay to Point Cloates. The route continues inside the outer reef and may be negotiated in fine weather with due vigilance.

There are many bommies and shoal areas near the shore south of the whaling station. The section near Point Cloates has many rocky heads which are difficult to see if there is any wind.

13.2.4 Point Cloates

22° 43'S 113° 40.5 'E

AUS 72P2, 329, 745



Chartlet 120 Point Cloates

⚓ Provides anchorage which is exposed from SE to SW and very uncomfortable in strong winds. Good holding in sand with some weed.

Approach on a bearing of 061° on Entrance Hill, which is the second-highest sandy hill 67 m high. Once into the bay and about 1 nm from the beach, work towards the anchorage on about 308° using a back bearing of 128° to the conspicuous sand patch.

⚓ Anchorage is possible for shallow draft yachts only at 22° 42.7'S, 113° 40.15'E just west of the lighthouse, in 1-1.5 m depth at low tide. In southerly weather it is exposed to the wind but protected from swell and wind waves.

Caution 1: Inside the reef it has been reported there can be a strong southeast current which may set you towards the shore.

Caution 2: Black Rock (22° 45'S, 113° 39'E) lies off the entrance to Point Cloates. This is a particularly nasty bit of reef. It is difficult to see at night or in bad weather. Give it a wide berth.

History: Point Cloates was first sighted by Captain Nash in command of the Flemish vessel *House of Austria*. He believed it to be an island and named it Cloot's Island in honour of a Flemish baron, one of the owners of the ship.

Fishing: The Cloates sanctuary zone extends north and south of Point Cloates, from 22° 35'S to 22° 54.7'S.

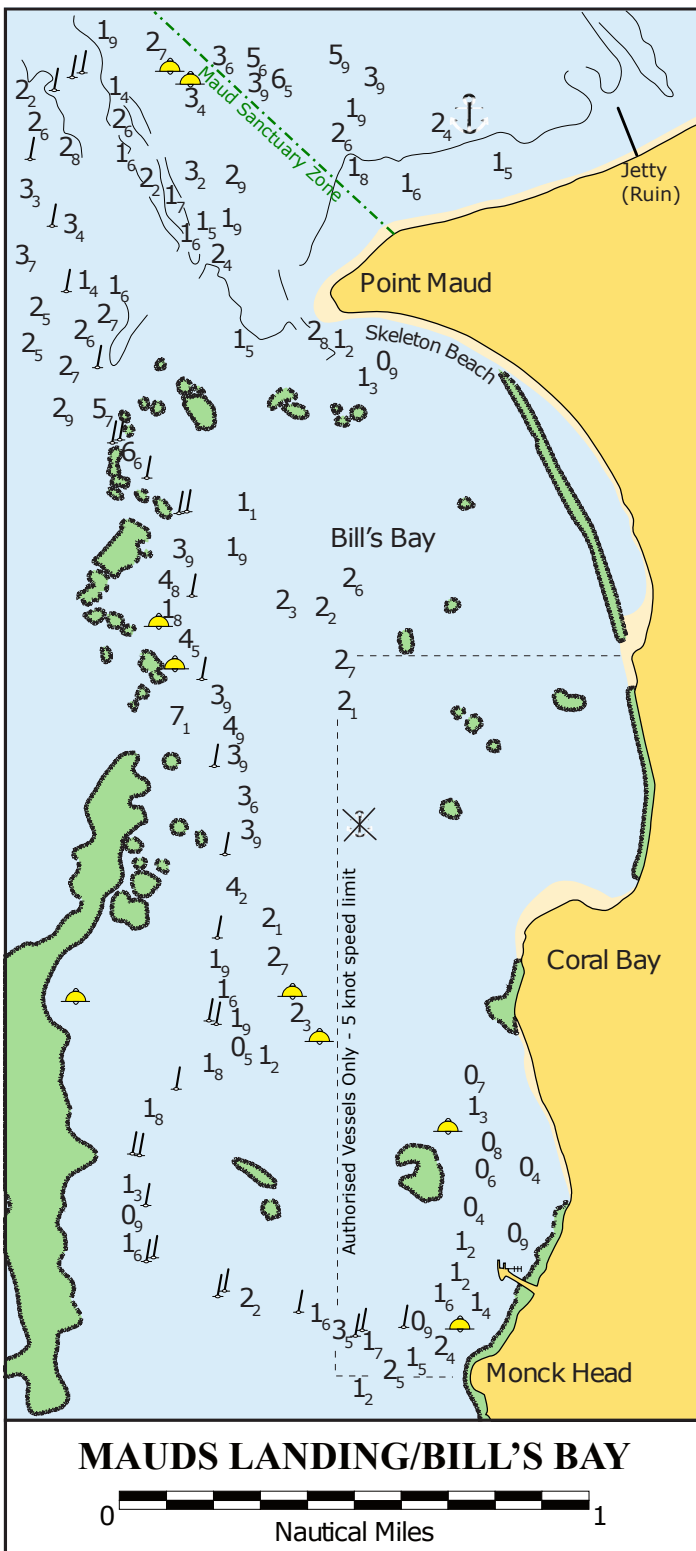
Passage notes

It is possible, but not recommended, for keel boats to make passage inshore of the reef from Point Cloates to Point Maud in fine weather and with a good lookout. Depths are not much over 2 m in places.

13.2.5 Mauds Landing/Coral Bay

23° 06'S 113° 46'E

AUS 72P2, 745, 746, WA 1108



Chartlet 121 Mauds Landing/Bill's Bay

Mauds Landing is about 1 nm northeast of Point Maud, which in turn is at the north end of Coral Bay (Bill's Bay). Enter from the northwest through Cardabia Passage, a wide opening in the outer

reef.

⚓ DBCA have installed two overnight moorings off Point Maud (for vessels up to 25 m length – orange buoys), in positions 23° 06.9'S, 113° 45.3'E and 23° 06.9'S, 113° 45.4'E. These moorings are out towards the reef so they provide reasonable protection from waves but they have no shelter from the wind. There is a third DBCA overnight mooring (for vessels up to 12 m length – green buoy) at the southern end of Coral Bay at Monck Head, though depths and legal restrictions in the approaches limit its use to shallow draft vessels. The overnight moorings must be pre-booked through DBCA Exmouth office Ph: (08) 9947 8000, or the Senior Marine Ranger on 0429 685 110.

DBCA also have public day-use moorings on dive sites around the Coral Bay area. The other moorings in the Bay are for commercial operators only.

⚓ Anchorage near the old jetty can become uncomfortable because of swell. The swell increases as you go into the bay (eastward). Try a position just northeast of the old jetty (23° 06.4'S, 113° 46.8'E), which is protected from the E to SW. Anchorage is also possible west of the old jetty.

Caution 1: Beware of the remains of the old jetty piles which extend for 0.5 nm from the beach and are mainly below the surface, except one which is close inshore. The piles are marked by a north cardinal marker at their outer end.

Caution 2: Take care to avoid shallow sand over rock in places.

⚓ Overall the best anchorage appears to lie between the old jetty and the yellow poles on the shore that mark the start of the marine sanctuary area. At this location there was slight swell coming over the reef at high tide, in 20-30 kn SE winds and a 3-5 m swell outside.

⚓ If the chop or swell is too uncomfortable at Mauds Landing, there may be some relief gained by moving about 7 nm north to Stanley Pool where there is good holding and more protection from the main reef.

Entering Coral Bay from Mauds Landing: There are effectively three zones within Coral Bay, each with its own restrictions:

- The Restricted Boating Zone is at the southern end of the bay, off Monck Head and the nearby jetty. Restrictions include no anchoring and no vessels with draft more than 1.2 m.
- The Authorised Vessels Only zone covers most of the middle part of the Bay. This is effectively an exclusion zone, with explicit permission required from DBCA to enter it.
- The northern part of the bay, and the western part beyond the above two zones above, do not have navigational restrictions. However, much of it is shallow with several bommies, requiring extreme caution. It is illegal to anchor anywhere that might damage the extensive coral.

Given that most of Coral Bay is shallow and covered in coral, it is probably best to avoid the bay entirely, and instead anchor (or pick up a pre-booked mooring) at Mauds Landing. For more details see the Coral Bay Boating Guide at: <https://www.transport.wa.gov.au/imagery/coral-bay-facility.asp>

Facilities: There is a gravel track suitable for conventional vehicles from Mauds Landing south to Coral Bay township 1.5 nm away. The track starts just north of the old jetty. Access to the town

facilities us also possible by motorised tender via the marked navigation passage west of these exclusion zones, landing at the jetty. Alternatively, tenders can be pulled up onto the beach north of the exclusion zones and then make the 10-15 minute walk into town. Coral Bay townsite comprises two caravan parks and tourist facilities. Stores, fuel, water, telephone, airstrip and a DoT officer are all available. There is good mobile phone coverage (the last before Exmouth if heading north).

Tides: Coral Bay. Range 1.6 m.

Of interest: This is the southern base of the Ningaloo Marine Park, which extends from North West Cape to Red Bluff. The area directly surrounding Coral Bay is a sanctuary zone. See DBCA web site for full details.

History: The earliest recorded European activity in the region is the landing of the schooner *Maud* in 1884. In 1896 a townsite reserve was gazetted to protect the site of an existing jetty and government goods shed. In 1915 the town was officially named Mauds Landing.

Mauds Landing played an important role in the settlement and development of the northwest of Western Australia. The wool shed, jetty and tramway served the local pastoralists in the provision of supplies and in the outward shipment of wool and sheep from 1898 until 1947. Only old pilings from the jetty remain today.

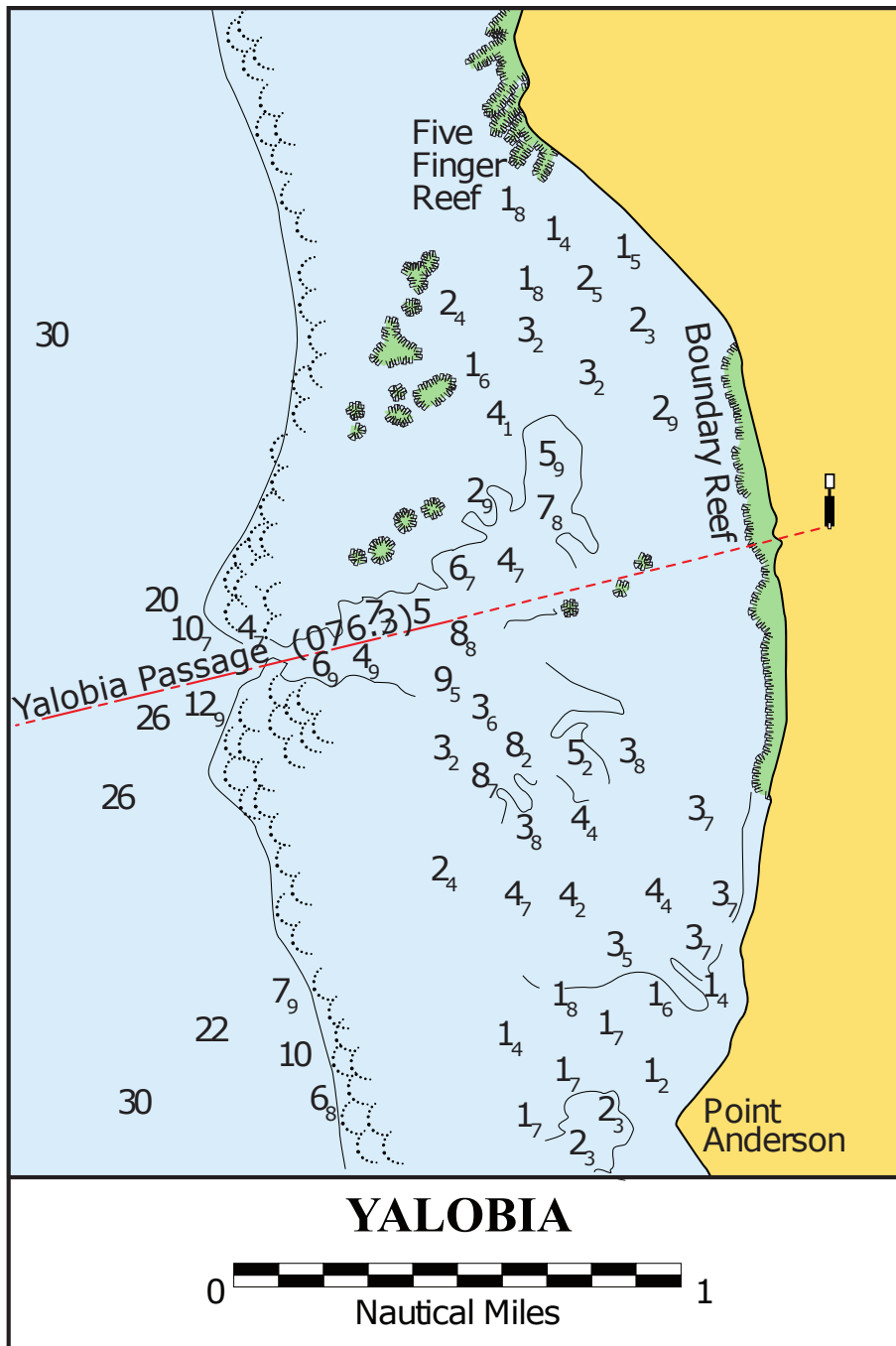
Coral Bay was known as Bill's Bay until 1968, when, the formal settlement began with the establishment of a hotel named the Coral Bay Hotel. Consequently the settlement became known as Coral Bay.

Fishing: The Maud sanctuary zone includes Coral Bay and then extends northwest from Point Maud to include the outer reef north of the opening into the Mauds Landing anchorage.

13.2.6 Yalobia Passage (Shallow draft only)

23° 12'S 113° 45'E

AUS 746, WA 1108



Chartlet 122 Yalobia

Approach the leads on a bearing of 076°. They can be difficult to see.

Caution: During times of heavy swell or low tides Yalobia Passage breaks and is dangerous to navigate. Charter boats consider it necessary to work the tide when using this entrance.

13.2.7 Red Bluff

(no chartlet)

24° 02'S 113° 26'E

AUS 746

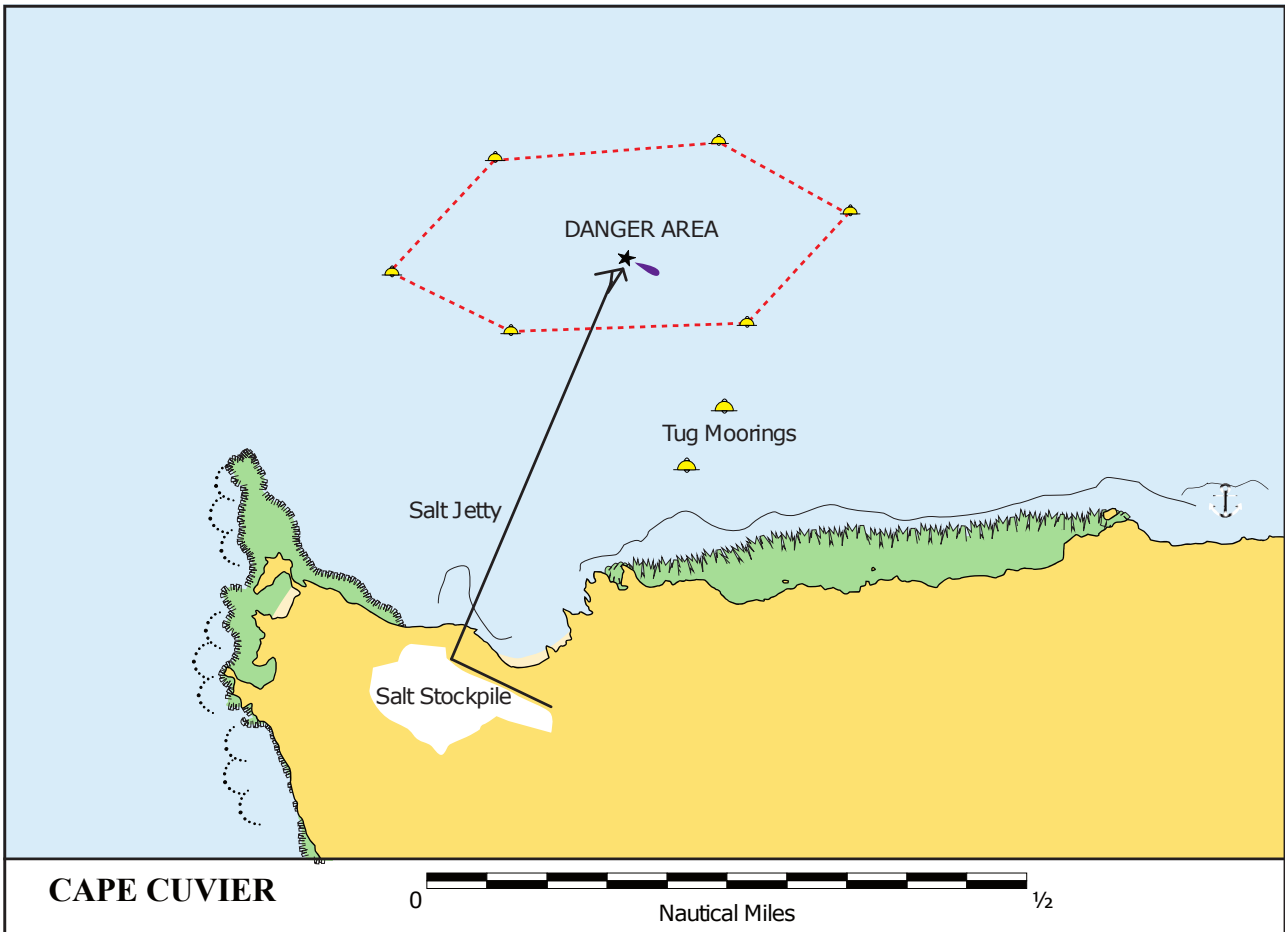
⚓ Offers protection from the E to S. Almost no protection if the wind swings W of SW. Exposed to swell especially from the SW. Landing on the beach is difficult in a swell. Anchor in about 6-9 m about 0.5 nm off the beach in clear water over sand (24°01.9'S, 113°26.6'E). This is a suitable place to wait for a southerly to ease.

Caution: Do not approach in foul weather. Not a recommended anchorage if a heavy westerly swell is running.

13.2.8 Cape Cuvier

24° 13'S 113° 24'E

AUS 331,746



Chartlet 123 Cape Cuvier

⚓ This is seldom a good anchorage. It is steep to and swell may make it uncomfortable, but it may offer some respite on the way south. Reefs, on which seas break, run 2 nm offshore to about 8 nm north of the cape. Anchorage (24° 13.3'S, 113° 24.3'E) under high sheer 60 m cliffs near a small sandy beach in 10 m has been found excellent in strong SE winds. In fresh SW weather a heavy swell may cause discomfort as it breaks not far inshore of the (unlit) tug mooring buoys. The

seabed is very rocky, chewing up a rope rode quickly.

Caution: Beware of the long (100 m or more), large mooring lines floating from the buoys. Keep well clear of the head of the jetty and the ship mooring buoys.

Of interest: The wreck of the Korean Star can be seen. She was wrecked at the base of the cliffs at Cape Cuvier during the height of cyclone Herbie on 21 May 1988. After breaking into two sections, holes were blown in the hull to settle the vessel.

Salt and gypsum are exported from the jetty.

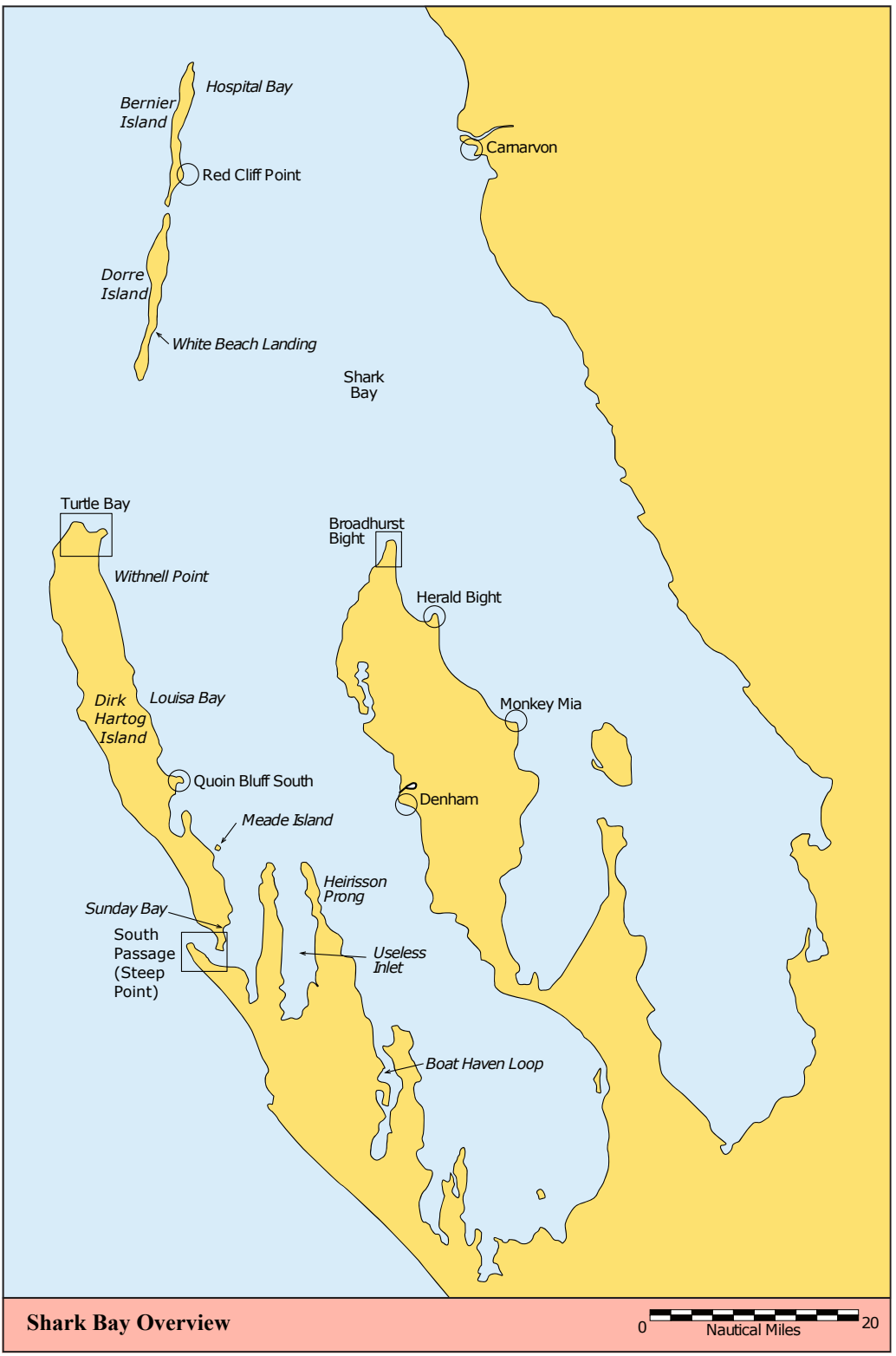
History: Named by Baudin after zoologist Georges Cuvier.



Cape Cuvier salt loading facility - mooring buoys are located other side of the jetty (R&L Newton)

13.3 Shark Bay

Charts: AUS 331, 332, 73, 74, WA 661, 982



Chartlet 124 Shark Bay Overview

Shark Bay is a world heritage area and marine park that provides extensive cruising, although much of the area is shallow. It is bordered on the west by Bernier, Dorre and Dirk Hartog islands

and on the east by the mainland. It is up to 50 nm wide and 130 nm long.

The sea bed of Shark Bay is predominantly sand and seagrass. Seagrass does not provide a secure anchorage and is best avoided whenever possible. Caution is required when anchoring, as anchors often pull free with a ball of weed choking the flukes. In places the sea bed is shallow sand over rock.

Shark Bay Marine Park covers over 748,000 ha including 4,000 sq km of seagrass. The Wooramel Bank is the largest seagrass meadow in the world. Hamelin Pool Marine Nature Reserve in the southeast corner of Shark Bay covers 132,000 ha and protects the world's oldest life form, the stromatolites, which originated over 3.5 billion years ago. Consequently, practically all activities are prohibited there.

Some ten species of mammals, ninety-eight species of reptiles and over one hundred species of land-based birds live in the bay. Aquatic life includes humpback whales, dugongs, manta rays, turtles, prawns, scallops, sea snakes, dolphins and, of course, sharks. It has the largest number of species of seagrass of any area in the world.

There are five species of endangered Australian mammals found on Bernier and Dorre islands: the boodie or burrowing bettong (*Bettongia lesueur*), rufus hare wallaby or mala (*Lagorchestes hirsutus*), banded hare wallaby (*Lagostrophus fasciatus*), the shark bay mouse (*Pseudomys fieldi*) and the western barred bandicoot (*Perameles bougainville*).

Shark Bay is at the northern extremity of the southern wildflower varieties and at the southern extremity of the northern varieties, creating the longest wildflower season in Western Australia with more than 700 species of flowering plants.

Shark Bay is the traditional home of the Nganda and Malgana people. Aboriginal artefacts dating back to 2,200 BCE have been discovered in the area. Dampier named Shark Bay in 1699 and he commented, "The fish that we saw here are mainly sharks. There is an abundance of them in this particular sound".

Mobile phone coverage: Coverage in Shark Bay is generally good if using the Telstra network. Optus provides coverage at Carnarvon, Monkey Mia and Denham, though not very far out from land. Coverage can be patchy if moving around on anchor.

Caution 1: Prawn trawlers work Shark Bay at night. Keep clear of them.

Caution 2: Several areas of Shark Bay are poorly charted, for example the entrance to Useless Inlet, and the coast southeast of Denham up to about 2 nm offshore.

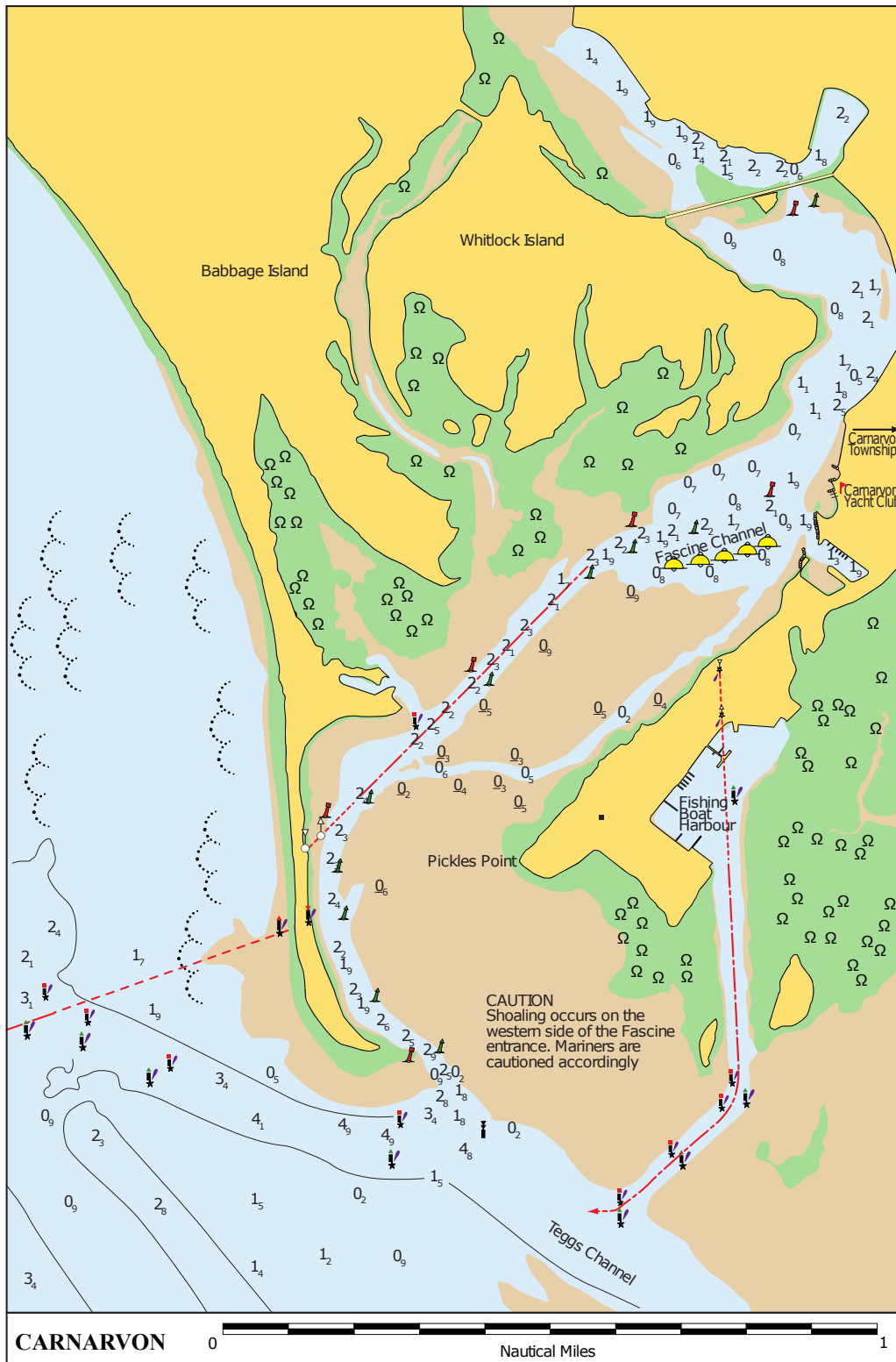
Fishing: There are bag limits and marine and estuarine protection areas in Shark Bay. Crabbing or crayfishing using compressed air diving, and collecting of protected species, are prohibited.

Note: Shark Bay is described below in a clockwise direction, starting from Carnarvon and finishing with Bernier Island.

13.3.1 Carnarvon

24° 54'S 113° 39'E

AUS, 331, 73, WA 982



Chartlet 125 Carnarvon

Carnarvon (population 4,500) is the commercial centre for the Gascoyne district, with all the usual facilities expected in a country town. It is noted for its tropical plantations, especially bananas,

situated along the banks of the Gascoyne River.

Approaches: When approaching from the north, keep well out to clear the dredge spoil and silting ground. From the south, stay at least 5 nm off to avoid Elbow Shoal.

⚓ Carnarvon Yacht Club (CYC) and its marina are in the Fascine. Depths in the marina vary but generally they are greater than 2 m. Entry to the Fascine and marina is best done by working the tide. The Fascine has been dredged to a minimum depth of 1.7 m below chart datum. The shallowest part is at the entrance to the Fascine channel where it branches off from Teggs Channel. Here, the mouth can be silted coming out from the port side point of land. Inward from this entrance, deepest water is on the port side, close to the seaward sandbank. Here and further up the marked channel, some of the banks extend into the channel beyond the markers. A few hundred metres from the mouth, the channel bends to starboard and 2017 advice is to stay closer to the starboard side of the channel. Anchorage is possible in the upper reaches of the Fascine and moorings are available. If vessel draft restricts access, the Small Boat Harbour (see below) is the only fully sheltered alternative.

Caution: DoT advise that the entrance to the Fascine is constantly changing due to the dynamics of sand movement. Take care and obtain up to date information from local sources.



Carnarvon: keep the leads in line (M&N Reynolds)



Turning from Teggs Channel into Fascine Channel, looking west (M &N Reynolds)

Club facilities: Showers, toilets, bar and kitchen open Friday evenings and Sunday afternoons. CYC is approximately 1 km south of the town centre, with a pub and restaurant even closer. CYC welcomes visitors, and berths (short and long term duration) are available. Charges apply. Fuel is not available at the Club, but there is a refuelling jetty in the Small Boat Harbour (see below) . CYC contacts: Ph: (08) 9941 2565 or 0439 196 534. <http://carnarvonyachtclub.com>.

⚓ Carnarvon also has a commercial Small Boat Harbour, managed by DoT. Enter via Teggs Channel, which is dredged and extends well out from shore. Take care to keep within the marked channel. It is prudent to favour the south side of Teggs Channel (until having turned to port into the mangrove section) as the prevailing wind will assist if grounded. The channel changes and the lead markers are sometimes moved to allow for this. The harbour is mainly for commercial vessels and has very limited capacity. There is at least 3 m depth in the harbour approaches. Contact the harbour master for a berth (VHF Ch 16 or Ph; (08) 9941 6800). Charges apply. The fishing fleet is based in the harbour.

Harbour facilities: Water and power, public toilets and cold showers. The town is about 2 km away. Fuel is available by arrangement with Bailey's Marine Fuel Ph: (08) 9335 7822. A Bailey's fuel card will be required. In 2013 a yacht was charged \$103 per night to hang off the 'T' Head on the main (fuel) jetty.

<http://www.transport.wa.gov.au/imate/carnarvon-facility.asp>

⚓ There is anchorage outside in Teggs Channel southeast of the turn into the Small Boat Harbour. Leave ample room for the tugs that use the yellow barrel moorings. This is the area beyond the tug moorings and is some distance from the Small Boat Harbour.

Town facilities: Carnarvon has all the usual facilities to be expected in a country town, including a hospital (see section 7.5), a full range of trades, hardware stores and supermarkets. Fruit, vegetables and seafood are plentiful and very good; all are seasonal. A bus service to and from Perth three times per week is provided by Integrity Coach Lines Ph: (08) 9274 7464 or Email: info@integritycoachlines.com.au There are daily air services to and from Perth provided by Skippers Aviation <http://www.skippers.com.au> Ph: 1300 729 924 or Email reservations@skippers.com.au ([http://www.skippers.com.au/.](http://www.skippers.com.au/)).

Tides: Carnarvon. Range 1.6 m. Note Shark Bay (Denham) tides are quite different from Carnarvon.

Caution: If sailing at night, beware of anchored transport barges near Carnarvon; sometimes they are unlit.

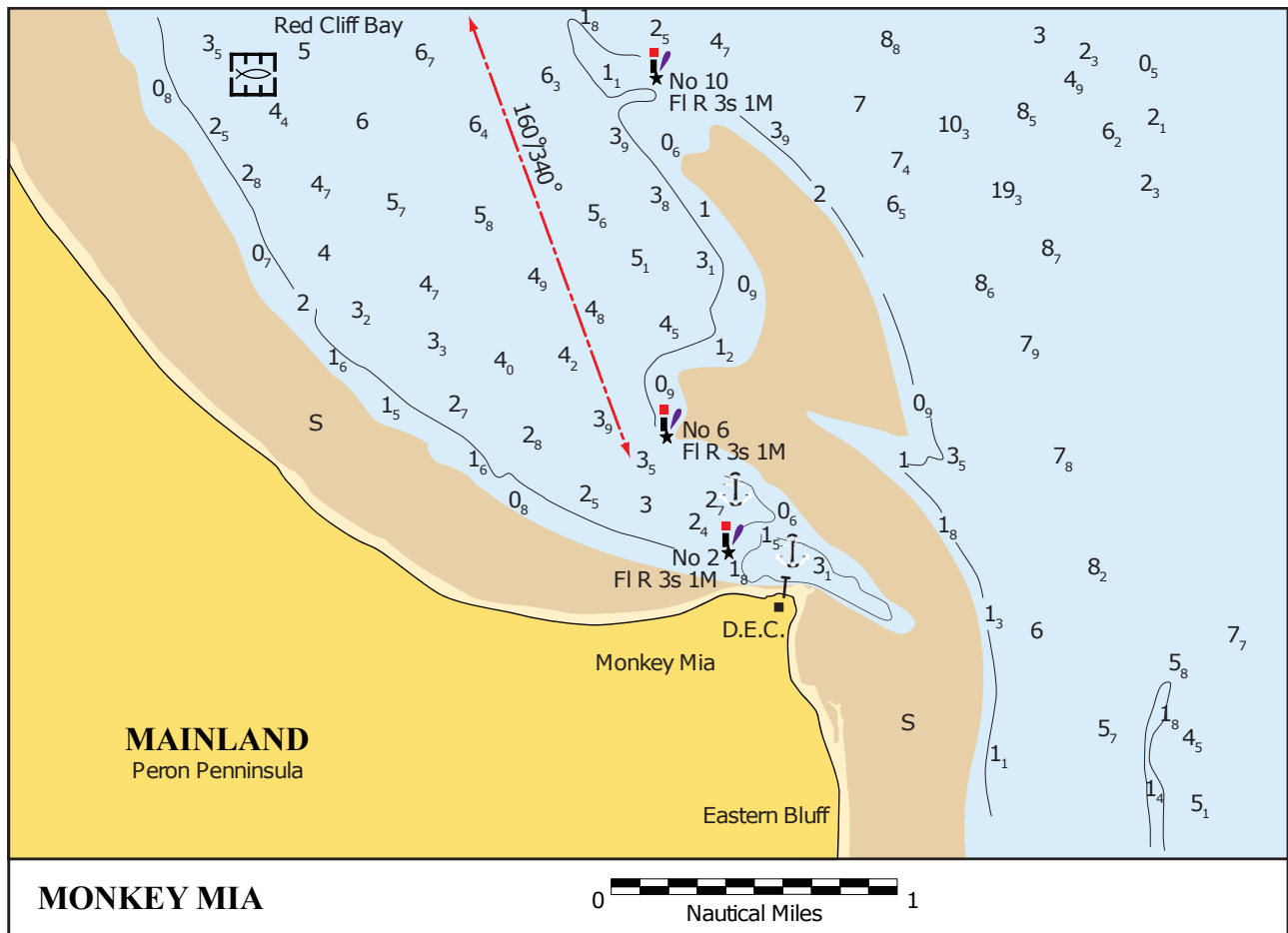


Fascine entry: deepest water is initially very close to seaward sandbank (M&N Reynolds)

13.3.2 Monkey Mia

25° 48'S 113° 43'E

AUS 331



Chartlet 126 Monkey Mia

⚓ This is a good anchorage over sand protected by land to the southwest and weed banks to the north.

Enter from the north by way of the west side of Red Cliff Bay, with the radio tower bearing 160°. The third port marker (most shoreward) is on the edge of shallows. Make the final entry to the anchorage through a narrow throat and proceed east-southeast. The anchorage widens out near the jetty. The minimum depth in the approach is 1.8 m below chart datum just after the last red mark. Beyond the bar, the pool depth is about 3 m below chart datum. There are several moorings but there is plenty of room to anchor.

Caution 1: There may be some old mooring chains on the bottom.

Caution 2: Very exposed to strong easterlies.

Tides: Denham. Range 1 m.

Facilities: There is tourist information and a small shop with essential foodstuffs, ULP fuel and ice. There is a resort with a restaurant. Visitors are welcome to use the resort's facilities and have been allowed to top up diesel and desalinated water. Both require dinghying jerry cans ashore. Note that most water taps are non-potable bore water. The staff can show you the potable water taps.

Of interest: The bottlenose dolphins that come right up to the shore to be fed have made Monkey Mia famous. In knee-deep water you can enjoy the close up company of these amazing mammals. They appear to enjoy the company of humans.

History: The origin of the name is a mystery but there are two suggestions. Firstly, in 1834 a schooner named *Monkey* anchored in Shark Bay. Secondly, a pearling boat working in Shark Bay in the late 1800s had a monkey for a mascot. Mia is an Aboriginal name for home.

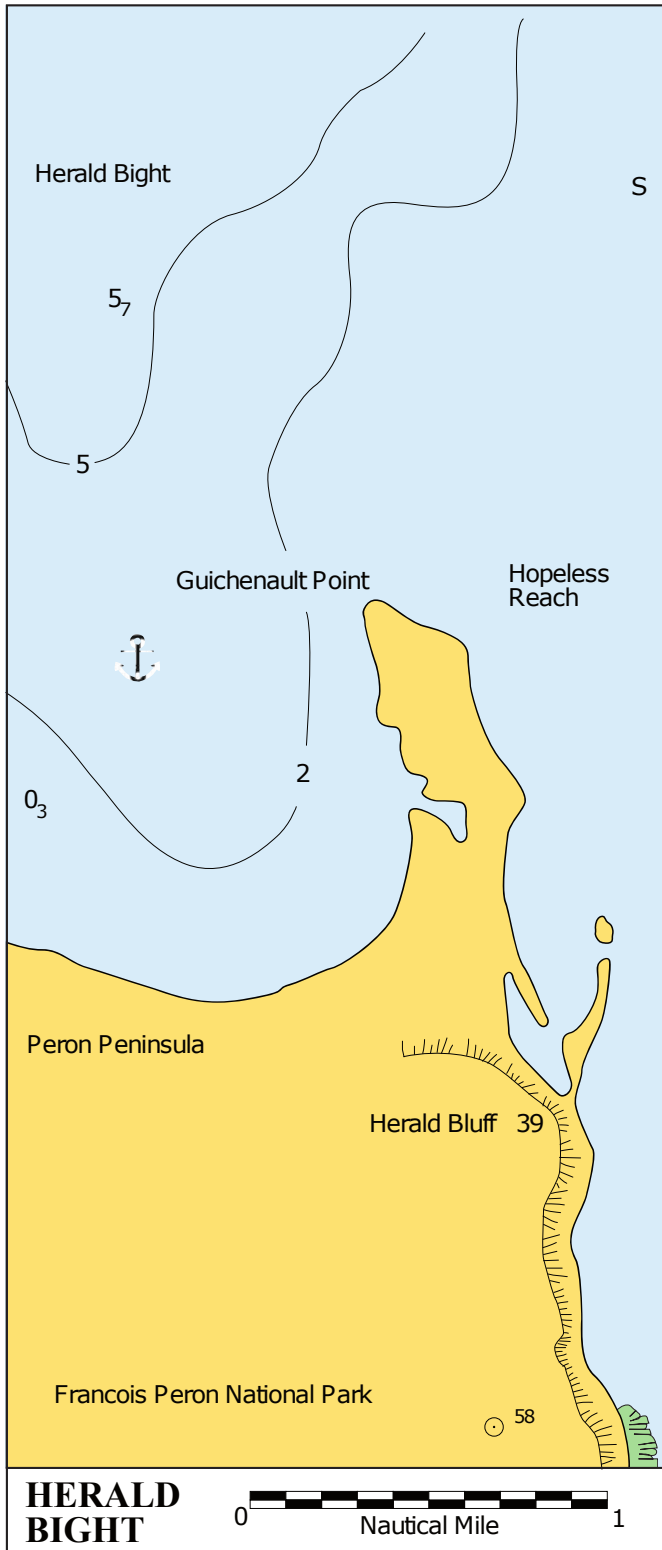


Approach to Monkey Mia: final red mark to enter anchorage (M&N Reynolds)

13.3.3 Herald Bight

25° 34'S 113° 33'E

AUS 331



Chartlet 127 Herald Bight

⚓ The west side of Guichenault Point offers protection from the SSE to W winds, although

reported as uncomfortable in 30 kn SW winds. The seabed is mostly seagrass with thick weed beds, offering poor holding even for a fisherman anchor. However, there are some sandy patches between the weed beds where good holding has been reported.

Shallow draft vessels may find anchorage in 2 m over sand off the camp ground in the west of the bight at about 25° 37.3'S, 113° 32.3'E. Beware of shallow rock extending from a small sandy point just north of the camp ground.

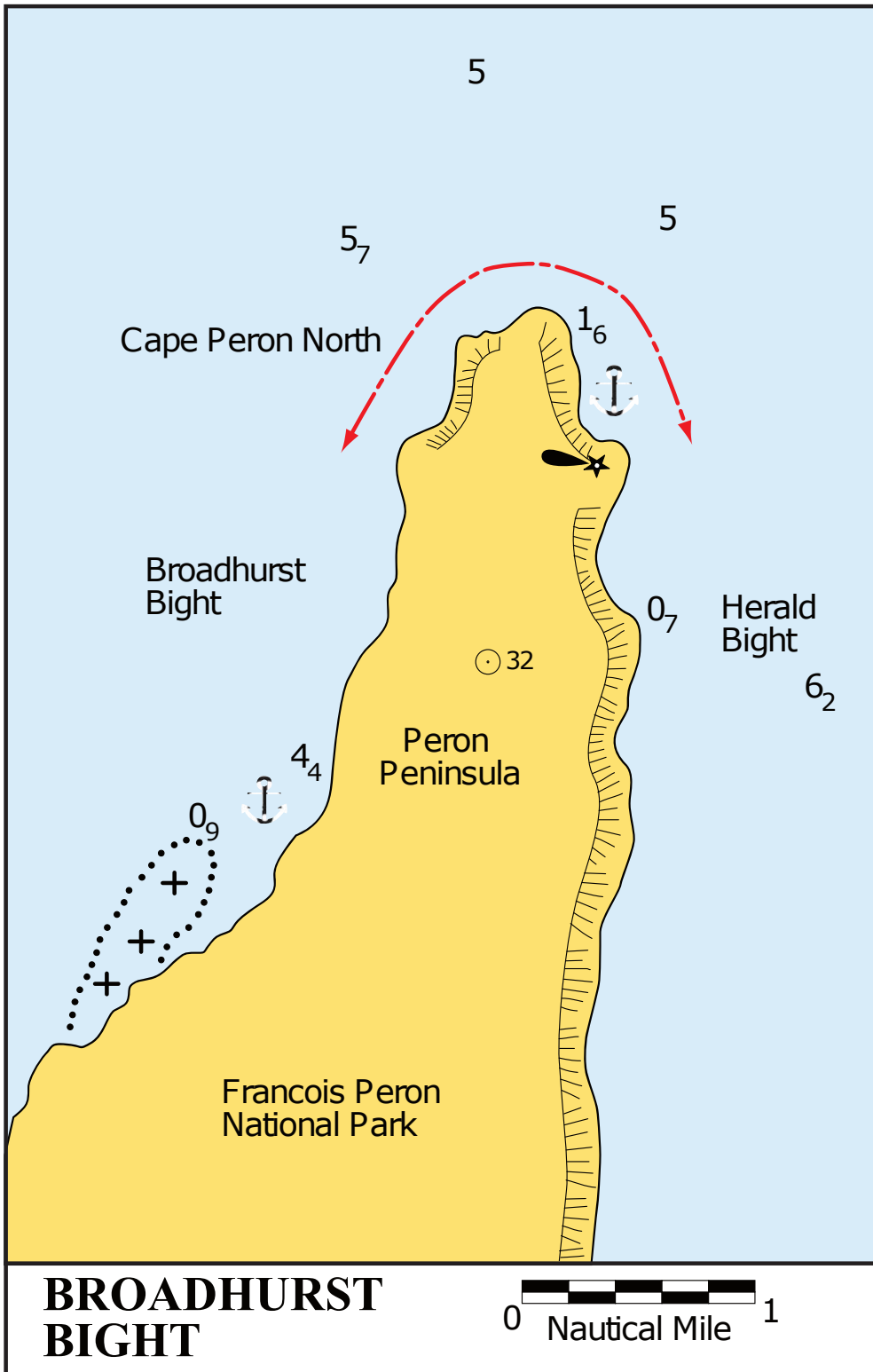
Tides: Denham. Range 1 m.

Of interest: The Francois Peron National Park covers 52,500 ha at the northern extremity of the Peron Peninsula.

13.3.4 Broadhurst Bight

25° 32'S 113° 29'E

AUS 331



Chartlet 128 Broadhurst Bight

⚓ Anchorage has been taken on the west side of Peron Peninsula close in and due north of the

reef at 25 32.2'S, 113 29.4'E in 5 m over sand. This is immediately offshore from a conspicuous dirt track cutting through the sand dunes. It is possible to get close inshore (near the oysters) and anchor over a sandy bottom (with some weed). Sheltered from E winds, it is uncomfortable when the wind is W of S. Some swell may wrap around Cape Peron North in an easterly breeze. A 0.5 kn current at spring tides has been reported.

⚓ Anchorage on the east side of Cape Peron offers shelter from W to SW winds, but is unsuitable for the prevailing S to SE winds owing to the long fetch. There is some tidal flow through the anchorage.

Diving: The wreck of the *Gudrun* is rated as one of the best wreck-dives in Western Australia. Beware of the strong currents. There is good snorkelling in 3-4 m on the 500 m diameter Broadhurst Corals (25° 38.2'S, 113° 22.2'E).

History: The wreck of the *Gudrun* was discovered in 1989. It lies in 6 m of water 5.3 nm north of Cape Peron North. In 1901, she left Bunbury with a cargo of timber. The ship's carpenter had tried to scuttle the vessel by boring a hole in her keel. This was repaired in Fremantle, but she was still leaking and forced north by strong winds. Captain Griff sought the safety of the shallow water off Cape Peron North but a gale smashed the *Gudrun's* rudder and she was left to break up on the flats. The *Gudrun* is the largest intact and undisturbed wooden wreck on the Western Australian coast and has been declared a sanctuary zone.

Passage notes

Tidal overfalls at Cape Peron North may look dramatic but the cape may be negotiated comfortably by maintaining a clearance of between 0.5 nm and 1 nm from the shore.



Cape Peron from Broadhurst Bight anchorage (M&N Reynolds)

13.3.5 Big Lagoon (shallow draft only)

(no chartlet)

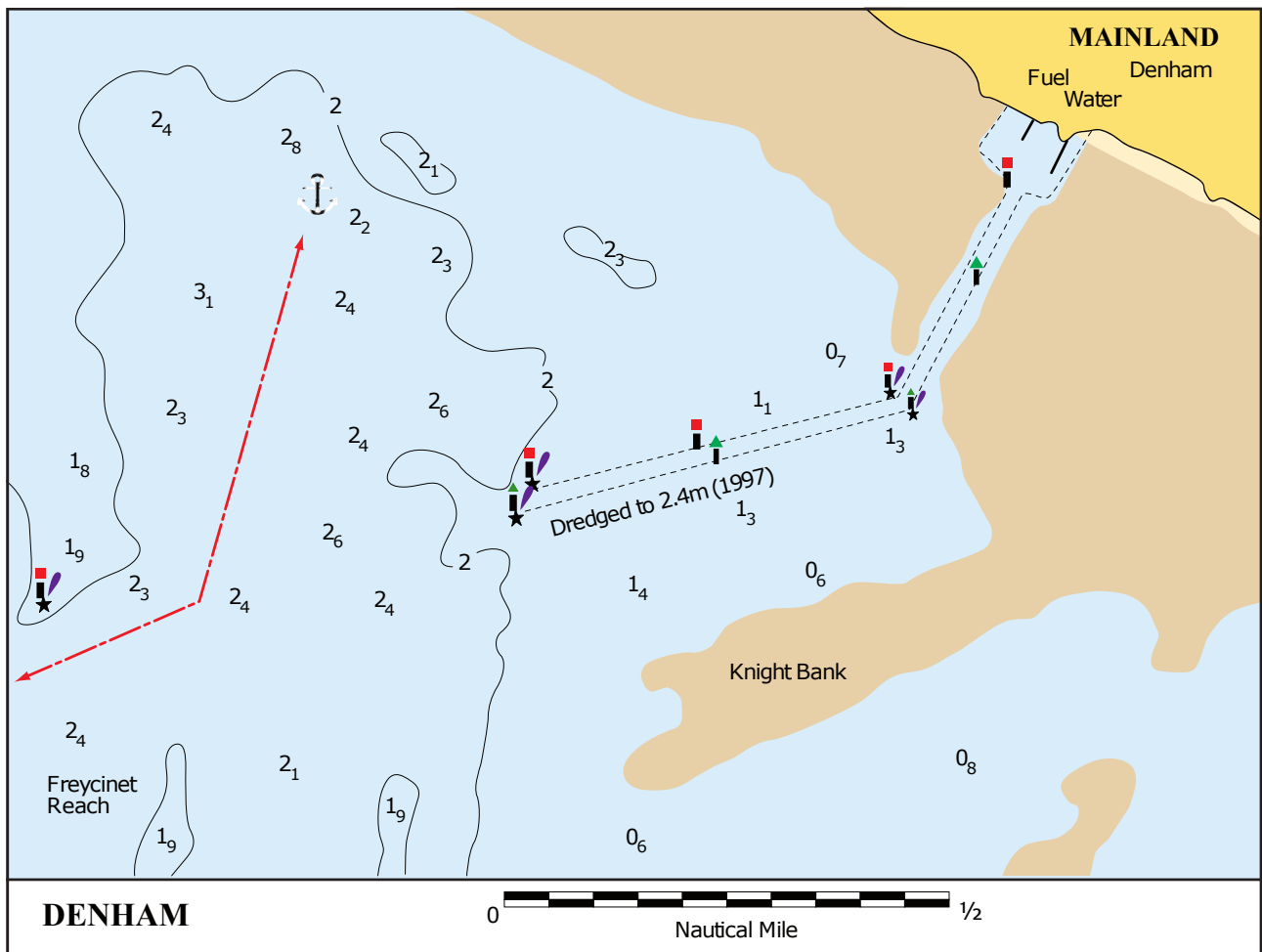
AUS 331

The entrance to Big Lagoon is about 10 nm north of Denham. The lagoon is quite a large area of sheltered water with a sandy bottom and depths of possibly 2 m or more, but the entrance is very shallow and mobile. Reports vary, but there is probably less than 1 m at low tide in the approaches. Trailable boats have used this anchorage and it has been explored with kayaks.

13.3.6 Denham

25° 56'S 113° 31'E

AUS 331, WA 661



Chartlet 129 Denham

Denham (population 600) is a small tourist town used for access to Monkey Mia and Shark Bay, with most basic facilities. It is a good base from which to explore Shark Bay, as it is closer than Carnarvon. It might be possible to leave a boat here for a few days, though only on a good mooring, not at anchor.

⚓ Anchorage may be taken to the northeast of the outer port hand marker. There is about 2.5 m depth below chart datum throughout this area between 0.7 nm and 1 nm offshore. The main mooring area west of Denham is excluded from the marine park and is full of private moorings, though there is still some space free for anchoring. There is at least one mooring for private hire that has a mobile phone number on it for visitors to ring if they wish to use it. In strong S winds this inshore mooring area is comfortable, but it is a wet dinghy ride ashore. There are about 10 visitors moorings well offshore. An FSC member has dived on the moorings and was impressed with their strength. Their location is choppy in fresh S and SW winds.

The approach channel and jetties are dredged to 2.4 m, though prevailing winds lower the water level. The jetties are sheltered from wind waves by the drying flats. The eastern jetty is less used by commercial boats. Contact the DoT office on the foreshore about berthing.

Tides: Denham. Range 1.6 m.

Facilities: Denham has a Silver Chain nursing post (see section 7.5). Fuel is available on the western jetty (by arrangement with the service station) if you have a Baileys card, and freshwater is available on both jetties but bring your own hose and connectors. (Bore water is available at no cost, desalinated water usually incurs a small charge). Fuel is also available by dinghy and jerry cans, from both the IGA supermarket and the fishing store, located directly across the road from the beach. The township has two supermarkets, a post office, bank agencies, other stores, restaurants, two hotels, caravan parks, other tourist accommodation, nursing post and car hire. Cold showers are available on the foreshore between the jetties. An electrician and mechanic are available. There are air and bus services to Perth. The airport is 7km from the town. Shark Bay Car Hire run a shuttle bus (on demand) that connects with the main highway bus route at Overlander Roadhouse sbch.shuttle@gmail.com Ph: 0427 483 032. There are no taxis in Denham.

Of interest: Denham is Western Australia's most western town and was once a thriving pearling port (it had a pearl shell paved street). Several buildings, including St. Andrews Church, are built of local shell blocks.

History: Denham derives its name from Captain H. H. Denham who charted the whole of Shark Bay in 1858 aboard *HMS Herald*.

13.3.7 Giraud Point

There is a good anchorage at 26° 28.7'S, 113° 37'E with 5 m depth, good holding in sand/silt. It has been used in S winds of 35 kn.

13.3.8 Boat Haven Loop

(no chartlet)

26° 18'S 113° 29'E

AUS 331

⚓ Boat Haven Loop is a deep, protected inlet south of Denham on the west side of Cararang Peninsula. The entrance starts just west of Lefebre Island. It meanders a lot, so watch out for sticks placed by fishermen to mark difficult points in the channel.

Caution 1: The channel is prone to realignment.

Caution 2: The channel west of Lefebre Island is shown as deep on most charts but has about 1.5 m LAT.

13.3.9 Ant Island

(no chartlet)

26° 9.7'S 113° 26.7'E

AUS 74.

⚓ Excellent anchorage reported northwest of Ant Island.

Caution: This area is generally shallow with one part showing 1.1 m depth.

13.3.10 Heirisson and Bellefin Prong Peninsulas

(no chartlet)

26° 01'S 113° 20.0'E

AUS 331, 74

⚓ The bay to the south of Slope Island provides good protection. There are some sand patches amongst the thick weed. Salt is loaded on to ships at Slope Island in Freycinet Reach. Slope Island is piled high with white salt and is joined to the mainland by a causeway.

⚓ There is anchorage off the wide beach in the bay to the north of Ant Island.

Caution: A drying sandbank extends north from Ant Island.

Passage notes

The marked passage north around Bellefin Prong and Heirisson Prong through the sandy shallows saves miles.

13.3.11 Useless Inlet

(no chartlet)

26° 08'S 113° 21'E

AUS 331

⚓ There is anchorage in Useless Inlet with protection from the N and E. Exposure to the S can produce an uncomfortable chop. Access has been reduced by the introduction of barriers required for salt mining.

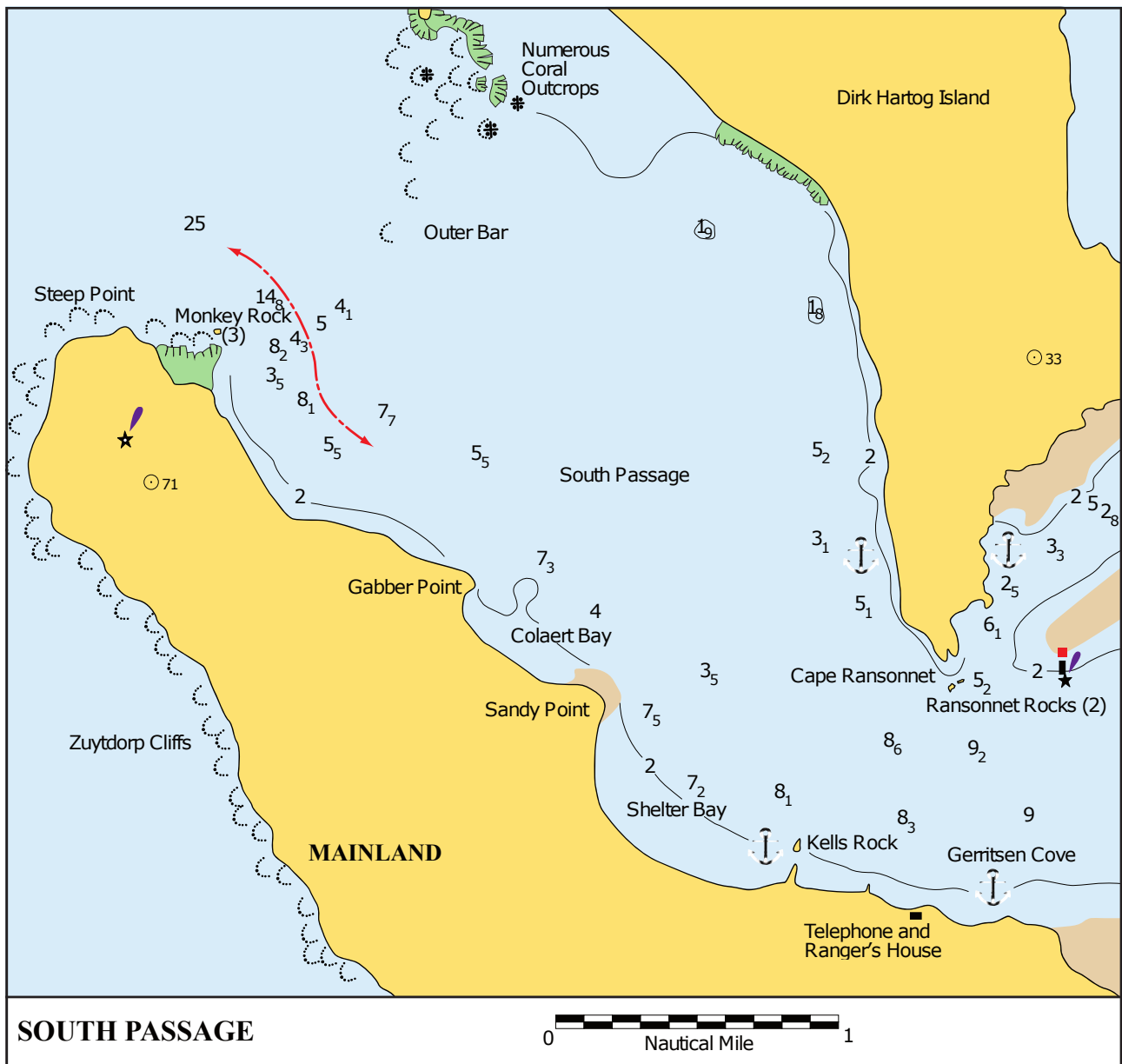
Tides: Denham. Range 1 m.

Caution: The entrance to Useless Inlet is poorly charted.

13.3.12 South Passage and Blind Strait

26° 08'S 113° 10'E

AUS 331, WA 661



Chartlet 130 South Passage

South Passage is usually navigable for deep draft yachts. However during periods of heavy swell and an ebbing spring tide, which may reach 3-4 kn, there may be serious overfalls on the outer bar. Make passage over the southern end of the outer bar. For the deepest water, clear Monkey Rock by about 400 m. Monkey Rock is a large, isolated, flat-topped rock, about 400 m off the north side of Steep Point. It is recommended to hold off crossing the bar for about 10 minutes to observe the wave patterns, before committing yourself to a crossing.

⚓ A convenient and pleasant anchorage may be found about 3 nm in from Monkey Rock in Gerritsen Cove just east of the Ranger's house. (There is now a second building, east of the ranger's house; it is a new-looking brick private house.) There has been a report that it has poor

holding close to the beach. Anchor as close to the shore as possible, to avoid much of the tidal flow through this area. However, make sure you have left enough swinging room in case of a wind change. The bay in front of the Ranger's house is shallow sand over rock.

⚓ Shelter Bay is a suitable anchorage although shallow some distance from the shore. The bottom is shallow sand over rock but the holding is reported good. This is considered a better anchorage than Gerritsen Cove. It is well protected against strong S winds but can be subject to low surge from outside swell. It can also be exposed in fresh E winds. The 15 m long transport barge that runs from Shelter Bay across to Dirk Hartog Island creates a wash in the bay. There is a private mooring about where the anchor symbol on the chartlet is.

Facilities: There is Telstra mobile coverage for phones fitted with an external aerial.

Caution 1: The anchorages in Shelter Bay and Gerritsen Cove are not suitable in fresh N winds. They offer uncertain holding off a very close lee shore.

Caution 2 : Tiger sharks have been sighted.

Fishing: Reportedly good.

⚓ Anchorage can be taken either side of Cape Ransonnet depending on the weather. On the west side watch for shallow sand over rock. Anchorage can be taken on the east side at 26° 09.4'S, 113° 13.3'E. The bottom in this bay is about 60% sand with the rest appearing to be weed. Most of the bay is shallow. There is a private mooring on the east side of the Cape.

Diving: Monkey Rock and the eastern side of the coral outcrops on the south side of Dirk Hartog Island.

Passage notes

The recommended passage between Shark Bay and South Passage is via Blind Strait, which is a convenient and straightforward route. Port and starboard markers define Blind Strait but beware they are in shallow water and should be given good clearance. In June 2015 it was reported that one of the lead markers ashore appeared to be missing, as were two of the three green lateral marks.

An alternative to Blind Strait (used before leads and markers were installed in Blind Strait) is to head north close to the coast of Dirk Hartog Island, keeping to the west of South Sands which is shallowest at the northern end. Pass to the west of Sunday Island.



Steep Point and Monkey Rock from east (R Campbell)



Steep Point from southwest (M&N Reynolds)

13.3.13 Sunday Bay

(no chartlet)

26° 08'S 113° 14'E

AUS 331, WA 661

⚓ Anchorage over sand can be found at either the northern end or the middle of Sunday Bay, west of Sunday Island. The entrance to the bay is fairly shallow so a good lookout is essential. Insects can be plentiful.

Fishing: Reportedly good.

13.3.14 Meade Island/Homestead Bay

(no chartlet)

26° 00'S 113° 12'E

AUS 331, WA 661

⚓ Meade Island is opposite Dirk Hartog's station homestead and provides anchorage over a broad sandy patch, with shelter from winds SE through S to NW. Approach from the north because there are shallow areas to the east, and anchor to the north or northwest of Meade Island in about 2.5 m below chart datum. The shoals north-northeast of Meade Island extend further than charted

and vessels are advised to remain north of 29° 59.0'S until Meade Island bears south-southeast.

Facilities: Dirk Hartog station operates a tourist facility on Dirk Hartog Island for paying guests and they are busy most of the year. Guest access is by barge across to the island from Steep Point, then 4WD. They are happy for visiting cruisers to anchor in their picturesque bay and explore the beach but they are not in a position to provide services for unannounced visitors.

Of interest: The small peak on the island is a sea eagle's nest.



Meade Island (M&N Reynolds)

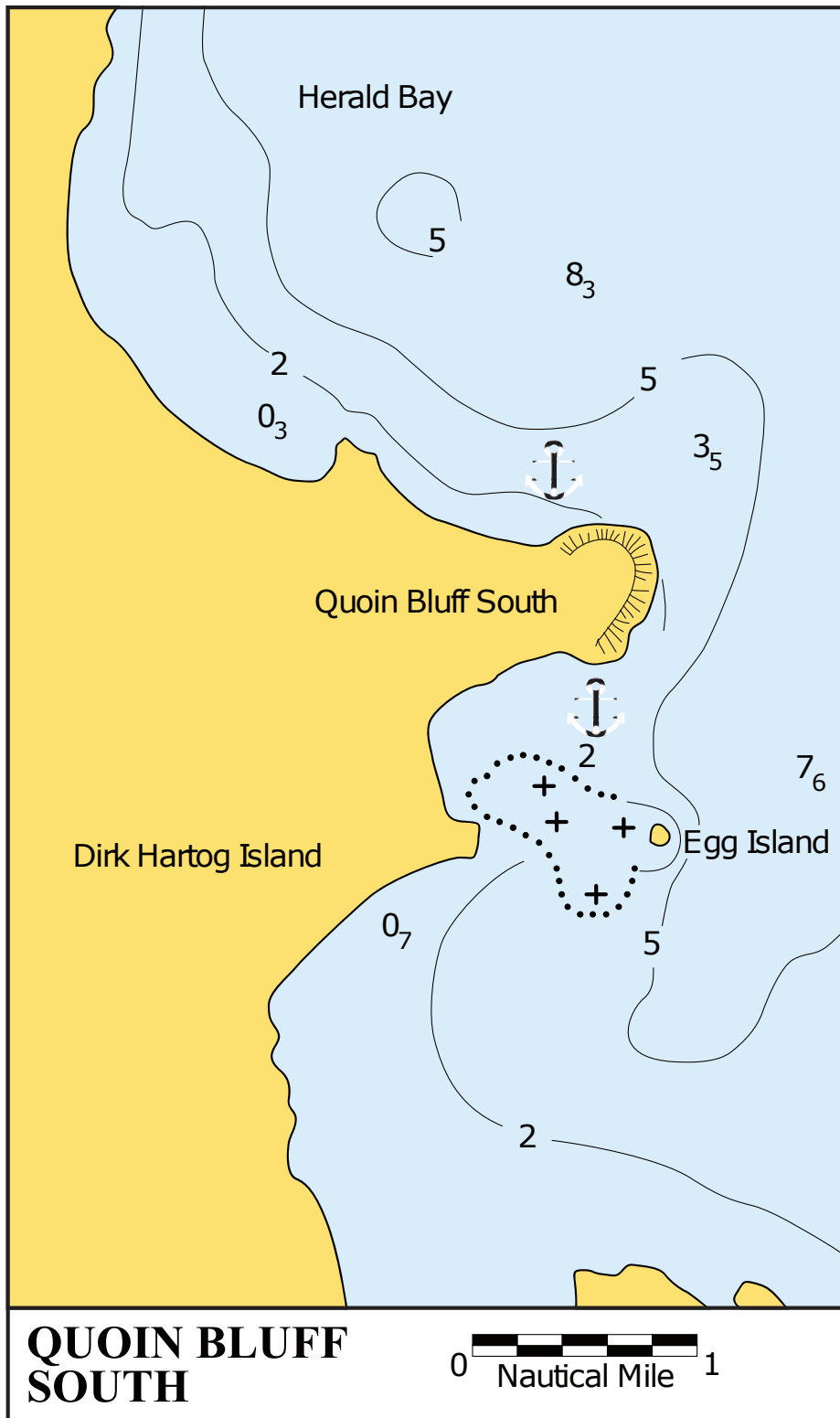


Meade Island on right (M&N Reynolds)

13.3.15 Quoin Bluff South

25° 53'S 113° 09'E

AUS 331



Chartlet 131 Quoin Bluff South

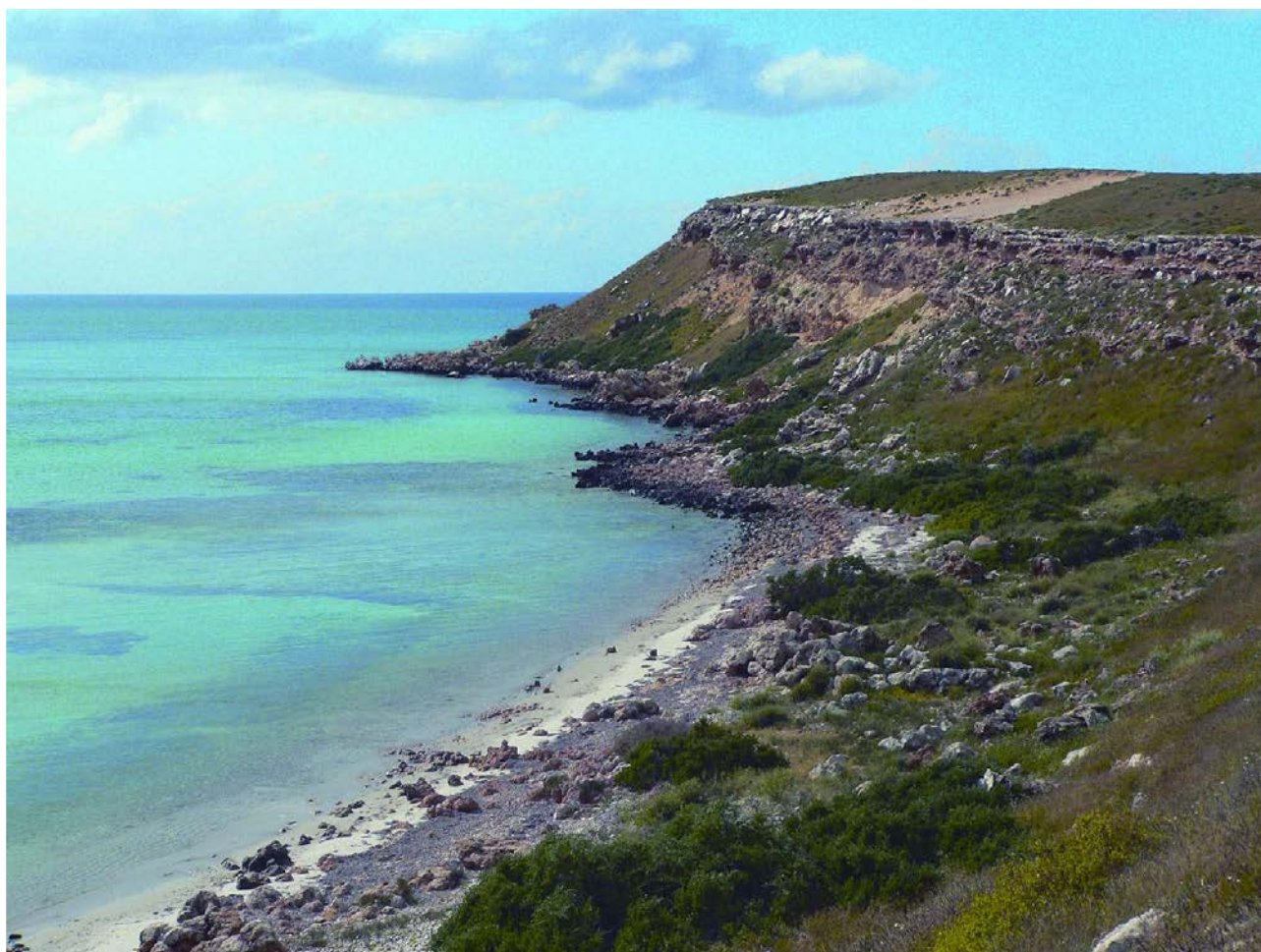
⚓ Herald Bay is just north of Quoin Bluff South on the east side of Dirk Hartog Island. It is fairly

shallow but protected from the SW to NW. The best protection from the south is close in under the north side of Quoin Bluff South.

⚓ There is also anchorage on the south side of Quoin Bluff South between it and Egg Island, but care must be taken to avoid the numerous coral lumps that lie south of the bluff. Egg Island is a tiny guano-covered islet; best to avoid being downwind of it.

Caution: Quoin Bluff South is not to be confused with Quoin Bluff on Dorre Island to the north.

Passage notes: About two-thirds of the way up between Quoin Bluff South and Turtle Bay there is a shallow patch off the island at approximately 25° 43'S, 113° 06'E. Charts show a deep water channel between these shallows and the island, but it is less than 2 m deep.



Quoin Bluff (R Campbell)

13.3.16 Louisa Bay

(no chartlet)

25° 46'S 113° 05'E

AUS 331

⚓ Louisa Bay on the east side of Dirk Hartog Island is fairly shallow but offers anchorage over

sand amongst weed (and some coral rubble) in clear water, with protection from moderate SW to S winds.

Diving: There is excellent snorkelling in 3-4 m depth north of Louisa Bay, about 1.5 nm southeast of Sandy Point (25°43.4'S, 113°04.6'E). Dive at slack water.

Of interest: A large number of dugong congregate here at times.



Old squatters camp, Dirk Hartog Island (R&L Newton)

13.3.17 Withnell Point

(no chartlet)

25° 35'S, 113° 01'E

Not recommended as an anchorage. On approach it was reported as rapidly shelving and stony bottom. However, commercial fishermen are known to anchor here.

13.3.18 Turtle Bay

25° 30'S 113° 00'E

AUS 331

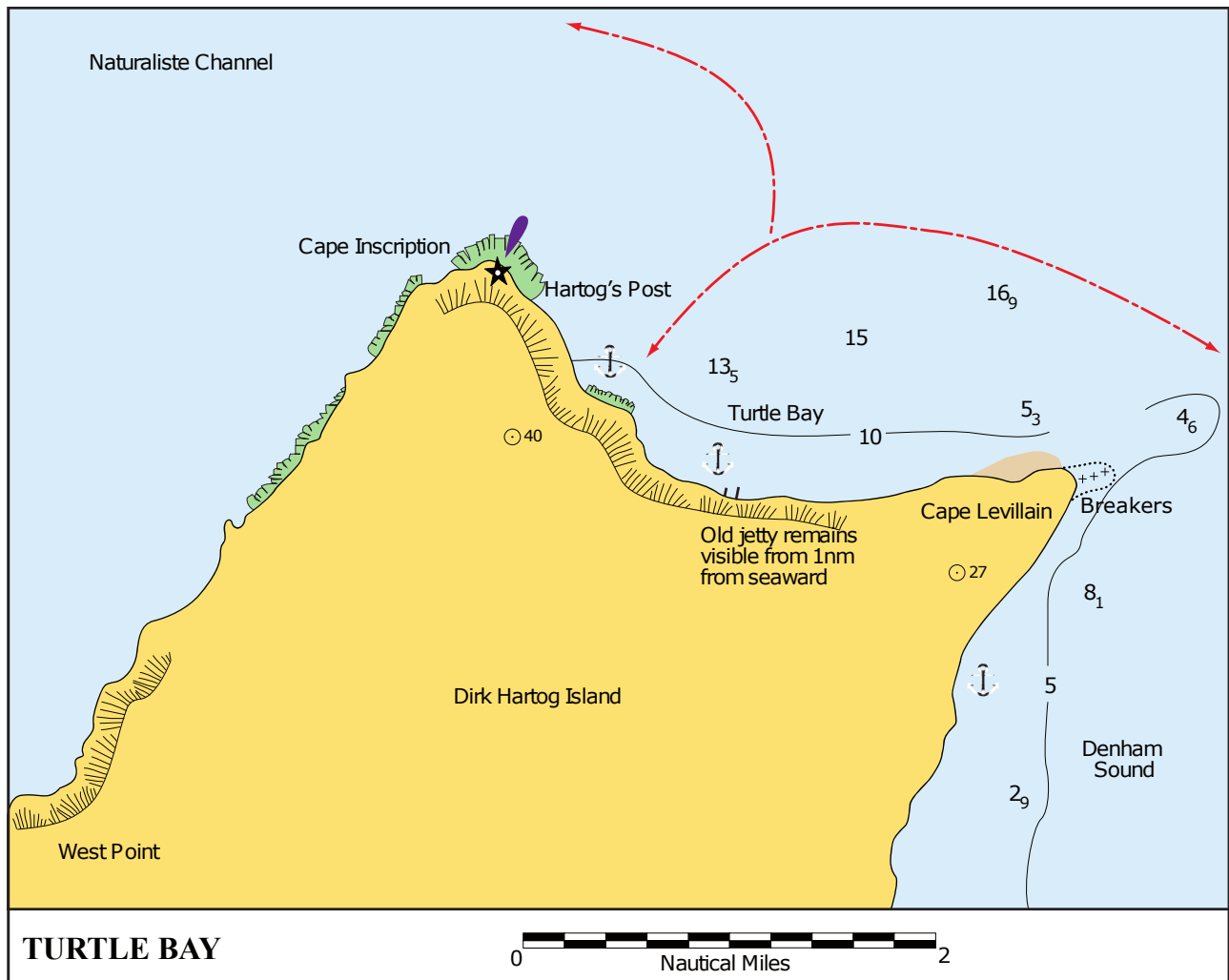


Illustration 1: Turtle Bay

⚓ Turtle Bay at the top of Dirk Hartog Island is a popular place largely due to the protection from the SE to SW, with good holding, but uncomfortable once the wind is E of SE. It should be avoided in periods of NW gales.

Anchorage may be taken up anywhere in the bay; try near the old jetty (barely visible from 200 m offshore, there are a few piles remaining on the beach) in 5 m. Anchorage at 25° 29.8'S, 112° 59.3'E has been found satisfactory. It has been reported that the best anchorage is west of the old jetty, near the slight land protrusion into the bay. There are two moorings in the bay; one is a DBCA mooring. Large swells have created a steep beach on which landing can be difficult.

Caution 1: Even when conditions are good, heavy swells can enter the bay with the change of tide. The west end of the bay can experience rollers whereas the east end is less risky and more comfortable.

Caution 2: There are conflicting reports as to whether the bottom shoals suddenly.

⚓ Anchorage protected from the W can also be taken south of Cape Leveillé.

Of interest: An old tramway leads to the top of the sand hills. A track leads to the lighthouse and then to the site where Dirk Hartog's pewter plate was affixed in 1616. For the less energetic a dinghy may be taken to just east of the cape where a goat track leads to the top.

History: Dutch trader Dirk Hartog was the first European to discover Western Australia in 1616. In 1696 Willem de Vlamingh replaced Hartog's plate with another plate, on which he inscribed not only Hartog's words but some of his own. The French found and removed the plate in 1819.

13.3.19 White Beach Landing, Dorre Island

(no chartlet)

25° 11'S 113° 06'E

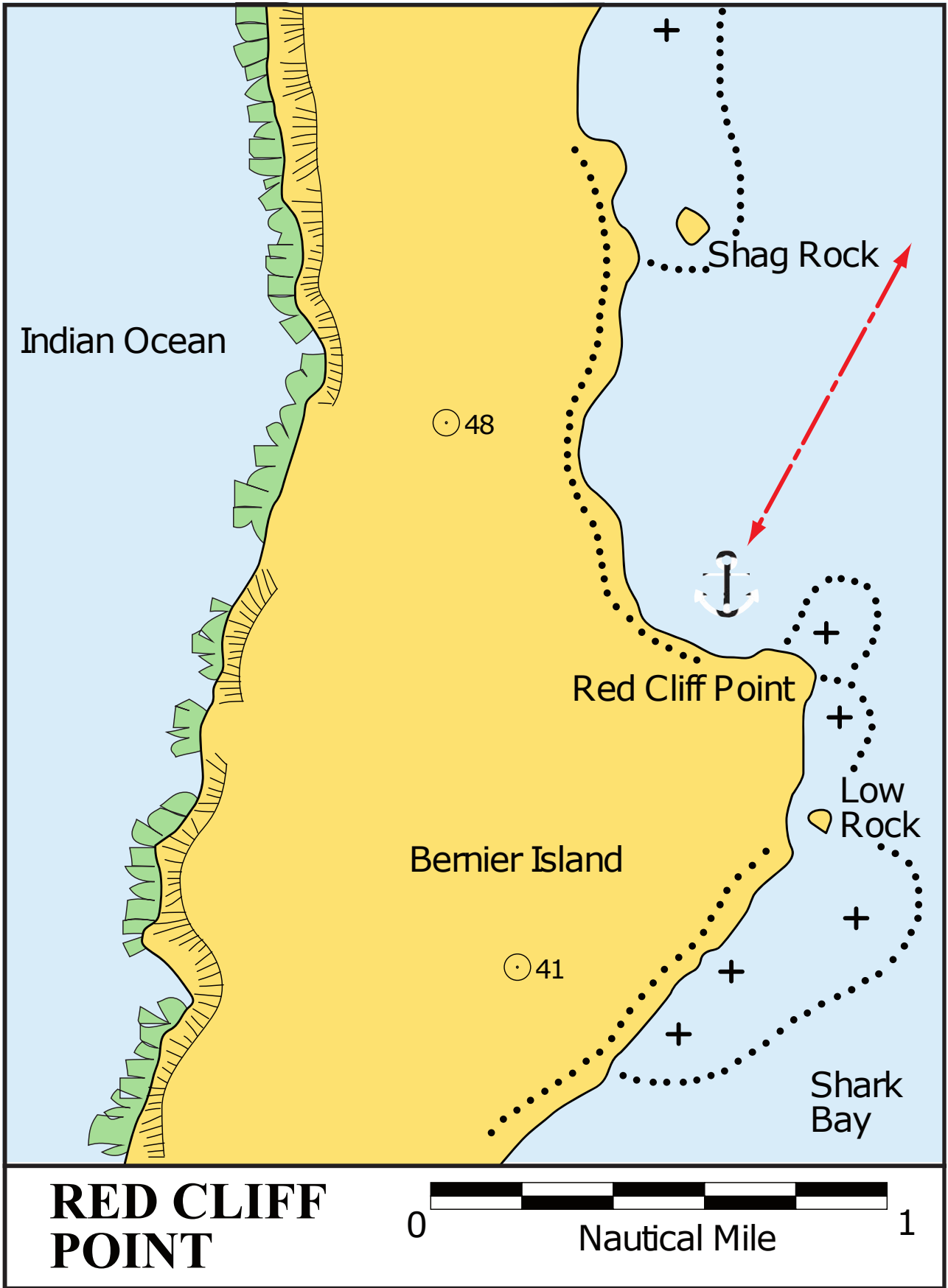
AUS, 331

White Beach Landing is, despite its name, unsuitable as an anchorage. The bottom is mostly soft coral and broken rock. Anchor if you must, over sand in the southwest corner of the bay 1.5 nm to the south of White Beach Landing. There are sandbars to the north and south of this bay.

13.3.20 Red Cliff Point, Bernier Island

24° 56'S 113° 09'E

AUS 331



Chartlet 132 Red Cliff Point

⚓ Red Cliff Point has anchorage over sand with protection from the S and W. It has little

protection from the SE over 10 kn and is untenable in fresh easterlies. The best approach to the anchorage is from a northeast direction. There is a small private mooring just off the beach near the chartlet anchor.

Facilities: Telstra mobile coverage is good with an external aerial.

Of interest: There is an attractive beach, cliffs and sand dunes. A walk to the west side of the island is worthwhile. Previous editions of this guide suggested you allow three hours each way, but we have been advised this is inaccurate. Awaiting further information.

History: Baudin named Bernier Island after the astronomer aboard the *Naturaliste*. Baudin described Bernier and Dorre islands as the “barren islands”.

13.3.21 Hospital Bay, Bernier Island

(no chartlet)

24° 48.9'S, 113° 09.7'E

⚓ A 12 m long 1.2 m draft catamaran has successfully anchored at the above waypoint and sat out a gale from the N and NW. Space is very limited.

Of Interest: Hospital Bay was so named because a hospital for leprosy patients once existed on the island.



Hospital Bay in a NW gale, looking SE (S Norman)

13.4 Shark Bay to Geraldton

Charts: AUS 81, 84, 331, 332, 751, 4725, WA 713, 722, 939, 940, 976, 977, 978, 998, 999.



Chartlet 133 Shark Bay To Geraldton Overview

Passage notes

The coast from Steep Point to the Murchison River mouth off Kalbarri comprise the notorious

Zuytdorp Cliffs which are precipitous, and are up to 250 m high in places. The SW swell rebounds off the vertical cliffs, generating two opposing wave trains. When added to the seas generated by the prevailing SE winds these three different wave directions combine to create a very confused sea state. In all conditions other than flat calm it is recommended that the vessel's course be at least 5 nm off the coast to avoid the likelihood of confused seas, and even further in strong winds or high swell. In the event of sustained strong easterlies and low swell, a course closer to the cliffs (1-3 nm) gives a moderate sea, lighter winds, and provides a more comfortable sail.

History: In 1712 a Dutch East Indies trading vessel, *Zuytdorp* was wrecked on the rugged cliffs. In 1927 a station hand from Murchison House discovered bottles, carved wooden figures, coins and other objects. It was not until 1958 that the wreck was positively identified as the *Zuytdorp*. There is evidence that survivors recovered water barrels, timber and ships fittings and set up camp on the cliff-top. The *Zuytdorp* apparently struck the reef with virtually no warning as the anchors were stowed away.



Zuytdorp Cliffs near Steep Point (R&L Newton)

13.4.1 False Entrance

(no chartlet)

26° 23'S 113° 18'E

AUS 331, 332

⚓ False Entrance is 17 nm south of Steep Point and immediately north of Point Pepper. It can be accessed by four-wheel-drive vehicles. If respite is required, anchorage can be taken close inshore. The shore is accessible only in very low swell.

Fishing: Crayfish.

13.4.2 Kalbarri (shallow draft only)

(no chartlet)

27° 42'S 114° 10'E

AUS 332, WA 976

Kalbarri is just inside the mouth of the Murchison River in Gantheaume Bay.

Caution: It is strongly recommended that yachts should not attempt to enter the Murchison River. The combination of swell, shallow water and an ever-changing dog leg entrance requires intricate local knowledge and ideal conditions.

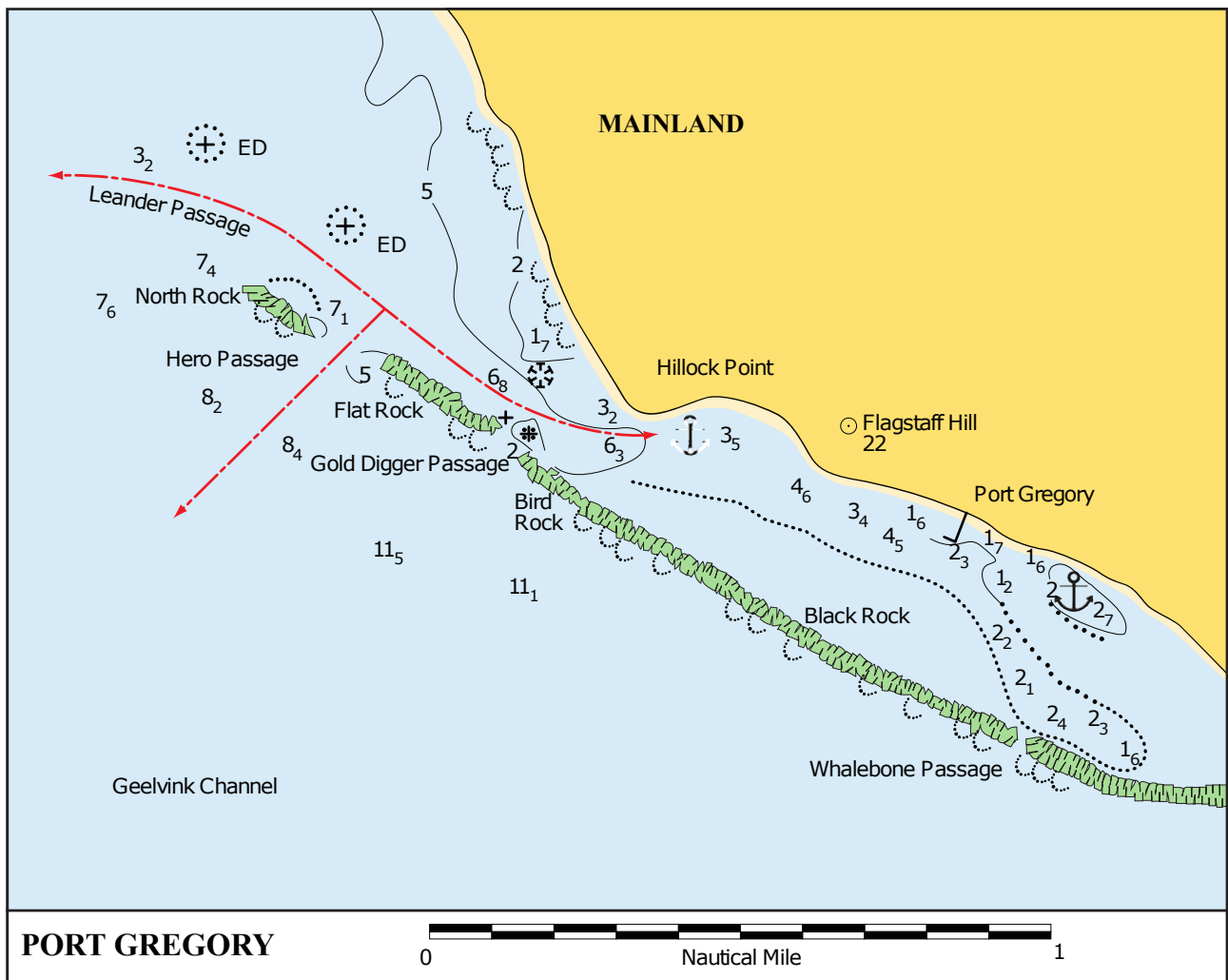
There are several fishing boat moorings between the Murchison River mouth and Red Bluff. These may provide respite if desperate. Kalbarri Sea Rescue may be able to give advice: contact them on VHF Ch 16 or 80, or Ph 0428 265 500.

Tides: Kalbarri. Range 0.5 m.

13.4.3 Port Gregory

28° 11'S 114° 13.5'E

AUS 332, 751, 84, WA 713



Chartlet 134 Port Gregory

Port Gregory is a well protected anchorage between 200 m and 400 m wide and 1.2 nm long with

good sandy bottom. Protection is provided by a long, almost continuous, flat-topped reef about 1m high.

Entry is clear and straightforward by either Hero Passage (about 300 m wide) or Leander Passage. Gold Digger Passage, used by fishermen, requires local knowledge.

Bird Rock may be seen from some distance off (except in high seas) as it stands a metre or so above the reef. Black and Shag Rocks further south are less conspicuous. Landmarks behind the jetty are not remarkable and buildings are hidden behind the dunes. There are no leads for night entry.

⚓ Anchorage can be taken 200 m south of the jetty, which seems to be less affected by the current or by the activities of early morning commercial fishermen. Depths in the anchorage are 2-4 m with barely 3 m at the head of the jetty. It may be possible to pick up a fisherman's mooring, with permission.

⚓ There are unconfirmed reports that good anchorage may be found in the northern part of the lagoon, just south of Hillock Point.

Surf over-topping the reef causes a current through the anchorage and in periods of heavy swell may cause choppy conditions at the entrance. Current to the N through the anchorage has been observed at over 5 kn during strong onshore winds. It may be less closer to the reef than the beach. Getting an anchor to hold in these conditions is difficult, especially south of the jetty where swinging room is limited; an anchor watch may be required.

Tides: Port Gregory. Range 1 m.

Facilities: There is a small general store and caravan park, with showers and toilets, about 500 m inland. Water and diesel fuel are available at the jetty.

Of interest: From Greek mythology, Leander and his lover Hero (goddess of love) lend their names to the passes through the reef.

Hutt Lagoon, on the edge of town about 1 km from the jetty, is coloured pink by an algal bloom which is harvested as a source of natural beta-carotene.



Hutt Lagoon (R &L Newton)



Port Gregory: on extreme right 2 entrances through the reef (R & L Newton)

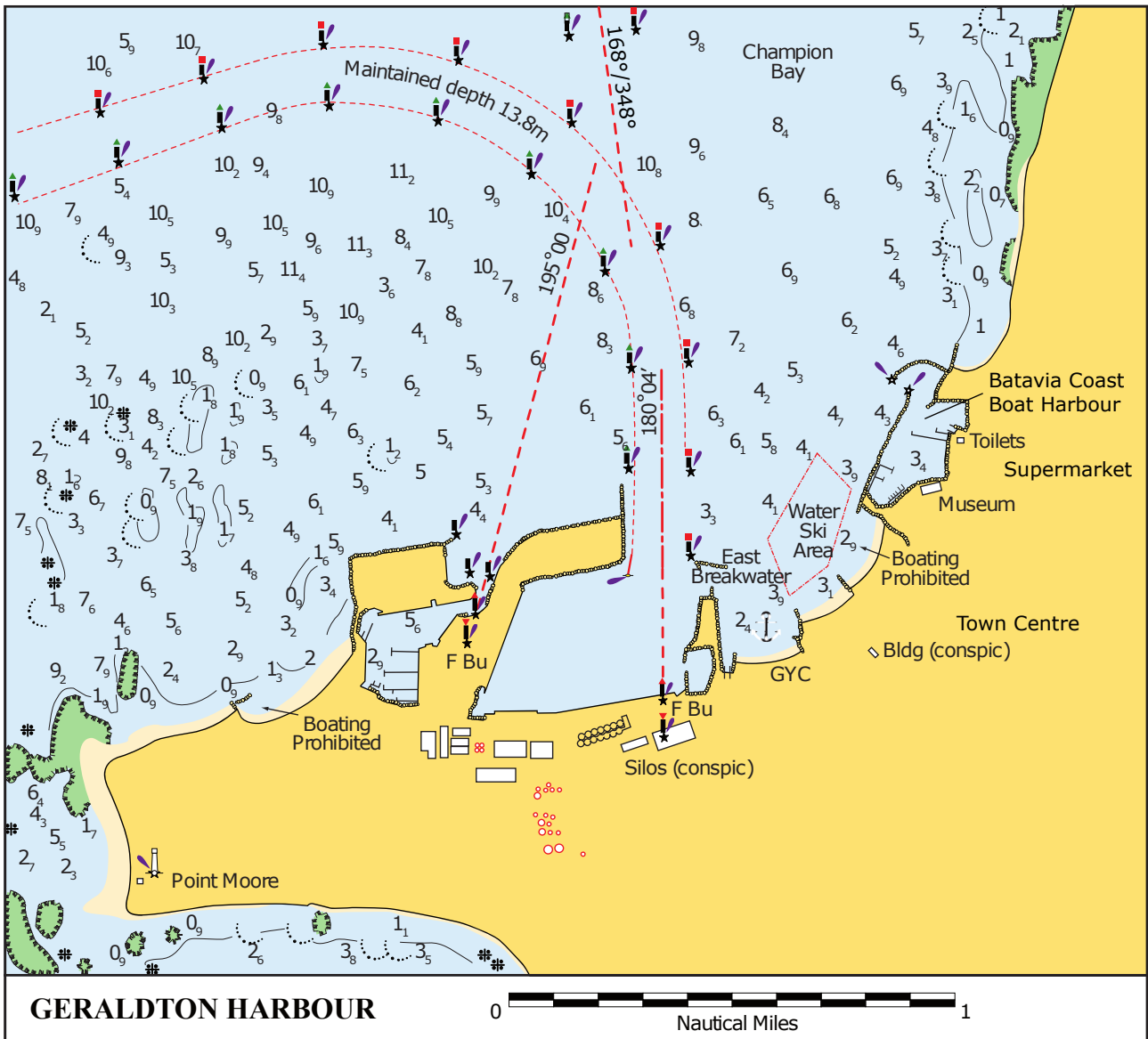


Port Gregory- south end of the anchorage (R&L Newton)

13.4.4 Geraldton

28° 46'S 114° 36'E

AUS 81, 332, 751, WA 939



Chartlet 135 Geraldton

Geraldton is a small city (population 40,000) with a wide range of facilities and services. It is the key port and administration centre for the mid-west region.

The approach to Geraldton has a large area of reef around Point Moore; best to give this at least 1 nm clearance. The main leading marks are sometimes difficult to pick up during the day; by night they are lit. The rear lead is on the shore about 600 m south of a tall radio tower. The Fairway buoy is clear of the reefs on the same bearing. It is lit and has a RACON. It is recommended to stay in the shipping channel to avoid cray pots, though pots have even been reported in the channel.

The channel markers are free to pivot near their base, allowing them to roll in the swell. This can give them a disconcerting appearance.

There is reef south of the leading line and shallow water (7 m) to the north of it. The shallow areas break in moderate swells. When entering from the west, set a course of about 080° to Mount

Fairfax, which is the southern steep end of the flat-topped Moresby range in the hinterland. This will bring you to the vicinity of the outer end of the leading line.

To enter the marina, continue down the main shipping channel to position 28°45.8' S, 114°36.1' E (port hand Channel Marker #18), make a 90° turn to port, then steer 100° to the marina entrance at position 28° 45.9' S and 114° 36.6' E. The entrance has no leading marking other than red and green lights. All vessels are to berth at the service jetty until a pen is allocated.

Caution: African Reef is about 12 nm south of Point Moore. The sea breaks because it has depths of 2m or less.

Tides: Geraldton. Range 1 m. HWS are usually a little over a metre but weather affects the sea level. In summer, land breezes lower the level and before NW gales the level may be a metre higher than usual.

Marina Facilities: The Batavia Coast Boat Harbour (marina) has two floating pontoons operated by DoT, with water, power, good showers and a laundry. Contact DoT during office hours Ph: (08) 9956 0113 or after hours contact Pip Allen 0427 089 940, Doug Brown 0429 003 879, or Lindsay Finlay 0429 687 186.

There are pile pens on the breakwater operated by Geraldton Yacht Club (GYC) Ph: (08) 9964 1664. They suffer from surge due to swell through the breakwater. There is water, power and one toilet/shower.

⚓ The alternative to the marina is to anchor off the GYC clubhouse, sheltered even in SW 20-25 kn and a swell of 5 m outside. It is within walking distance south of the marina. Visitors are welcome to use the club's facilities.

The remainder of the harbour is for commercial fishing vessels and ships. The commercial harbour is closed to all recreational vessels. The fishing boat harbour is accessible for fuelling and it may be possible to negotiate long-term berthing with the Fishermen's Co-operative.

Geraldton Sea Rescue maintains a radio schedule for yachts in the area, including the Abrolhos: contact on VHF Ch 16.

Town facilities: All trades and many spare parts are available in the town. There is a wide range of provisions, ice, many restaurants and a hospital (see section 7.5). There are two chandleries near the Fishing Boat Harbour.

Fuel is available at the Fishing Boat Harbour; a Baileys card is required. The pump speed is fast but controllable.

Of interest: The Point Moore lighthouse is distinctive with its red and white painted bands. It was originally brought out from England and has operated since 1878.

The maritime museum is well worth a visit. It contains relics from the *Batavia* (1629), *Zuytdorp* (1712) and *Zeewijk* (1727) shipwrecks.

History: Originally named Gerald Town after Sir Charles Fitzgerald the governor of the region. It was built as the port for the Geraldine lead mine.

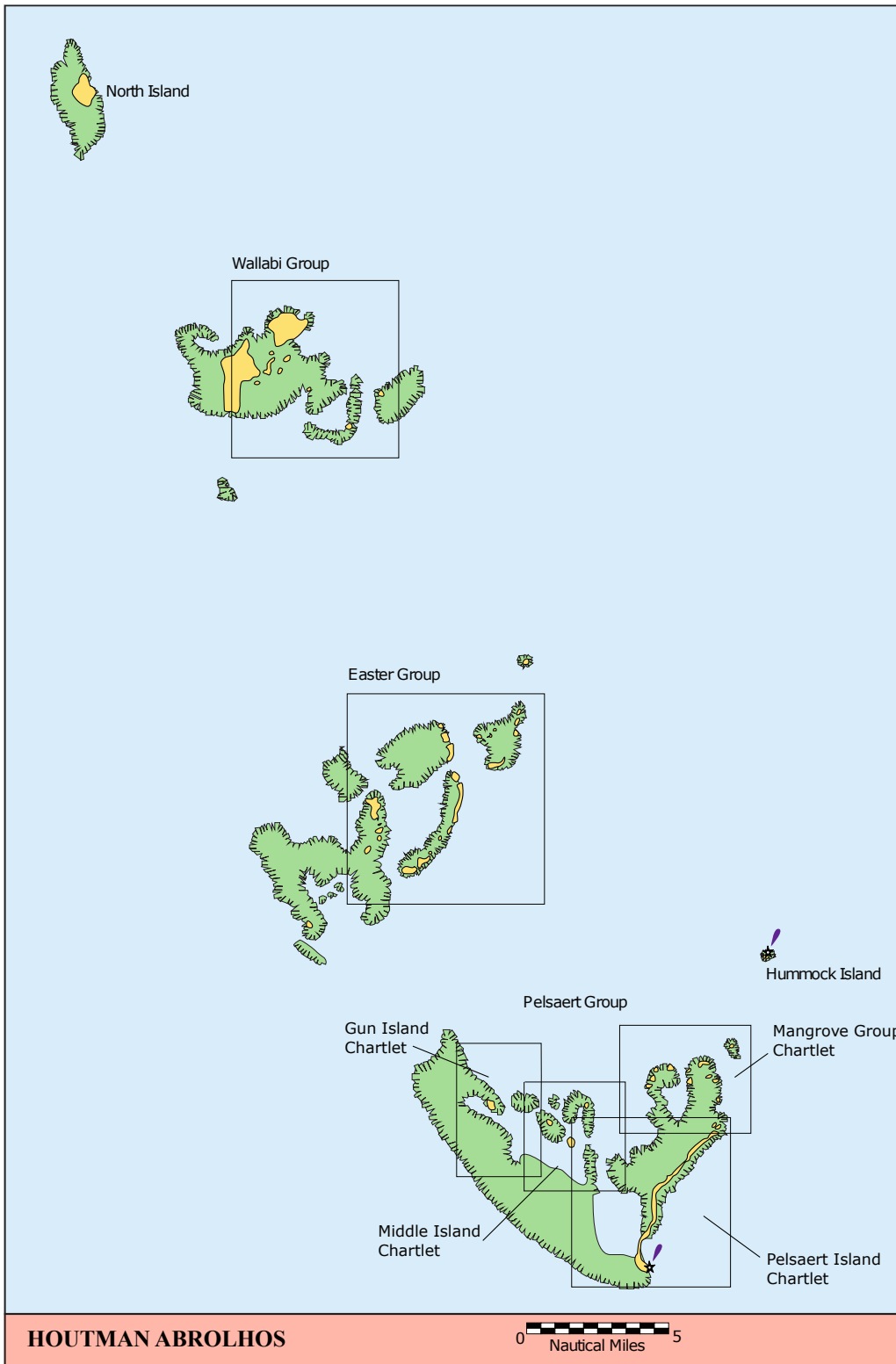


Geraldton looking southwest (M Stanbury 'Shipwrecks of the Roaring Forties' Project)

13.5 Houtman Abrolhos

28° 45.0'S, 113° 45.0'E

Charts: AUS 83, 332, 751, WA 998, 999

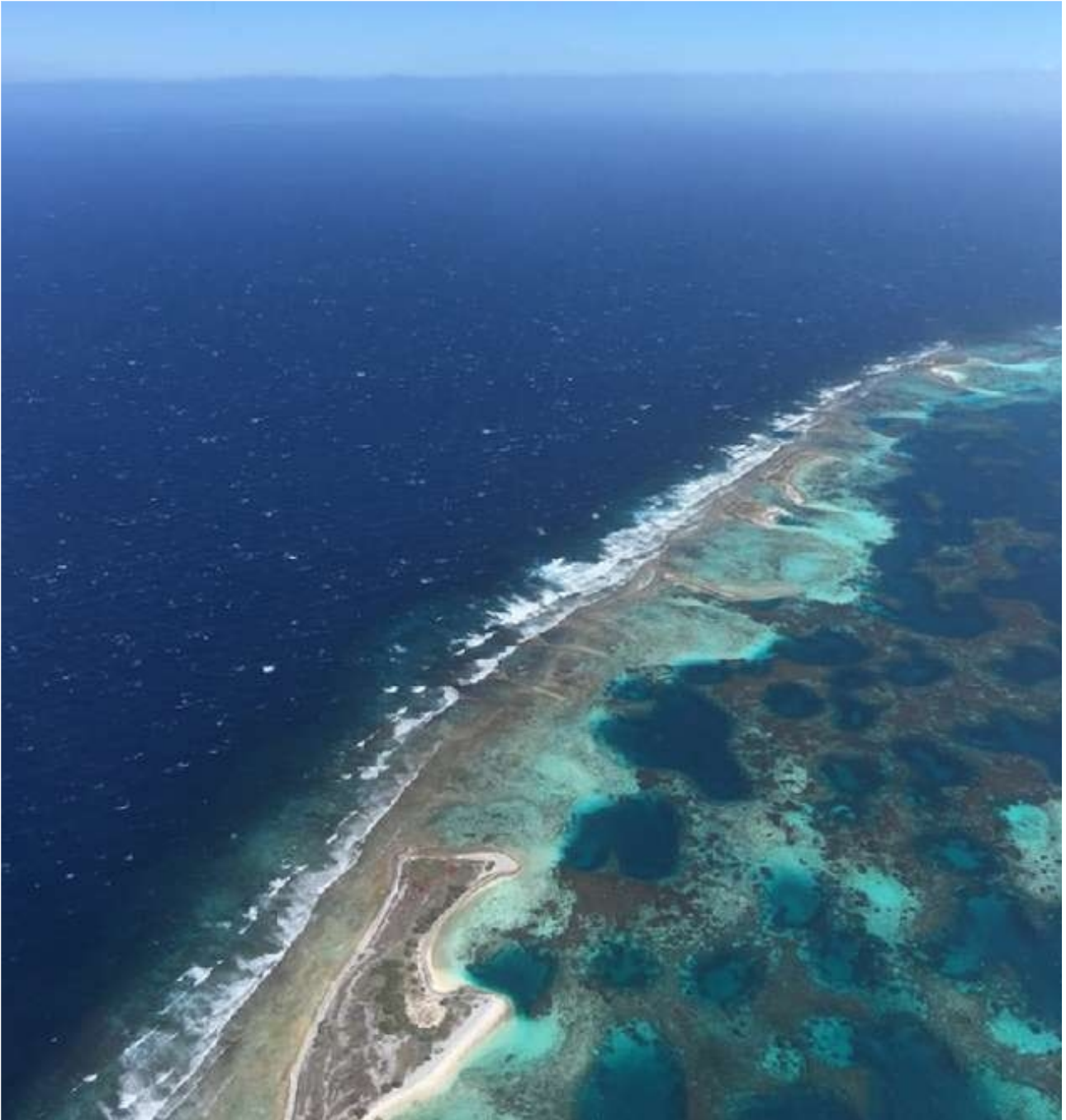


Chartlet 136 Abrolhos Overview

The Houtman Abrolhos archipelago extends 45 nm north to south and consists of 122 low-lying

and windswept ironstone islands and rocks, surrounded by coral reef. There are three groups of islands: Wallabi Group in the north, Easter Group in the middle and Pelsaert Group in the south, plus the isolated North Island north of all three groups. The Pelsaert Group is the closest to the mainland, 35 nm from Geraldton.

These are remote, exciting and rewarding islands to visit. The only settlements are the occasionally occupied shacks of commercial rock lobster (cray) fishers. The Easter Group is the most populated. The area is hazardous and requires careful pilotage. The reef is steep-to, rising without warning from relatively deep water and can remain unseen until close by. Good visibility, preferably with someone aloft, is necessary to navigate through the reefs. Polarised sunglasses are essential. Visibility is impaired when the sun is low or ahead or when the water is glassy calm. Many of the recommended anchorages are deep. Few offer protection from N winds and those that do are likely to be occupied by the commercial fishermen. There are many free moorings available.



Houtman Abrolhos (M Stanbury 'Shipwrecks of the Roaring Forties' Project)

Visitor registration

It is a regulatory requirement that the skipper of a boat must not travel to the Abrolhos Fish Habitat Protection Area at any time unless the Department is notified. Fortunately notification is a simple process, and it is free; complete the Notification form at <http://www.fish.wa.gov.au/Sustainability-and-Environment/Abrolhos-Islands/Pages/Visitor-information.aspx;charstyle:Hyperlink> and submitting it either via email to reception.geraldton@fish.wa.gov.au , or faxing it to (08) 9920 8499, or bringing it to the Department's Geraldton office, or placing the form in the CDR box on the external wall of the Geraldton office. Fisheries Officers are vigilant in checking the forms whilst you

are in the Abrolhos and there are fines of up to \$500 if you have not complied.

Passage notes

Frequently used points of departure for the islands are either Geraldton or Port Denison. For the Pelsaert or Easter Groups make The Coral Patches (northeast corner of the Pelsaert Group) your landfall. Stay north of The Coral Patches and south of King Reef (usually breaks heavily).

Hummock Island light, 3 nm north of the Coral Patches, is useful for a landfall at night.

If approaching from the south it is possible to pass between The Coral Patches and Newman Island. There is deep water throughout, though care must be taken to avoid shallow reefs either side. As expanded on below, some charting packages do not show these reefs correctly and at least one yacht has hit the reef as a result of relying solely on one charting package. Always work with at least two independent sources of pilotage information, and use your eyes.

Arriving before mid-morning allows time to negotiate the reefs into an overnight anchorage. As a generalisation, if the intention is to visit all groups it is better to start with the northern group and work south.

Charts

The AHS and DoT have produced excellent charts of the Wallabi and Easter groups. Unfortunately the process appears to have stalled and no similarly detailed chart has been produced for the Pelsaert Group.

Navigation through the major channels has been made easier by the introduction of additional navigation marks at strategic locations for all three groups of islands. There have been well-researched reports that Navionics charts are not reliable in the Abrolhos, possibly due to a significant unaccounted offset. Overlaying of Google Earth images with the aid of e.g. OpenCPN software has been found very helpful in resolving any chart system discrepancies (see 6.2.3).

Caution: Many new fish farms have been established, so keep your charts updated.

Facilities

Fresh water, fuel and other necessities are unavailable so yachts must be self-sufficient in all respects. From March to June carrier boats bring supplies for the fishermen but visitors are advised to be independent of any such assistance.

There is a Silver Chain Nursing Post on Rat Island (VHF Ch 16, or 0427 422 665 if you have mobile reception). Its opening times are dependent on the activity of the commercial rock lobster fishers; in 2015 it was open from 15 March to 30 June. Otherwise, the nearest medical facility is at Geraldton Hospital (08) 9956 2222 on the mainland. Note that the Royal Flying Doctor Service cannot land at the Abrolhos, so patient transfers to the mainland are usually by private aircraft, helicopter or crayboat.

Weather

The notes below are based in large part on weather records over decades. The advent of climate change has made predictions based on past records less reliable, so what has happened in the past is no longer a reliable indicator of what might happen now. Please bear this in mind when reading these notes.

The weather pattern is unaffected by the land and sea breezes off the mainland. During the

summer SE winds prevail and are consistently moderate to strong. In winter NW to W changes are preceded by northerlies and light winds.

The Abrolhos are first in the path of any weather moving from the west or northwest. Fronts may reach the islands 24 hours or more in advance of weather bureau forecasts for the mainland.

The best time to visit the Houtman Abrolhos is during March, April or May, when the strong summer southerlies are abating and before the winter fronts arrive.

Moorings

Moorings for recreational vessels have been provided and maintained in several locations and are managed by the Department of Fisheries. They are relocated from time to time. No pre-booking of moorings is required, so it is first come, first served. Mooring coordinates are given in

<http://www.fish.wa.gov.au/Sustainability-and-Environment/Abrolhos-Islands/Pages/Visitor-information.aspx>

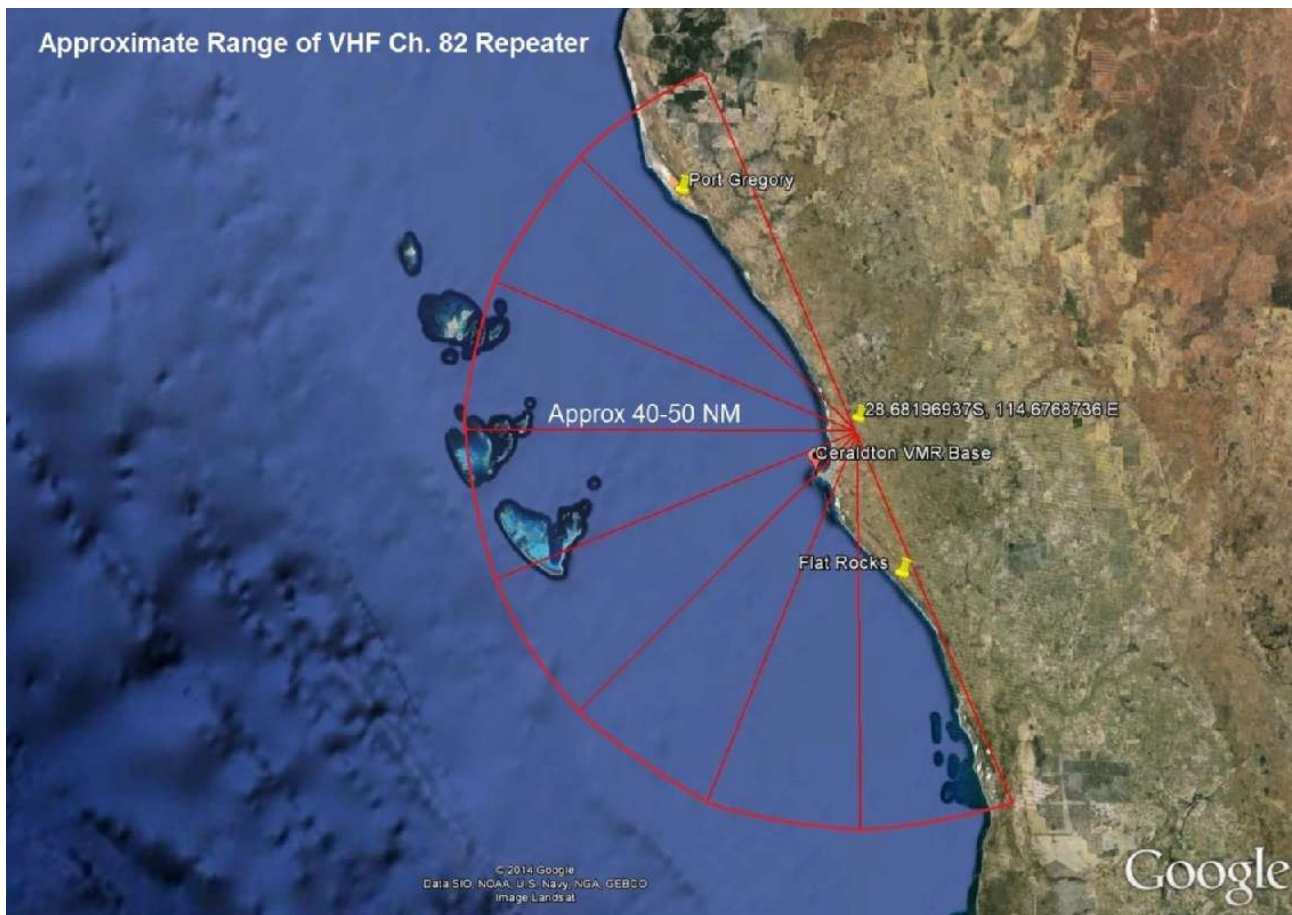
Anchoring

Many of the recommended anchorages are deep 15 to 20 m is quite common. Few offer protection from the N and those that do are likely to be occupied by the commercial fishermen. Most offer protection from waves but little protection from the wind. Good ground tackle is essential, preferably with an all chain rode. A typical inshore cruising anchor setup of 30 m chain + 20 m rope is likely to be woefully inadequate in the Abrolhos. Avoid damaging the coral when anchoring. Always check that your anchor is well set. We recommend carrying two different types of anchor, for example one suited to sand and one suited to weed.

Caution: An apparently good sand patch can turn out to be shallow sand over rock.

VHF radio coverage

The only consistently reliable means of communicating with the mainland is by VHF (or satphone). Geraldton VMR operates a repeater on Rat Island (Ch 81) in the Easter Group and in the Moresby Range (Ch 82) on the mainland. The Ch 81 repeater on Rat Island can only intermittently reach the mainland due to its range limitations. However, the Ch 82 repeater on the mainland has a nominal range as far as the Pelsaert Group and the Easter Group, and is monitored by Geraldton VMR 24/7. Reception from yachts is better if the antenna is at the masthead.



Coverage of VHF Ch 82 repeater in Abrolhos region Geraldton VMR

Mobile phone coverage

Past experience indicates that unless you have a well-configured, well-elevated external aerial for your mobile phone, you are likely to have little or no signal in most parts of the Abrolhos. We have also been advised that iPhones (as distinct from androids etc.) don't have an external aerial option. Having said that, we have had recent reports that it is possible to get coverage with an internal phone aerial on the Telstra 3G or 4G network, provided you are at least 3 m above sea level, and that it is not blowing more than 25 kn. As mobile phone coverage is being improved, this may change, but it should not be relied upon.

Internet connection has been obtained in the Abrolhos using a portable WiFi hotspot router (e.g. MiFi) placed in a pouch and hoisted to the top of the mast.

Fishing

Fishing is popular and fruitful in the Abrolhos, so make sure you have a recreational fishing licence and you obey the strict catch limits issued by the Department of Fisheries. The islands are patrolled and the fines are heavy. A free visitors' guide to the Abrolhos Islands, with maps, background, rules and regulations is available at:

www.fish.wa.gov.au/Documents/recreational_fishing/FHPA/abrolhos_islands_information_guide.pdf

or by post from:

Fisheries WA
PO Box 1171
Geraldton 6530

or from their office in Fremantle Fishing Boat Harbour.

Diving

There are many dive sites with excellent coral, fish and minimal swell. Take care, as sharks are often seen. Four areas have been set aside as “look, do not touch” places for reef observation. These are worth visiting. Their position is shown on the guide issued by the Department of Fisheries.

Transport

Geraldton Air Charter has light aircraft for charter if a crew change is required. Cost was about \$150 each way in 2015. (08) 9923-3434 <http://www.geraldtonaircharter.com.au/>

13.5.1 North Island

(no chartlet)

28° 18'S 113° 36'E

AUS, 332, 751



North Island has a flat top covered with coarse grass and carries a light. Fishermen anchor

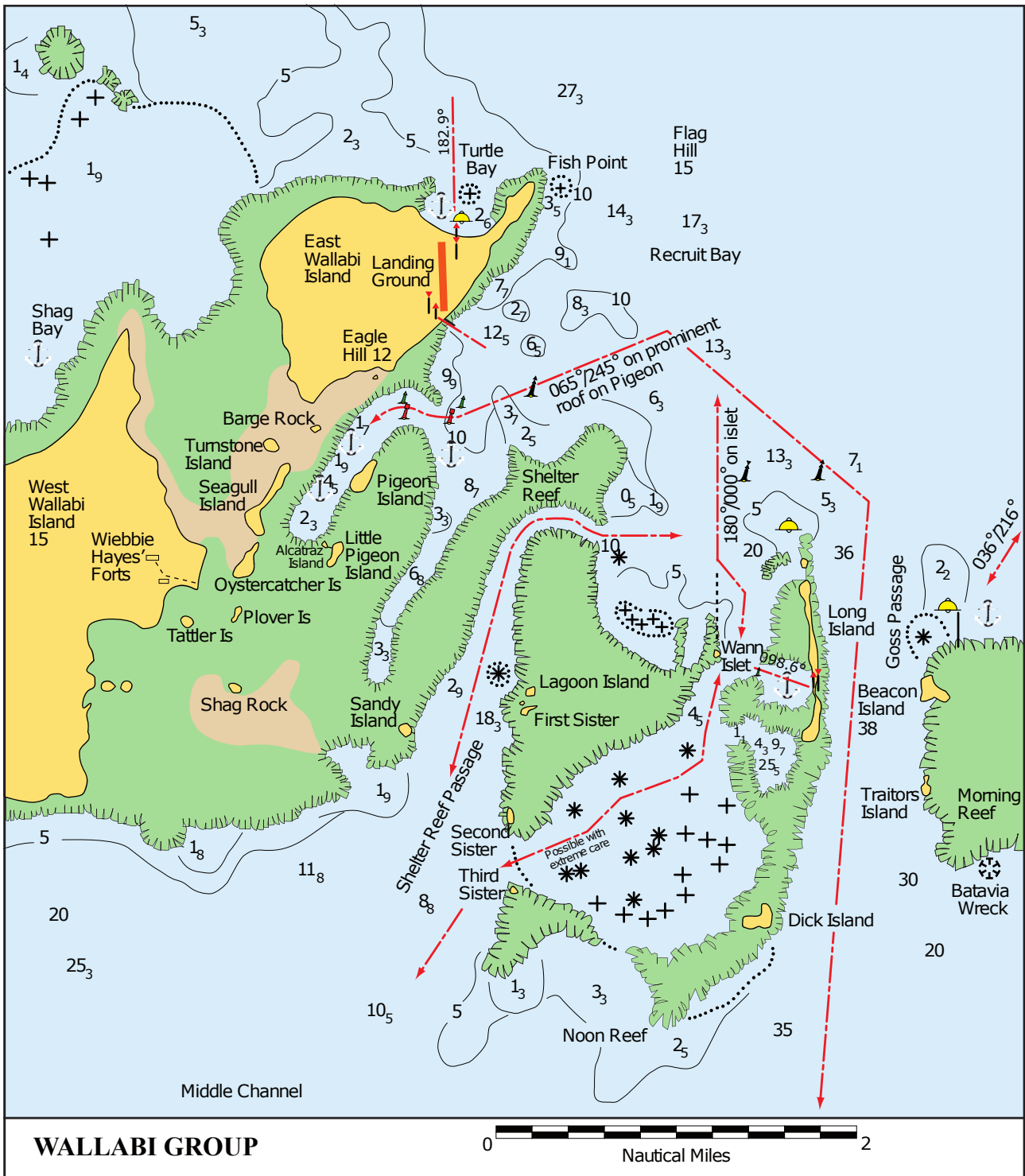
behind the reef on the east side and have a settlement ashore during the crayfish season.

Tides: North Island. Range 0.8 m.

13.5.2 Wallabi Group

28° 28'S 113° 43'E

AUS 83, 332, 751, WA 999



Chartlet 137 Abrolhos Wallabi Group

The Wallabi Group lie about 10 nm south of North Island. The East and West Wallabi islands are the biggest and highest in the entire Abrolhos. There are several smaller islands and rocks in this group, mostly connected by reef.

⚓ Turtle Bay on the north of East Wallabi Island provides anchorage over sand, protected from the S, but exposed to the N. This is a large bay with a relatively easy approach from the north. There are lead marks which are easily visible by day but are not lit. If you are arriving at night, radio ahead and see if anyone already in the bay has a good floodlight to illuminate the leads for you. This is a large bay with a relatively easy approach from the north. There are lead marks which are easily visible by day but are not lit. If you are arriving at night, radio ahead and see if anyone already in the bay has a good floodlight to illuminate the leads for you. There are six moorings available, though in August 2016 three of them had strops that were either missing or in poor condition. There is room for about ten boats to anchor. The eastern end of the bay is often more comfortable than the western end. Anchoring is good close inshore where it is mostly sand, and more difficult further out where it is mostly weed. The dilemma is that it is shallow closer in, mostly 2 m or less. If there is any swell then Turtle Bay can quickly become quite roly, especially to the N (offshore) and the W. So, if you are among the first boats there, moor/anchor as close to the southeast corner as you can. Although the beach is beautiful and white, it is mostly quite steep and there is often a surf running, so the best way ashore in your dinghy is to go to the eastern end of the bay. There you will find a small bay with a flat beach between sheltering rocks that usually provides a comfortable trip ashore even in the worst conditions. This anchorage provides a good base for day-trip exploration of the Wallabi Group.



Turtle Bay (R&L Newton)

Facilities: The East Wallabi Island airstrip is immediately to the south of Turtle Bay and planes often buzz your masthead as they come in to land, giving arriving crew members some spectacular photo opportunities if they are prepared and quick enough.

⚓ Passage in a southwest direction from Turtle Bay to Shag Bay is possible. Anchorage can be taken north of Pelican Point.

Of Interest: West Wallabi Island has fresh water wells (no longer used) and what remains of two forts built by the soldiers marooned by the *Batavia* mutineers.

East Wallabi (15 m) is the highest island in the archipelago and thus provides a useful lee and a rather interesting walk ashore.

⚓ Anchor west of Pigeon Island over sand in 3-4 m. It is convenient and safe but offers little in the way of landing facilities except by way of the fishermen's camp.

Caution: Shallow patch off Pigeon Island.

⚓ There is also anchorage east of Pigeon Island. This is arguably one of the best anchorages in the Abrolhos. Mostly good sand (and some mud) in 2-8 m of water. It provides good access to some interesting historical sites (forts, wells) on West Wallabi Island to the west. There are many moorings here, though none are public.

⚓ There is a delightful lagoon to the west of Long Island, which has two moorings. It has flat water in almost any conditions but provides no wind shelter. Anchoring is mostly in 15-20 m of water on a coral-rubble bottom although with care it's possible to anchor on some small, shallower spots in the southeast corner. The entrance is marked. Although it sounds difficult, Long Island is worth the effort.

Diving: There is an area of reef on the northwest edge of Long Island for observation. It provides excellent snorkelling and a marked dive trail. A mooring has been provided for day stops.

⚓ There is anchorage northeast of Beacon Island. Approach on 216°. The leads are the eastern tank on the jetty with a triangle on the shore. Mooring available.

⚓ Batavia wreck site. You cannot anchor here normally, but if you are lucky enough to have the right conditions of no swell and no wind, this is a once-in-a-lifetime experience; swimming amongst a number of cannon, anchors and other artefacts in 2-4 m of crystal clear water. The wreck site is in open water just to the south of Beacon and Traitors Islands and is usually covered in vigorous surf. The sea bed around the wreck site is all flat, and rocky, but if the conditions are right for snorkelling (no wind or swell), you can either dinghy across from Long Island lagoon, or simply lay your anchor and a lot of chain on the (rock) bottom to hold your boat while you snorkel.

History: Beacon Island is where many of the survivors of the Batavia wreck were murdered and buried. It is also known as the Batavia's Graveyard. The wreck is at Morning Reef southeast of Beacon Island

Passage notes

Passage in a southwest direction from Long Island to Third Sister is possible with extreme care. Goss Passage between Long Island and Beacon Island is a deep and clear passage. Entry into Shelter Reef Passage from Middle Channel should only be attempted in light conditions of sea and swell.

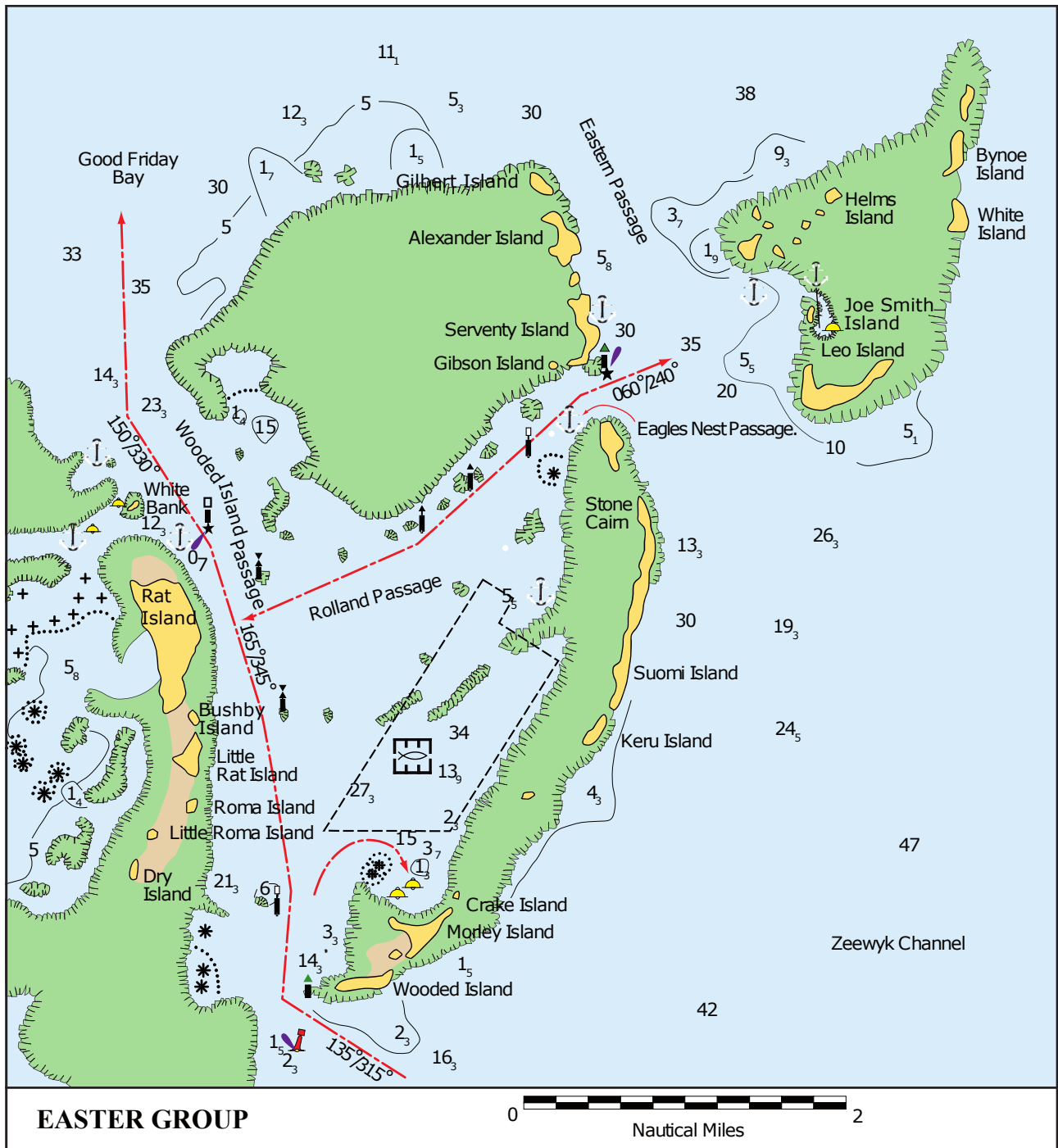


Little Pidgeon Island (P Baker)

13.5.3 Easter Group

28° 43'S 113° 47'E

AUS 83, 332, 751, WA 998



Chartlet 138 Abrolhos Easter Group

The Easter Group is about 14 nm south of the Wallabi Group and comprises a number of islands that roughly surround a central lagoon.

The main island is Rat Island which has a passage called Wooded Island Passage on its E, through which yachts may pass north and south. The southern entrance should not be attempted in heavy weather, though the passage is well marked.

There is also Rolland Passage from Rat Island across the lagoon and between islands near the east of the group. It requires careful pilotage although navigational marks have now been established. Rat Island and Little Rat Island are the centre of much fishing activity.

Caution: There is a rock with 2.2 m depth LAT in Eastern Passage, at 28° 40.8'S 113° 50.8'E. This rock is not shown on charts dated before December 2017.



Rat Island shacks (K Klaka)

⚓ There is anchorage in about 12 m amongst coral reef in an otherwise shallow area north of Leo Island and east of the islet named Joe Smith Island. The approach north of Joe Smith Island requires extreme care and good visibility. When entering the anchorage leave the floats that usually mark the track to starboard.

Of interest: There are several fishermen's shacks and a lake containing tame potato cod (smack the water to attract the fish).

Tides: Easter Island. Range 0.8 m.

⚓ Anchorage has been taken west of Joe Smith Island.

⚓ Anchorage is shown on the Fisheries Department Abrolhos Visitors' Guide northeast of Serventy Island. The anchorage is 20 m deep rising sharply against the shoreline. Some yachts

have been secured by running a line ashore.

⚓ Anchorage in 17 m has also been taken in a small indentation in the reef on the east side of Serventy Island.

⚓ Anchorage has been taken in Eagles Nest Passage northwest of the unnamed island (immediately north of Suomi Island).

⚓ Anchorage is also possible west of the middle of Suomi Island, accessed from Rolland Passage.

⚓ There are three moorings offering good shelter in the bay on the north side of Morley Island but they do not have strops on them. This anchorage provides a good base for day trip exploration of the Easter Group, offering reasonable shelter from S winds. If you have to anchor, it is deep and mostly coral rubble. If you have to stay overnight here on anchor in any significant wind, an anchor watch is recommended. The northernmost mooring appears on the charts to be close to a bommie, but 13 m boats have used it without incident.

Of interest: Nice beach and good snorkelling.

⚓ Two moorings are available north of Rat Island. The moorings are positioned on the northern side of a small white sandy island called White Bank, which is just north of Rat Island. Good access to Rat Island airstrip: dinghy down the eastern side of Rat Island inside the reef. Cruisers have enjoyed pleasant swimming and snorkelling here, and interaction with a number of seals living on White Bank.

Fishing: Good fishing for crayfish and baldchin groper.

Facilities: There is a nursing post (see section 7.5), heliport and airstrip on Rat Island. Although it is possible to moor at Morley Island and dinghy across to Rat Island to meet the plane, this is a long dinghy trek across relatively open water so the moorings to the north of Rat Island are usually a better choice.

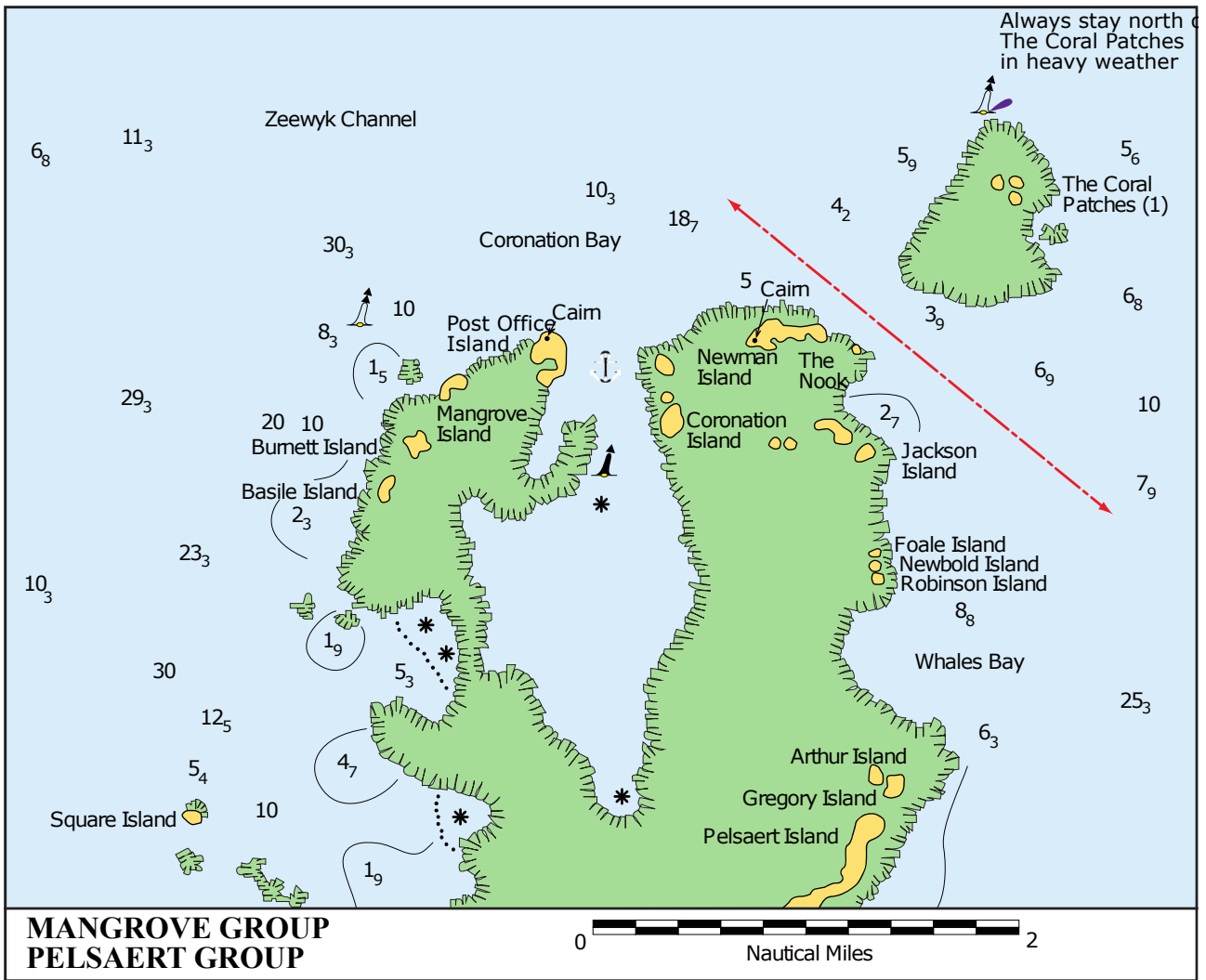


Looking south over White Bank to Rat Island (K Klaka)

13.5.4 Pelsaert Group

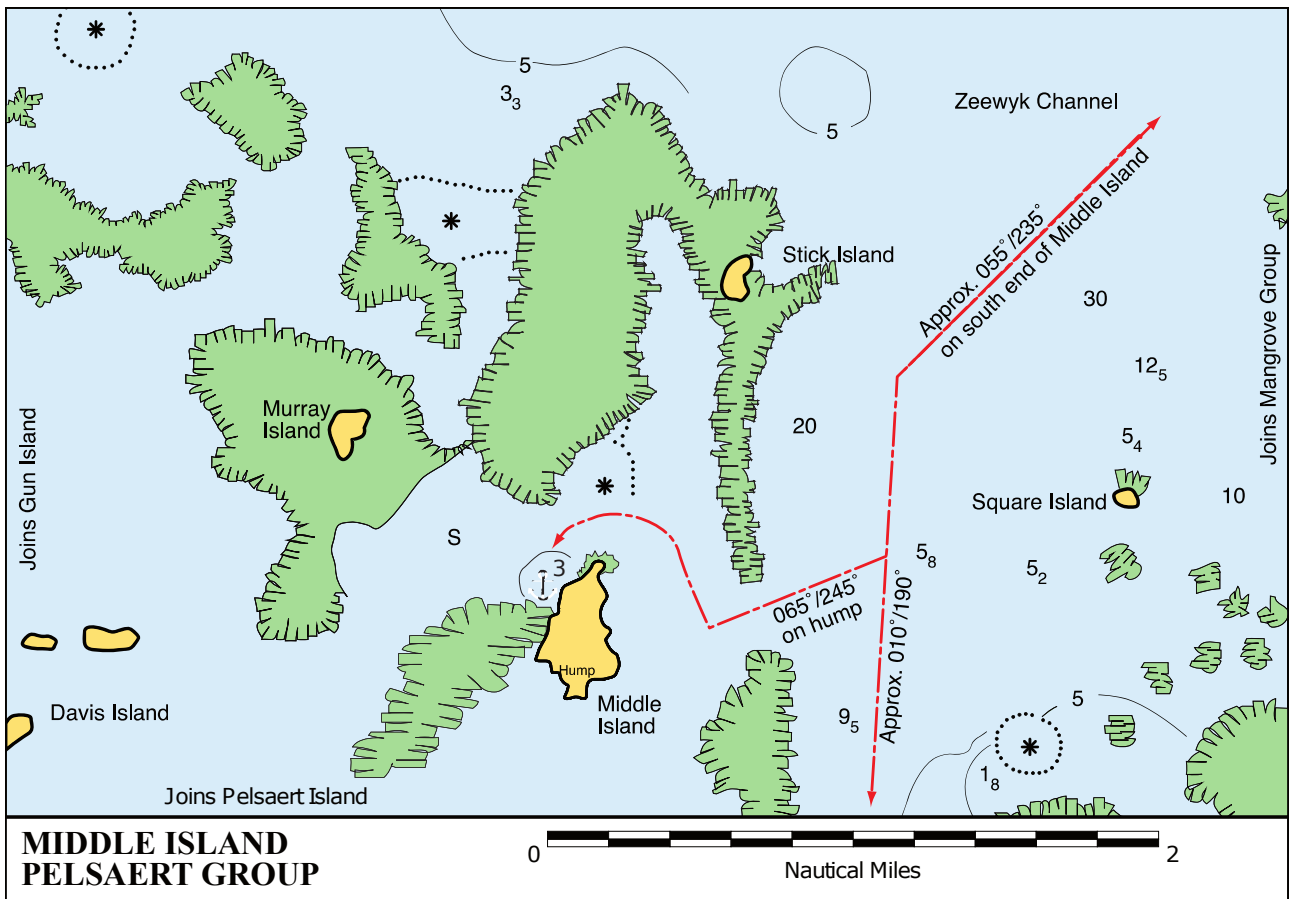
28° 54'S 113° 54'E

AUS 332, 751



Chartlet 139 Abrolhos Mangrove Group Pelsaert





Chartlet 141 Abrolhos Middle Island Pelsaert



**GUN ISLAND
PELSAERT GROUP**



Chartlet 142 Abrolhos Gun Island

The Pelsaert Group consists of a lagoon surrounded by reef and islands. There is a light and a RACON at its southern end.

⚓ Anchorage east of the Post Office Island in Coronation Bay in the north of the group is recommended by the Fisheries Department. It is deep but protected from S winds.

⚓ The Nook lies between Newman Island, Jackson Island and a small unnamed islet. All three islands have fishermen's camps and jetties. There are moorings but no room for anchoring.

⚓ There is anchorage on the east of Gun Island in 4-7 m. Approach from the north. Examination of AUS 751 suggests this is suitable only in very settled conditions.

History: The survivors of the *Zeewyck* landed on Gun Island.

⚓ There is better protection from W to NW winds northwest of Middle Island in approximately 3 m depth. It is generally not as sheltered as Guano Jetty (below), but good. Approach the hump on Middle Island on about 245° until between 400 m to 200 m off, then "eyeball" around the northern side of the island.

⚓ The lagoon at the south end of Pelsaert Island near the remains of the Guano Jetty provides a good base for day trip exploration of the Pelsaert Group. This area gives good protection from the E to S but is unpleasant in W to NW winds. Overall it offers generally better shelter than Middle Island, with room to hold a number of boats comfortably. There is anchorage near the jetty over sand and coral in about 2-4 m depth. The sand is sometimes just a thin layer over limestone. Anchorage is also available about 0.5 nm north-northeast of the jetty. The Geraldton Yacht Club have erected a post to indicate the best position for anchoring (has the deepest sand). Four moorings are located a few hundred metres to the west of the old Guano Jetty, which can be approached on a line directly from the final port hand marker on the way into the Guano Jetty anchorage area. This line will take you over a relatively shallow patch (2.2 m) but the moorings are actually in deeper water. There are two more moorings located in the Guano Jetty anchorage area just out to the north of the old Guano Jetty, in a depth of about 16 m.

⚓ There is a single public mooring just to the west of the Coral Patches. However, it is labelled as "Daytime use only". Although the mooring itself is in deep water (3-5 m), there is a substantial coral bommie close by on the eastern side, and vessels over 10 m are likely to touch this if the wind is from the W. Nevertheless, this can be a useful resting spot in the right conditions.

Tides: Pelsaert Island. Range 0.9 m.

Passage notes:

Middle Island is a good departure point before heading south. An early morning departure followed by an overnight sail brings you to Green Islands or Cervantes, which offer convenient night anchorage before continuing south the following day.



Guano jetty looking northwest (K Klaka)

13.5.5 History of the Abrolhos Islands

Frederik Houtman sailing aboard the *Dordrecht* discovered the islands on 29 July 1619. He marked his chart with the Portuguese “Abri vossos olhos” which appropriately translates to “Open your eyes”. Subsequently the islands became known as Houtman Abrolhos or Abrolhos Islands. The Abrolhos Islands have a remarkable maritime history. The reefs have claimed many vessels with twenty historic wrecks have been discovered in the island waters. The most famous is that of the *Batavia*, with an extraordinary story of the murder and treachery that ensued.

Batavia

On 4 June 1629 the maiden voyage of the Dutch East India Company (VOC) ship *Batavia* came to an abrupt end when she grounded on Morning Reef in the Wallabi Group. The *Batavia* was 140 ft long, with a 40 ft beam and 40 ft from deck to keel. She was twice the size of Captain Cook’s *Endeavour*. The *Batavia* carried 600 tons of cargo that included cloth, wines, cheeses, trade goods, 12 bound chests of silver coin and a casket of jewels. She was armed with 28 cannon and a company of soldiers.

Of the 316 men, women and children on board, 276 survivors managed to scramble ashore on nearby islands. The captain of the *Batavia*, Francisco Pelsaert, decided to take a longboat to

search for water on the mainland. He had 46 crew and passengers for company. The next day more sailors followed on the remaining ship's boat. Their fruitless search took them north along the mainland coast for some 200 nm after which Pelsaert decided to continue to Java. The longboat reached Java after only 33 days but the return on the vessel *Sardam* to rescue the remaining survivors was extremely slow. Three months elapsed before Pelsaert was able to return to the Abrolhos.

Even before the *Batavia* struck the reef, merchant officer Jeronimus Cornelisz had been leading a mutinous rebellion. Once the longboat was out of sight, the mutineers started planning and then embarked on an unparalleled frenzy of murder, rape and debauchery. The mutineers killed all but 40 people and planned to seize the rescue ship on its arrival.

An elaborate plan was conceived to split the survivors into small groups and relocate each group on to various islands. A group of unarmed soldiers was duped into being dropped off on East Wallabi Island to search for food and water. They crossed the shallow reef to West Wallabi Island and found a deep water well and an abundance of food. They were to light a fire to signal Cornelisz to return to pick them up. But to no avail; they had deliberately been abandoned. They knew of the mutiny after Cornelisz left them on the island and information was supplied from escapees. The island soldiers were leaderless until a common soldier, Wiebbe Hayes, came forward to lead them and organise preparations for an attack by the mutineers.

The killings started twenty days after Pelsaert left for Java. Forty people were murdered on Beacon Island and another eighty-five people were killed on the other islands. The victims were murdered by sword blows, drowning, strangulation, stabbing and cut throats. Even the children and pregnant women were not spared.

The soldiers' garrison on West Wallabi Island was under attack from the mutineers as Pelsaert sailed over the horizon to the rescue aboard *Sardam*. The mutineers were quickly subdued and formal trials immediately convened. After the customary torture and confessions, seven men - including Cornelisz - were hanged on the Abrolhos. Two were cast away on the mainland to fend for themselves amongst the Aboriginal people. A further five men were executed when the *Sardam* returned to Batavia.

Pelsaert set about salvaging the *Batavia*'s treasure. Eight of the ten bullion chests were recovered, including a solid agate vase belonging to the great artist Peter Paul Reubens. The *Sardam* arrived in Java in December 1629 with only 116 survivors; 200 people had perished. Pelsaert died of "guilt" two years later.

Henrietta Drake-Brockman's research using Pelsaert's journal led to the wreck of the *Batavia* being discovered in 1963, on Morning Reef at the southern end of the Wallabi Group. Eleven skeletons have since been recovered from Beacon Island. Many relics can be viewed in the excellent displays in both the West Australian Maritime Shipwreck Galleries and the Geraldton Maritime Museum.

Zeewijk

On 9 June 1727, a century after the *Batavia*, the VOC ship *Zeewijk* was wrecked on Half Moon Reef in the Pelsaert Group. Jan Steyns, the captain of the *Zeewijk*, was heading east-northeast towards Eendracht's Land (the early Dutch name for Western Australia, named after the *Eendracht*

which was Dirk Hartog's ship). The height of the surf confined those on board the wreck for a week, before the crew managed to launch the last surviving longboat. Ninety-six of the 158 men were landed on Gun Island where winter rains had left sufficient ground water for immediate survival. On 10 July the longboat was dispatched, bound for Batavia, the Dutch settlement on Java in Indonesia. Unfortunately it was never sighted again.

By October the remaining crew correctly concluded that the longboat had not reached Batavia and commenced building a vessel from the salvaged timbers and mangroves. On 16 March 1728, after ten months, 88 men departed Gun Island on the sloop *Sloepie*. In April 1728 the 82 survivors arrived in Batavia, still carrying three tons of coin from the *Zeewijk*.

Beagle

In 1840 Commander John Wickham, Lieutenant John Lort Stoke and Lieutenant Crawford Pascoe on board the HMS *Beagle* conducted the first detailed survey of the Houtman Abrolhos. Wickham sighted wreckage on the southern group. Assuming it to be the *Batavia* he named the island Pelsaert after *Batavia's* captain. However, no further trace of this wreck has been discovered and thus its identity remains a mystery. They also named Gun Island after the discovery of a three-pound calibre bronze breech-loading swivel gun from the *Zeewijk*. This is now held in the Royal Armouries collection in the Tower of London.

13.5.6 Marine life

The riches of the waters surrounding the Abrolhos Islands make them home to many birds. More than 90 species of seabirds have been identified, with 1,600,000 seabird pairs nesting on the 122 islands. Keep to the walking tracks when exploring the islands, as the bird nests are liable to collapse when trodden on.

Over one million pairs of wedge-tailed shearwaters (*Puffinus pacificus*) nest on the Houtman Abrolhos, mainly on West Wallabi Island. Jon Jim Island, named in memory of the wooden freezer boat *Jon Jim* that went aground in 1961, is the home of over 100 breeding pairs of roseate terns (*Sterna dougallii*).

Original accounts estimated that 700,000 pairs of common noddy (*Anous stolidus*) nested on Rat Island. Sooty terns (*Sterna fuscata*) and wedge-tailed shearwaters were also in abundance. The guano, produced by so many birds on such a small island, was mined from 1847 to 1915. Today, no common noddies, wedge-tailed shearwaters or sooty terns are to be found on Rat Island. The lesser noddy (*Anous tenuirostris melanops*) is an endemic subspecies found only on the Houtman Abrolhos.

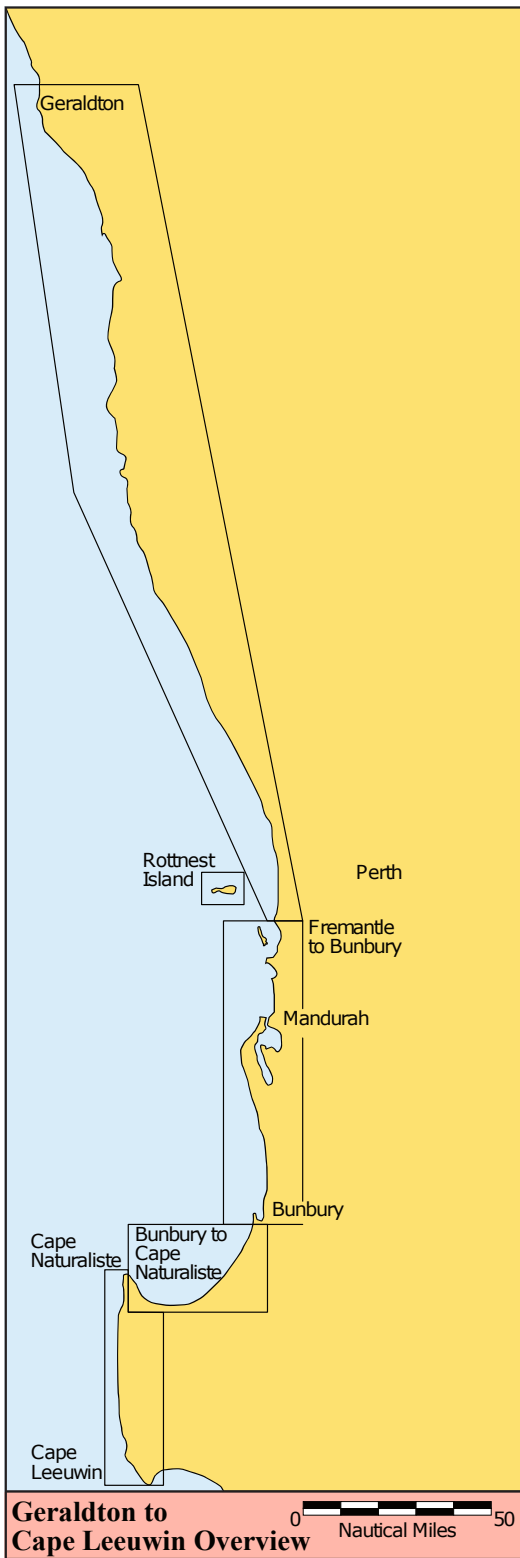
The islands are also the most northern habitat for Australian sea lions (*Neophoca cinerea*). Once abundant, the population is now quite small.

There are more than 150 species of hard coral (44 genera) to be found on the Abrolhos reefs.

The Houtman Abrolhos play a vital role as a major habitat for spawning stock of the western rock lobster (crayfish), tailor, baldchin groper, dhufish and many other species. Increased fishing pressure is causing numbers to decline. As always, fish for the future and take fish for personal needs only. Crayfish may be taken only with pots and you must have a current recreational fishing licence, endorsed for crayfish capture.

Each of the four island groups has a special reef observation area. Catching fish by any method is illegal in these areas.

14 GERALDTON TO CAPE LEEUWIN



Chartlet 143 Geraldton To Cape Leeuwin Overview

14.1 General Note

AUS 4725 covers the entire length of this part of the coast. The series of charts issued by DoT are

particularly good for this section of the coast and are strongly recommended for those intending to day sail.

A characteristic of this area during summer is the prevailing SE wind, with a moderate to strong SW afternoon sea breeze. There is a tendency to have a greater easterly component in the late summer and autumn. During winter the SE winds are lighter and interrupted by NW to SW winds associated with the passage of troughs and depressions on the south of the anticyclone belt. These winds are occasionally of gale force and accompanied by rain squalls. For more details see 3.5.4, 3.5.5 and 3.5.6.

On passage south to Fremantle it is safe to maintain a depth of 30 m or more, but be careful in the vicinity of Beagle Islands where this contour comes close to reefs.

There are numerous cray pot floats to avoid. Professional crayfishers have advised that for coastal sailing, the best way to minimise craypot encounters is to “sail outside the five fathom bank in 24-26 m depth”. For passage making, they advise to stay outside the 100 m depth contour.

Caution 1: The leads marking the entrance to several anchorages inshore take the vessel over relatively shallow water. In conditions of heavy swell, waves frequently break on the leads and entry can be hazardous.

Caution 2: This coastline shape and inshore depths can change following a severe winter storm. Before heading along the coast it is prudent to check for changed conditions by reviewing the DoT web site: www.transport.wa.gov.au/imate/marine/marine-information.asp

Caution 3: In heavy weather avoid Direction Bank (31° 36'S 115° 14'E) 18 nm offshore from Two Rocks; it creates confused seas.

14.2 Geraldton to Fremantle

Charts: AUS 84, 105, 112, 113, 752, 753, 754, 4725, WA 001, 329, 412, 422, 628, 705, 728, 736, 765, 767, 898, 913, 937, 938, 945, 947, 957, 963, 975, 979, 986, 1071, 1076, 1110, 1119, 1276

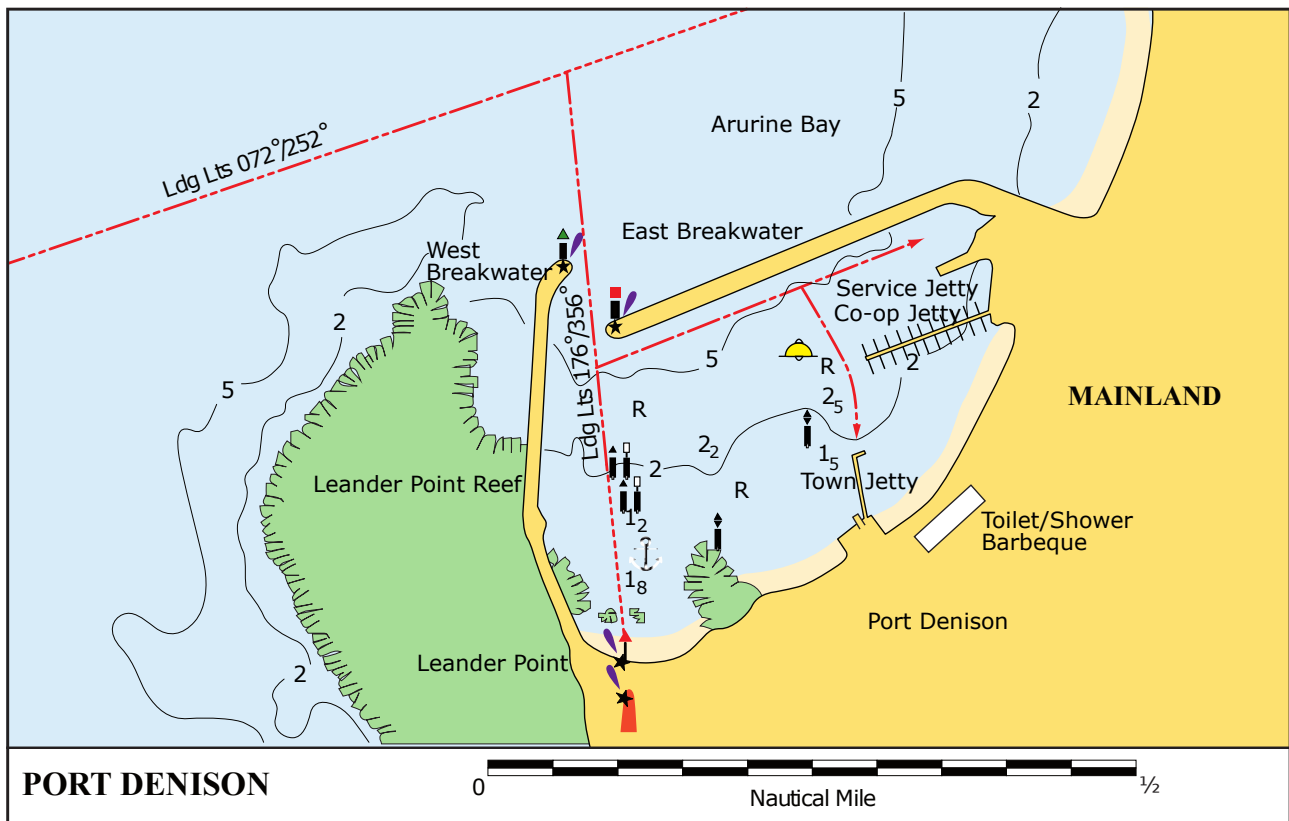


Chartlet 144 Geraldton To Fremantle Overview

14.2.1 Port Denison

29° 16'S 114° 55'E

AUS 84, 752, WA 963



Chartlet 145 Port Denison

Port Denison is one of the most accessible of the small west coast harbours, but with a heavy swell running waves may still break across the entrance occasionally. The DoT manages this well-protected harbour used mainly by cray boats, but they do not have an officer present. It is recommended that you call DoT Geraldton before entering, Ph: (08) 9956 0111

The leads are sometimes hard to see during the day and can easily be mistaken because the outer reef is well offshore. They are tall grey pillars; there is a prominent square shed just to the north of the front lead, and the back one stands by itself on a prominent hill well back from the shore. After approaching on the main leads 072° turn to starboard at the harbour entrance lead markers (blue at night). Turn to port once inside the harbour and follow close by the wall. There are a lot of private moorings in the harbour, many of them unoccupied.

⚓ As a result of your phone call to DoT, you may be directed to tie up as close as possible to the inland end of the service jetty in the northeast corner of the harbour, so as not to obstruct the fuel bowzers or the fishing boats loading and unloading. There are two other jetties in the harbour: the Co-op jetty on the eastern shore and the town jetty on the southern shore. Both are managed by the Shire of Irwin. Ph: (08) 9927 0000. Port Denison Sea Rescue is worth a radio call for advice on berthing (VHF Ch 73). Temporary berthing alongside the town jetty (opposite the Sea Rescue building) is permitted. Visitors may be directed to vacant moorings nearby and should seek advice as to where they can stay. Fees are usually charged for a jetty berth or mooring (your registration

number will be noted by someone and forwarded to DoT Geraldton for billing). Anchoring in the harbour is not permitted.

Caution 1: Watch out for cray pots on the leads.

Caution 2: The middle of the harbour is shallow and foul. Beware of the rock and shallows (with marker).

Tides: Port Denison. Range 0.9 m.

Facilities: Fuel and water are available at the service jetty. There is one fuel bowser on each side, at the outer end. Fees apply. The waterfront shop carries general necessities. There are cold showers, toilets and barbecue facilities on the waterfront. At the caravan site (a short walk north from the jetty base) there are showers and laundry for a small charge. A mechanic and electrician are available. The small town of Dongara lies 3 km away, where there are shops and a hospital (see section 7.5).

For more information go to www.transport.wa.gov.au/marine/port-denison-facility.asp

Of interest: The main street of Dongara is lined with Moreton Bay fig trees planted in 1906 and now classified by the National Trust.

Diving: Reef formations north and south of Port Denison are popular sites for scuba diving and snorkelling.

History: The rear lead into the harbour was erected in 1869 to commemorate the loss of the brigantine *Leander* on 11 November 1853. Due to a fault in the chronometer, *Leander*, under Captain R. Johnston en route from Fremantle to Singapore via Geraldton turned for its run into Geraldton too soon and struck South Leander Reef.

Passage notes

There is a gas production platform inside the reefs that lies almost directly on the route south.

14.2.2 Beagle Islands

(no chartlet)

29° 48'S 114° 53'E

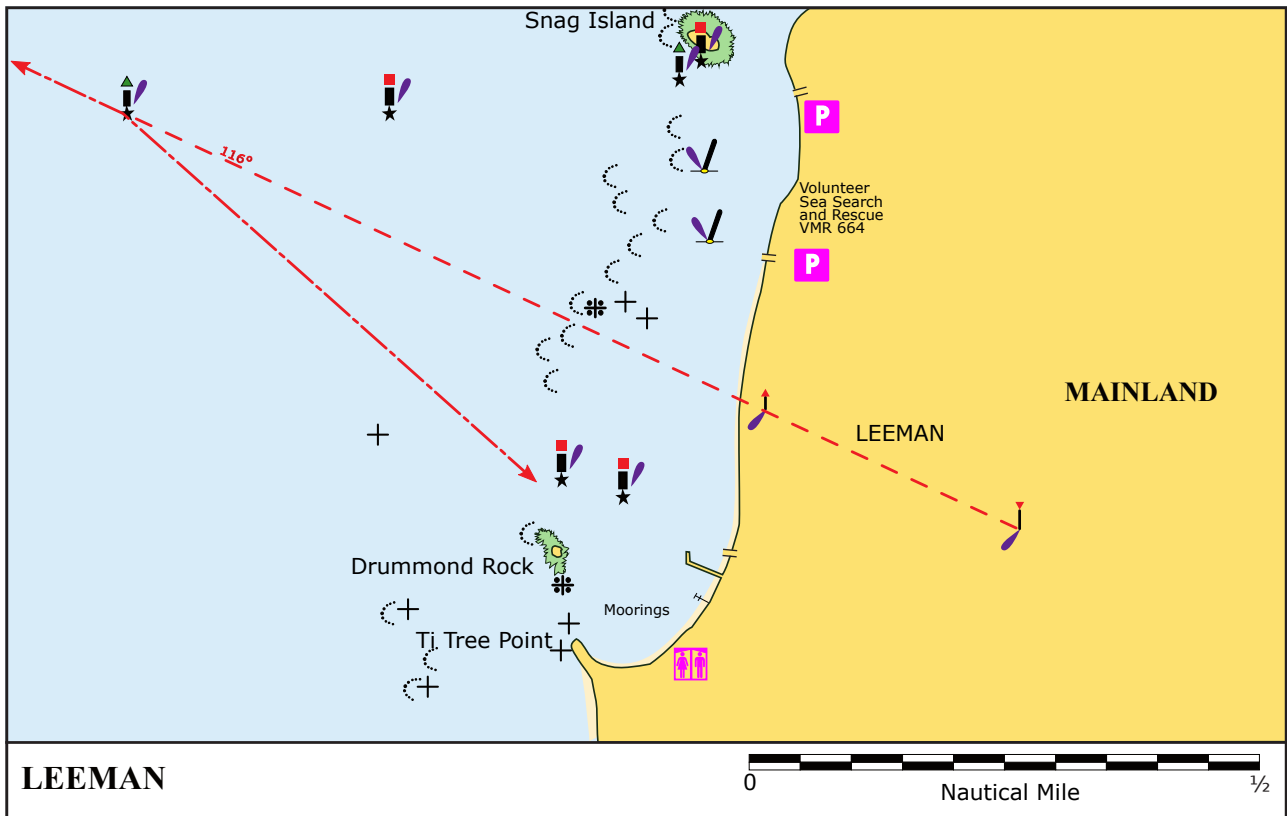
AUS 752, 753, WA 728

⚓ There is little to recommend this anchorage. Anchorage can be taken to the east of the island. Not a great anchorage, but may offer respite when heading south. It can be rolly.

Caution: Considerable surrounding reef.

Approach is due east through the reef about 2 nm north of the island, on approximate latitude 29° 46'S. Make the final approach with the island bearing due south on approximate longitude 114° 52.7'E.

14.2.3 Leeman (shallow draft only)



Chartlet 146 Leeman

29° 57'S 114° 59'E

AUS 753, WA 705

This is not a great anchorage; Green Head or even Beagle Islands are preferable. Follow the leads on 116° until the starboard marker about 1 nm offshore, then head 013° towards the port marker off Drummond Rock. The area beyond this is shallow, with numerous moorings.

Tides: Leeman. Range 0.9 m.

Facilities: General store, nursing post (see section 7.5), caravan park, toilets, DoT jetty with fuel, fees apply.

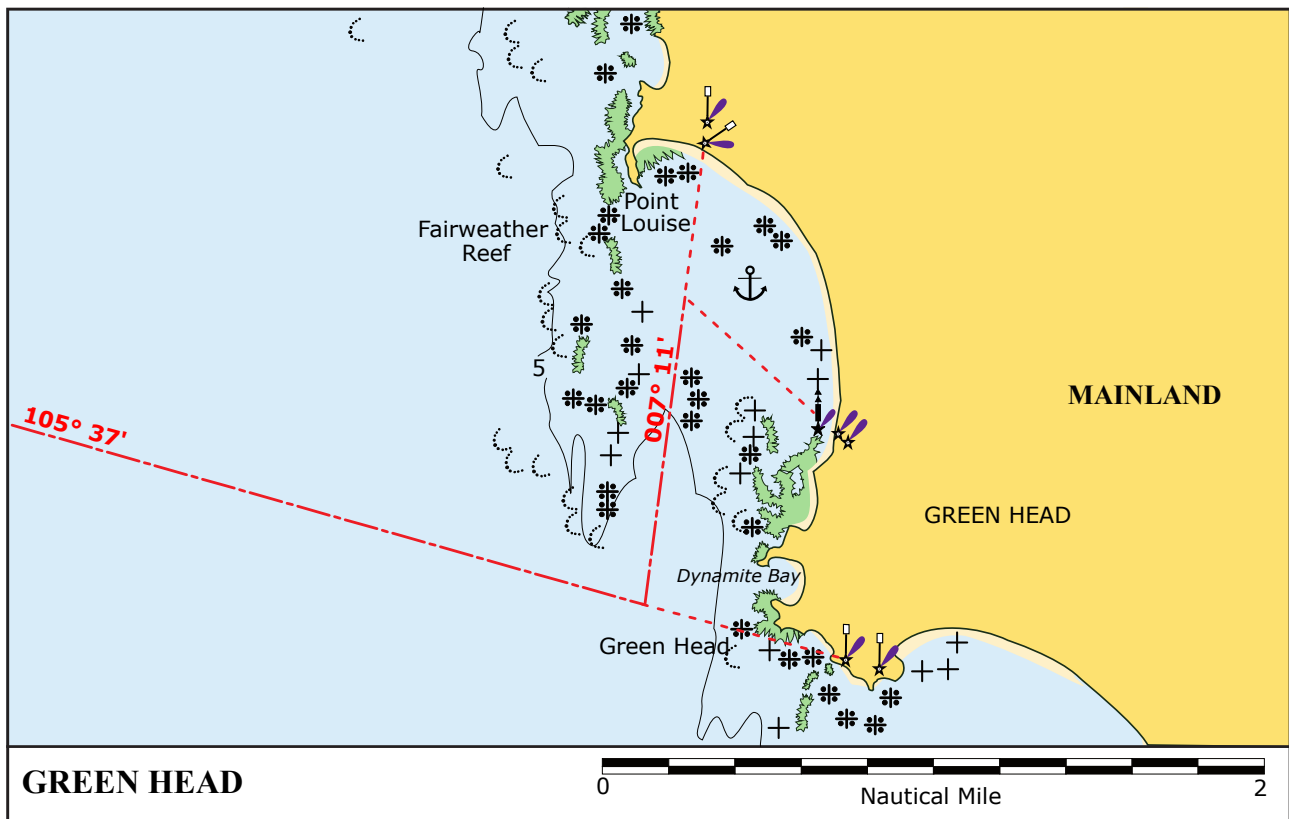


Leeman looking southwest (K Klaka)

14.2.4 Green Head

30° 04'S 114° 58'E

AUS 753, WA 628



Chartlet 147 Green Head

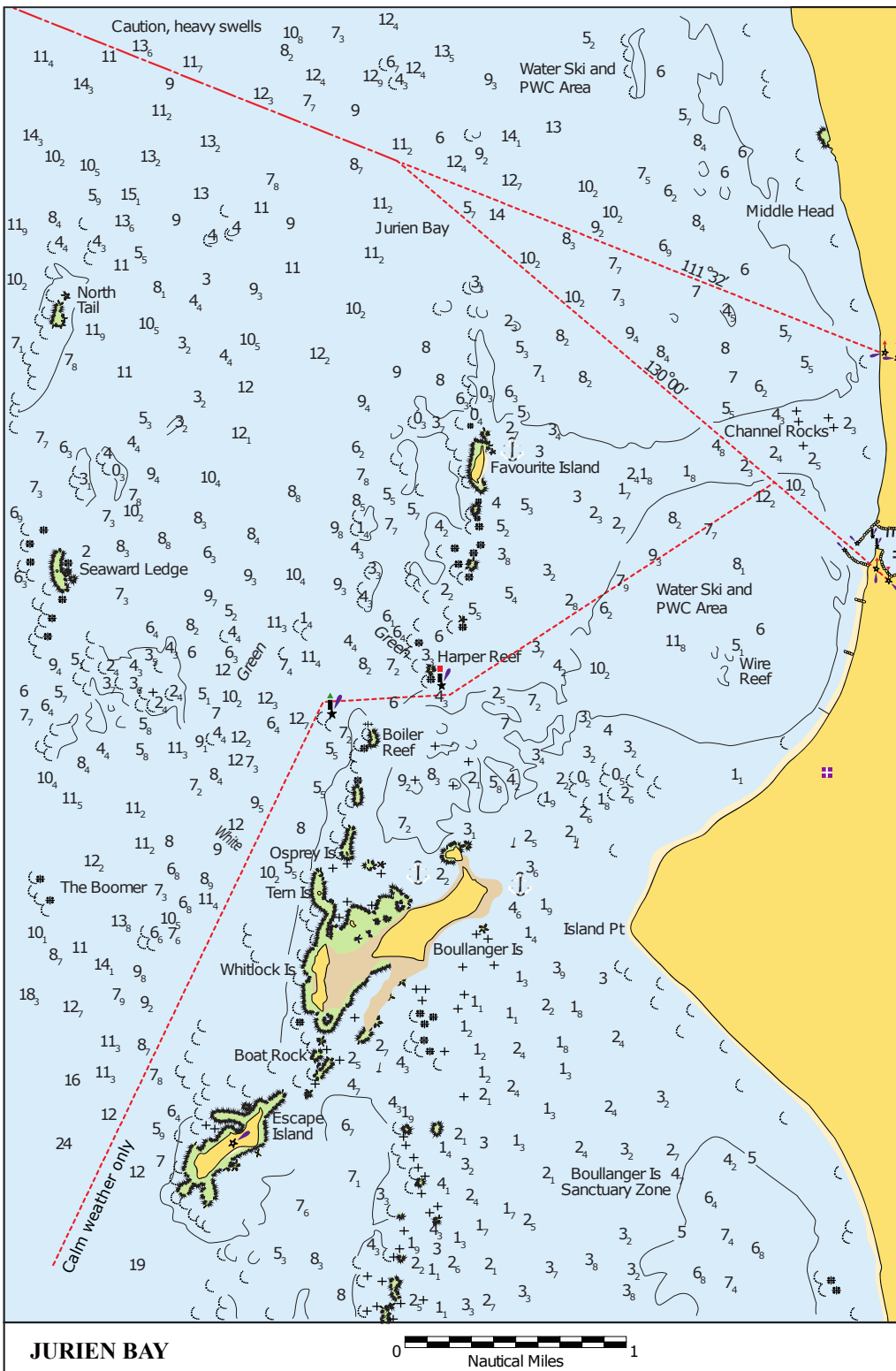
⚓ Green Head (not to be confused with Green Islands 40 miles S) is one of the safer mid-west coastal anchorages to approach in a heavy swell. It is picturesque and often calm. It is conveniently located as a stopover when day-sailing up or down the coast. As with most west coast anchorages, be on the lookout for cray pots in the approaches and on the leads. Approach is by way of two sets of lead markers. The first set are located on the southern headland; approach on a bearing of 106°. The second set of leads are located on the northern headland and bear 007°. Anchor about 600 m offshore in 3-4 m, or head a little further east into the bay and anchor in 3m LAT. Depth limits access to the fuel jetty for yachts.

Facilities: General store, caravan park, fuel, toilets, outside shower.

14.2.5 Jurien Bay

30° 17'S 115° 02'E

AUS 753, 84, WA 947



Chartlet 148 Jurien Bay

There are two recognised approaches to Jurien Bay - northern and southern. If concerned about the conditions for entry, contact Jurien Bay Sea Rescue for advice (VHF Ch 16 or 21). As a

yardstick for determining whether entry over the reef is safe, the following advice has been given by them:

Southern entrance: passage is OK if swell is not exceeding 2 m.

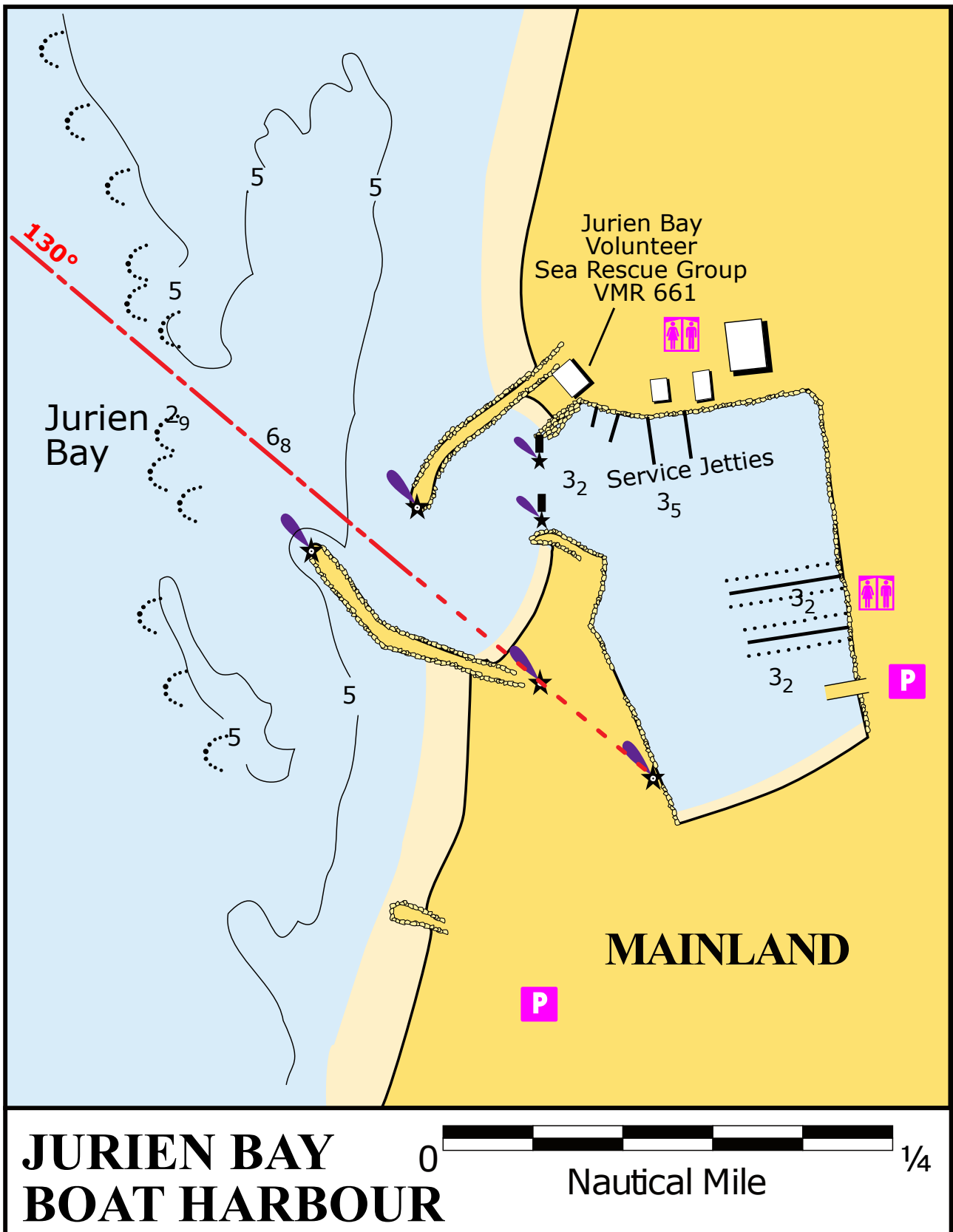
Northern entrance: passage is OK if swell is not exceeding 3 m. If swell is 4 m or greater, approach should not to be attempted.

Southern entrance: The southern entrance saves several miles when coming from or going to the south, provided the swell is low. The Escape Island light tower provides an excellent landmark, visible well off. The lit starboard beacon (30° 18.1'S, 114° 59.6'E) north of Escape Island should be approached on 032° which clears Escape Island to starboard by 1 nm. If this first beacon is not clearly visible as Escape Island is approached, continue on this bearing toward Favourite Island (which lies beyond beyond the beacon) until the beacon is clear. Turn eastward at this starboard beacon towards the second mark, a port beacon at 30° 17.9'S, 115° 00.2'E.

Caution: The southern entrance is not recommended if the swell is greater than 2 m.

⚓ Anchorage can be taken east of Boullanger Island, and also east of Favourite Island.

Northern entrance: The northern entrance is to be preferred in moderate to heavy swell. Entry is marked by leads bearing 111° on the shore, approximately 1 nm north of the marina. Breakers can still occur on the line of the leads. Cray pot floats may also be in the fairway. A second set of leads bearing 130° marks the final approach to the marina.



Chartlet 149 Jurien Bay Boat Harbour

⚓ Jurien Bay Marina is located 3 km north of the settlement and is managed by the DoT. Berths may be available. All vessels wishing to use pens or service jetties should advise the facility

manager or Geraldton DoT office prior to arrival. Upon arrival visit the DoT office to complete the paperwork. It is near the loading wharves, which are on the port side as you enter.

The loading wharf immediately inside the marina may provide temporary mooring. The marina pens are more suited to commercial craft and the permanent lines, if there are any, are frequently encrusted with marine growth. Have plenty of fenders and lines ready as you prepare to make fast. Yachts are not allowed to anchor in the marina.

Marina facilities: Fresh water and power are available. There are toilets and a hot shower near the jetty entrance. The facilities are minimal at best. Fuel is available and during the fishing season a boat-lifter is available. Fees apply.

⚓ Anchorage can be taken off the town jetty in fair weather. Protection from the NE through E to SW, although swell can penetrate. The area approximately 250 m around the jetty is closed to motorised vessels.

Town facilities: Provisions are available in the town 3 km south of the marina. Hot showers are available at the Apex Holiday Camp and Caravan Park near the town jetty (a small fee may apply).

Tides: Jurien. Range 0.9 m.

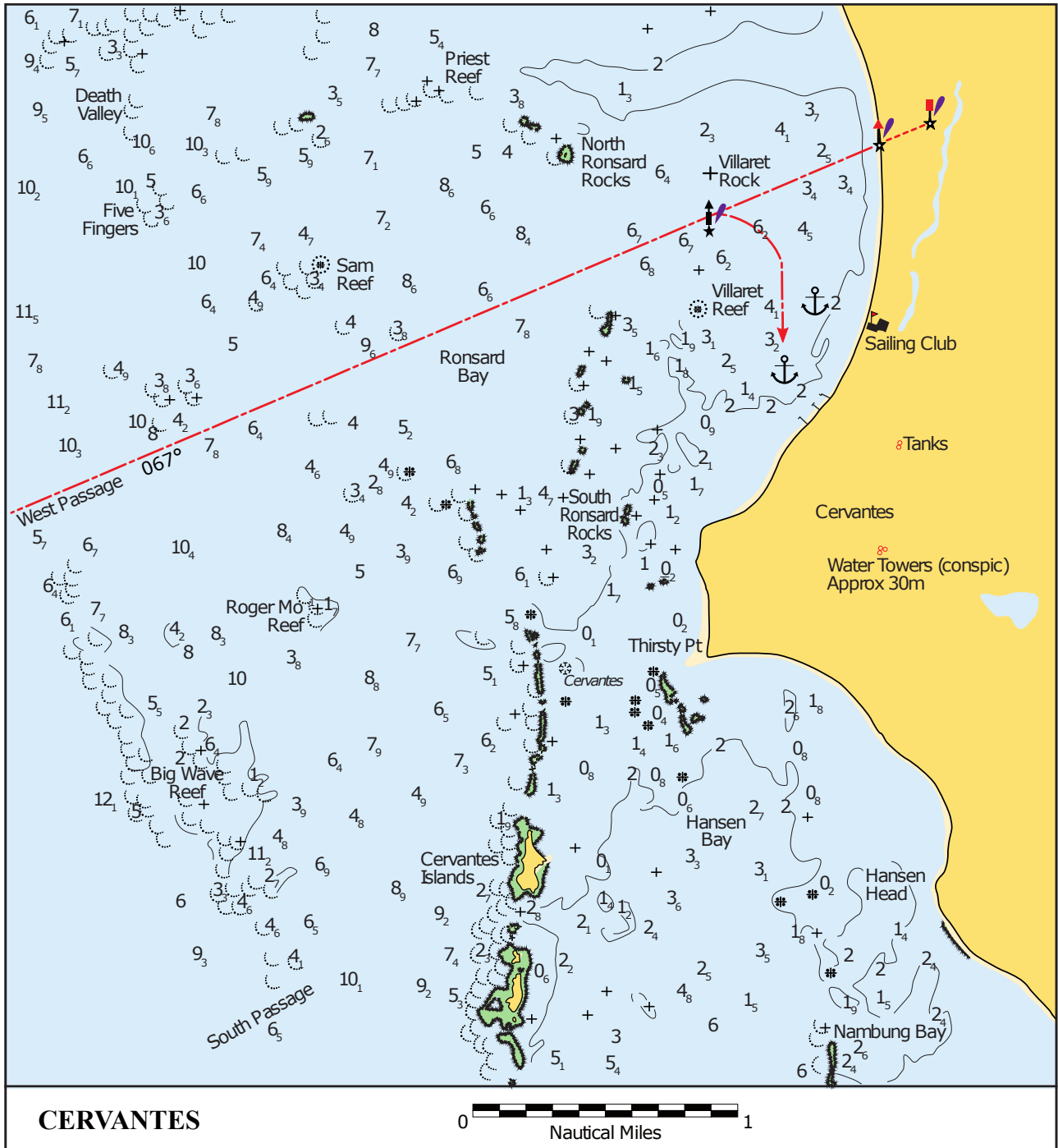
Fishing: Jurien Bay Marine Park extends from Dynamite Bay at Green Head southwards to Wedge. There are ten sanctuary zones and a number of special purpose zones in which fishing may be prohibited. Phone DBCA in Jurien on (08) 9652 1911 for the latest information.

History: Named by Baudin in 1801 in honour of Charles Jurien of the French naval administration.

14.2.6 Cervantes

30° 30'S 115° 04'E

AUS 753, WA 422



Chartlet 150 Cervantes

Cervantes is a rock lobster fishing community, with many crayboat moorings in the anchorage and final approaches.

⚓ Make an approach on the lead markers until well inshore. Having passed the starboard hand marker turn to starboard. Anchorage has been taken at 30° 29.5'S, 115° 03.7'E, though this is close to the track taken by the cray boats in and out of the moorings. An alternative anchorage is at

30 ° 29.2S, 115 ° 04.1E in 2.5 m depth (LAT), short weed over sand.

Caution 1: Entry requires care in heavy swell.

Caution 2: The leads can be difficult to see.

Tides: Cervantes. Range. 0.9 m.

Facilities: Caravan park, tavern, some shopping, boat ramp and jetty.

Of interest: This small fishing town was named after the offshore island, which in turn was named after the wreck of the *Cervantes*, a two-masted American whaling ship, wrecked on 29 June 1844.

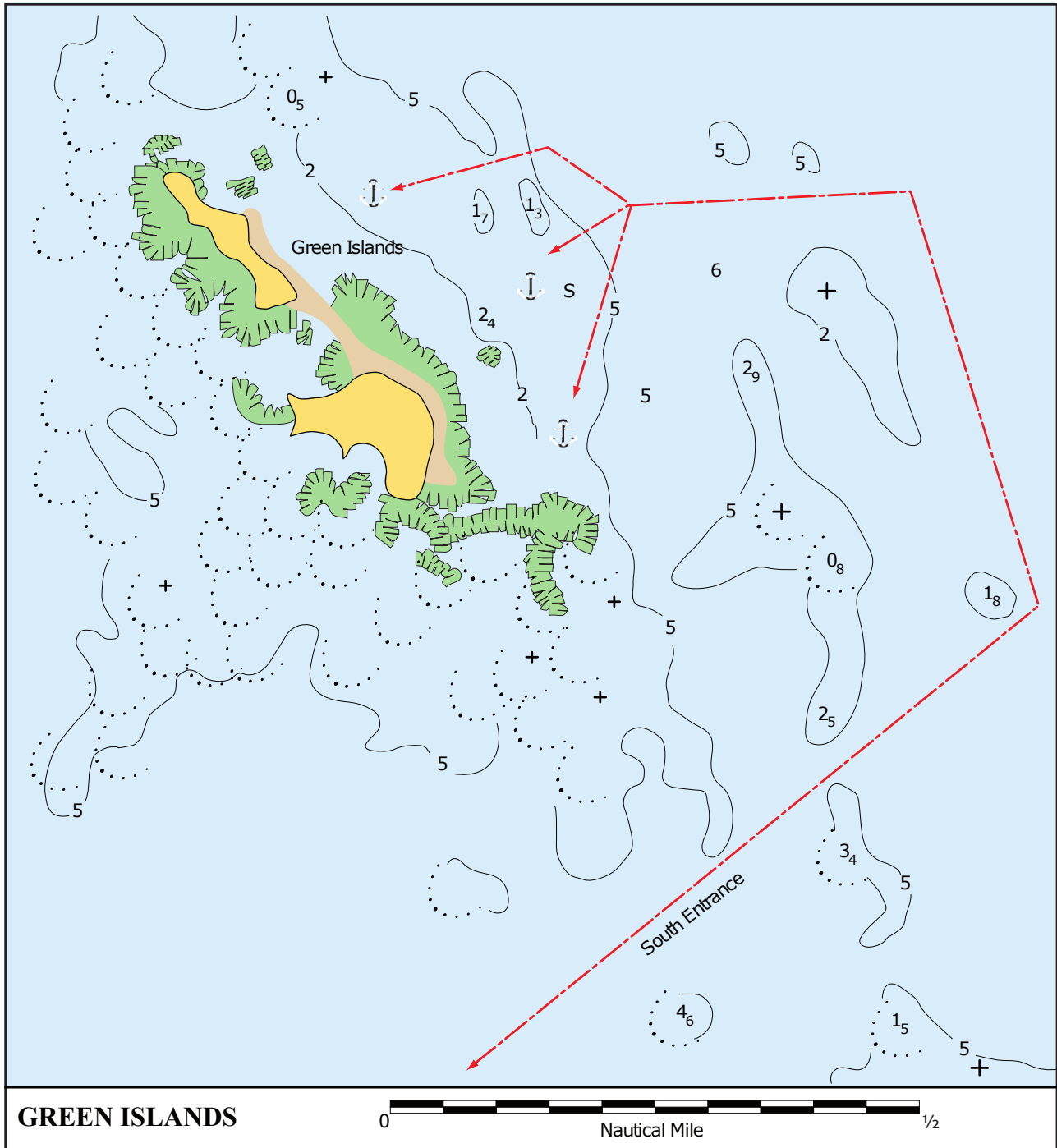
The Nambung National Park, which contains the Pinnacles Desert, is 15 km south of Cervantes.

Thousands of amazing limestone pillars up to 4 m tall rise out of the shifting yellow sands.

14.2.7 Green Islands

30° 41'S 115° 06'E

AUS 753, WA 329



Chartlet 151 Green Islands

Green Islands (not to be confused with Green Head 40 nm north) lie off the coast near the settlement of Grey which itself has a shallow anchorage.

Entrance through the offshore reef may be made through South Entrance, which is about 800 m wide and south of the islands. The passage is mostly clear but hold back until the swell reveals the breakers.

⚓ Anchorage on the east side of the islands has been taken at 30° 40.9'S, 115° 06.6'E . It offers limited protection from the SW to NW, and an overnight easterly can produce an uncomfortable chop. There are isolated small reefs in the area.

Caution: Entry requires great care in heavy swell conditions. Do not attempt entry in storm conditions.

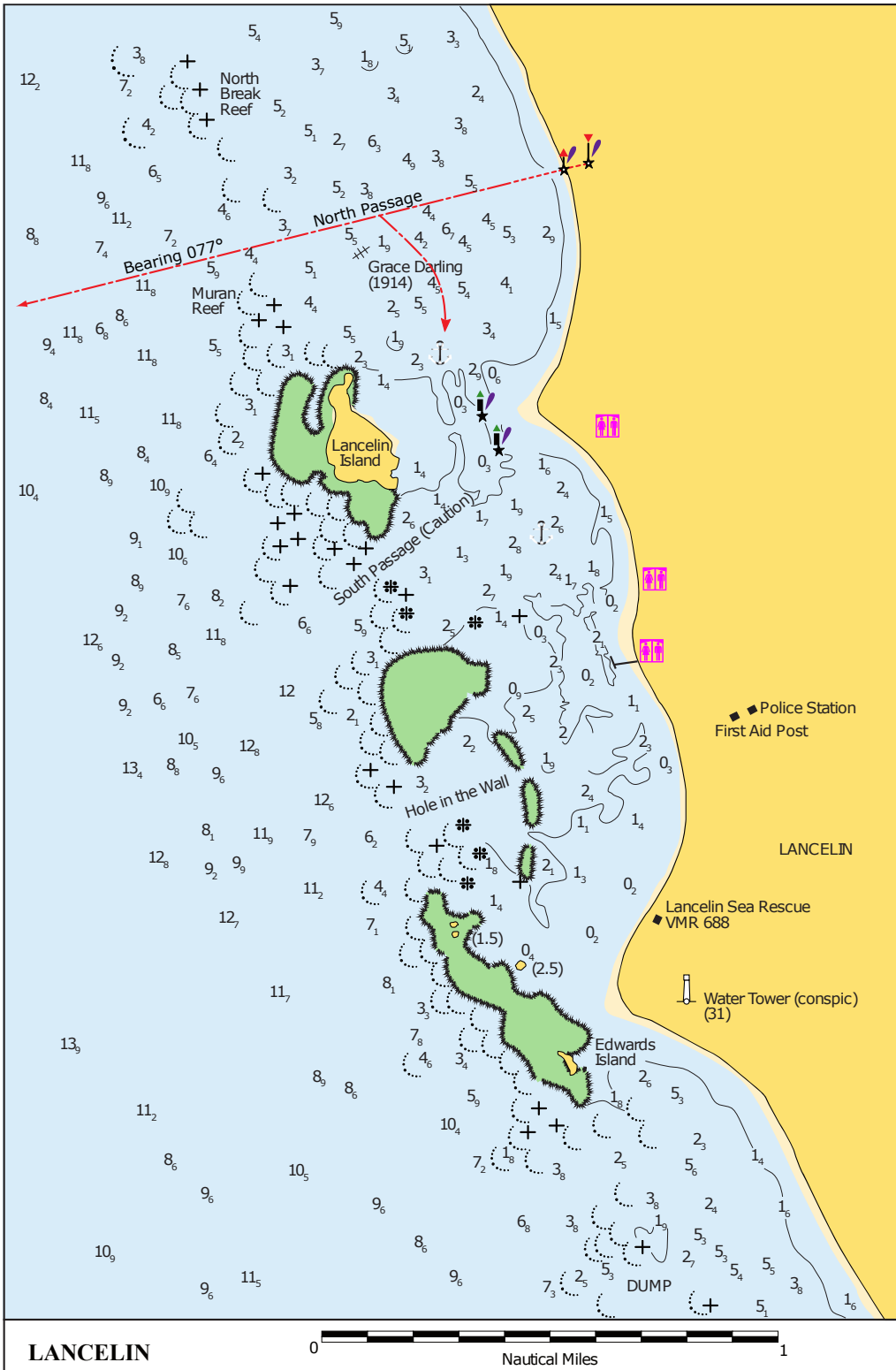
Of interest: The islands are nature reserves on which birds, snakes and sea lions should not be disturbed. There is a permanent sea lion colony on nearby Whittell Island known locally as Seal Island.

Diving: There is excellent snorkelling between the two islands and off the easterly beaches.

14.2.8 Lancelin

31° 01'S 115° 19'E

AUS 753, 754, 105, WA 1276



Chartlet 152 Lancelin

Lancelin is a fishing town famous for its windsurfing conditions.

⚓ Leads on the shore (077°) take you over an area shallow enough for moderate swell to break and there may be cray pot floats on the line of the leads. Once well in on the leads, take a course of 165° passing close to the starboard-hand marker, towards the water tower south of the town. This takes you to the main fishing boat anchorage near the jetties; there is good holding in the sand patches. Occasionally it can be very rough with a heavy swell over the reefs. It is often a roly anchorage.

⚓ In winds from S to W, reasonable shelter is available at 31° 0.2'S, 115° 19.1'E, in the lee of Lancelin Island near a yellow Fisheries Department mooring. Approach this area on a transit from the main leads towards the centre of the island. There are sandy patches (see caution 3 below), some shallow sand over rock and weedy patches. It can be roly.

Tides: Lancelin. Range 0.9 m.

Caution 1: The approach to Lancelin is always the first to be closed as swell increases on the mid-west coast.

Caution 2: Do not use the entrances south of the island, named South Passage and the Hole in the Wall, without local knowledge.

Caution 3: Sand movement has reduced the depth around the yellow Fisheries Department mooring. Vessels with more than 1.5 m draft should be very careful if there is likely to be any swell.

Facilities: Lancelin is an important fishing centre. Provisions and services are good, and there is a nursing post (see section 7.5). Fuel and water are available at the jetty but can be difficult to access if there is a heavy swell.

Of interest: Both Lancelin Island and Edwards Island are bird sanctuaries.

History: On 28 April 1656 the *Vergulde Draeck* (Gilt Dragon) under the command of Captain Albertsz was the second Dutch East Indiaman to be wrecked on the Western Australian coast. It was a large vessel (600 tons) carrying a rich cargo, including chests of silver and 78 600 guilders in cash. It quickly sank on a coastal reef and only seventy-five of the two hundred complement survived by being washed ashore. Captain Albertsz sent the second mate and six crew in a longboat to Batavia for help. The longboat survived the forty-day trip and arrived in Batavia on 7 June. The *Witte Valk* (White Hawk) and *Goede Hoop* (Good Hope) were dispatched to search for survivors. The *Goede Hoop* spotted pieces of wreckage and sent two parties ashore. Neither party returned and the *Goede Hoop* returned to Batavia short of eleven crew.

On 1 January 1658 the *Waeckende Boey* (Watchful Boy) and the *Emelort* started another search. After charting Rottnest Island the *Waeckende Boey* found a ship's beam near Lancelin Island. After sighting more wreckage, a fourteen-man search party commanded by Abraham Leeman was sent ashore. A strong wind separated the shore crew from the expedition leader Samuel Volkersen aboard the *Waeckende Boey*. Although fires and gunshots from the shore party were answered by cannon fire, the *Waeckende Boey* sailed for Batavia after two days. Leeman then made his famous small boat journey to Java and reached Batavia after 185 days. There were only four survivors. An enquiry found Volkersen guilty of gross negligence.

In 1963, the wreck of the *Vergulde Draeck* was discovered on the reef about 6 nm south of Ledge Point.



Lancelin looking south (K Klaka)

14.2.9 Ledge Point

(no chartlet)

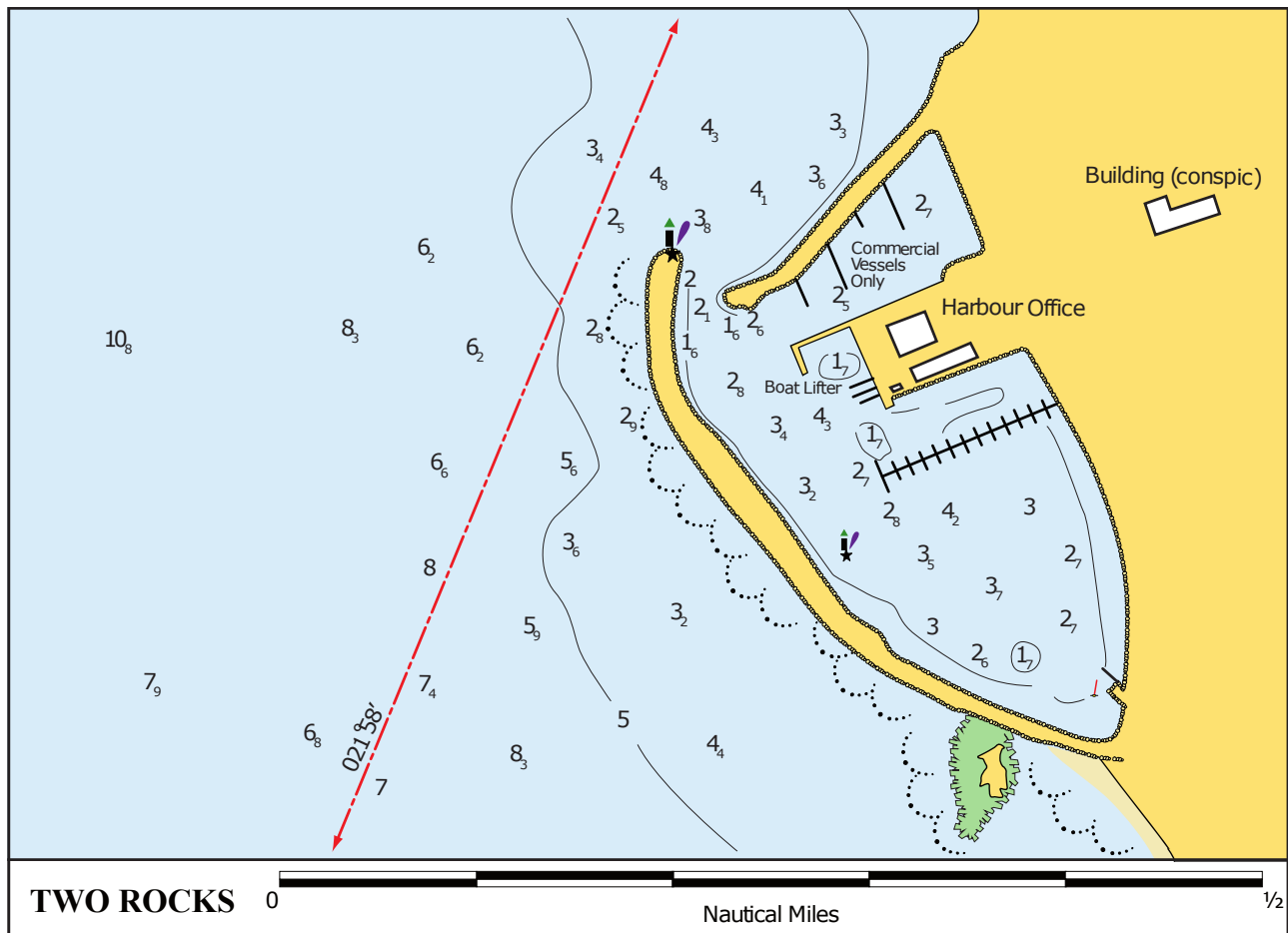
This settlement lies about 5 nm south of Lancelin. Enter on the leads (lit) 060°.

History: The Vergulde Draeck (Gilt Dragon) sailed from Holland for Batavia (Jakarta) in 1656, carrying trade goods and eight chests of silver to the value of 78,600 guilders. The ship was wrecked just south of Ledge Point. 75 of the 193 people made it to shore. Seven of them made it to Batavia in a small boat. The wreck, the first of the Dutch and English East India ships found on the Western Australian coast, was discovered in April 1963. Following heavy looting of the site, shipwreck legislation was enacted which vested shipwreck sites in the Western Australian Museum under the *State Maritime Archaeology Act 1973* and later the *Commonwealth Historic Shipwrecks Act 1976*..

14.2.10 Two Rocks

31° 29'S 115° 35'E

AUS 754, WA 1071



Chartlet 153 Two Rocks Marina

⚓ Two Rocks harbour is run by DoT. It has a marina with berths. Charges apply. A number of cray boats are based at the marina.

Silting of the approach and entrance can occur but there is usually sufficient water for 2 m draft vessels. Contact the marina for latest depth information Ph: (08) 9561 1100. Approach from the south on the leads (022°). An approach from the north is possible in conditions of moderate swell.

Caution 1: Entry can be hazardous during periods of heavy swell.

Caution 2: Watch out for cray pot floats and lines on the leading line.

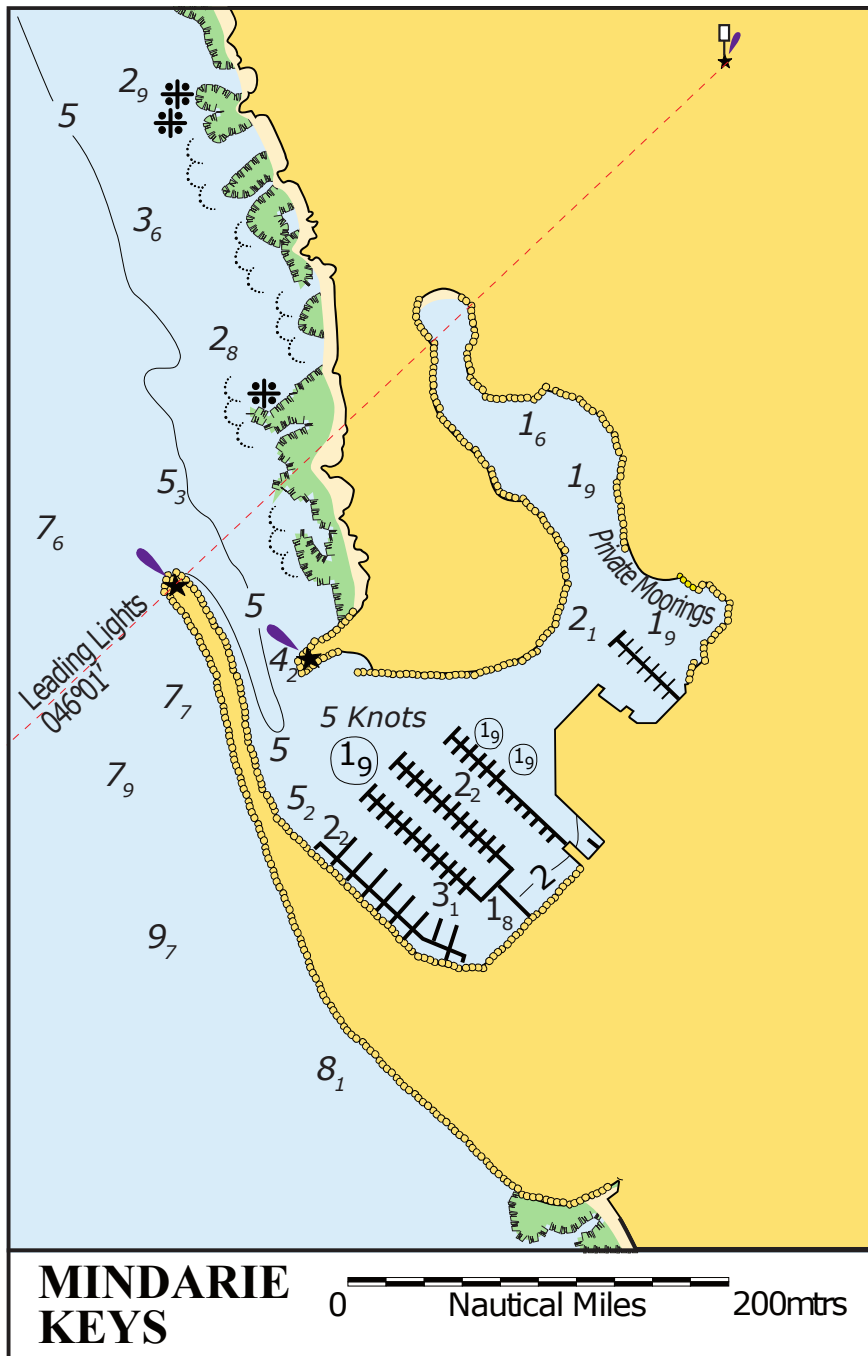
Tides: Two Rocks. Range 0.9 m.

Facilities: Fuel, water, power, showers, toilets, telephone, travel lift and chandler. The small town has a supermarket, doctor, dentist and chemist. Joondalup city centre 40 km south can be reached by a regular bus/train service. Sun City Yacht Club is based at the marina Ph: 0428 628 753 Email: sun_city_yacht_club@hotmail.com.

14.2.11 Mindarie

31° 41'S 115° 42'E

AUS 754, WA 986



Chartlet 154 Mindarie Keys

⚓ Mindarie is a private marina with berthing facilities. Charges apply. <http://mindariekeys.com.au>

Ph: (08) 9305 9305

Approach from seaward is straightforward with the distinct white lead markers (F Bu at night) bearing 046°.

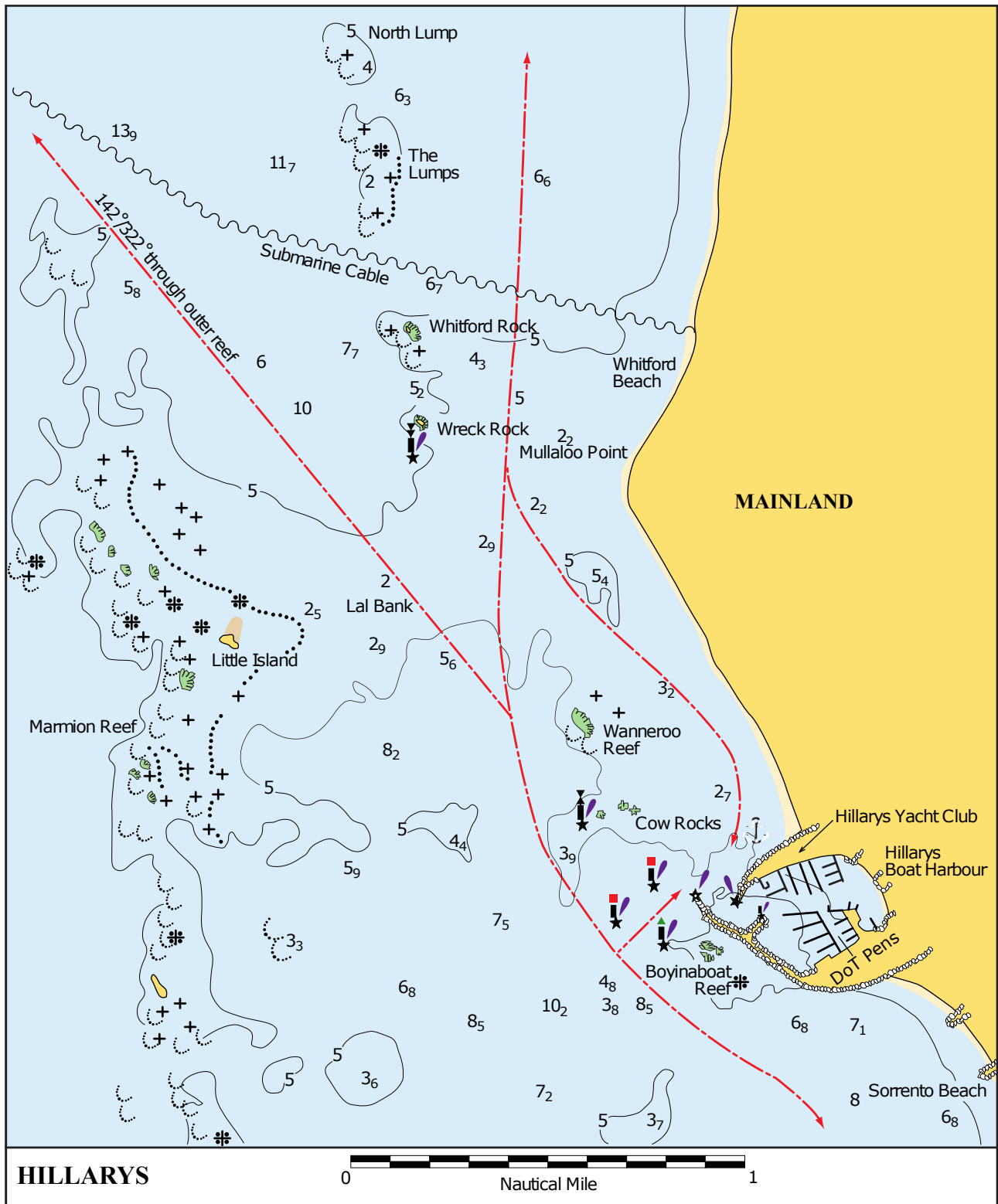
Facilities: Cafes, restaurants, bar and small chandlery. Regular bus/train service to Joondalup city

12 km south.

14.2.12 Hillarys

31° 49'S 115° 44'E

AUS 754, WA 001, 957



Chartlet 155 Hillarys

Hillarys, a northern suburb of Perth, has a large marina with many facilities and shops.

The preferred approach is from the south, staying east of the reefs which are marked by cardinal markers, at their southern limit near Centaur Reef and their eastern limit near Horseshoe Reef.

Approach from the north inside the reefs is possible, staying west of the cardinal markers off The Lumps, Wreck Rock and Cow Rocks. There are additional hazards to avoid.

⚓ *Marina facilities:* Hillarys Marina has a mixture of fixed and floating pontoons in two separate areas. The southern side is operated by the DoT, the northern side by the Hillarys Yacht Club (HYC) Visiting yachts can stay at either, subject to availability of pens. Water, power, toilets and showers are available in both areas. The DoT facilities are good <https://www.transport.wa.gov.au/imagery/hillarys-boat-harbour-facility.asp>. The yacht club has a ramp, travel lift wide enough for catamarans, shipwright and chandlery. They welcome members of other yacht clubs <http://www.hillarysyachtclub.com.au> Ph: (08) 9246 2833. Within walking distance there are shops, restaurants, and the Aquarium of Western Australia.

Caution: Large ferries operate (to Rottnest) through the narrow channel in the harbour. Yachts must keep clear.

Tides: Hillarys. Range 0.9 m.

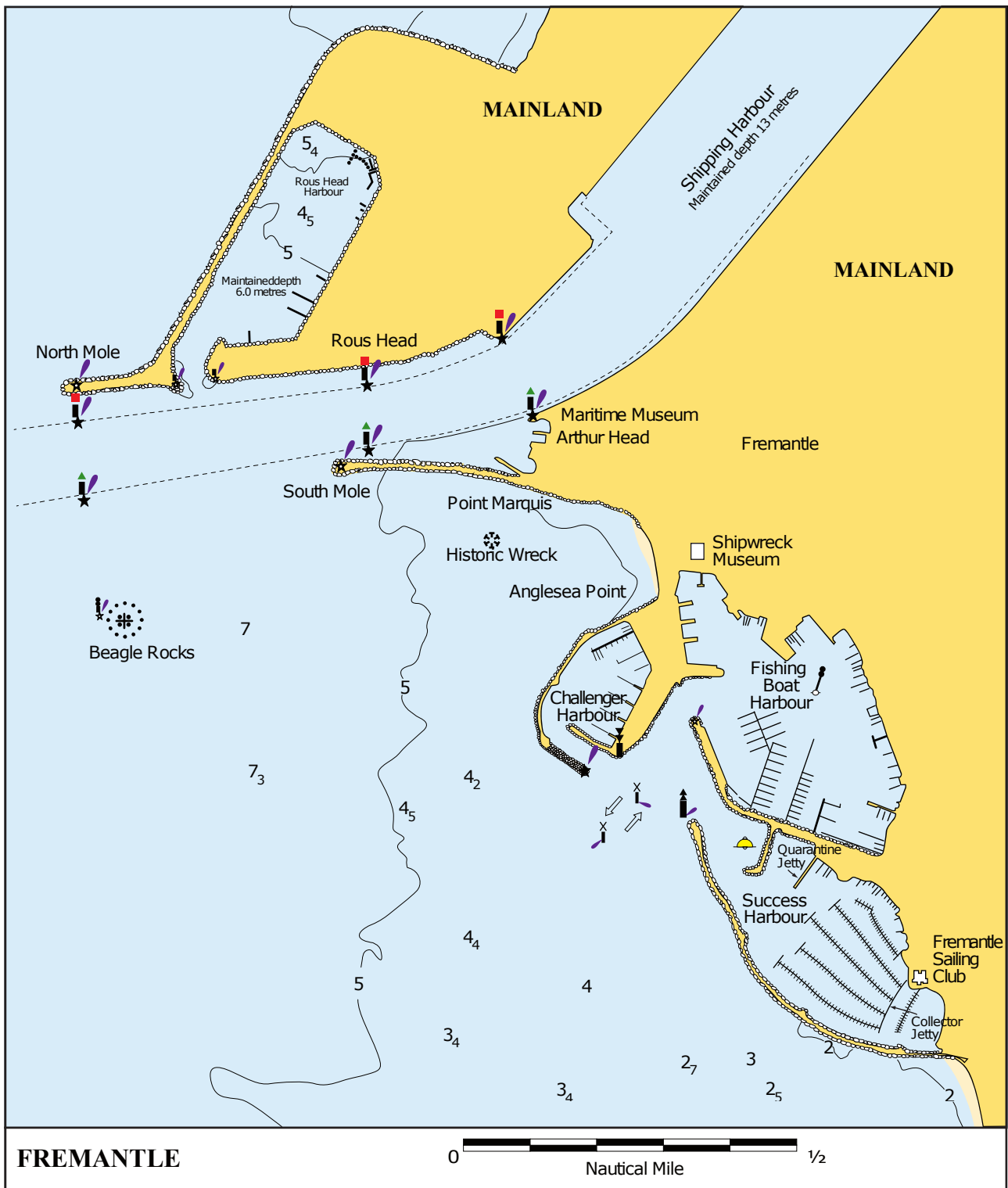
Fishing: Fishing is prohibited at Boyinaboat Reef, Little Island and the Lumps, which are sanctuary zones in the Marmion Marine Park, bounded by yellow markers. Snorkelling and observing are allowed.

Diving: There are several dive sites close to Hillarys. Boyinaboat Reef provides snorkelling and scuba, accessed from the southern seawall of the marina. Cow Rocks provides a 6 m dive only 400-600 m west of the marina. To the north and northwest of Hillarys the areas Wanneroo Reef, Little Island, Wreck Rock, Whitfords Rock and North Lump also provide good dives.

14.2.13 Fremantle

32° 03'S 115° 44'E

AUS 112, 113, WA 001, WA 898



Chartlet 156 Fremantle

Fremantle is the main port for the state of WA, situated at the mouth of the Swan River about 19 km from Perth, the capital city of Western Australia with a population of 2 million.

The main shipping harbour has no facilities for handling small craft. Access beyond the harbour to the Swan River is restricted by three low bridges with clearance of less than 7 m HAT. Only yachts equipped with mast-lowering equipment can proceed up-river. Several yacht clubs and marinas are located up the river beyond the bridges.

There are five harbours below the bridges. The main shipping harbour and Rous Head (Northport) have no afloat facilities for yachts; the other three harbours described below are the main berthing areas for yachts. They are accessed via a single entrance with separation marks (outer mark 32° 04'S, 115° 44'E). The approach is clear except for an isolated danger mark at Beagle Rocks. Beagle Rocks have a least depth of 2.2 m LAT but the main hazard is the mark itself and the crab pots surrounding it.

⚓ Challenger Harbour is for recreational craft and jointly operated by Royal Perth Yacht Club (RPYC Annex) and the DoT.

⚓ The Fishing Boat Harbour is primarily commercial; a number of shipyards have limited berths for private vessels. DoT also operate yacht berths in this harbour, though a temporary berth is unlikely to be available.

⚓ Success Harbour is the home of the Fremantle Sailing Club and is the favoured harbour for visiting yachts. It has a few areas where depths are less than 2.5 m LAT. Berths are fixed jetties. The Customs and Quarantine clearance jetty for recreational vessels is located in this harbour. Contact can be made with the Club on VHF Ch 16. Moor temporarily at the visitor's jetty (near the travel lift) on the port-hand side after entering Success Harbour. To make enquiries contact the harbour master (08 9435 8812 or 0433 024 790) or the office Ph: (08) 9435 8800 or write to:

Fremantle Sailing Club

PO Box 860

Fremantle, 6959

www.fsc.com.au

Email: reception@fsc.com.au

Space for visitors is limited. It may be necessary to stay alongside the Collector jetty.

Marina facilities: Power and water are available on the jetties. The Club has showers, toilets, galley, library, internet, barbecues, ice, fuel, laundry, a travel-lift, chandler and shipwrights.

Tides: Tidal heights can be erratic: normal range is between 0.4 m and 1.2 m above datum. The range variation is influenced by the barometric pressure and storm surge . With an onshore gale the height can increase to 1.6 m above datum.

Town facilities: Fremantle city is about a twenty minute walk north or a five minute bus ride from the bus stop outside the Club on Marine Terrace (free CAT bus, but operates during daylight hours only). There is a wide range of shops and restaurants, as well as engineering, electronics, sailmakers, shipwrights, inflatable dinghy and liferaft services.

There is a connecting rail line between Fremantle and Perth. Note that Fremantle Hospital no longer has an Emergency Department. The nearest Emergency Department is Fiona Stanley Hospital at Murdoch, 10 km east of Fremantle. Ph: (08) 6152 2222.

Fremantle is known for strong afternoon SW sea breezes during the spring and early summer. These cooling breezes bring welcome relief to those inland, and visitors call it the Fremantle Doctor. This is a corruption of the original term Fremantle Docker; the afternoon sea breeze was used to dock the sailing ships. Most locals just call it "the sea breeze".

History: Fremantle's name honours Sir Charles Howe Fremantle who, as the 28-year-old Captain of *HMS Challenger*, took possession of the Western Coast of Australia for Britain on 2 May 1829. Settlers from Britain followed in the *Parmelia* and established the Swan River Colony.

Convict labour was used for many civil works in the colony from 1850 to 1868. The early architecture of the West End of Fremantle is largely intact and is a prime example of Victorian architecture. The local community plays an important role in retaining and refurbishing these heritage buildings, many of which are classified by the National Trust.

Engineer C.Y. O'Connor blasted rock out of the mouth of the Swan River and deepened the entrance of the harbour. In 1897 the first steamer, *Sultan*, entered the new Fremantle Harbour.

The gold rush years were responsible for quick growth in Fremantle. The influx of goods and gold-seekers brought many new businesses and prosperity to the port.

The convict-built limestone building of the original maritime museum (now called the Shipwreck Galleries), houses a unique collection of relics from Dutch shipwrecks. The story of the early European discovery, exploration and development of Western Australia is uniquely depicted in the new Maritime Museum beside the main commercial harbour. Both museums are well worth a visit.



FSC Success Harbour (P Gebhard)

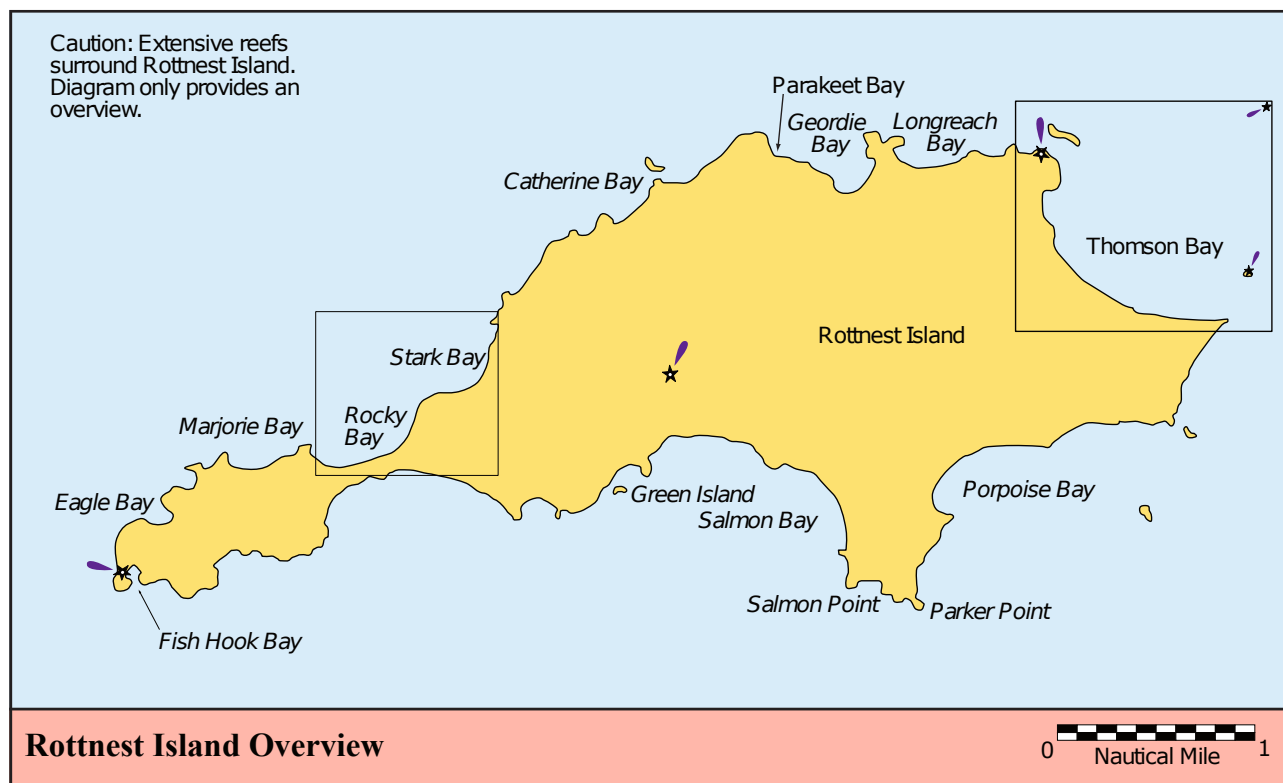


An FSC sail-training yacht (S Laws)

14.2.14 Rottnest Island

32° 00.4'S 115° 31.0'E

Charts: AUS 112, WA 001, 412



Chartlet 157 Rottnest Overview

Rottnest Island, 10 nm off Fremantle, is a low-key holiday destination noted for its relaxed atmosphere, good swimming, fishing, cycling, walking and historic interest.

Charts DoT WA 001 and 412 give excellent detail and are strongly recommended.

During normal summer sea breeze weather the northern side of the island generally offers best protection. However, beware of occasional thunderstorms if a trough or mid level disturbance develops off the west coast; thunder squalls usually approach from the north or northwest, leaving the northern anchorages exposed. Anchorages on the southern side of the island may offer better protection in these conditions.

The waters around Rottnest Island are Sanctuary Zones and discharge of waste in any form is prohibited.

There are numerous bays but many of them have weedy bottoms. Most bays on the south side are rocky and exposed to the SW sea breeze. Anchoring is permitted in many bays, these locations are shown on WA 412 and the chartlet. Entrances to recognised anchorages are marked and the majority now have lit leads.

There are numerous moorings in many of the bays, usually a mixture of privately leased and Rottnest Island Authority (RIA) owned. Conditions apply to the use of all moorings and it is advisable to first check with the RIA. Charges apply. *RIA collects a landing fee for every person per visit or per vessel per year, whether anchoring or mooring.* For more information contact RIA on (08) 9432 9111 or go to <http://www.rottnestisland.com/boating>

Facilities: At most anchorages there are toilets, showers, a bus service and rubbish collection. There is no drinking water on the island outside the Thomson Bay settlement, so always take water with you when going ashore. During the day, a bus runs around the island at regular intervals, dropping off and picking up at many of the bays.

Caution 1: The depths when entering a number of anchorages can be hazardous at times of low LWS.

Caution 2: Rottnest Island has off-lying reef around its entire coast. Approach with caution. There are isolated rocks less than 2 m below chart datum that are dangerous even without swell.

Dangerous breaks occur on reefs southwest of Cape Vlamingh.

Tides: Rottnest Island. Range 0.9 m.

Fishing: The waters surrounding Rottnest Island are protected by a marine reserve and no spear fishing is allowed within 800 m of the HW mark.

Of interest: Rottnest Island is home to small indigenous marsupials called quokkas. In excess of 100 bird species, 360 species of fish and 20 species of coral have been found. Service vehicles and buses are the only motorised traffic on the island, the bicycle being the main means of transport. The beaches are superb with some of the most southern coral reefs in the world, and crystal-clear waters. There are no private landholders on the island.

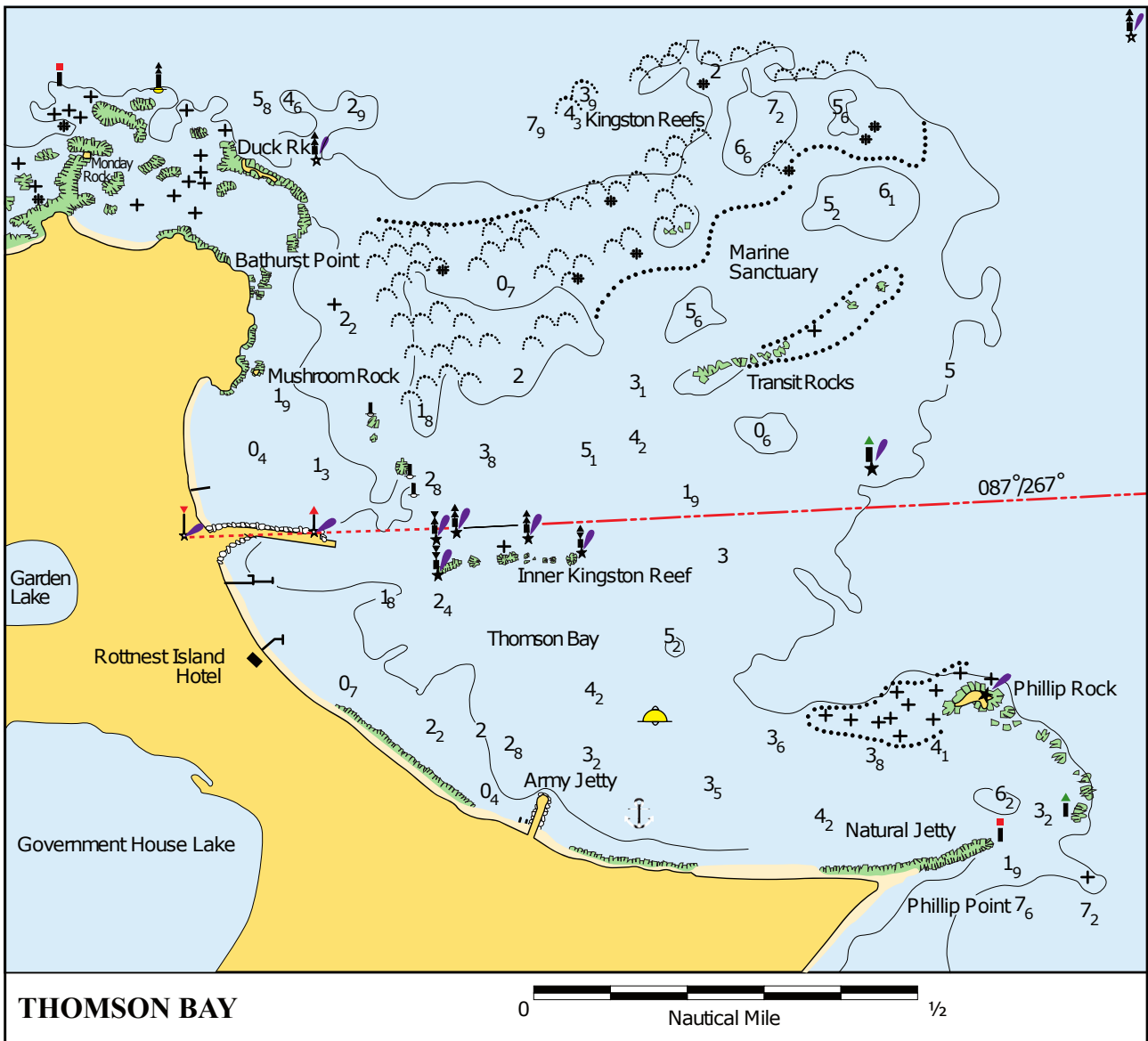
History: Samuel Volkersen on a Dutch East Indian ship the *Waeckende Boey* was the first to land on Rottnest Island in 1658. It was the Dutch explorer Willem de Vlamingh who named the island Rottnest in 1696. He thought that the quokkas were a kind of rat, hence "Rat's nest" or Rottnest. In 1829 West Australia was proclaimed a crown colony of Britain and in 1831 a settlement took place on the island. Farming was attempted without success. From 1838 until 1920 it was a prison for Aboriginal offenders. Their labour built stone houses, army barracks and a lighthouse. Ship's pilots operated from the lighthouse until they were transferred to Fremantle in 1904. There have been many shipwrecks over the years and as a result of the *City of York* disaster in 1899 a second lighthouse was built. More details can be found at www.historycouncilwa.org.au/advocacy/rotnnest-island

Note: The bays of Rottnest are described below in an anticlockwise direction, starting from Thomson Bay on the eastern side.

Thomson Bay

32° 00'S 115° 33'E

AUS 112, WA 001, 412



Chartlet 158 Thomson Bay

The main entrance is north of Phillip Rock and Inner Kingston Reef. It is used by the ferries.

There is also entry to the bay between Phillip Rock and the Natural Jetty which extends from Phillip Point (taking care to avoid a rock with least depth 1.6m, located about 200 m east-southeast of the end of Natural Jetty).

Entry from the north past Bathurst Point and Duck Rock is possible when swell is light. It should be avoided during low tides by most boats as it is shallow.

⚓ Anchorage in Thomson Bay is limited to the area east of the army jetty; the rest of the bay is full of moorings. The bottom is a mixture of weed and sand. The bay provides good protection from NW through W to SE. During a typical overnight summer stay, the strong easterly land breeze can make conditions very uncomfortable. Transit Rocks offers some protection from N to NE winds.

⚓ Immediately south of Phillip Point is a patch of sand in 2-3 m, which offers anchorage with shelter from N through to W.

Facilities: Thomson Bay is the site of the main settlement on the island. It has a good range of services, including ice, fuel, toilets and hot showers, bicycle hire, a supermarket, bakery, hotel, restaurants, nursing post (see section 7.5), airstrip, museum and other tourist attractions, including guided walks and tour buses. The mainland ferries leave from Thomson Bay. Drinking water is generally not available outside the main settlement, so make sure your tanks are full before leaving the mainland, and always take water with you when going ashore.

Diving: Duck Rock provides good snorkelling with access from the shore at Bathurst Point.

Kingston Reefs and Transit Rocks northeast of the bay are the resting places of the *Macedon* and *Denton Holme* wreck sites. There is an easy shallow dive with a good “swim through” at Jackson Rocks about 1.8 nm southeast of the Natural Jetty.

Longreach Bay

(no chartlet)

32° 00.0'S 115° 33.2'E

AUS 112, WA 001, 412

⚓ Longreach Bay is the first navigable bay north of Thomson Bay. It is protected by reef awash, with much of the bay taken up by moorings. There are leading markers and navigational markers. The anchorage, which is at the east end of the bay over sand, can be rolly at times of high tide and anything more than a light swell. The seabed is in parts a very thin layer of sand over rock, particularly near its eastern extent. Much of the bay is shallow, and vessels with more than 2 m draft should take particular care.

The bay is protected from the E through S to W. Westerly winds bring yachts beam on to any swell coming over the reef.

Facilities: A general store is located between Longreach and the next bay westward, Geordie Bay.

Diving: Roe Reef (31° 58.5'S, 115° 32.1'E) provides a good scuba dive in 15 m.

Geordie Bay

(no chartlet)

31° 59.45'S 115° 31.3'E

AUS 112, WA 001, 412

Geordie Bay has no anchorage because it is full of moorings. It has a jetty and is protected from all winds except NW, though the bay suffers badly from wave rebound if there is much swell outside. In a NW gale the entrance is untenable and the bay is very rough indeed. If caught in here, moorings in the west corner of the bay might offer limited protection if there is sufficient water depth.

Facilities: A short walk to the general store.



Geordie Bay looking west in a light SW breeze (P Gebhard)



Geordie Bay looking north in a NW gale (D Broadfoot)

Parakeet Bay

(no chartlet)

31° 59.3'S 115° 30.9'E

AUS 112, WA 001, 412

⚓ Parakeet Bay has anchorage over sand with protection from S to W winds. E winds create a chop in the bay.

Caution: Holding can be suspect with patches of sand over limestone.

Diving: Good snorkelling in 1-4 m off the eastern point of the bay.

Catherine Bay (shallow draft only)

(no chartlet)

31° 59.5'S 115° 30'E

AUS 112, WA 001, 412

⚓ Catherine Bay has navigation markers. There are many moorings and few places to anchor. The entrance is shallow (1.5 m) and there are several rocky hazards in the bay.

Rocky Bay

32° 00.7'S 115° 28.4'E

AUS 112, WA 001, 412

⚓ Rocky Bay may be entered on the markers bearing 203°. There are also navigation markers to guide you. Yachts up to 2.65 m draft have entered the bay safely. There have been reports of an isolated bommie on the leads, depth perhaps 1.6 m below datum; however, very few of the hundreds of yachts using this bay have discovered it. With swell over 2 m (at Rottnest wave buoy) yachts should pay close attention to depths near low water. With swell over 3 m yachts should approach the leads with caution and assess the situation. The bay experiences some disturbance at high tide if the swell is over 2 m, and becomes quite roilly if the swell is over 3 m. This is not a deep bay, there are many moorings and there is no anchorage over sand. However it is part of the entrance to the more usable Stark Bay, described below.

Facilities: toilets and rubbish bins.

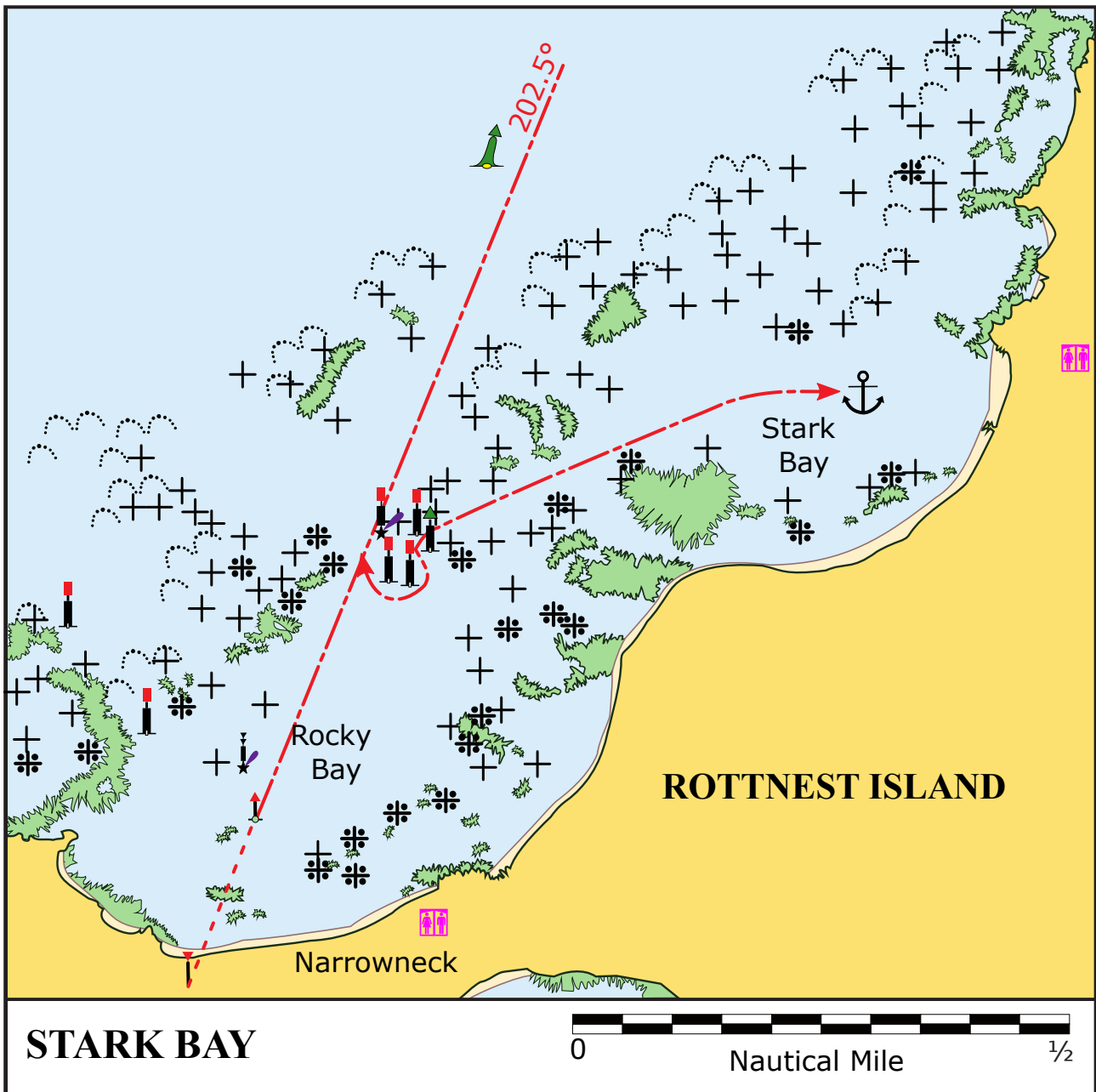


Rocky Bay looking north (K Klaka)

Stark Bay

32° 00.45'S 115° 29'E

AUS 112, WA 001, 412



Chartlet 159 Stark Bay

⚓ Stark Bay has anchorage over sand, mainly in the northeast part, and is protected from winds NE through to S to WSW. Enter through Rocky Bay. Take great care to interpret the markers correctly and proceed with caution. There are isolated bommies in the bay once through the marked channel. Apart from the anchorage area, a rule of thumb is that the areas without moorings are probably shallow. The charted shallow patch in the middle of the bay is shallower than the 1.3 m shown. It extends southwest very close to the moorings on that side, so best to pass north and northwest of it.

Facilities: toilets and rubbish bins.



Stark Bay (R Campbell)

Marjorie Bay

(no chartlet)

32° 00.8'S 115° 27.8'E.

AUS 112, WA 001, 412

Marjorie Bay is marked for entry from Rocky Bay. There are several rocky hazards in this bay. There are few sandy areas in which to anchor.

Eagle Bay

(no chartlet)

32° 01.5'S 115° 27.2'E

AUS 112, WA 001, 412

There is no marked passage into Eagle Bay. It has some sandy patches amongst the mostly weedy bottom to afford a secluded anchorage for at most one or two vessels. Like other bays in the northwest of the island it can be hazardous to enter or leave in a moderate to heavy swell.

Fish Hook Bay

(no chartlet)

32° 01.45'S 115° 27.1'E

AUS 112, WA 001, 412

Fish Hook Bay on the southwest tip of the island is accessible but is exposed to the SW and offers no useful anchorage except in the lightest of conditions.

Green Island (Nancy Cove)

(no chartlet)

32° 01'S 115° 30'E

AUS 112, WA 001, 412

⚓ There is protection from SW through W to NE though the anchorage can be lumpy with any swell/sea from the SW. Lead marks on the shore mark a passage between two rocks into the bay. There is limited space to anchor over sand behind Green Island - three boats is a crowd. Charter and dive boats sometimes come in here during the day, but peace and tranquility usually return before sunset.

Diving: Excellent caves and overhangs accessible from the shore north of Green Island. This improves as one dives further offshore.

Salmon Bay

(no chartlet)

32° 01'S 115° 30.4'E

AUS 112, WA 001, 412

⚓ The eastern end of Salmon Bay provides some anchorage over sand, among weed banks. Protected from the SW chop and from NE to E wind.

Parker Point

(no chartlet)

32° 01.4'S 115° 31.8'E

AUS 112, WA 001, 412

⚓ Parker Point anchorage is the best protected all-weather anchorage around the island, but the approach and most of the anchorage is fairly shallow. Rarely does any swell enter, particularly in the summer months. It is exposed to the E and the SW sea breeze draws through the area; in both cases most of the chop is excluded by the reef.

Entry is from the southeast on the leads which bear 301° in transit with the main lighthouse. Because of the effect of any swell it is best not to come on to this line until Parker Point bears at least 270° i.e. keep well offshore before lining up the leads.

Having passed Pocillopora Reef and entered the anchorage, bear away to port. Keep inshore rather than near the reef to avoid a shallow sandbar which changes position from season to season. The anchorage is deepest at the southern end of the sandy area.

For yachts drawing 1.5 m or less an approach from the east is possible, past Wallace Island, Henrietta Rocks and through Porpoise Bay. Not recommended without local knowledge.

Caution: The marked approach is shallow. Yachts drawing 1.6 m may touch bottom at periods of low tide. Periods of high barometric pressure and easterly winds may lower the water further.

Facilities: toilets and rubbish bins.

Diving: A marine trail from Parker Point, for snorkellers and shallow divers, provides good caves and “swim through” as you go further offshore.



Rottnest marine life - stingray (P Gebhard)

Porpoise Bay

(no chartlet)

32° 01'S 115° 32'E

AUS 112, WA 001, 412

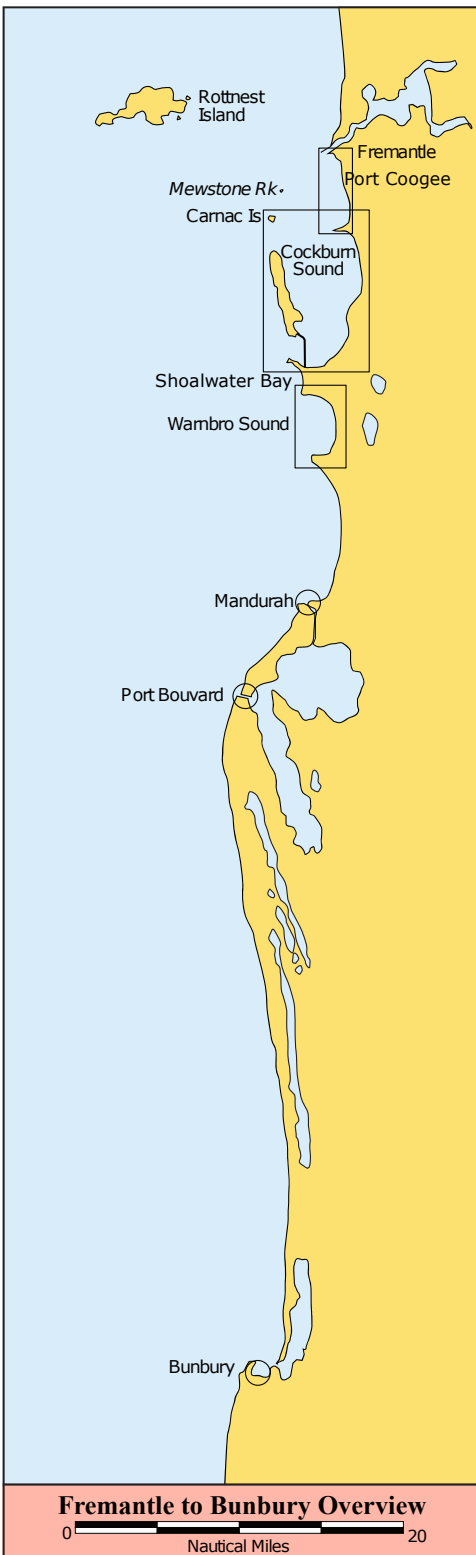
⚓ The west end of Porpoise Bay is sheltered from the SW through to N to NE. It provides less shelter to an E to NE breeze than Parker Point but is accessible to boats drawing up to 2 m. It has a weedy bottom and is occupied by moorings.

Of interest: Dyer Island nearby is a bird rookery and favourite sea lion resting place.

Diving: Good swim-through and caves at Crystal Caves, south-southwest of Dyer Island.

14.3 Fremantle to Bunbury

Charts: AUS 754, 755, 111, 114, 115, 116, 117, 4725, WA 001, 755, 776, 848, 859, 913



Chartlet 160 Fremantle To Bunbury Overview

In summer, the weather on this part of the coast is characterised by fresh afternoon SW sea breezes and overnight easterlies. The sea breeze tends to be stronger offshore, whereas the easterly may be stronger inshore, and it tends to be more gusty than the sea breeze. There tends

to be a set toward the shore during strong westerly weather. See also section 3.5.5.

If day sailing, the art of completing a comfortable passage south is to leave around dawn on the easterlies in order to arrive at your destination before the sea breeze reaches its full strength in mid-afternoon. For longer passages southward, the overnight easterlies provide more comfortable sailing than the afternoon sea breeze, but sailing in the dark (especially motoring) can be hazardous, owing to the numerous craypots with long floating lines.

Passage notes:

When heading south from Fremantle there is a choice of going either inside or outside the reefs, “the reefs” comprising mainly Five Fathom Bank, Coventry Reef and Bouvard Reefs. The passage outside makes for easy navigation, offering plenty of sea room and being free of hazards.

However, there is no protection from the swell, and the sea breeze is usually stronger on this offshore route. The alternative passage inside the reefs has a few hazards so it requires more careful navigation, though there is plenty of depth. It provides some protection from the swell, and the sea breeze is usually 2 or 3 kn lighter than offshore. It is generally the more popular route in summer. An inside hazard of note is a bommie (1.6 m) inshore of Bouvard Reefs at 32° 49.2'S, 115° 36.2'E.

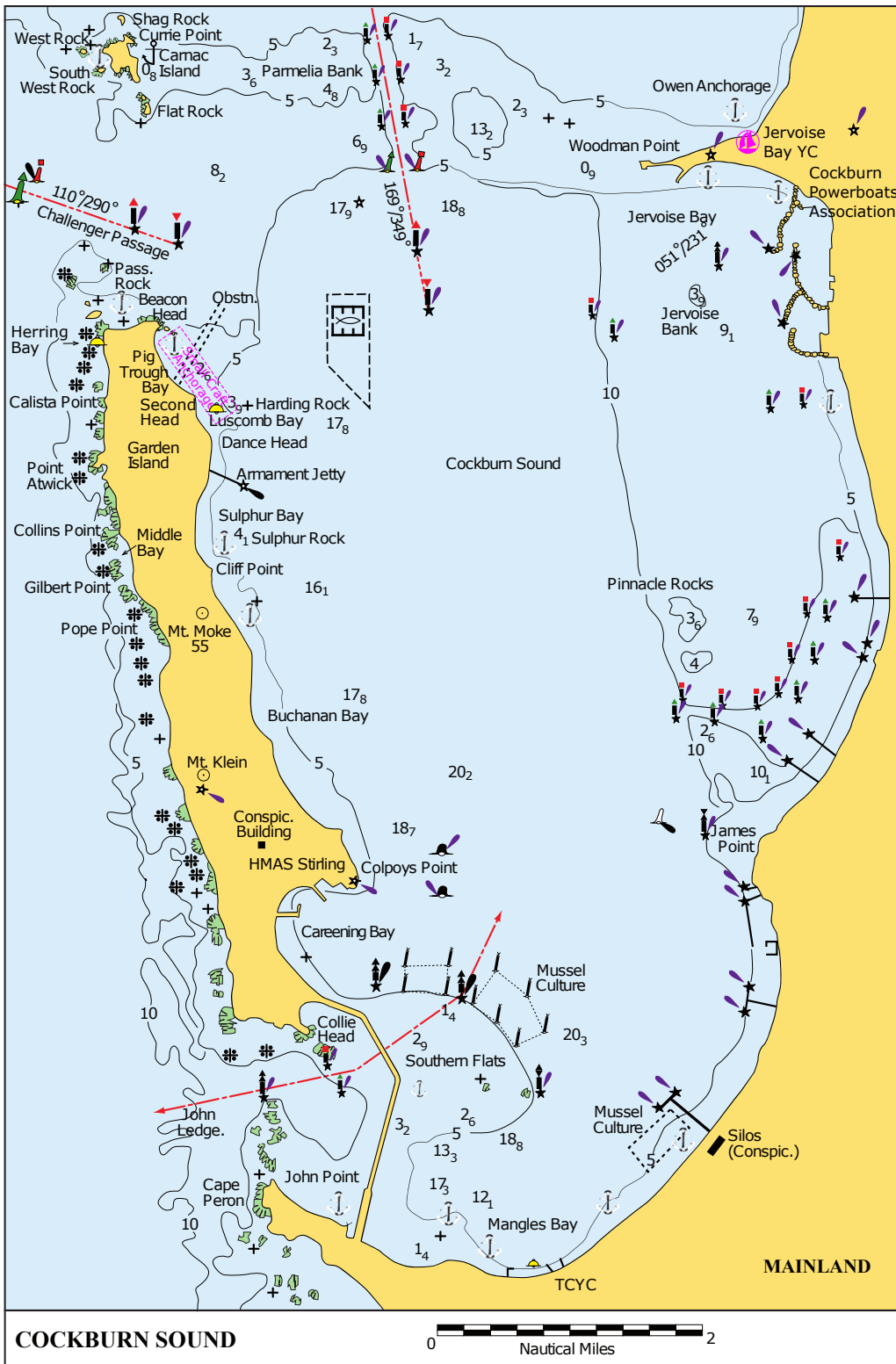
For the passage from Fremantle to Mandurah there is also the option of passing inside the inner reefs (Murray Reefs) via Warnbro Sound. This offers even flatter water, though with more hazards and a least depth of about 2 m off Becher Point.

An underwater wave energy research facility sometimes operates about 1.5 nm off the southwest of Garden Island in the region 32° 15'S, 115° 39'E. When in place it lies just below the surface with an exclusion zone marked by buoys. Ensure your charts are fully up to date with the latest Notices to Mariners.

14.3.1 Cockburn Sound

32° 11'S 115° 43'E

AUS 111, 114, 117, 754, 755, WA 001.



Chartlet 161 Cockburn Sound

Cockburn Sound provides sheltered sailing and a number of anchorages. The Sound is bounded on the west by Garden Island. Garden Island is controlled by the Royal Australian Navy, who

prohibit landing on most of the island except the northern part, where landing is allowed between sunrise and sunset.

The Sound can be entered from the north, west and south.

The northern entrance passes between Carnac Island and Woodman Point. Two banks cross the Sound running approximately east-west. The northernmost, Success Bank, extends from the Straggler Rocks to Catherine Point on the mainland. It has adequate depth for yachts except around Fish Rocks (clear water to the north and west of its two cardinal markers, but see caution 2 below) and from there to the mainland. Parmelia Bank is about 3 nm further S, extending from Carnac Island to Woodman Point. There are shallows extending eastward for about 0.5 nm from Carnac Island. Some isolated spots, shallower than shown on the AUS charts, have been reported between the channel and Carnac Island. Success and Parmelia banks often change depths and extent after winter storms; it is advised to pass through them using the dredged main shipping channel.

From the west, entrance is via Challenger Passage, the marked channel between Carnac and Garden Island.

From the south, entrance is available for shallow air and water draft vessels requiring less than 12.2 m air clearance, via a channel spanned by the causeway between the south end of Garden Island and the mainland.

In calm weather it is also possible to enter via Hugel Passage, north of Carnac Island. There is generally considered to be ample depth, though we have received two reports of an isolated rock pinnacle with less than 2 m depth on the southern side of the charted deep water. An amateur survey failed to find any trace of the rock.

Caution 1: The depths over the banks can change after a winter storm.

Caution 2: Between Fish Rocks and the main channel to the west there are minimum depths of 1.8 m LAT not shown on older editions of AUS 117 or WA001.

The anchorages of Cockburn Sound are described below in clockwise order, starting from the northeast.

Port Coogee

(no chartlet)

32° 06.0'S 115° 45.3'E

AUS 117, WA 001

Port Coogee is a privately run marina. Casual berthing is not usually permitted. The marina manager can be contacted on 0411 349 832.

Owen Anchorage

AUS 117, WA 001

Owen Anchorage seabed is weed with sandy patches. Constant dredging for shell is a feature of Owen Anchorage and it is recommended that deep draft vessels always use the marked channel through Parmelia and Success Banks.

⚓ Anchorage can be taken off South Beach, south of the FSC Success Harbour. It is protected

from the southeast through E to N. Motorised vessels (including tenders) are not allowed within 125 m of the beach.

⚓ Anchorage can be taken in the southeast of Owen Anchorage to the northeast of Woodman Point. Reasonable protection except from W to N.

Facilities: There are two moorings in southeast corner of Owen Anchorage available to FSC members.

Southern Cockburn Sound

AUS 117, WA 001

Southern Cockburn Sound is exposed to northerly winds and is untenable in gales from this sector.

⚓ Jervoise Bay offers protection from the N through E to SE, but it is mostly weedy. There is a small boat harbour with launching facilities and Cockburn Power Boat Club.

Further south there is a larger, well-protected commercial harbour used by shipbuilders. Industry occupies much of the coast south as far down the sound as the blue and white grain terminal (shown as silos on the chart).

⚓ There is anchorage south of the grain jetty, inshore of the mussel farms and over sand in 2-5 m, with protection from the E to SW.

⚓ Approximately 0.5 nm northeast of Rockingham there is anchorage over sand in reasonable depth, with protection from moderate SW sea breezes and easterlies.

⚓ The Cruising Yacht Club of Western Australia (TCYC) has several moorings west of the middle jetty at Rockingham; fees may apply. FSC has two moorings off TCYC. Pre-booking is necessary.

⚓ Mangles Bay lies to the west of TCYC. There are many boat moorings in the west part of the bay, mostly in fairly shallow water. DoT provide 15 free moorings, less convenient for the city than the moorings off TCYC. They all have red buoys. There are 5 white moorings that are also provided by the DoT and are considered emergency moorings. The bottom around much of Mangles Bay is steep-to and offers poor anchorage. There are a few sandy patches that may be anchored in with care; similarly on the eastern side of the causeway to Garden Island.

Facilities: Rockingham is a city of 120,000 inhabitants with all the usual facilities, including a hospital (see section 7.5). It has good bus and rail connections to Perth. There are showers, toilets, barbecues, bar and meals at The Cruising Yacht Club (TCYC). Water only (no fuel) at TCYC jetty. Shops, restaurants and hotels at Rockingham Beach and a supermarket one block inland from TCYC. Public toilets and hot showers also available 80 m east of TCYC <http://www.tcyc.com.au>
Ph: (08) 9527 5468.

Caution: Only the end of the TCYC jetty is deep enough for deep draft boats.

Passage notes:

There is passage along the eastern side of the causeway for boats of moderate draft.



Rockingham in a northwest gale; it is calm in other conditions (K Klaka)

Garden Island east side

AUS 111, 117, WA 001

The navy prohibits anchoring close to Garden Island (see AUS 117). Careening Bay is occupied by HMAS Stirling and is prohibited water except by special invitation. The northern end of the island is an exception, locations are given below. For information regarding restrictions that apply to Garden Island go to the Garden Island Fishing and Aquatic Association website at www.gifaa.com.au

Of interest: HMAS Stirling is the Western Australian Fleet Base for the Royal Australian Navy.

History: Captain James Stirling on the *Parmelia* first landed on Garden Island in 1829. Captain James Stirling founded the first European settlement in Western Australia when he landed there in 1826. Plaques now indicate the location of the first settlement and can be seen at Cliff Point.

⚓ Buchanan Bay lies south of Cliff Point, with gas barbecues for public use. Anchor over weed; fisherman anchor strongly advised.

Caution: Beware of a rock about 800 m southeast of Cliff Point.

⚓ There is anchorage over weed, protected from the SW to W, in the bay between Beacon Head and Second Head, known locally as the Pig Trough and shown on chartlet and AUS 117 as 'small boat anchorage'. There are several private moorings in the bay. Two of these moorings belong to FSC and members can book them in advance at FSC Reception.

Facilities: Water, toilets and barbecue facilities may be found onshore about midway along the bay.



Pig Trough Bay, Garden Island (R Campbell)

Carnac Island

32° 07.3'S 115° 39.75'E

AUS 117, WA 001

⚓ Carnac Island is a nature reserve. Anchorage off Currie Point in 2-4 m over weed and sand provides protection from the SW sea breeze. It is very exposed to the overnight easterlies in summer. The bay to the south of Currie Point is shallow but provides anchorage well out for deep draft vessels. The bay can get very crowded on summer weekends and public holidays.

With local knowledge it is possible to pass north of Carnac Island: pass between Pointer Rock and Shag Rock then on a course to pass approximately 50 m north of West Rock. Keep a close watch for bommies. There is no passage for yachts between West Rock and Carnac Island.

⚓ A day anchorage in 6 m over sand can be found in the bay to the south of West Rock. This bay provides protection from the E but is only suitable when the swell is less than 1 m. There is 4 m depth over the rock in the middle of the bay.

Caution 1: Tiger snakes inhabit the island. DBCA warn visitors not to venture inland from the

beach.

Caution 2: Australian sea lions frequent the island. Visitors must keep well clear of them, which can sometimes limit landing access on the beach.

Diving: Shag Rock north of Currie Point provides a good dive in 4-8 m.

Mewstone

(no chartlet)

32° 05'S 115° 39'E

AUS 117, 754, WA 001

⚓ Mewstone lies north of Carnac Island. It provides some good snorkelling and day anchorage can be found in calm conditions off the northeast corner (32° 05.1'S, 115° 39.6'E).

14.3.2 Garden Island, ocean (west) side

AUS 117, 754, WA 001

Access to the west of Garden Island from Cockburn Sound is possible through Challenger Passage in the north, and for small boats, under the Causeway in the south.

⚓ Beacon Head at the northern tip of Garden Island. Anchorage can be taken off the beach, over sand in 2-3 m, just west of Beacon Head. Protected from SSE to SW.

Caution: Unsuitable in heavy swell conditions.

⚓ Herring Bay on the northwest coast of Garden Island, between Entrance Point and Callista Point, is accessible to boats of less than 1 m draft. It has leading marks.

Facilities: Toilets, barbecue area, rubbish collection in summer.

Caution: Moorings are privately owned and controlled by the Navy. See www.gifaa.com.au

⚓ At the south tip of Garden Island there is anchorage between weed banks southeast of John Ledge, near the causeway. Only approach with good visibility.

Diving: Cape Peron provides many snorkelling opportunities.

Passage notes

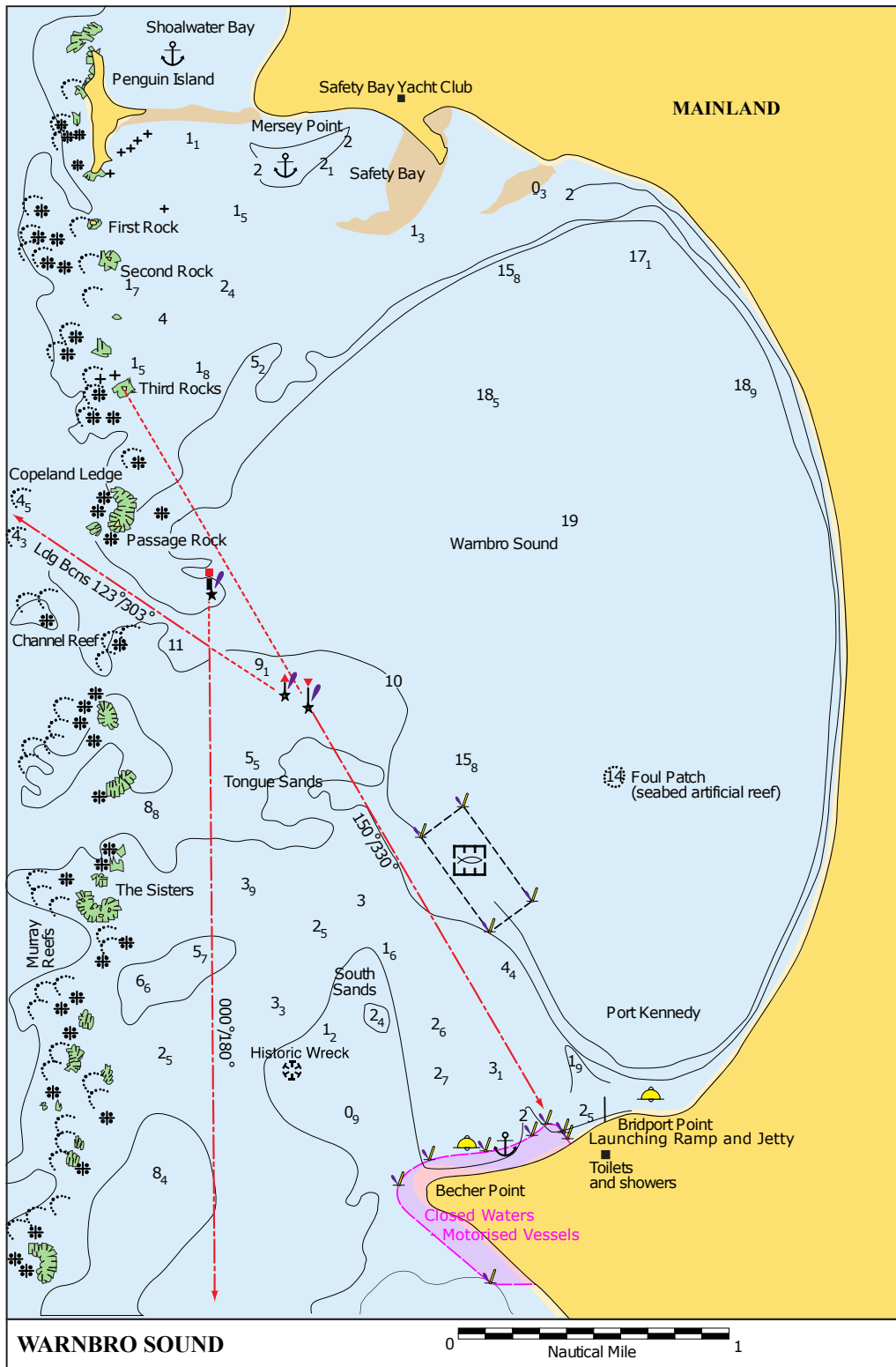
Many cray pot floats and lines can be encountered offshore from Herring Bay southward to Mandurah and beyond in the summer season. Coventry Reef (32° 20'S, 115° 38'E) southwest of Garden Island, is a small group of rocks that dries about 0.9 m. It always breaks but even so can be difficult to see in a choppy sea.

An underwater wave energy research facility sometimes operates about 1.5 nm off the southwest of Garden Island in the region 32° 15'S, 115° 39.0'E. When in place it lies just below the surface with an exclusion zone marked by buoys. Ensure your charts are fully up to date with the latest Notices to Mariners.

14.3.3 Warnbro Sound

32° 20'S 115° 43'E

AUS 116, 755, WA 913



Chartlet 162 Warnbro Sound

Leads mark the entrance to the Sound (123°) which are lit at night. Take care not to mistake the port-hand marker north of the entry line as one of the entry leads. The sound is not well-protected

from heavy westerly swell. Around most of the Sound the bottom is steep-to close to the shore. Shoalwater Islands Marine Park covers all of Warnbro Sound (except the part between Port Kennedy and a point about 500 m east of Becher Point) and north to John Ledge and the centre of the bridge to Garden Island. Restrictions apply to fishing activities in sanctuary and special purpose zones. Penguin Island is a conservation park for day visitors only. All other rocks and islands are nature reserves and landing on them is prohibited.

⚓ Anchorage is best taken about halfway between Bridport Point and Becher Point. The bottom shoals gently and is fairly free of weed. It is well-protected from the SW seas although only partly from the wind. It is a satisfactory anchorage in winds from E through S to SW but likely to be uncomfortable in winds from W through N to NE.

Approach the anchorage from the eastern lead beacon on 150°. This will keep the beacon in transit with Third Rock. There is also an antenna on the mainland on this transit. Anchor outside the markers just off the shore. The area west of Port Kennedy boat ramp (just east of Bridport Point) is prohibited to motorised vessels (including tenders with outboards), for a distance of about 200 m offshore. The limits are delineated by special markers; anchor to seaward of them. There is good reason for this prohibition - it is a protected whitebait spawning and little penguin feeding site. Five free moorings are available from DoT, maximum of 72 hour stay; they have red/orange buoys. Do not use the yellow buoys, it is an offence to tie up to them.

Facilities: . Toilet and shower facilities ashore.

Caution: Beware of the fish farm when approaching anchorage from the northwest.

Tides: Warnbro Sound. Range 0.9 m.

Of interest: Australian sea lions, a protected species, regularly visit nearby Seal Island. There are 500-700 pairs of penguins on Penguin Island, making it the largest breeding colony in Western Australia. The Island Discovery Centre gives visitors a close up view of rescued and rehabilitated penguins.

Fishing: Restrictions apply to fishing activities in the sanctuary and special purpose zones.

Diving: Between 200 m and 400 m south of The Sisters is a shallow dive with caves. Good for inexperienced divers. Not recommended in a SW sea breeze.



Becher Point, Warnbro Sound (R Campbell)

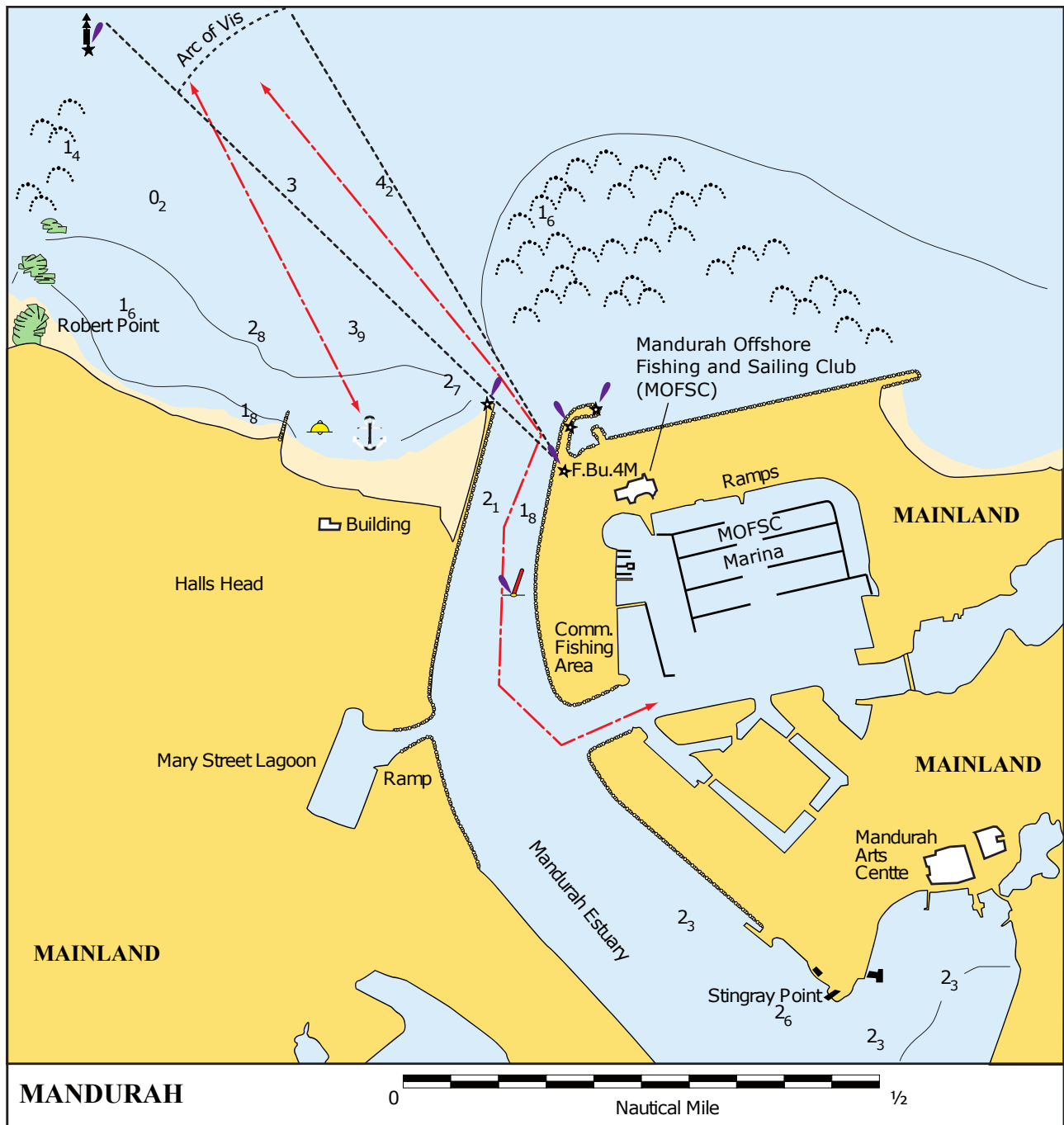
Passage notes

Passage from Warnbro Sound to Mandurah may be made inside Murray Reef for vessels of less than 2 m draft. Keep the reefs close on your starboard side to avoid shallows coming out from Becher Point. A passage heading due south from the port-hand beacon provides reasonable depths.

14.3.4 Mandurah

32° 32'S 115° 43'E

AUS 116, 755, WA 848, 913



Chartlet 163 Mandurah

Mandurah is a rapidly growing city with a population more than 80,000. It has all facilities and a fast train service to Perth. The approach to Mandurah from the south is straightforward, passing Point Robert to starboard. From the north the choice is 'inside or outside' the Murray Reefs. In a strong SW wind the inside route offers flatter water but vessels drawing more than 2 m need to consider the state of the tide (see earlier comments in passage notes for section 14.3 Fremantle to Bunbury overview).

Estuary mouth

For those not wishing to enter Mandurah Estuary or the marina, there are moorings belonging to Mandurah Offshore Fishing and Sailing Club (MOFSC) in the bay immediately west of the estuary mouth. This is also a good summer anchorage with a seabed of sand, though it can be rocky due to heavy traffic in and out of the estuary. There are also 4 DoT courtesy moorings with a maximum stay of 72 hours. The anchorage is exposed to the W and N.

Caution 1: Rocky shallows extend north from Point Robert, marked by a north cardinal beacon.

Caution 2: Depths off the entrance can vary considerably so information sources must be up to date. Notices to Mariners should be scrutinised, and contact with Mandurah Sea Rescue or MOFSC may prove helpful.

Facilities: There are a few shops local to the outside anchorage, but many more facilities inside the estuary entrance (see below).

Estuary entrance and marina

The seaward end of the west breakwater is marked by a fixed blue sector light (FBu). Buoys mark the channel into Dolphin Pool. When approaching from the north care should be taken to avoid the sandbars north and east of the mouth of the estuary. In previous years these sandbars have moved around. However, current (November 2017) DoT and AUS charts show an approach directly from the northwest towards the western breakwater once again has deepest water. Best to obtain local advice before approaching the estuary, from either Mandurah VMR, DoT or MOFSC. The depth at the entrance can vary because of dredging and winter storms. In 2014 minimum depths of 2.4 m were reported both in the approaches and once through the breakwaters. The datum used in those reports is unclear, but anecdotally these may be the depths at a typical low tide.

Once inside the breakwaters, keep close to the western side unless otherwise indicated - there may be markers indicating sandbars.

Mandurah Ocean Marina is located inside the entrance on the east side. It is a joint venture between Mandurah Offshore Fishing and Sailing Club (MOFSC) and the DoT. It is a tourist destination with commercial, retail, restaurant, resort and residential developments. MOFSC is very welcoming. Berths are in demand and it is advisable to pre-book. Charges apply. Contact the bosun Ph: 0407 697 169. <http://mofsc.com.au>

Berths are also available in the DoT section of the marina. Pre-booking is advisable and charges apply. <https://www.transport.wa.gov.au/imarine/mandurah-ocean-marina-facility.asp>

Facilities: A full range of marine services is available including a boatlifter wide enough for catamarans. The city has seen enormous development over past years, including canal systems and a large shopping centre. It has excellent facilities including a hospital (see section 7.5). A rail service operates to Perth. A bus service to and from the train station is part of the train fare.

Tides: Mandurah. Range 0.7 m.

Fishing: Blue manna crabs can be caught in the inlet waterways during summer and autumn. Herring, cobbler, pilchards, flounder, tailor and prawns are there in season.

Of interest: The name Mandurah is derived from the Aboriginal word "Mandar" which means

“trading place”.

The inlet is the largest breeding ground for pelicans in WA.

Passage notes

On passage south to Bunbury there is the choice of going inside or outside the Bouvard Reefs. The summer sea breeze usually falls away sometime after midnight. When heading south in summer a departure just before sunrise from either Mandurah or Dawesville is recommended, in order to benefit from the typical morning easterly breeze and provide a pleasant sail inside the reef. This usually ensures arrival at Bunbury before the SW sea breeze becomes fully established in mid-afternoon.

There is a desalination plant outfall about 0.5 nm offshore from Binningup at 33° 08'S, identified by cardinal markers.

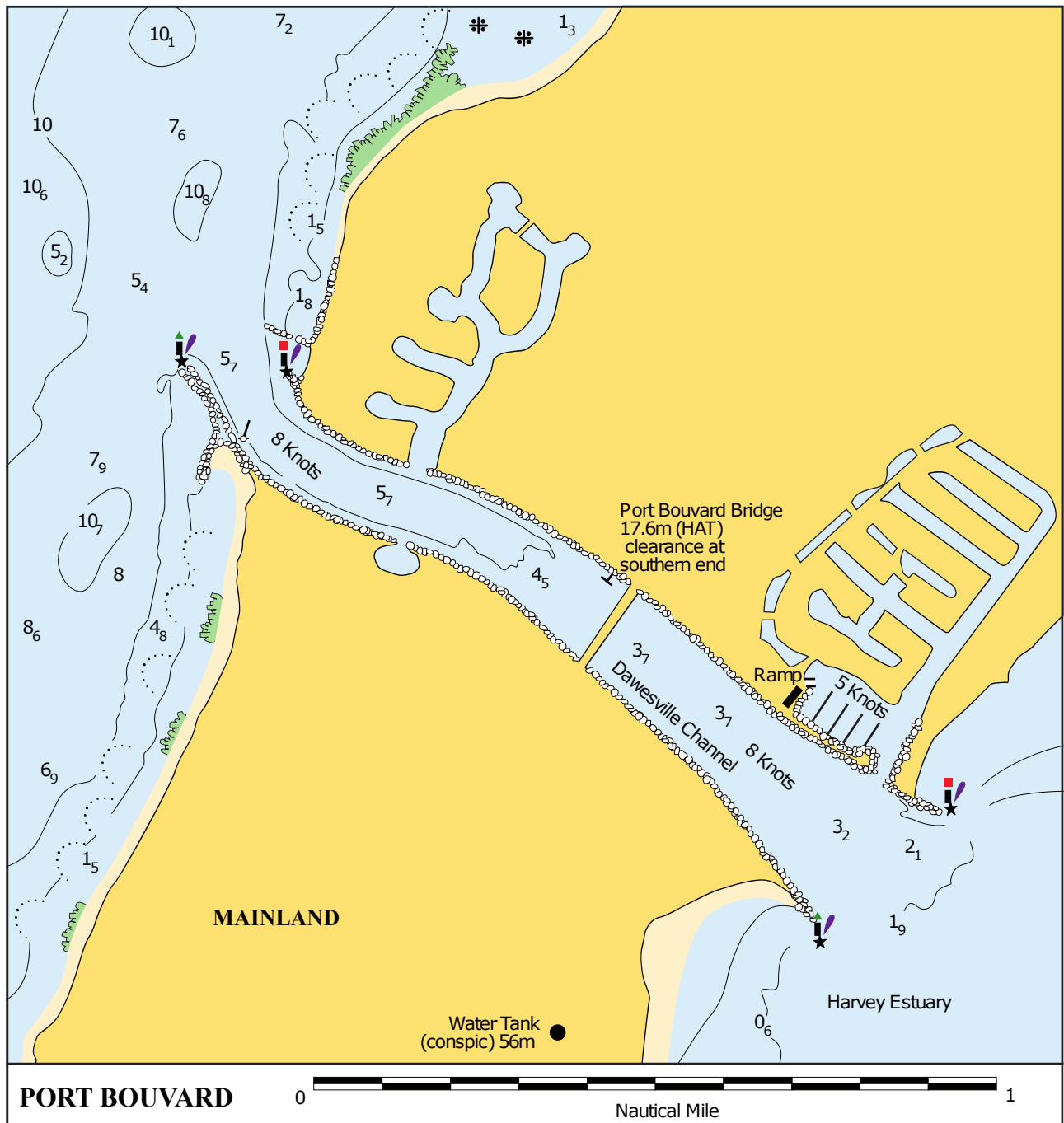
Caution 1: There is often a region of accelerated wind around Point Bouvard.

Caution 2: Cray pot floats are usually numerous between Mandurah and Cape Bouvard, and are especially difficult to see at night.

14.3.5 Port Bouvard

32° 36'S 115° 37'E

AUS 116, 755, WA 755, 848, 913



Chartlet 164 Port Bouvard

Port Bouvard is located about 8 nm south of Mandurah where there is a man-made channel (Dawesville Cut) through from the sea to the inland Peel-Harvey Estuary (sometimes called Mandurah Estuary). The canals and jetties are private property but there is a marina at the northeast end of the Cut.

When approaching from the north, a water tower and aerial on the hill behind Dawesville provides a useful landmark. The entrance to Port Bouvard Marina is situated on the north side, at the east

end of the Dawesville Cut, just beyond the traffic bridge. The bridge has an official minimum clearance of 17.6 m above Highest Astronomical Tide (HAT). HAT at the bridge is 1.24 m above chart datum. The bridge construction drawings indicate that there is approximately an extra 1m clearance under the southern side of the bridge, though there has been no survey to check this. There is a minimum depth of 3.5 m in the marina and marina entrance. A 2.7 m sandbank extends slightly into the channel from the northwestern side of the marina entrance.

The marina comprises four floating jetties with 152 berths. Pre-booking is advisable. Charges apply. admin@portbouvardmarina.com.au Marina Manager Ph: (08) 9534 6444 or Mob: 0417 966 171.

Marina facilities: Water, electricity, toilets, showers, fuel, telephone, bait shop, boat ramp, sewage pump, licensed restaurant. There are no other shops in the immediate vicinity.

Radio: Poor VHF coverage within the marina.

Anchoring: Anchorage in the Dawesville Cut is unsatisfactory because of the scoured rock bottom and tidal flow. A tidal flow of 3 kn may be experienced with spring tides.

Anchoring is not permitted in the canals, or in the pool on the south side of the Cut known locally as Pirate's Cove. Making fast to private jetties without permission is not permitted.

Anchoring is not permitted within Port Bouvard Marina.

Tides: Mandurah. Range 0.7 m. Tidal streams in the Cut may run at up to 3 kn.

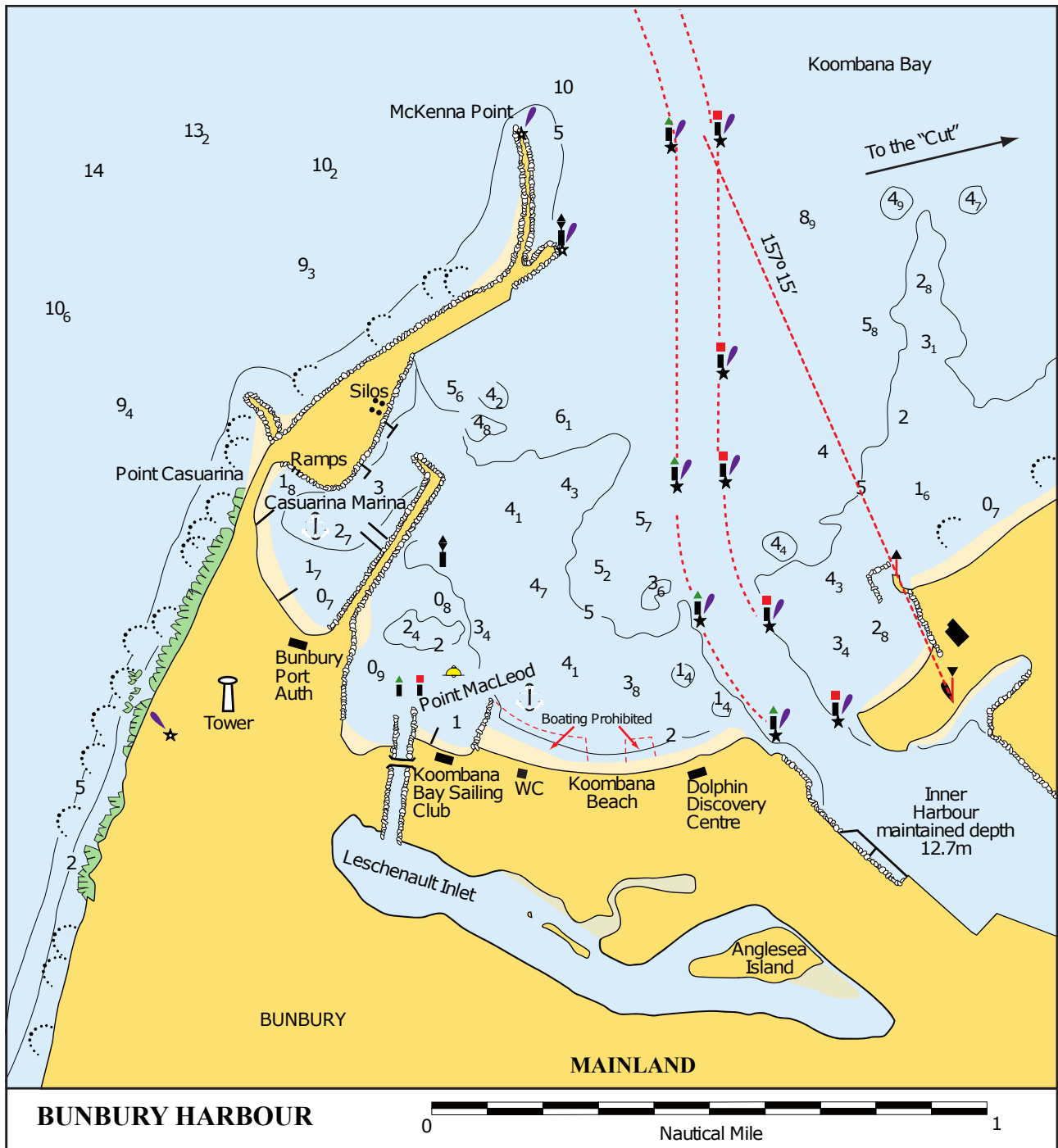
Fishing: Prolific numbers of herring and often tailor in the channel. Yellowfin whiting in the autumn. King prawns in the late spring.

History: Port Bouvard takes its name from the nearby Bouvard Reefs which were named after Alexis Bouvard, a famous French astronomer. Captain Nicolas Baudin named the reefs while leading a French scientific expedition between 1801 and 1803.

14.3.6 Bunbury

33° 19'S 115° 39'E

AUS 115, 755, WA 776, 859



Chartlet 165 Bunbury Harbour

Bunbury lies at the head of Koombana Bay. It is a city of 70,000 inhabitants and is a popular sailing centre with all facilities except a boat lifter. The entrance is deep and clear, though be aware that the main conspicuous lighthouse is about 1.3 nm south of the harbour. There are two ships' berths on the western breakwater and a large, well-protected commercial inner basin on the east shore, with no facilities for yachts. The main exports are alumina, wood chips and mineral sands.

⚓ Koombana Bay Sailing Club (KBSC) is situated on the southern shore of the bay, near Point MacLeod. KBSC makes visitors very welcome. Anchorage in 3-4 m may be taken east of the club moorings, just east of a small stone breakwater. The holding is mostly good in sticky mud and well suited to the typical summer winds from the SW during the day and the E at night. It is open from N to NE winds, nor is it a comfortable anchorage in a strong NW wind. Much of the beach east of the breakwater is closed to motorised vessels, so it is best to go ashore on the west side in front of the clubhouse.

⚓ In strong E winds anchorage can be taken just south of The Cut on the east side of Koombana Bay.

Note: The Cut is the opening into Leschenault Inlet.

KBSC facilities: <http://www.koombanabay.com> KBSC is open on Friday evenings and weekends. It also opens on Wednesday evenings for twilight races during summer. Water, showers, toilets, telephone and barbecues are available. Meals are available Wednesday and Friday evenings. Fuel is not available at KBSC, though there is a distant service station. Casuarina Marina (see below) is possibly a better option for fuel.

Public facilities: Water, toilets, showers and a café are immediately onshore of the anchorage.

⚓ Casuarina Marina in the fishing boat harbour houses a mixture of private and commercial craft. Space is very limited. It provides 50 berths for long lease use and there are also 65 swing moorings, one of which is available for casual use. Contact the DoT harbour master Ph: (08) 9792 6666.

Marina facilities: Power, water, toilets and showers. Fuel and water are available at the service jetty. There is also a 40 tonne slipway.

Caution 1: There is limited space in the marina basin. The bottom is fouled in places with old moorings and weed.

Caution 2: The old timber breakwater and jetty that were NE of the marina have been demolished. The remains are marked by a series of buoys, with a north cardinal marker at the end.

Tides: Bunbury. Range 0.9 m.

Town facilities: Bunbury provides a full range of services and the town is a ten to fifteen minute walk from the KBSC anchorage. There is a hospital (see section 7.5), and rail and bus links with Perth.

Of interest: The Dolphin Discovery Centre is at the east end of Koombana Beach, where dolphins regularly interact with humans. Koombana Bay is home to around 100 bottlenose dolphins. These dolphins are a smaller sub-species endemic to Bunbury.

Twenty-thousand-year-old white mangroves grow in the inlet. These are the most southern in WA. A visitors' boardwalk through the mangroves can be found opposite the Dolphin Discovery Centre. Rare basaltic rock formed by volcanic lava flow can be seen on the Back Beach.

Koombana comes from the Aboriginal "bay of spouting whales".

History: Bunbury was originally named Port Leschenault in 1803 by Captain De Freycinet of the *Casuarina*. In 1836, Lt Henry William St. Pierre Bunbury blazed an overland trail from Perth to

meet Governor Stirling in Port Leschenault. The port was renamed in his honour. The breakwater was first constructed in the 1890s due to the large number of wrecks that had occurred. The original lighthouse on Marlston Hill served the port until 1903. It was moved to its present site in 1971.

14.4 Bunbury to Cape Naturaliste

Charts: AUS 116, 335, 755, 756, 4725, WA 859, 966

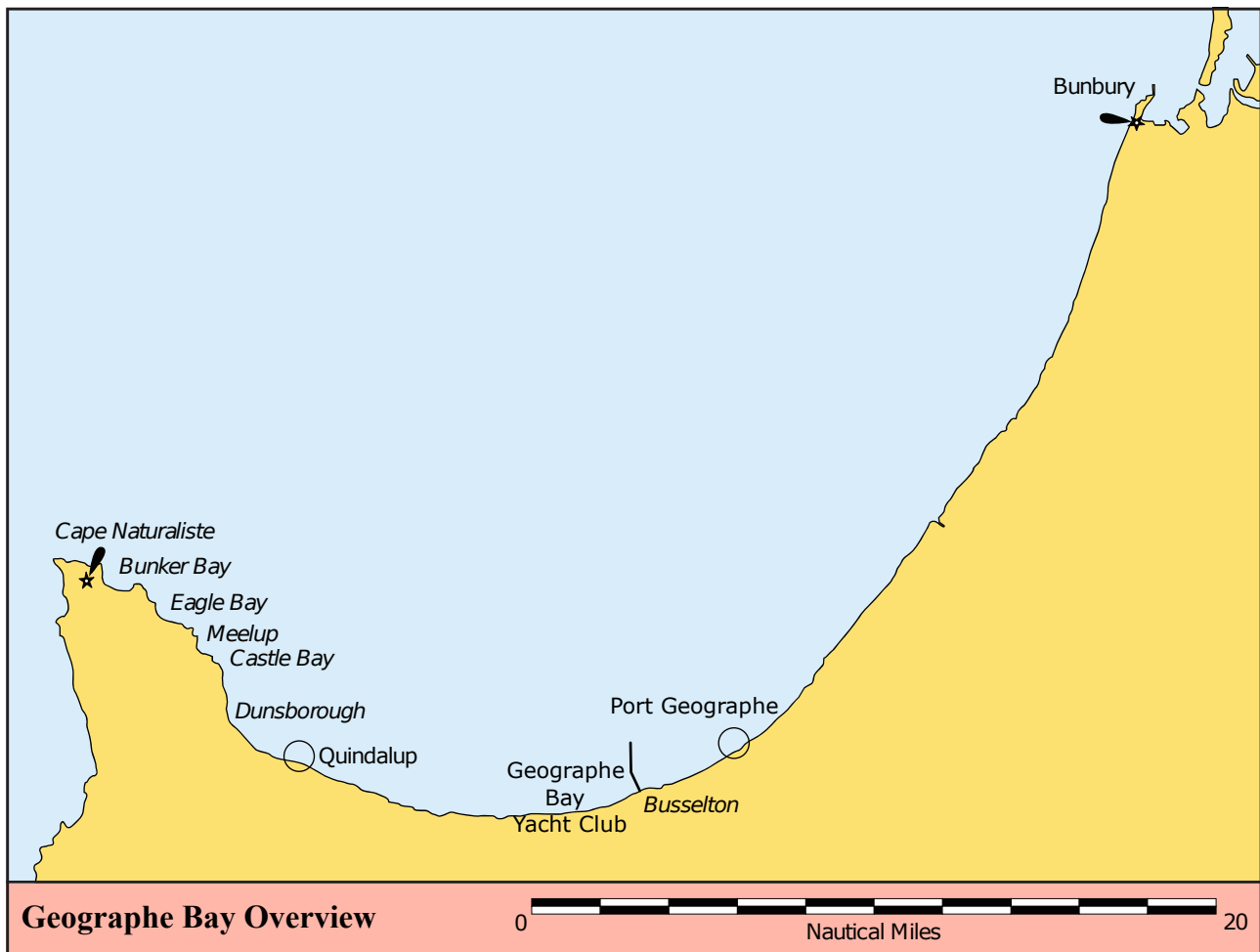
This region supports a diverse range of recreational and commercial activities and is one of the fastest-growing areas in Australia, as more people visit or move to the region for its pleasant surrounds and climate. Activities enjoyed in the area include swimming, diving, snorkelling, boating, and commercial and recreational fishing. Tourism is a major growth industry in the area. Marine nature-based tourism focuses on whale watching, diving tours and charter fishing.

The Ngari Capes Marine Park was created in 2012. It encompasses the marine waters between Busselton and Augusta and is one of the most diverse temperate marine environments in Australia. Warm, tropical waters of the Leeuwin Current mingle with the cool waters of the Capes Current, resulting in a high diversity of finfish, seagrasses growing at incredible depths, whales, dolphins and a network of intertidal and sub-tidal reefs. Sheltered bays, rocky exposed coasts and estuaries are home to an exceptional array of marine flora and fauna from tropical, subtropical and temperate waters. Many species are endemic to the southern coast of Australia, with extensive seagrass, macroalgae and estuarine habitats functioning as spawning, nursery and feeding grounds for a wide range of invertebrates and fish. Significant numbers of marine mammals also frequent the area. In winter and spring, humpback and southern right whales make their way through Ngari Capes on their annual migration and blue whales, the largest living animals on Earth, frequent Geographe Bay, particularly during November. See <http://parks.dpaw.wa.gov.au/park/ngari-capes>

14.4.1 Geographe Bay

33° 36.0'S, 115° 17.0'E

AUS 755, WA 859, 966



Chartlet 166 Geographe Bay Overview

During the summer months Geographe Bay provides smooth water and shelter from the prevailing southerlies. It is a popular boating area, with FSC cruises to the area in December and February.

Geographe Bay has its own summer weather pattern and the afternoon sea breeze can be light to moderate NW before shifting SW, then occasionally strong SE in the late afternoon.

The sequence of arrival of the sea breeze from the nearby coasts is:

- i) from Geographe Bay NW.
- ii) from Capes Naturaliste to Leeuwin - SW.
- iii) from Cape Leeuwin to Albany SE.

For further information on weather see the section 3.5.6.

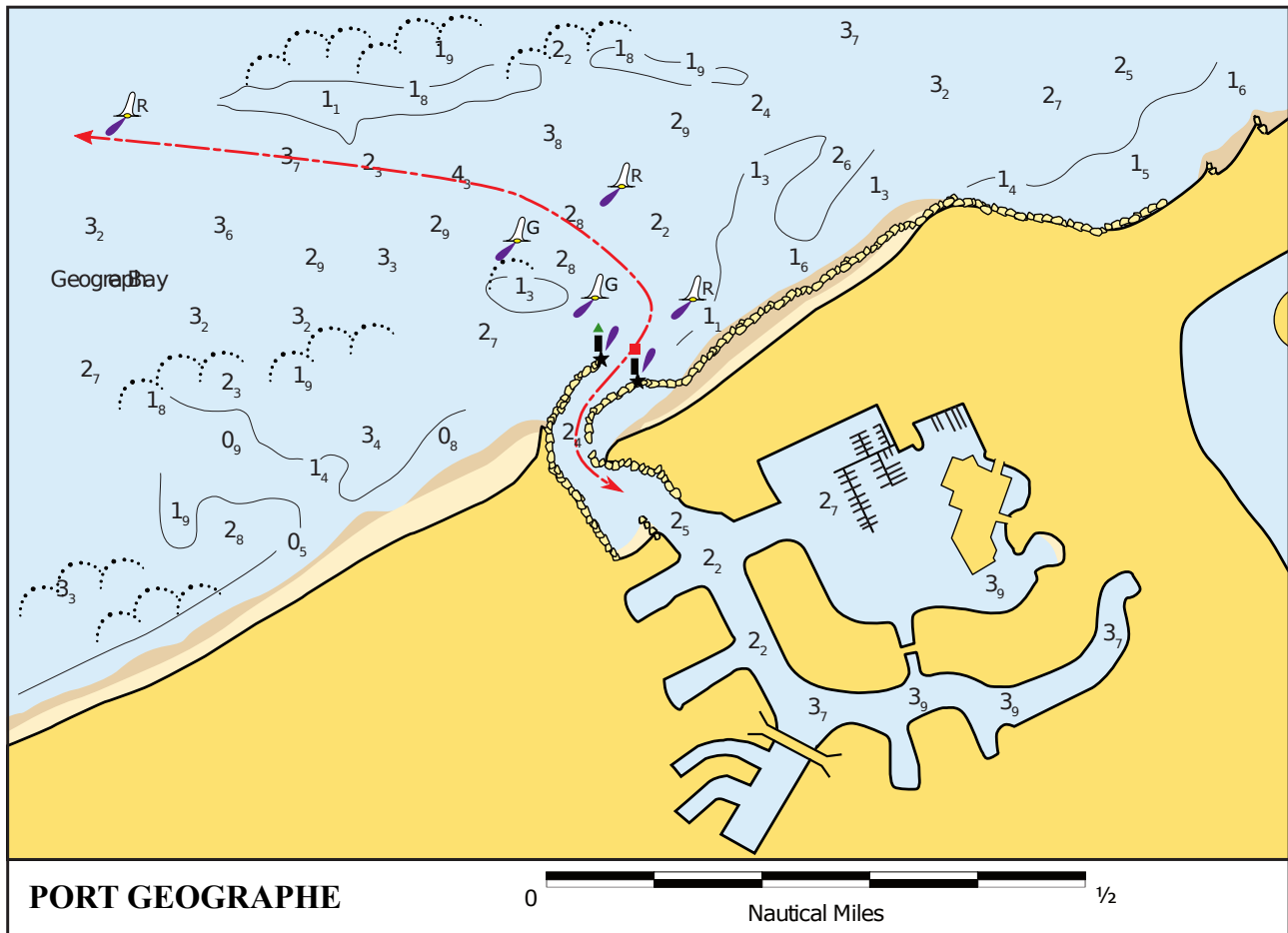
There are numerous places where anchorage can be taken in Geographe Bay. Charts WA 859 and 966 will be helpful but be aware that sandbars and shallows frequently move following winter storms.

All the anchorages are very exposed to NW winter gales.

14.4.2 Port Geographe

33° 38'S 155°24'E

AUS 116, 755, WA 859



Chartlet 167 Port Geographe

The approach to the marina entrance was completely realigned in 2015. There are sandbars preventing entry from the north or east, so entry must be made from the west. Coming from the north, stay 1 nm offshore and keep well west of the entrance as you go past it, before starting your approach. There are a series of port and starboard markers to follow, the first being a lone port hand marker about 0.5 nm west-northwest of the entrance. Approach should be made with a bearing on this mark anywhere between 070° and 170° i.e. approx south-southeast through southeast to east-northeast. Then steer 100° for the next marker. The approach has been dredged to a minimum depth of 2.8 m LAT, but seagrass sometimes builds up and reduces depths; check the latest Notices to Mariners.

Tides: Bunbury. Range 0.9 m.

Facilities: 127 berths; charges apply. Electricity, water, toilets, showers, fuel, boat ramp, travel lift and limited chandlery. There is also a tavern with a restaurant. Marina Manager Ph: 0419 834 496 or (08) 9754 8300. <https://www.portgeographemarina.com.au>

Busselton is 5 km away by road. There is no regular bus service to Busselton but there are daily bus services from Port Geographe to and from Bunbury and Perth.

14.4.3 Busselton

(no chartlet)

33° 39'S 115° 20.5'E

AUS 755, 756, WA 966

Busselton is a thriving country town and holiday centre with 20,000 residents - many more in summer.

⚓ Anchorage can be taken west of the Busselton Jetty and west of the beach set aside for bathers. It offers convenient access to Busselton shops. There are public showers and toilet facilities next to the beach front.

Town facilities: All the usual services of a large town, with a hospital (see section 7.5), and many restaurants and shops. The main marine services are fishing and diving shops, plus a couple of boatbuilders and marine mechanics.

Of interest: One of the outstanding features of the town is the old wooden jetty, about 2 km long. The first stage was built in 1855 and further extensions were made until 1965. It is the longest wooden structure in the Southern Hemisphere. Shipping operations to it ceased in 1971 and it was abandoned by the government in 1972. The jetty sustained heavy damage during cyclone Alby in 1978 and a fire in 1999, but has since been repaired. The jetty is an interesting place to visit, including the underwater aquarium at the end of the jetty. A miniature passenger train operates along the jetty.

Diving: There is a shallow (8 m) dive amongst the jetty piles covered in fabulously coloured marine growth at the seaward end of the Busselton jetty. Renowned for its variety of coral, sponge and fish.

History: Busselton was established in 1834 as the centre of a beef and dairying area. It was also a major port for the export of jarrah and karri timber and for whaling. The town is named after the Bussell family, who were amongst the original settlers.

14.4.4 Geographe Bay Yacht Club (GBYC)

(no chartlet)

33° 39'S 115° 19.6'E

AUS 755, 756, WA 966

Approach from north with the clubhouse bearing 200°. The seaward end of the Busselton jetty lies on this bearing. From the west, approach with the clubhouse bearing 130°. Care is required as there are shallows on and around these approaches.

⚓ Anchorage can be taken just offshore from the GBYC. The anchorage is not protected in the summer from the afternoon sea breeze or the easterlies.

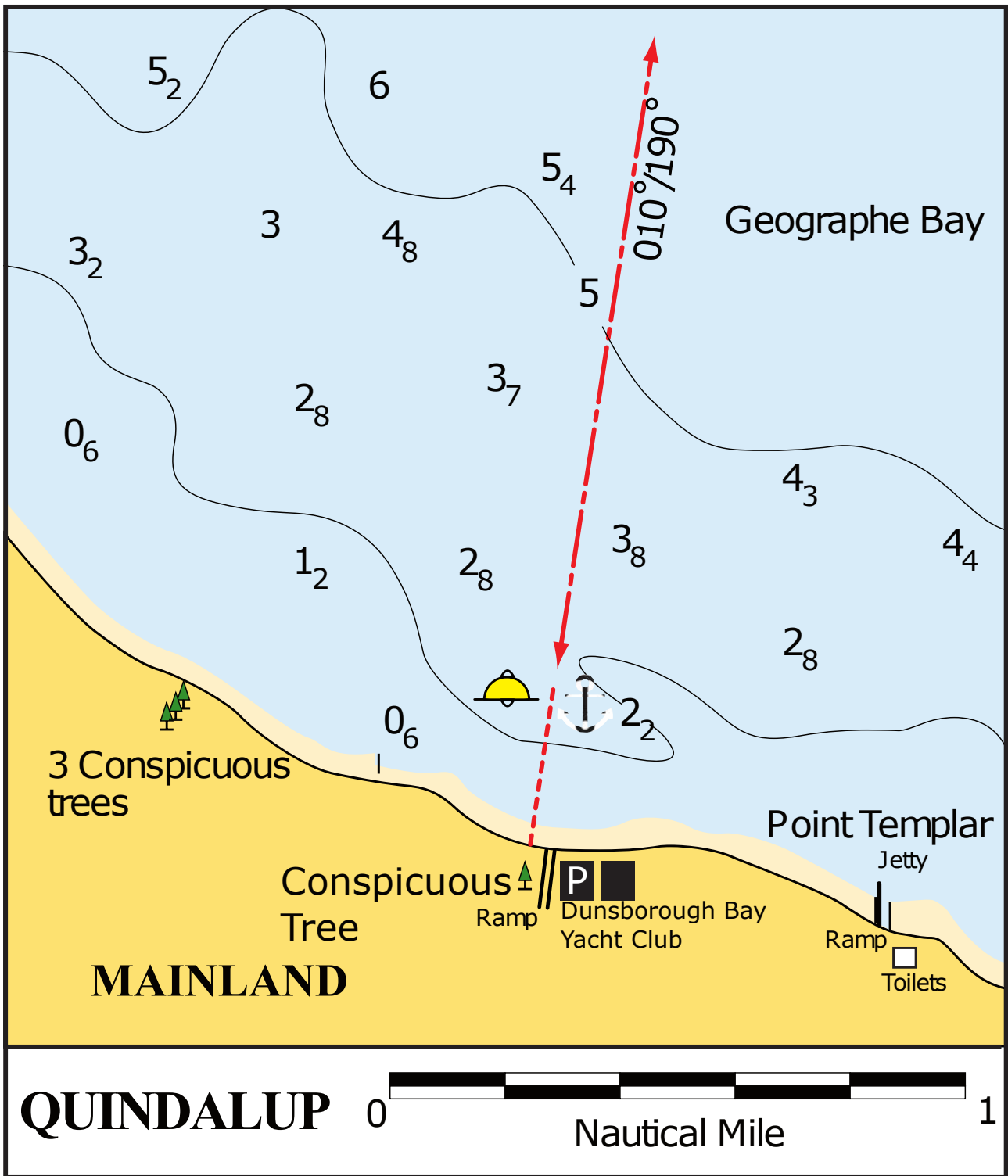
GBYC facilities: GBYC make you very welcome. There is a resident caretaker and club facilities are available by arrangement. <http://www.gbyc.com.au> or Ph: (08) 9752 2522 (Fri 1000-1700 only).

Tides: Busselton. Range 1 m.

14.4.5 Quindalup

33° 37.5'S 115° 08.2'E

AUS 755, 756, WA 966



Chartlet 168 Quindalup

⚓ Quindalup is a remarkable summer anchorage; it offers more protection than might be expected from its apparently open aspect. The anchorage is 2 nm southeast of Dunsborough and about three quarters of a mile southeast of three large Norfolk Island pines. Final approach should

be made on a bearing of not greater than 190° to a lone pine tree (mostly hidden by eucalypts), east of the trio.

The anchorage contains over 100 moorings and a few fishing or charter boats. There are depths of up to 3 m over sand, but with shallow patches. It offers protection from the E, S and W and even a summer onshore wind of 20 kn does not make the anchorage untenable, though it will be rough. The height of waves is restricted by the shallowness offshore, but the anchorage is unsafe in N and NW gales. In the event that a gale from the N or NW is forecast, the nearest shelter is Port Geographe, provided the swell has not already risen (in which case Bunbury is the harbour of refuge).

Facilities: The nearest public toilet adjoins the Dunsborough Bay Yacht Club (DBYC). Yachts anchoring off during the summer season are made very welcome. Visitors are also allowed access to the club toilets and showers. <https://www.dbyc.org.au>

There are also toilets close to the Point Templar launching ramp further east.

Facilities: Provisions are available in Dunsborough, a 30-40 minute walk west along the waterfront. There is no public transport but taxis are available from Dunsborough.

Of interest: The name Quindalup means “the place of the Quinda”, a short-nosed bandicoot.



Quindalup looking south (C Bellamy)



Quindalup from DBYC Clubhouse (R Campbell)

14.4.6 Dunsborough

(no chartlet)

33° 36'S 115° 06'E

AUS 755, 756, WA 966

Dunsborough is a large holiday township, especially popular over the summer.

⚓ Anchorage may be taken, with local knowledge or some careful eyeballing, over shallow (2-4 m) sand just north of the old Dunsborough town at Point Dalling. The sandbanks shift, but on most years approach has been made from the north close to Bird Rock and the rocky shore. It is possible to find anchorage over sand among yacht moorings, which affords protection from S to NW. Some swell may enter.

Facilities: There is a shopping centre with a wide range of provisions, including fuel.

Diving: The destroyer escort *HMAS Swan* was decommissioned and scuttled 1.3 nm north-northeast of Point Piquet in 30 m of water, in December 1997. This dive site attracts many fish species, including an astounding group of batfish. The wreck is a sanctuary zone and fishing is excluded within 200 m. There are twelve charter boat moorings and some white public moorings. No anchoring is permitted within 200 m of the wreck site. A dive permit is required, available from the tourist bureau in the township.

14.4.7 Castle Bay (Castle Rock)

(no chartlet)

33° 35'S 115° 06'E

AUS 755, 756, WA 966

This bay is not suitable as an overnight anchorage as it is open to the prevailing overnight easterlies, but makes for a delightful day anchorage in prevailing southerly conditions. The area

close to shore is closed to motorised vessels which limits (motorised) dinghy landing to a narrow strip of beach. Before landing by dinghy, check the surf conditions if an easterly has been blowing overnight. This prohibited boating area also prevents anchoring very close inshore.



Castle Bay from Castle Rock (R Campbell)

14.4.8 Meelup

(no chartlet)

33° 35'S 115° 05'E

AUS 755, 756, WA 966

This bay is also unsuitable as an overnight anchorage in summer as it is open to the prevailing overnight easterlies, but makes for a delightful day anchorage in prevailing southerly conditions. The area close to shore is closed to motorised vessels which limits (motorised) dinghy landing to a narrow strip of beach. Before landing by dinghy, check the surf conditions if an easterly has been blowing at night, and also check whether recent winds have washed the sand away to expose rock at the landing area. This prohibited boating area also prevents anchoring very close inshore.

14.4.9 Eagle Bay

(no chartlet)

33° 33'S 115° 04'E

AUS 755, 756, WA 966

⚓ This bay is more comfortable than Bunker Bay to the west but exposed to summer easterlies. It provides temporary day anchorage. There are over 40 private moorings in the bay.

Facilities: Café.

Diving: A very sheltered and easy snorkel in 2-3 m at the northern end of the bay off the granite boulders on the beach.

14.4.10 Bunker Bay

(no chartlet)

33° 32'S 115° 02'E

AUS 755, 756, WA 966

⚓ This bay is often uncomfortable due to swell coming around Cape Naturaliste. The hotel and restaurant have provided moorings for use by their patrons.

Tides: Bunker Bay. Range 0.9 m.

Of interest: Cape Naturaliste Lighthouse is 2.5 km west of Bunker Bay, about a 30 minute walk. It was built in 1903-4 from local limestone and is Australia's most westerly weather station. It is open to the public and is well worth visiting.

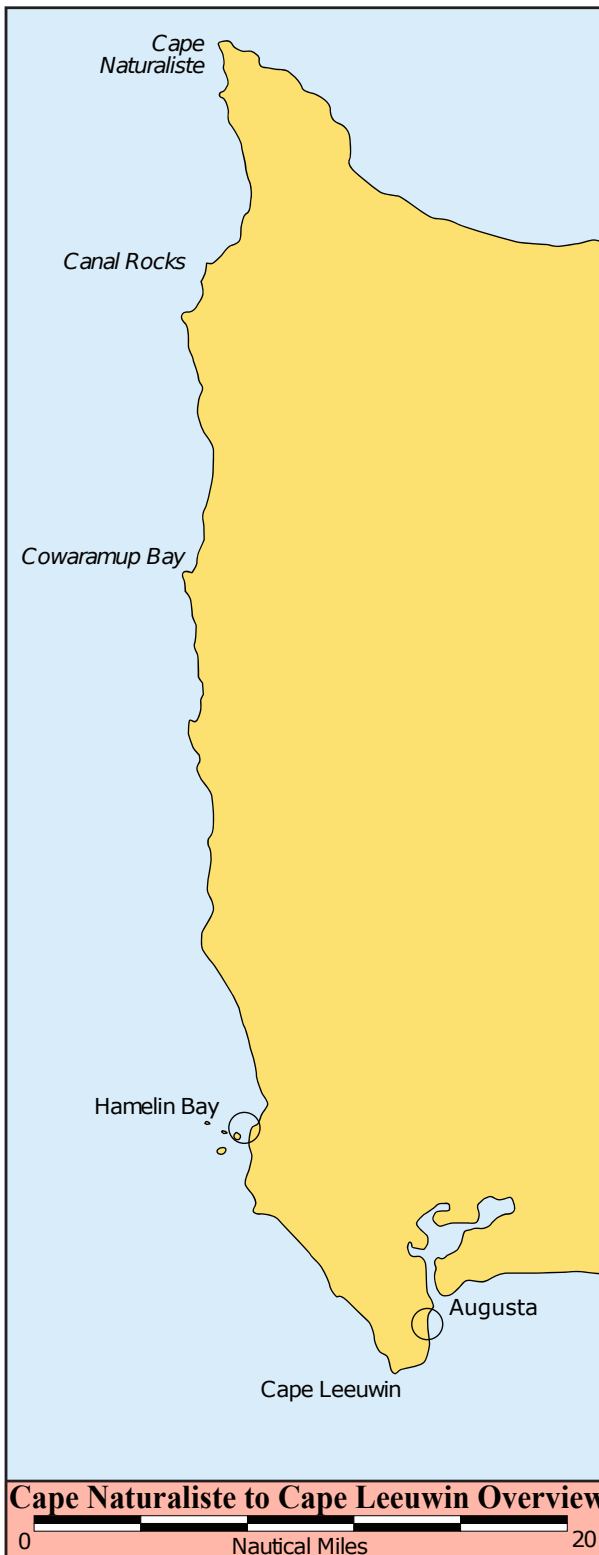
Diving: Several reefs at the west end of the bay provide good snorkelling.



Bunker Bay (R Campbell)

14.5 Cape Naturaliste to Cape Leeuwin

Charts: AUS 116, 335, 755, 756, 757, WA 966



Chartlet 169 Cape Naturalist To Cape Leeuwin Overview

The environment suddenly changes once Cape Naturaliste has been rounded. The flat water of Geographe Bay is a memory of the past and the ocean takes on a new look, with majestic swells and boisterous winds. Hamelin Bay, and possibly Canal Rocks, are the only anchorages worth

considering. If the conditions are moderate and the forecast is good, it is often better to keep going. These are not great anchorages but they offer an alternative to beating to windward if conditions become unpleasant or the crew need a rest. For more information on weather, see section 3.5.7.

The coast between Cape Naturaliste and Cape Leeuwin is part of the Ngari Capes Marine Park and is one of the most diverse temperate marine environments in Australia.

The Capes area is recognised as one of the world's premier surfing regions. The wild character of this coast and its wildlife are also highly valued, with spectacular seascapes, whales and dolphins. There are no public moorings available along this stretch of coast.

14.5.1 Canal Rocks

(no chartlet)

33° 39'S 115° 00'E

AUS 335, 755, 756, WA 966

⚓ This anchorage provides shelter from the E through S to SW winds, over sand and seagrass in 7-10 m of water. With care a sandy spot can be found. Several fishing boats have moorings here. Reefs in the area are usually clearly visible. The entrance can be dangerous in heavy swell, but it is a useful refuge in a strong sea breeze. It has been used in winds S 20 kn and an outside swell of SW 2 m. In those conditions it was considered to be as good as Hamelin Bay further south.

Facilities: Boat ramp. There is a resort with a café about 4 km northeast.

14.5.2 Cowaramup Bay (Gracetown)

(no chartlet)

33° 51'S 114° 59'E

AUS 335, 756

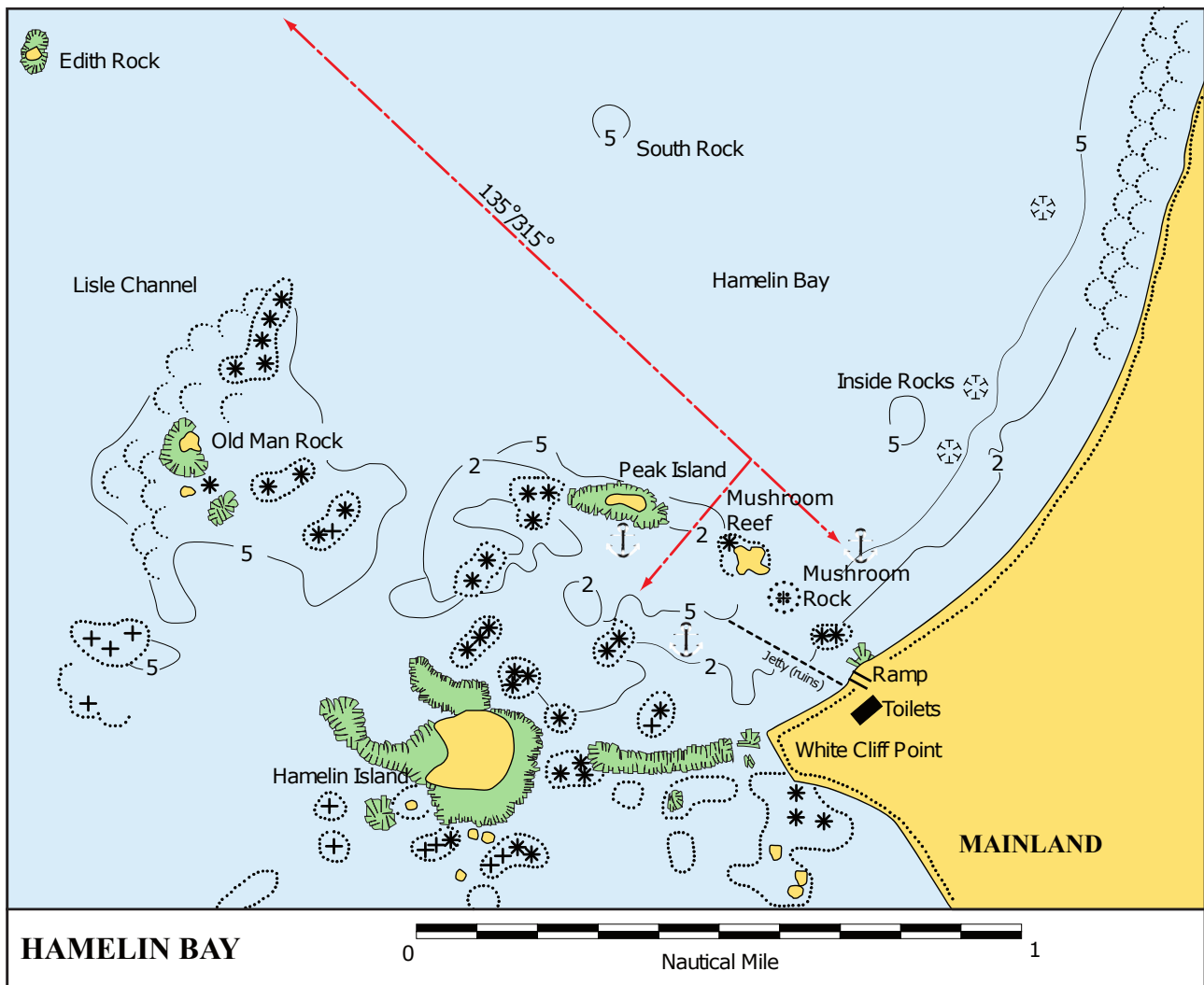
Although the local fishermen have painted leads on the rocks, the approach should not be attempted without local knowledge.

Tides: Cowaramup. Range 1 m.

14.5.3 Hamelin Bay

34° 13'S 115° 02'E

AUS 116, 335, 756



Chartlet 170 Hamelin Bay

Approach to the several anchorages in this bay may be made from just north of Edith Rock. In strong SE winds the approach will be slow, heading into the short waves.

⚓ There is good holding over sand just north of the red brick toilet and shower building. Avoid anchoring too close in, because if a swell picks up it sometimes breaks in this sandy area. It provides shelter from the E to SW but is uncomfortable to untenable in W to N winds. It is tolerable in NE wind because swell is usually low on those occasions. Surge can be unpleasant when the swell is moderate to heavy and the tide is high.

⚓ Anchorage has been taken east-southeast of Mushroom Rock in offshore swell of 1.5 m and winds S-SE 15 kn.

⚓ Fishing boats anchor both north and south of the jetty ruins in 1.5-1.8 m depth but this may not be enough for even moderate draft yachts if the swell increases. Approach between Peak Island and Mushroom Reef.

⚓ Anchorage has been taken close to Peak Island in northerly weather. Somebody should remain onboard since the wind can rapidly back from N to SW.

Tides: Cape Hamelin. Range 0.9 m.

Caution: Mushroom Rock may be hard to identify as it has eroded to only two metres.

Facilities: Toilets, cold showers, caravan park with kiosk, telephone, launderette, boat ramp.

Fishing: Good for cray and salmon.

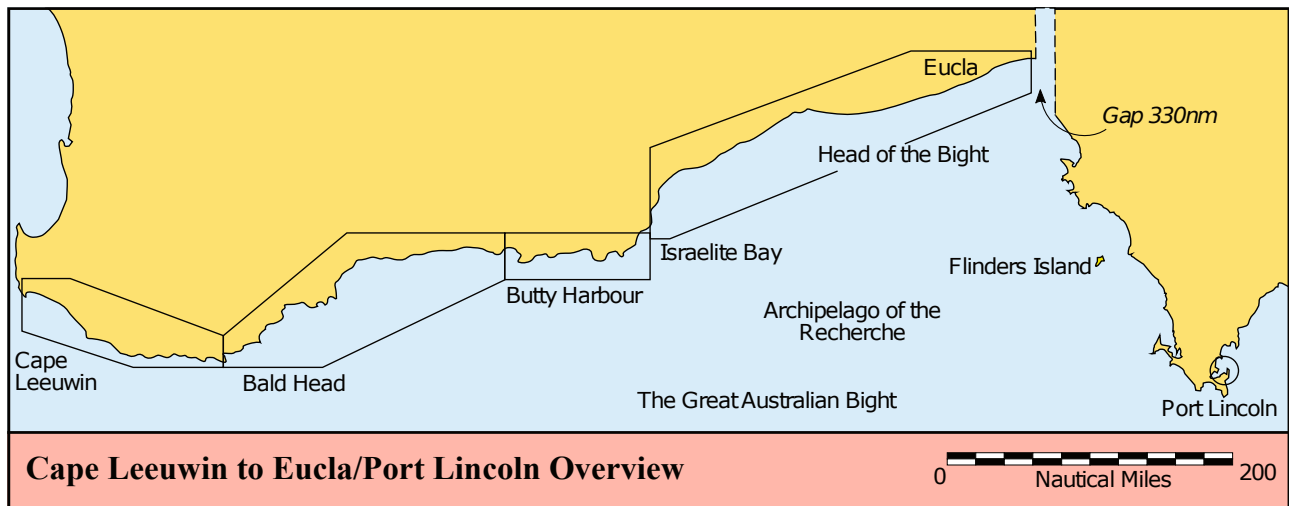
Diving: Dive in 9 m along the fringing reef south of Hamelin Island or on the reef just northeast of the island. Mushroom Rock and Mushroom Reef also provide good diving in 6-8m.

History: Named by Baudin in honour of Emmanuel Hamelin, master of the *Naturaliste*. It was a small settlement which was established to service the timber milling operations inland. One of the timber railways extended onto the Hamelin Bay Jetty, which was built in 1882 and extended in 1898. The jetty was 600 m long and could service three ships at a time. By 1913 however, it fell into disuse - Busselton jetty could handle larger ships and was more protected from the weather. (Hamelin Bay was notorious for shipwrecks, especially from NW winter gales.) Most of the remaining jetty structure was destroyed by a storm in 1961. Only a few piles of the original jetty remain on site.



Hamelin Bay looking north: old jetty on left, ramp on right (K Klaka)

15 CAPE LEEUWIN TO EUCLA AND PORT LINCOLN



Chartlet 171 Cape Leeuwin To Eucla/Port Lincoln Overview

15.1 General Note

The preferred time for cruising this section of the coast is late summer: winter gales have yet to arrive and generally the winds are at their lightest. The coastal scenery is grand, the fishing is good, the water is cold and clear for diving. Divers should be experienced.

There are few secure all-weather anchorages on this part of the coast. Use those described here with great care and with a weather-eye open. Anchoring can be troublesome because of the presence of seagrass, kelp and or granite sand. The sand compacts very hard making it more difficult for the anchor to fully set. For this reason an admiralty (fisherman) anchor is highly recommended. The anchorages are greatly affected by swell. The swell is mainly from the SW; 5 m height is common and it can reach 6-8 m. Swell is often the first indication of an approaching depression in the Southern Ocean.

The predominant wind pattern along this part of the coast is SE to S winds in the summer and SW to W winds in the winter.

Summer sea breezes are generally SE and reinforce E winds on the north side of a high-pressure ridge. Late at night and in early morning an offshore wind tends to fill in and may reinforce NE winds developed on the trailing flank of a high-pressure cell.

Generally the coast is not precipitous enough to cause severe, localised squalls but in the region of Bald Head and Cape Vancouver, severe gusts can occur when the wind is between N and W. Stand off 0.7-0.8 nm to avoid these conditions. Under Cape Le Grand, prolonged strong offshore winds may occur when NE winds are strengthened by land breezes. These may be quite localised. For more information on weather see 3.5.8.

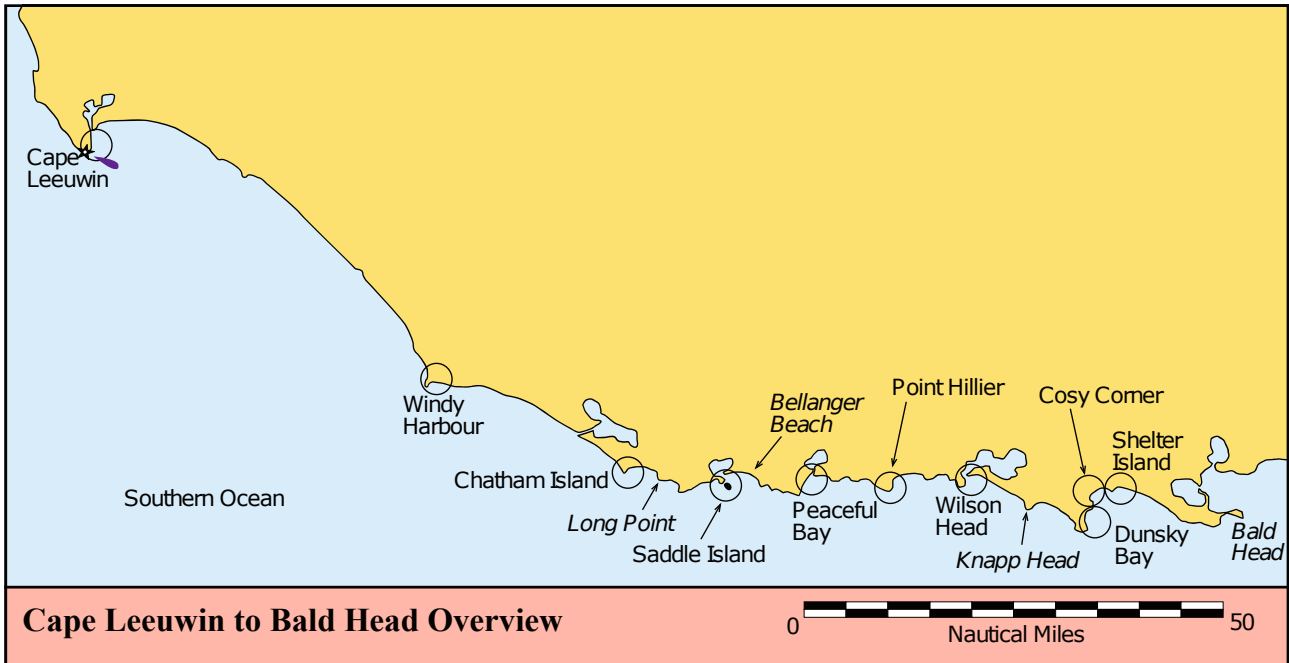
In general the current is east-flowing but can vary (see section 4.2). The set can be onshore at up to 2 kn (particularly when north to northeast of deepwater trenches such as the Bremer Canyon). The current is most noticeable underwater at depths greater than 100 m.

Considerable sections of the coast and off-lying islands have been declared nature reserves. Access may be prohibited or require a permit. For additional information contact DBCA

Charts: The AUS series are best for passage planning but the DoT series are more accurate for anchoring.

15.2 Cape Leeuwin to Bald Head

Charts: AUS 109, 110, 116, 118, 335, 336, 337, 757, 758, 759, 4726, 4727, WA 019, 337, 698, 1046, 1083, 1681

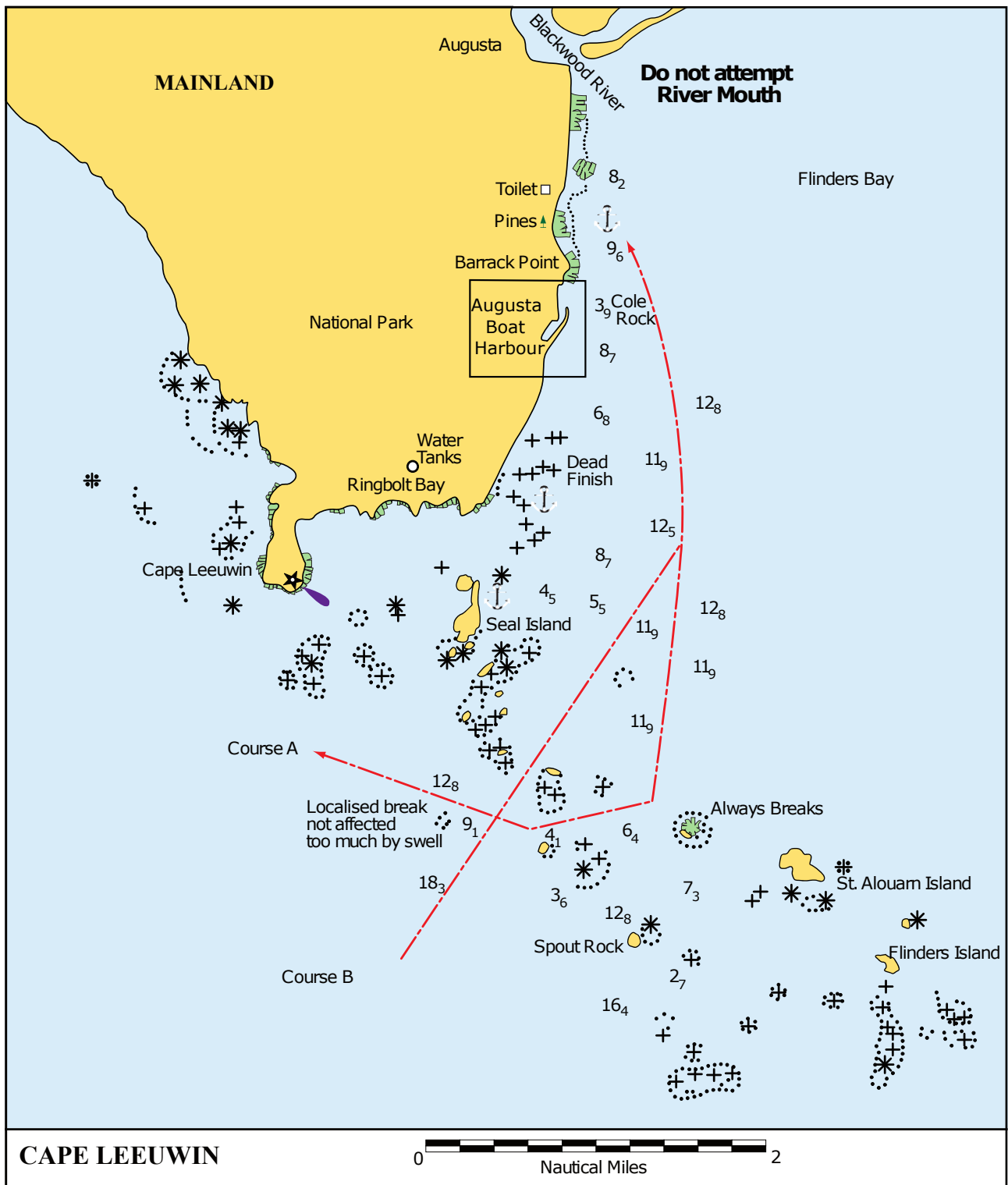


Chartlet 172 Cape Leeuwin To Bald Head Overview

15.2.1 Cape Leeuwin

34° 22'S 115° 08'E

AUS 116, 757, WA 698, 1681



Chartlet 173 Cape Leeuwin

Cape Leeuwin is one of the great capes of the world. It is the most southwesterly point of Australia and it is where the Indian and Southern Oceans meet. A magnificent limestone lighthouse is situated on the Cape, constructed in 1895-96.

In good conditions a general guide for rounding Cape Leeuwin is to maintain a depth of at least 35 m; this gives clearance of about 5.5 nm. In adverse conditions the heavy swell calls for a much wider clearance. Rogue waves can occur at any time. When visibility is clear at sea, inshore sea mist may reduce the effective range of the lighthouse. Watch depths carefully.

There are a few anchorages east of the Cape, their approach route being strongly dependent on the swell. The region is extremely hazardous. When there is a big swell running, no passage through reefs is safe and all reef areas should be given a wide berth to open up clear water into Barrack Point. When rounding the Cape from the north or the west in heavy swell, the anchorages should only be approached by passing south, then east of Saint Alouarn Island and Flinders Island even though this may be approximately 10 nm further than the shortest route.

In periods of low swell and clear visibility, there are several routes through the reef used by fishermen. Two of these are navigable by yachts; they are deep but narrow and must be used with care. The routes are shown as course "A" and "B" on the Cape Leeuwin chartlet. They have been reported as 600 m minimum width and 7 m minimum depth.

Tides: Albany. Range 1 m.

⚓ Dead Finish has a depth of about 2.5 m at mid-tide. Bottom is sand, weed and limestone. The anchorage is protected from the SW to N.

⚓ Ringbolt Bay has a fisherman's mooring; there is room for two boats. It is sheltered from the NW but exposed to the S and SW.

Fishing: Good fishing around islands and good crayfish and abalone. Note the abalone season in this area is 1 October to 15 May. Catching abalone outside this period is an offence.

History: St Alouarn Island was named by Bruni D'Entrecasteaux in 1792 after French navigator Francois St. Alouarn who visited the area in 1772. The *Leeuwin* (Lioness) explored the area from Point D'Entrecasteaux to Hamelin Bay in 1621.

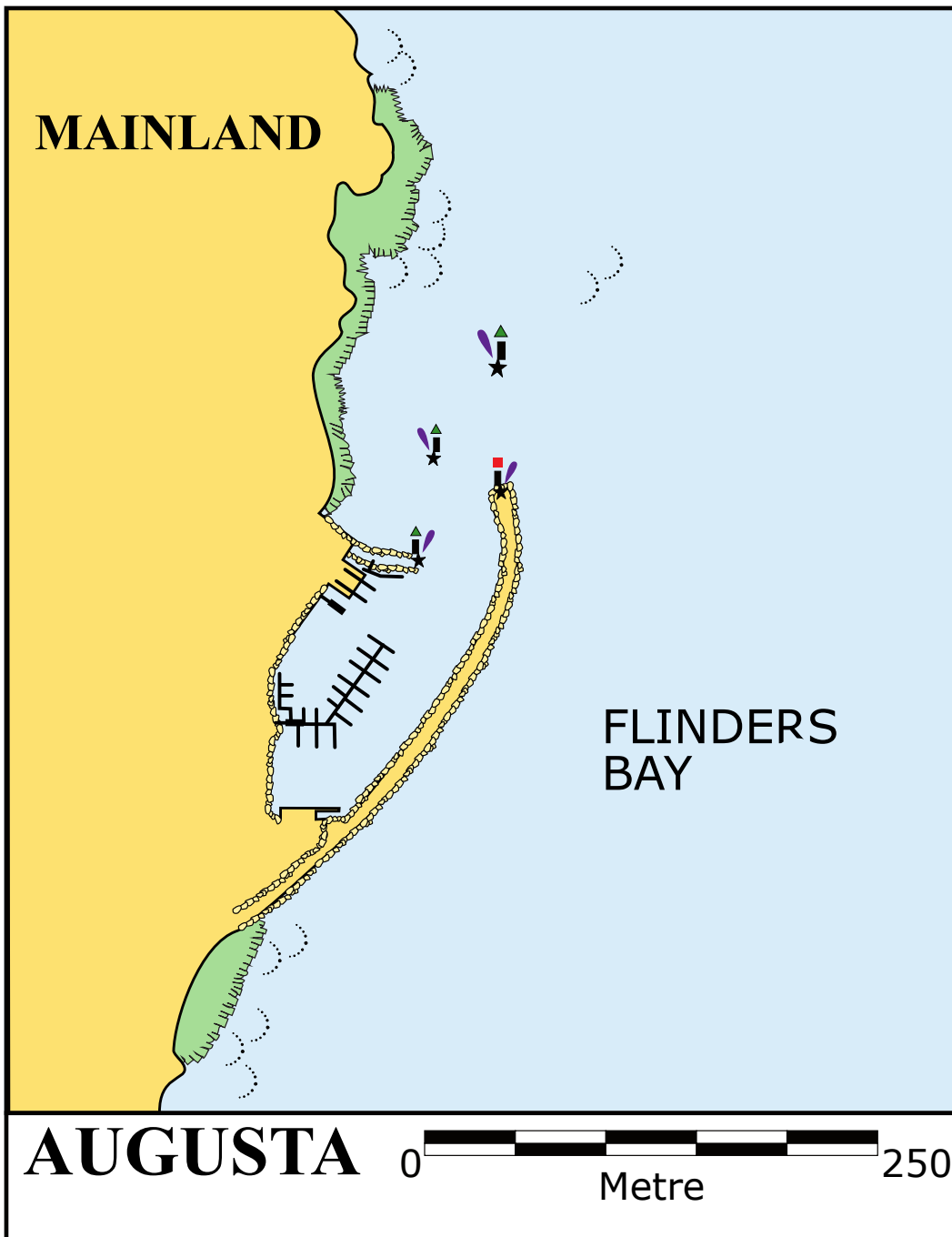


Looking south to Cape Leeuwin (R Campbell)

15.2.2 Augusta Boat Harbour

34°21.1'S, 115° 10.2'E

AUS 116P1, WA 1681



Chartlet 174 Augusta

⚓ This boat harbour was built in 2014 and lies about 2 nm northeast of Cape Leeuwin and 2 nm south of the small town of Augusta. It has been entered in winds of SE 25 kn and found to be: “scary but OK; it was rough right up to the narrow entrance, then the turn to port puts you beam on to the waves”. The harbour is comfortable during the passage of a cold front.

Facilities: The harbour contains launching ramps, 40 boat pens and a 40 m service wharf. It is run by DoT and casual berths are available. Power, water, toilets, good BBQs and (only one) shower are available for overnights. Charges apply. Ph: (08) 9792 6607. The nearest shops and services (including a hospital, see section 7.5) are in Augusta about an hour’s walk away, though

commercial development is planned at the harbour. The harbourmaster is considering renting bikes (Feb 2017) as there is a cycle path all the way into town. For more information go to www.transport.wa.gov.au/imagery/augusta-boat-harbour.asp

15.2.3 Blackwood River (shallow draft only)

(no chartlet)

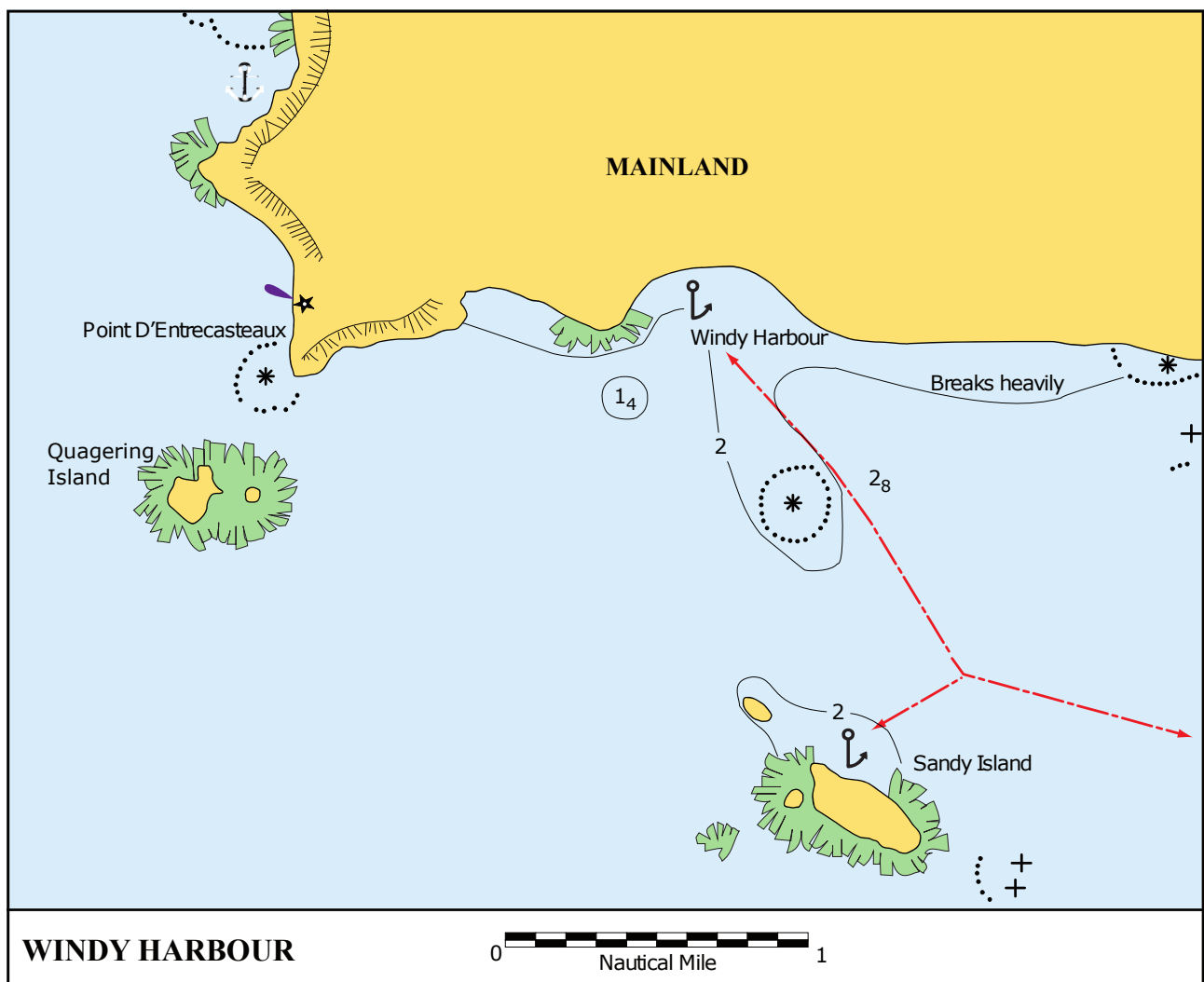
WA 1681

The mouth of the Blackwood River at Augusta is obstructed by continually moving sandbanks. Local knowledge is essential, even for shallow draft vessels. Inside the bar, the river is navigable for about 12 nm for shallow draft vessels.

15.2.4 Windy Harbour

34° 51'S 116° 02'E

AUS 335, 336, 757, 758



Chartlet 175 Windy Harbour

⚓ In easterly weather with low to moderate swell, there is shelter about 1 nm north of Point D'Entrecasteaux (which is one of the most conspicuous features of this coast). High cliffs protect the anchorage. Do not anchor close to shore since a westerly swell can pick up quickly. Passage

between Quagering Island and the mainland is possible with minimum depths of 5 m.

⚓ Windy Harbour itself, about 1.3 nm east of Point D'Entrecasteaux, has poor anchorage and is suitable only for craft under 1.8 m draft. It provides some protection from W through N to NE winds, but a heavy swell may make itself felt. Anchorage is not secure enough to hold with onshore wind and swell; numerous vessels have dragged on to the beach. It has been described as a desperation anchorage and is not recommended even in NW to NE winds.

Clear conditions are required to see the shallow areas on the approach from near Sandy Island. Broken water may appear over a good deal of the approach area when the swell is high.

⚓ Sandy Island provides protection from SW to S winds and reasonable comfort in low swell conditions. Local knowledge rates this anchorage as the best available in the Windy Harbour area. Good visibility and weather are required to discern the reefs. The approach and anchorage are over sand, shallow at about 2.5 m.

Caution: Strong surface currents can build up off Cape D'Entrecasteaux during NW winds as a front approaches, making westerly progress very difficult. Consider Rocky Head (the bay north of East Point) 40 nm eastward as an alternative anchorage while waiting for conditions to improve (see Saddle Island chartlet).

Tides: Albany. Range 1 m.

Facilities: There are few facilities at Windy Harbour; a caravan park with telephone. The town of Northcliffe is 10 km inland.



Windy Harbour (K Klaka)



Point D'Entrecasteaux looking south (R Campbell)

15.2.5 Chatham Island

35°02'S 116° 30'E

AUS 336, 758

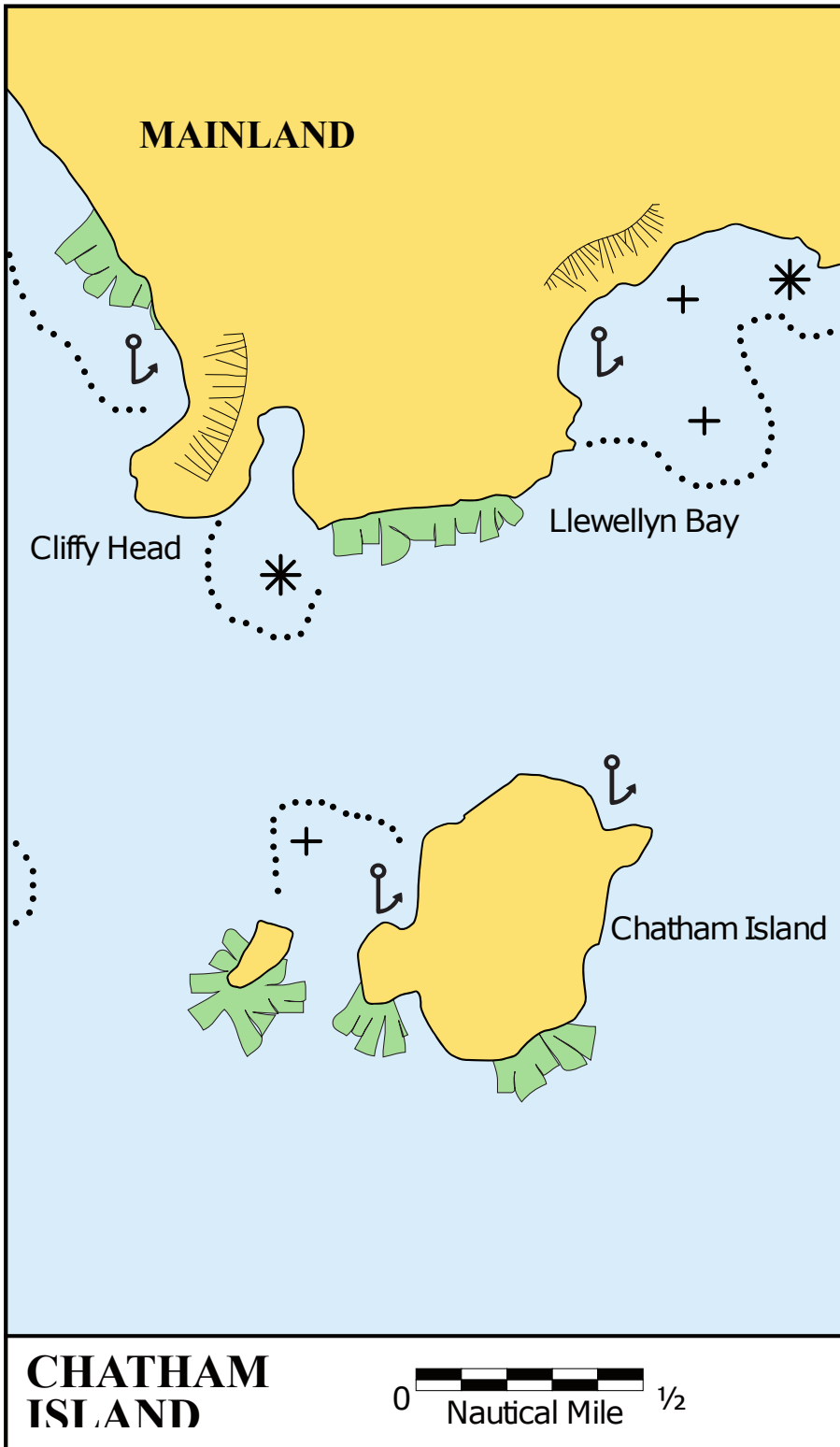


Illustration 2: Chatham Island

⚓ Chatham Island has a wedge-shaped profile viewed from east or west with the highest part to

the south. Protection from E to SE is provided at the west end of Chatham Island. An admiralty (fisherman) anchor is recommended.

⚓ The eastern end of the island is exposed to the E but gives some shelter from the SW. The sandy bottom is good holding in 5-6 m, but use plenty of scope.

Both locations are subject to surge and swell wrapping around the land. Consider them only as desperation anchorages.

⚓ Protection from the E to SE is provided by Clifty Head if the swell is low.

⚓ Llewellyn Bay, approximately 1 nm north-northeast of Chatham Island, provides shelter from the SW to NW over sand with good holding. During moderate swell some surge enters the bay and downdraughts from the surrounding cliffs may swing a yacht around. It has been reported that any appreciable swell from the S to SW produces a mass of breakers in the bay, rendering the anchorage untenable.

Of interest: At dawn and dusk the cliffs are alive with birds.

Fishing: Good area for catching yellowfin tuna.



Chatham Island (W Duiker)

15.2.6 Long Point

(no chartlet)

35° 02'S 116° 34'E

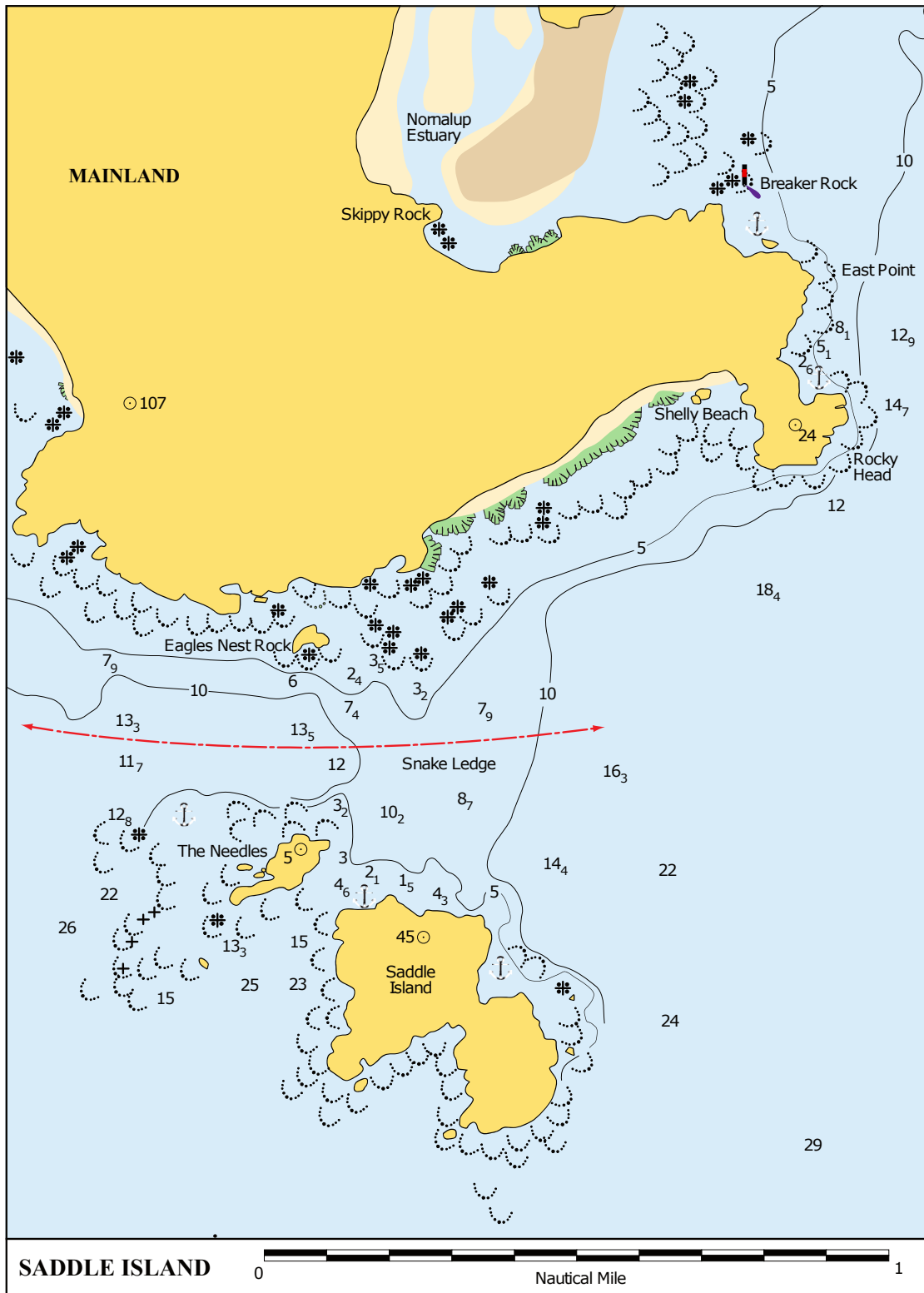
AUS 336, 758

⚓ Long Point is 43 m high. It is not highly recommended as an anchorage but provides shelter from the E to SE if the swell is low. Depth for anchoring is 10-12 m, over what appears to be shallow sand.

15.2.7 Saddle Island

35° 03'S 116° 44'E

AUS 336, 758, WA 1046



Chartlet 176 Saddle Island (Rocky Head)

Saddle Island is near Nornalup Estuary. There are two anchorages on the north side of the island.

⚓ The north end of Saddle Island can be roly during SE winds. In S to SW winds anchor on the north to northeast side of the island. Both anchorages are exposed to easterlies.

Facilities: Fresh water may be found on the island.

There is adequate water between The Needles and Eagle Nest Rock. On approaching Snake Ledge it is deeper than it appears. However, it does break during periods of heavy swell.

⚓ In fresh E winds and no SW swell, some respite may be gained northwest of The Needles, which lies northwest of Saddle Island. Consider only as a desperation anchorage. Take care anchoring in this deep, rocky area.

15.2.8 Rocky Head

(no chartlet)

35° 02'S 116° 45'E

AUS 758

⚓ Between Rocky Head and East Point (north-northeast of Rocky Hd) protection can be found from winds from the SW to NW. There is no protection from the NE to SE.

⚓ The bay north of East Point may suffer less from swell. It offers good protection from SSW to NNW but can be untenable with winds from other directions. It is considered the best anchorage in the immediate vicinity and can provide very good shelter whilst heading west during a frontal passage.

Caution 1: Whilst depths over the bar into the Nornalup Estuary may be scoured to 3 m in the winter, the area must be regarded as hazardous because of the swell.

Caution 2: Beware of rocks 400 m to the northwest of East Point. Now marked by a lit mark.

Fishing: Herring, whiting and salmon when in season.

15.2.9 Bellanger Beach

(no chartlet)

35° 02'S 116° 49'E

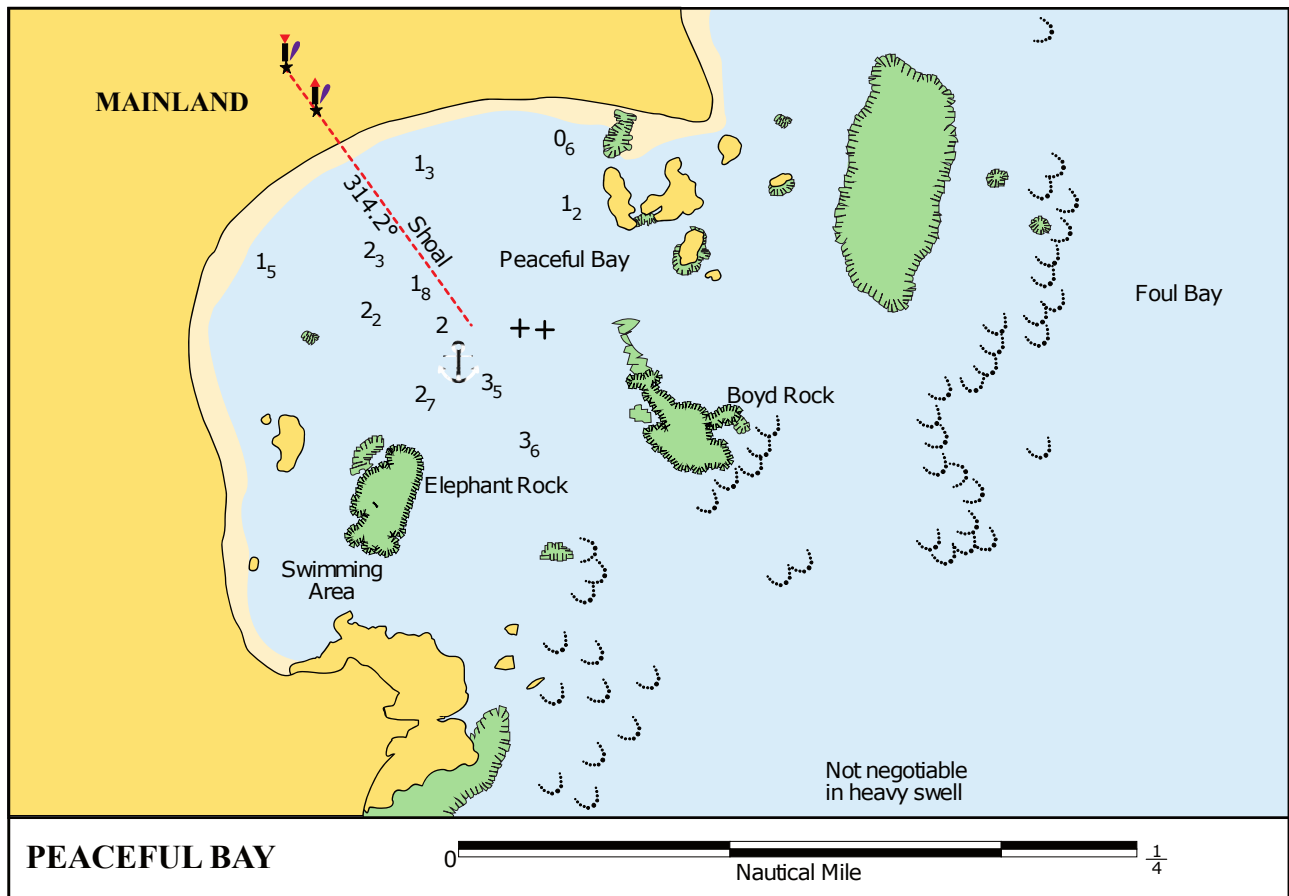
AUS 336, 758

⚓ When there is no swell, local fishermen anchor at the eastern end of Bellanger Beach. It provides protection from E to SE winds.

15.2.10 Peaceful Bay

35° 03'S 116° 56'E

AUS 336, 758, WA 019



Chartlet 177 Peaceful Bay

Peaceful Bay is a small picturesque hamlet with holiday homes and a few permanent residences. It is located about 1.25 nm north-northeast of Irwin Point. There are leading marks on the shore bearing 318°, with lateral markers in the bay. The leads are lit, but entry at night is not recommended.

⚓ This a small, shallow (3-4 m) summer anchorage over weed and sand, offering protection from the SW to N. With more than three boats at anchor it is crowded. A fresh sea breeze can make it uncomfortable and also makes the approach choppy with an occasional breaking wave. The sea breeze usually drops in the evening. The southwest part of the bay landward of Elephant Rocks is closed to all vessels.

Caution 1: Chart WA 019 essential.

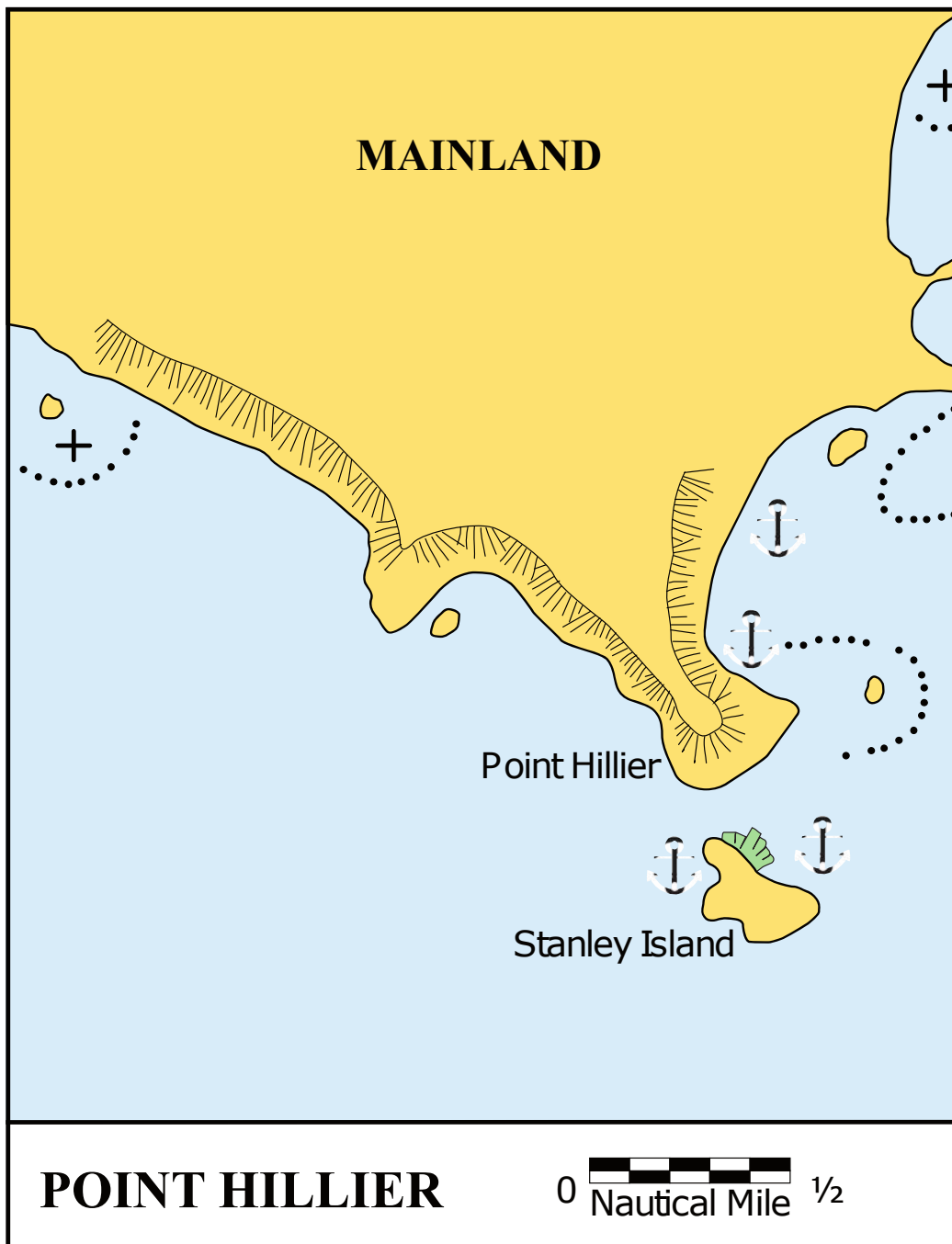
Caution 2: Unsuitable as an anchorage if there is any likelihood of a heavy swell or storm whilst anchored. Heavy swell conditions and storms cause a reduced depth to a dangerous level. Do not approach in heavy swell.

Facilities: Caravan park, fuel, shop, telephone and Peaceful Bay Sea Rescue (see 7.4).

15.2.11 Point Hillier

35° 04'S 117° 09'E

AUS 336, 758, 759



Chartlet 178 Point Hillier

⚓ On the eastern side of Point Hillier there is shelter from SW to NW winds but the bottom is rocky. Depths are 3-5m with shallower areas. Sand may be found in the southern anchorage. Strange swell patterns can occur.

⚓ The holding is better northeast of Stanley Island which gives protection from the SW but not from a moderate swell. Consider only as a desperation anchorage.

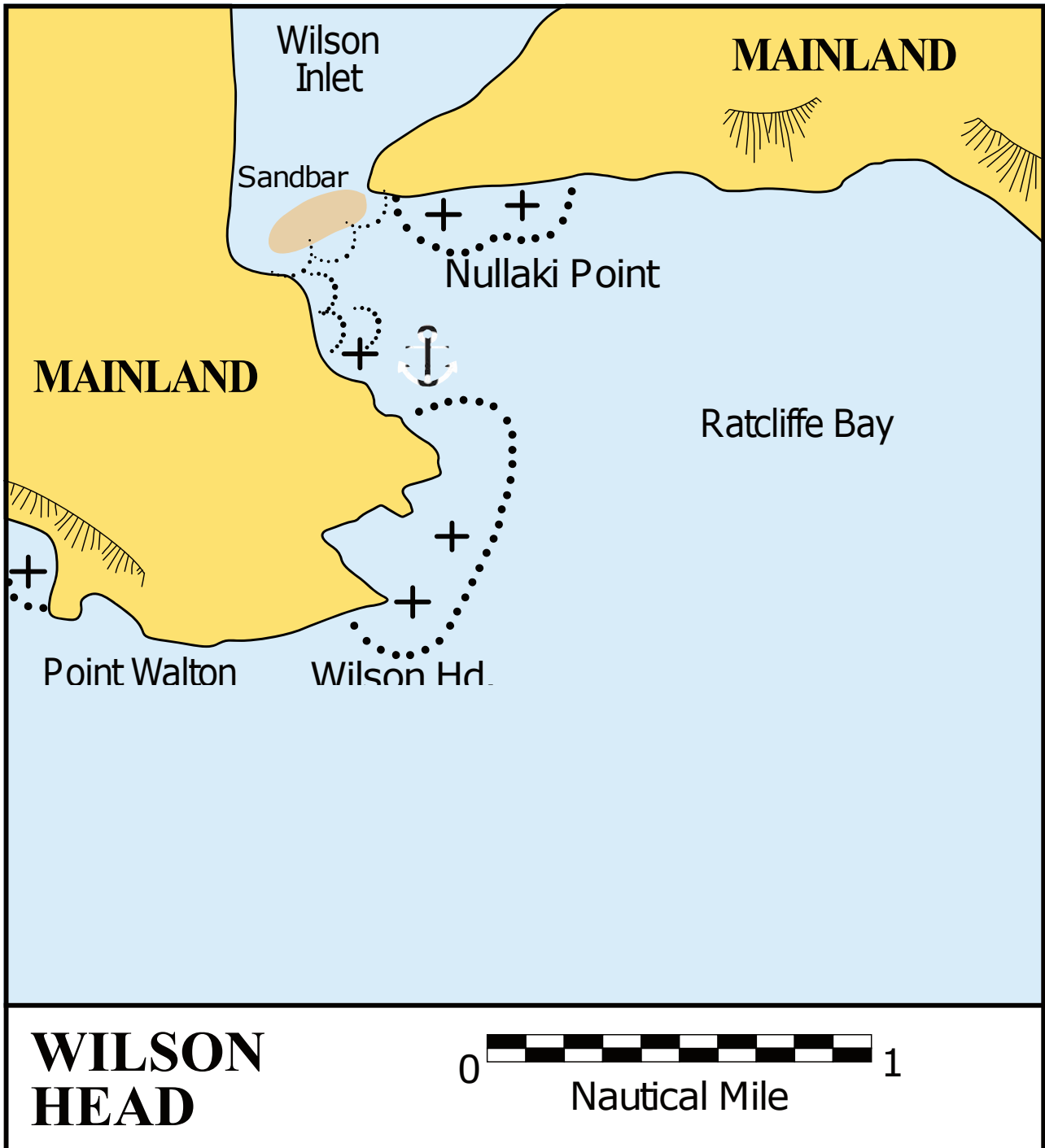
⚓ An anchorage west of Stanley Island offers some protection from the NE to SE. Depth of water unknown.

History: Named by Matthew Flinders after William Hillier who died of dysentery and fever at Middle Island in May 1803. Flinders stated that Hillier was one of his best men.

15.2.12 Wilson Head

35° 02.5'S 117° 19.5'E

AUS 336, 759, WA 337



Chartlet 179 Wilson Head

⚓ Wilson Head provides protection from SW to NW winds, but some swell may curve around the point making it roly at times. Consider only as a desperation anchorage. There is a sandy beach with off-lying reef and a shallow sandy area nearby on which the swell breaks.

15.2.13 Knapp Head

(no chartlet)

35° 05'S 117° 29'E

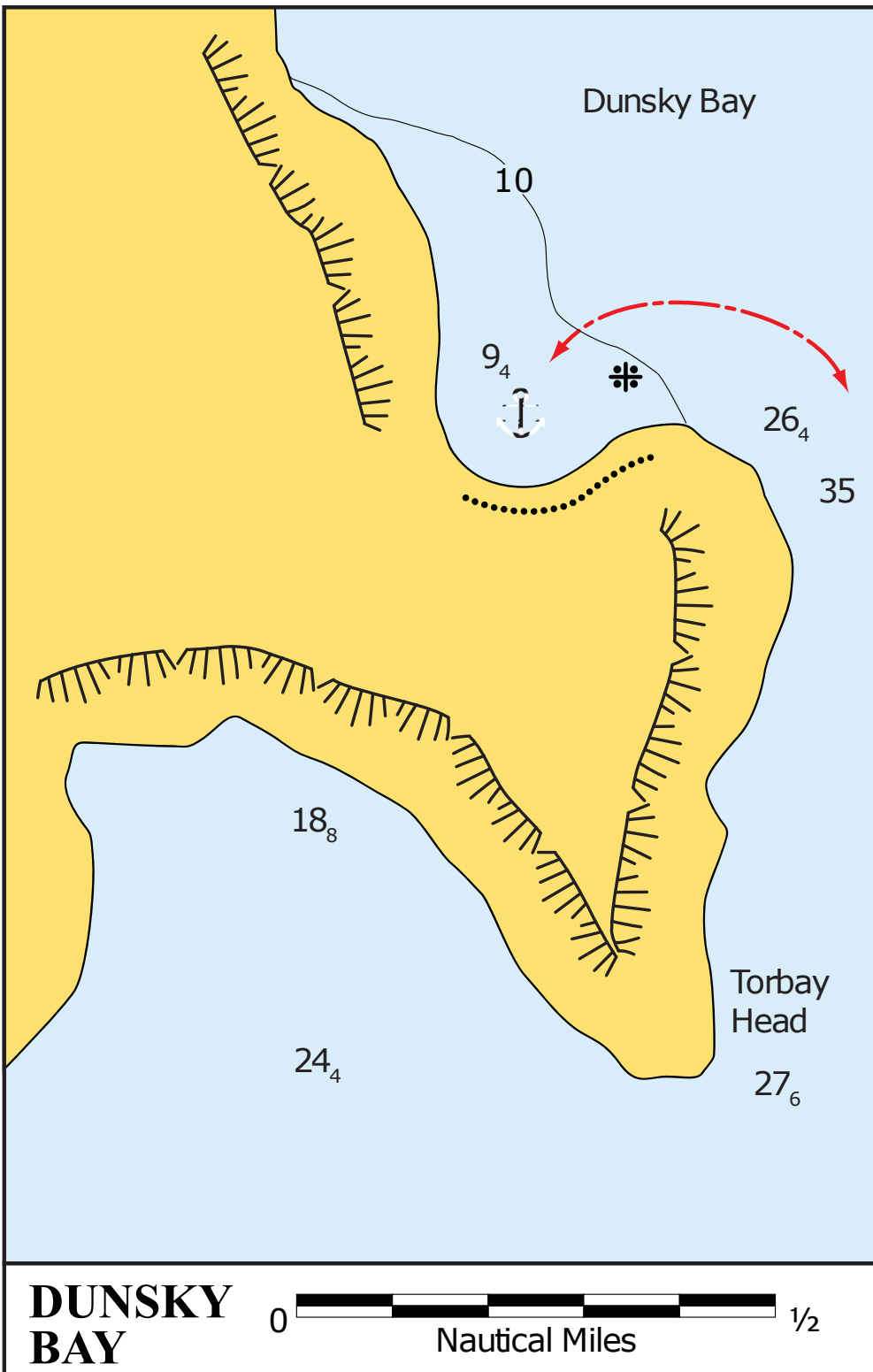
AUS 336, 759

⚓ Local fishermen anchor to the west of Knapp Head. It provides protection from the N through E to SE.

15.2.14 Dunsy Bay

35° 07'S 117° 38'E

AUS 118, 336, 759



Chartlet 180 Dunsy Bay

⚓ Dunsy Bay is about 1 nm north of Torbay Head and provides protection from S to NW winds. It

has been reported as an acceptable anchorage even in a NE breeze. Anchorage can be taken in depths of about 4 m on sand and weed. Local knowledge suggests this anchorage is the best option when seeking refuge between Cape Leeuwin and Albany.

Caution: There is a shoal, 1.2 m at LWS, about 100 m off the beach. It is easily discernible as a weed bank, but the shoal parts are hard to distinguish.

Fishing: During winter, fishing for King George whiting, samson fish, herring and huge squid can be rewarding.

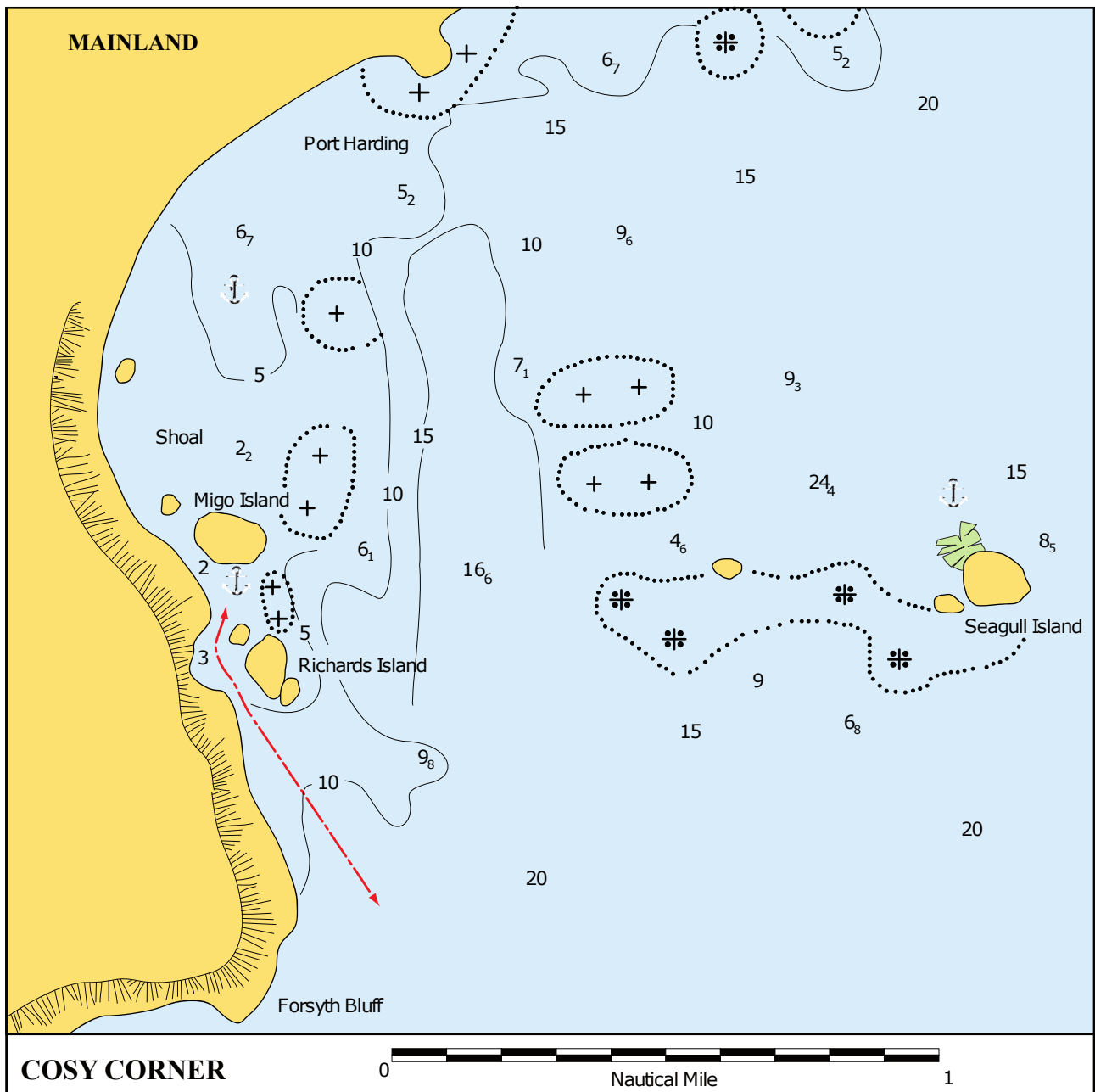


Dunsy Bay (W Duiker)

15.2.15 Cosy Corner

35° 05'S 117° 39'E

AUS 118, 336, 759



Chartlet 181 Cosy Corner

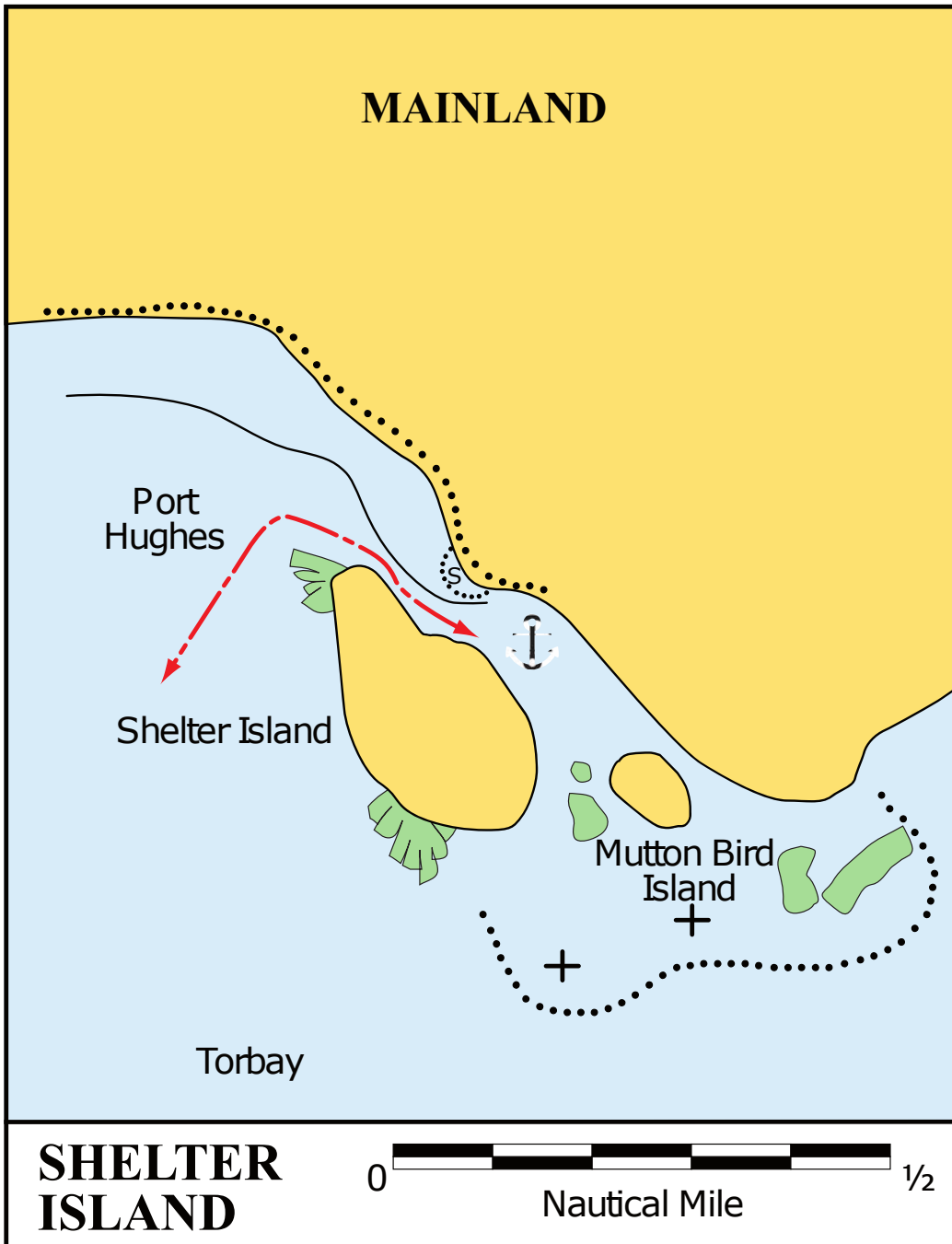
⚓ There is an anchorage known locally as Cosy Corner, about half a mile north of Forsyth Bluff between Migo and Richards islands and the mainland. Anchor over weed-covered granite in 2-2.5 m LWS. Access is not easy and requires local knowledge. Enter between Richards Island and the mainland. There is 5-8 m depth on the approach and 3-4 m between Richards Island and the mainland. Fishermen's moorings behind the islands limit anchoring room. Anchors can foul on the mooring chains.

Caution: Not a recommended anchorage without local knowledge. Use either Dunsy Bay or cliff area nearby.

15.2.16 Shelter Island

35° 03'S 117° 41.5'E

AUS 118, 336, 759



Chartlet 182 Shelter Island



Shelter Island is a nature reserve which, with care and good visibility, provides excellent

shelter. This anchorage is locally named Mutton Bird Island and is also referred to as Port Hughes. The approach to Shelter Island is from the northwest, keeping 150 m clear off the island. Anchor between the island and mainland as shown. Holding is good over sand. During the salmon season,

fishermen may net the entrance.

Facilities: Rubbish bins are available on the mainland.

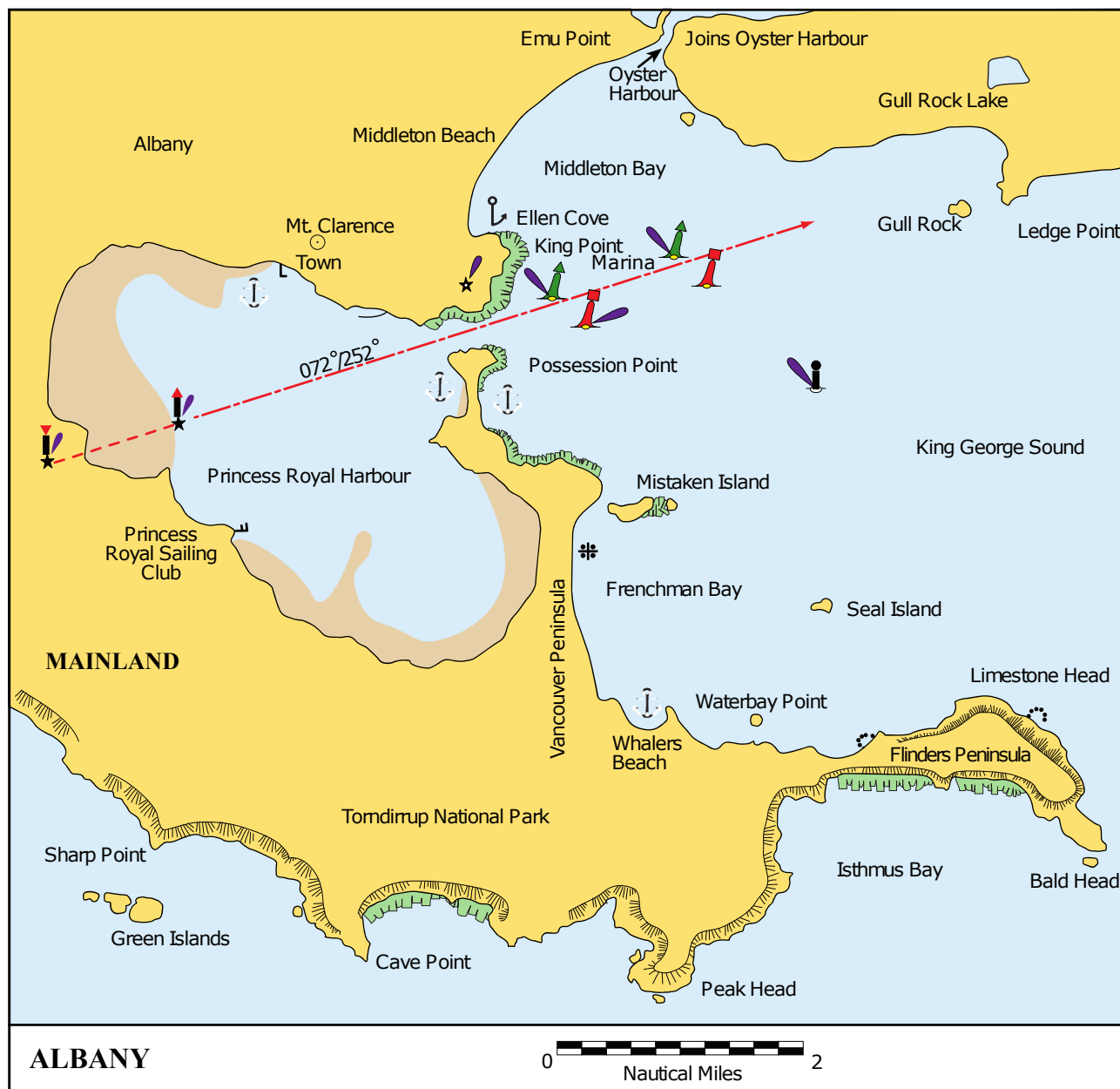


Shelter Island (W Duiker)

15.2.17 Albany and King George Sound

35° 02'S 117° 53'E

AUS 109, 110, 118, 336, 337, 759, WA 1083



Chartlet 183 Albany

Albany, Western Australia's oldest city, is the main town on the south coast with a population of 31,000. It was once a large whaling port. It is situated on the north side of Princess Royal Harbour which is about 5 nm long and 2.5 nm wide. The approach is through King George Sound, one of the largest natural harbours in the world. The entrance and approaches are deep and well marked, being a commercial shipping channel.

Caution: Strong swirling wind gusts can be expected when rounding Bald Head.

Tides: Albany. Range 1 m. There may be a tidal set at the entrance to Princess Royal Harbour toward the south side on the flood or N side on the ebb.

⚓ Albany Waterfront Marina is located in the heart of Albany on the north shore of Princess Royal Harbour. It has 70 floating boat pens, with four pens available for casual use. A section of the old timber town jetty has been retained for casual berthing purposes. There is a service jetty for loading/unloading, provisioning, refuelling and sullage pump-out. The marina is run by DoT and charges apply. Ph: (08) 9892 7333

Facilities: Power, fuel, water, toilets, showers and launderette. Full range of shops along nearby York Street, Albany's main street. Hospital (see section 7.5).

For details see www.transport.wa.gov.au/Albany_Waterfront_Marina

Of interest: There is a replica of the brig *Amity*, the vessel that brought the first settlers to Albany in 1826. The new National ANZAC Centre, 3 km east of the marina, is excellent and worth a couple of hours to visit. Ph: (08) 6820 3500. It also has a good cafe.

⚓ The Princess Royal Sailing Club (PRSC) 35°03.8'S, 117°52.8'E is on the southwest side of the harbour about 2.5 nm across the harbour from Albany (11 km by land) and a berth is usually available there. Within half a mile of the sailing club there are some shallow banks which yachts drawing 1.8-2 m may touch. Beware of going too far north when approaching the Club marina.

PRSC facilities: Showers, toilets and telephone at the club, with power and water on the jetties. The restaurant is open on Friday evenings and the bar is open on Friday and Saturday evenings. Contact Club Manager: Mon, Tues, Friday 0900-1200 Ph: (08) 9844 4033. After hrs: 0417 947 298. More info: www.prsc.com.au (<http://www.prsc.com.au>) Fuel is not available at the Club, but there is a petrol station and general store 750 m along the road towards Albany.

⚓ Quarantine Beach 35°02.8'S, 117°54.8'E offers anchorage in 3 m over weed. It is good in all but W winds.

Facilities: There are no facilities except a walking track.

Fishing: Squid.

Of interest: Derelict whale chaser nearby.

⚓ Whalers Beach is off the southern shore of King George Sound in Frenchman Bay, just west of Waterbay Point. It offers protection from SE through S to the NW. Anchor over sand in 3 m depth. This is an anchorage for NW to SW storms, when swell can wrap around the coast into the Sound, making entry to Princess Royal Harbour and Oyster Harbour hazardous or difficult.

Caution 1: The bottom may be found to be hard and an anchor difficult to set.

Caution 2: The eastern end of the bay is shallow.

Facilities: At the beach is Australia's largest whaling station, now the Whaleworld Museum. Their cafe is open daily 0900 to 1630. See <http://www.discoverybay.com.au/historic-whaling-station>

Diving: HMAS *Perth* was sunk as a dive wreck in 2001. It lies about 500 m south-southwest of Seal Island not far from Whalers Beach. The site is marked by ten mooring buoys, which can be reserved through the City of Albany Ph: (08) 9841 9333.

⚓ Day anchorage can be taken in clear water over sand in Ellen Cove, at the southern end of Middleton Beach on the northwest shore of King George Sound.

⚓ Ledge Beach (35°01.0'S, 118°00.1'E) on the northeast shore of King George Sound is a good day anchorage in NE to SE winds, though some swell enters. Anchor over sand in 4 m. It is a popular weekend beach and anchorage but there are no facilities.

Fishing: Australian salmon run in autumn.

History: Captain Vancouver, who named the site where the town is now situated, discovered the location in 1791. On 29 September 1791 he claimed the western portion of the Australian continent for the British Crown. He named King George Sound after the reigning monarch and named Princess Royal Harbour on the birthday of the King's daughter.

Fearing French colonisation, Britain settled the area in 1826 when Major Edmond Lockyer landed with fifty-two convicts and their soldier guards from the brig *Amity* on Christmas Day. This was three years before the proclamation of the Swan River Settlement, later to become Perth. The harbour lost its importance to Fremantle in the 1890s.

The early presence of Aborigines can be seen in the area (e.g. fishing traps around Oyster Harbour).

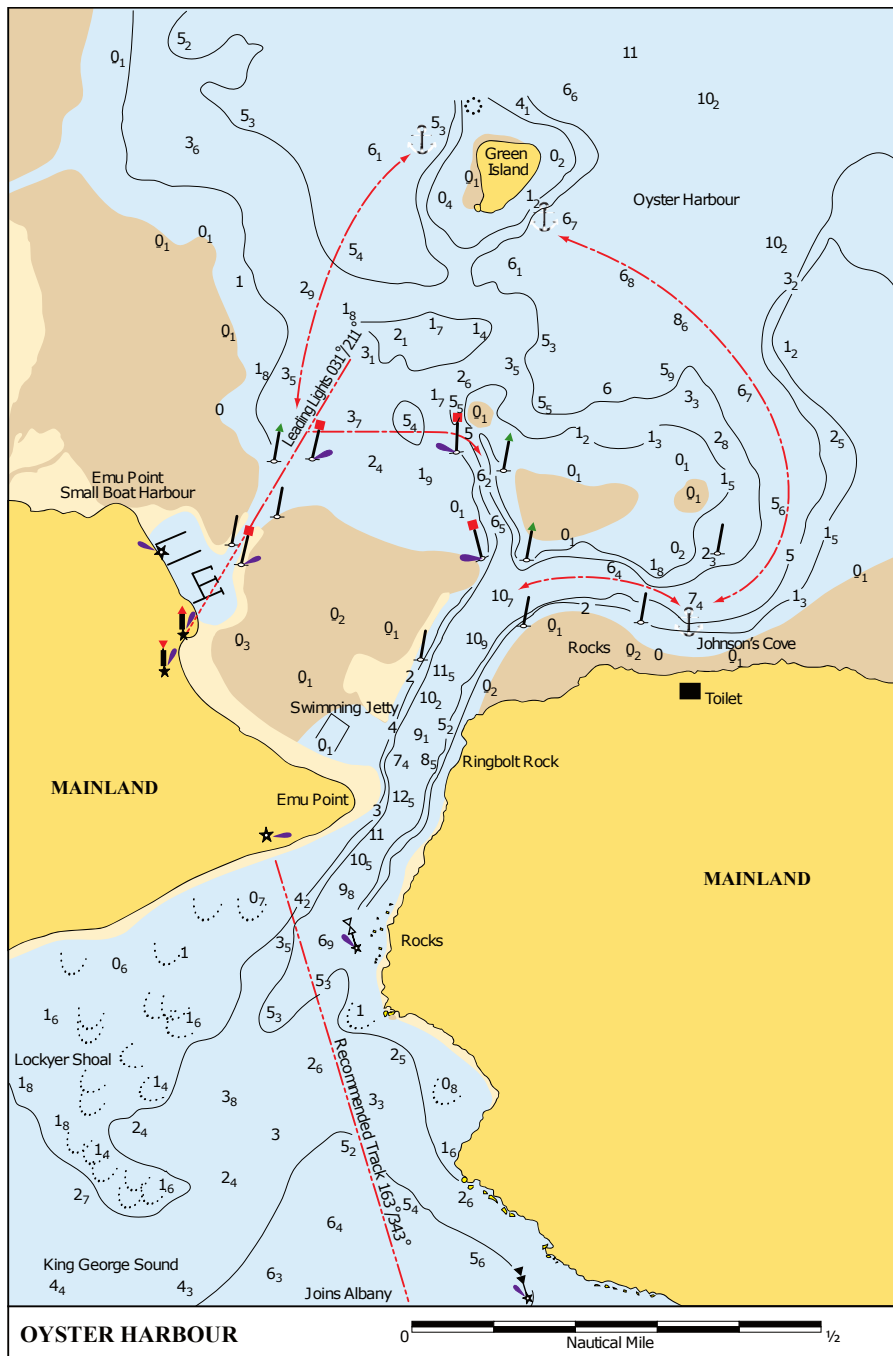


Looking northwest towards Albany (P Baker)

15.2.18 Oyster Harbour

35° 00'S 117° 57'E

AUS 110P1, 118, 336, 759, WA 1083



Chartlet 184 Oyster Harbour

Emu Point marks the entrance to Oyster Harbour located 2.5 nm east of the centre of Albany, on the north side of King George Sound. There are oyster and mussel beds in the northwest section of the harbour. The leaching of tannins from vegetation often causes the water to be coloured brown.

The entrance to Oyster Harbour is made on a bearing of 343° to Emu Point light, least depth 3 m below LAT. On reaching the first markers, head to starboard up the deep channel.

⚓ Emu Point Small Boat Harbour in Oyster Harbour contains 50 commercial boat pens, 4 jetties, and a boat ramp. The pleasure craft section is managed by DoT Ph: (08) 9892 7333. For details see <https://www.transport.wa.gov.au/imagery/albany-emu-point-boat-harbour-facility.asp> There are also 60 recreational pens operated by the [City of Albany](http://www.albany.wa.gov.au) (http://www.albany.wa.gov.au) , usually for long term use. Contact: Tony Fitzpatrick 0429 900 923 or Danial Pell 0427 011 745. The marina is approached through a channel marked by leads and lateral markers, with minimum depth 1.9 m below chart datum.

Facilities: Water, fuel by tanker, caravan park, public toilets, cold showers, boat launch, picnic area, gas barbecues, telephone, chandler, café, restaurant, travel hoist to 60 tonnes, slipway for the fishing industry (but they may slip yachts), managed by Emu Point Progress Association Ltd. Hardstand for short or long term stay. Contact Darren on 0427 426 272. Albany is 5 km from the marina; there is a bus service into town.

Of interest: There is a scenic path from Emu Point past Middleton Beach to the town jetty.

⚓ Oyster Harbour is mainly shallow but deep-draft vessels can anchor off Green Island.

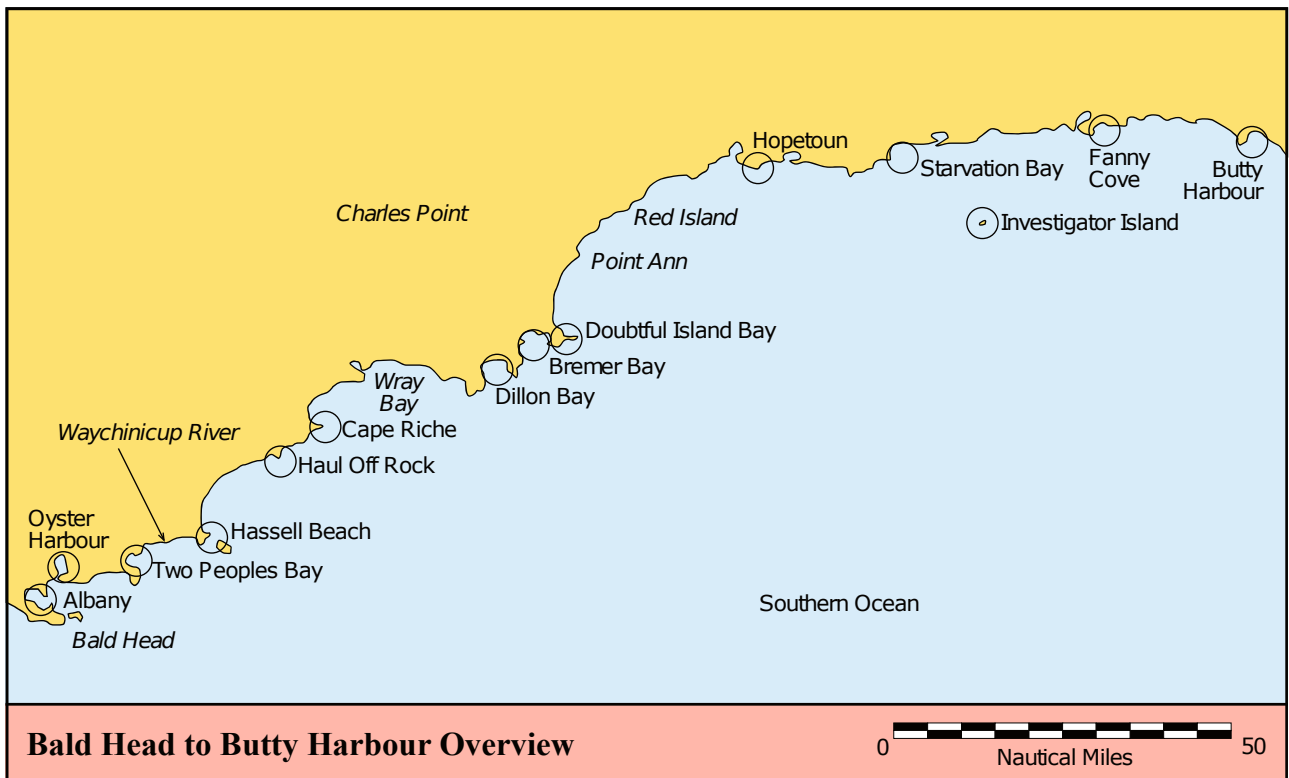
⚓ Johnsons Cove provides a very sheltered and pleasant anchorage to the east of the Oyster Harbour entrance. Turn east parallel to the southern shore, just south of the first starboard-hand marker inside the harbour. When a small timber hut (toilet) is abeam, turn towards the moorings and anchor in 3 m. The bottom shoals rapidly to less than 1 m close to shore. There are 3 public moorings, with a 72 hour limit.

Tides: Albany. Range 1 m. Tidal flow in and out of Oyster Harbour can be considerable.

History: Phillip Parker King spent eleven days at anchor refitting the *Mermaid* in Oyster Harbour.

15.3 Bald Head to Butty Harbour

Charts: AUS 336, 337, 116, 118, 119, 759, 762, WA 909, 1104



Chartlet 185 Bald Head To Butty Harbour Overview

15.3.1 Two Peoples Bay

34° 57.5'S 118° 11.0'E

AUS 118, 759



Chartlet 186 Two Peoples Bay

Two Peoples Bay is a national park with a beautiful bay, rocky hills and brilliant white beaches. Fishing boats sometimes work out of the bay.

⚓ Anchorage in the southern part provides protection from the SE through SW to W.

Caution: Beware of Drunken Sailor Rocks which are awash at low tide. The rocks can be hard to see at HW and have been hit by local boats. They have been reported to lie north of where shown on the AUS charts.

Facilities: Toilets, cold shower, boat launch, picnic area, gas barbecues, visitors' centre, nature reserve, lookout, rubbish disposal.

⚓ Two Peoples Bay also has anchorage on its northern shore, which provides shelter from the NW to NE.

⚓ Little Beach, about 1 nm southeast of South Point, has anchorage in 3-4 m over sand and weed offering shelter from the S and W. This is a delightful and picturesque bay.

Facilities: Pit toilets.

Fishing: Large pike and squid (winter only) can be caught on the weed banks within Two Peoples Bay.

Of interest: The noisy scrub-bird (Jeemuluk) that lives here was thought extinct until rediscovered in 1961. It is one of the rarest birds in Australia. This semi-flightless bird lives in the dense thickets and overgrown swamps of the Two Peoples Bay Nature Reserve that adjoins the anchorage. Inquisitive and elusive, the male is usually heard but not seen. It can defend an area of five to six hectares and has an ear-splitting call at close range. The female is silent. The bird's population fluctuates with bush fires, the current estimate being about 900.

History: Two Peoples Bay was named Baie Des Deux Peuples (Bay of Two Nations) in February 1803 by Nicolas Baudin to celebrate the meeting with an American sealing brig. Sealers were the first western visitors to the bay, following the exploration of the south coast by Vancouver in 1791. French, American and British ship-based whalers chased the southern right whales during the 1830s. Later, whaling stations were set up in the bay. The whales were hunted to near extinction by the 1880s.

15.3.2 Waychinicup River

(no chartlet)

34° 54'S 118° 20'E

AUS 118,337, 759

⚓ Waychinicup River is a small anchorage west of conspicuous Bald Island.

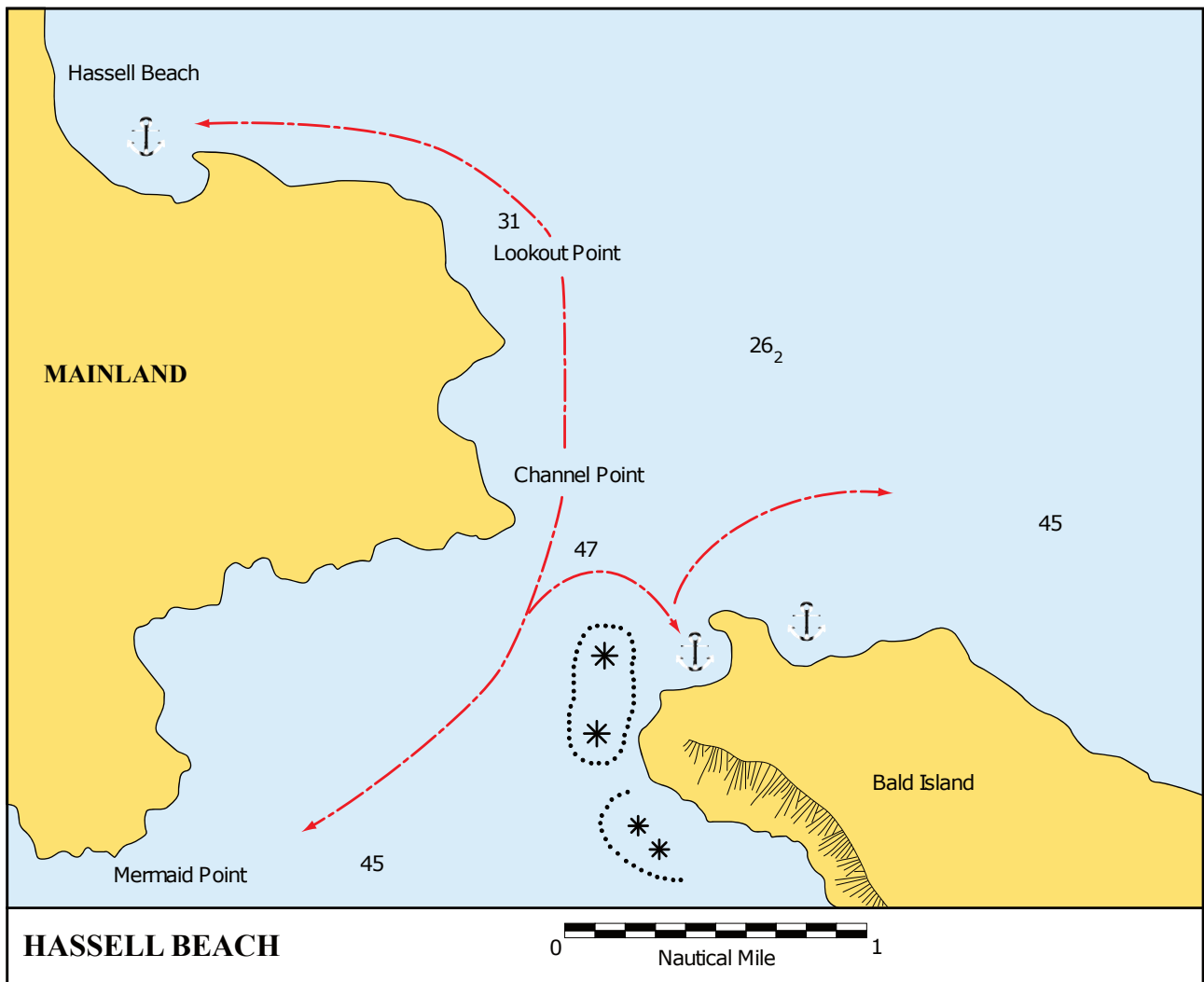
Entrance is straightforward with no hazards in light to moderate swell conditions, but is dangerous in heavier weather. The approach should only be attempted with a flood tide. In a southerly gale a surge may enter and getting out can be hazardous. Because the anchorage is small, an anchor bow and stern may be required. There are some shallow spots with less than 2 m. Wind bullets may be experienced. Holding is suspect in gravelly shell.

Caution: While the scenery of mountain and rock makes this a beautiful anchorage, it is only tenable in settled weather.

15.3.3 Hassell Beach

34° 52'S 118° 24'E

AUS 118, 337, 759



Chartlet 187 Hassell Beach

This is a popular place for holiday makers and fishermen, with white beaches and clear water.

⚓ At the southern end of Hassell Beach (also known as Cheyne Beach) there is anchorage over hard sand and weed. It is shallow in the corner but provides shelter from the SE to W. Little swell enters. There is clear passage inside Bald Island.

Facilities: Caravan park, shop, telephone, toilets, boat launch, picnic area and gas barbecues.

Fishing: Squid, whiting and herring.

⚓ At the north end of Bald Island there are two anchorages. The western anchorage is protected from the SE; however, it has been reported to have severe surge and roll in SW swell of 1.5m, as experienced by a 14.5m cruising boat. Depths are about 20 m until you are very close to the rocks. The eastern anchorage has good protection from the SW to W.

Diving: Snorkelling is excellent.

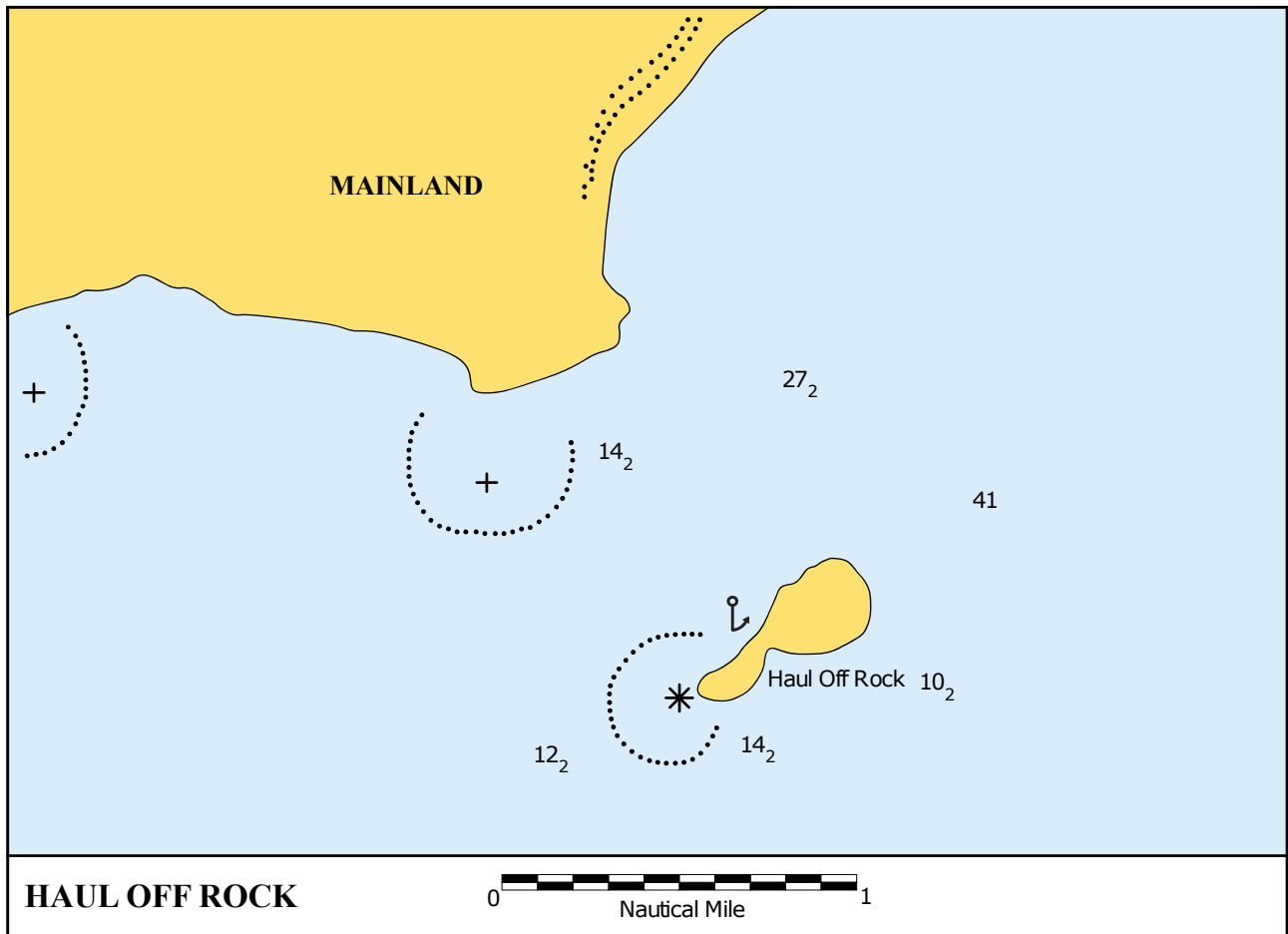
Caution: Salmon fishing is in progress between February and May. Vessels should keep clear of

these operations.

15.3.4 Haul Off Rock

34° 42'S 118° 39'E

AUS 337, 759



Chartlet 188 Haul Off Rock

⚓ Haul Off Rock has anchorage north of the island in 20 m. It is too exposed to be of any use except in low swell and a light SE wind.

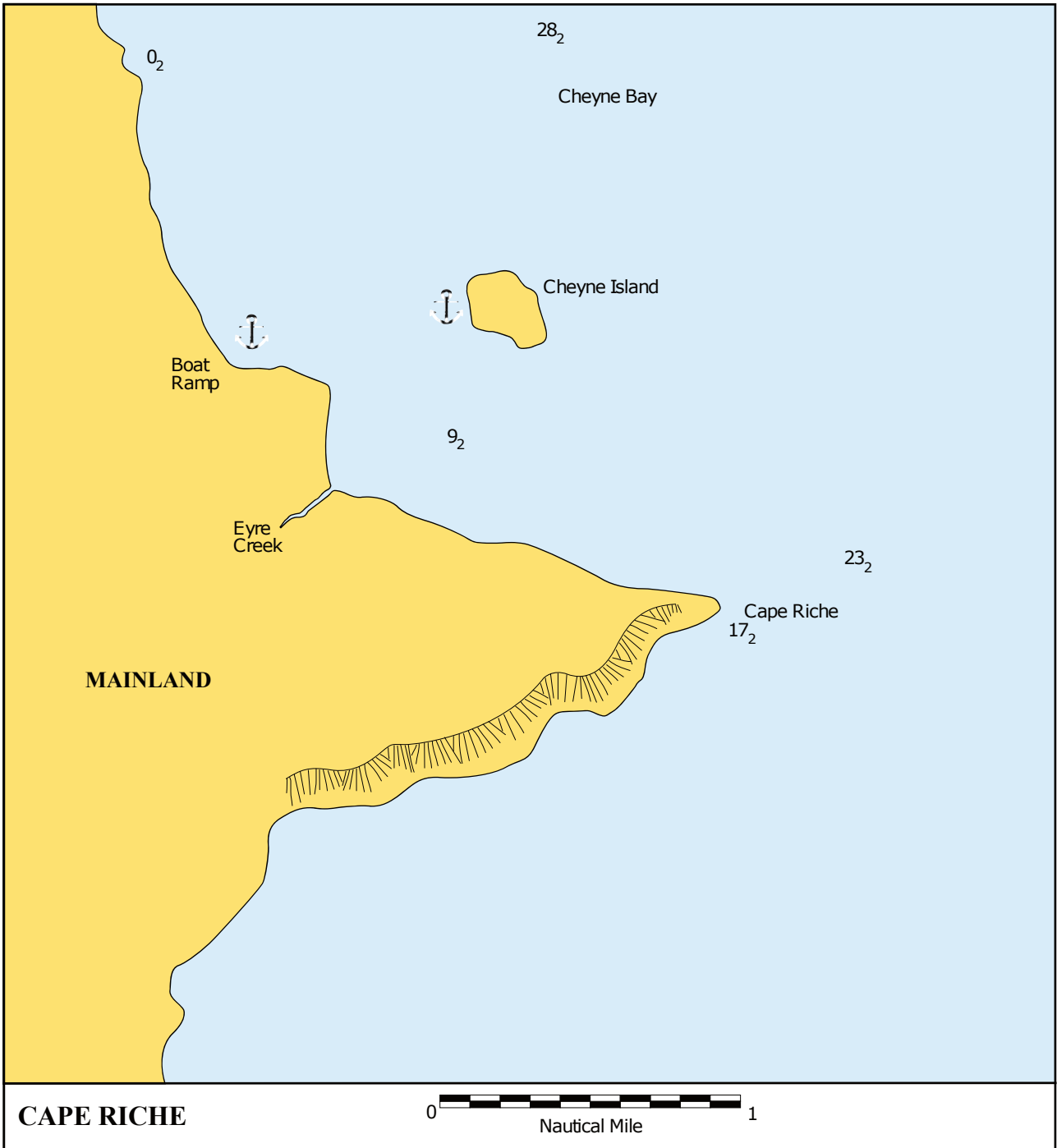
Fishing: Good line fishing off the southern edges for blue groper, queen snapper and sweep. Occasionally a dhufish can be landed.

Diving: Said to be a good diving area.

15.3.5 Cape Riche

34° 37'S 118° 46'E

AUS 337



Chartlet 189 Cape Riche

The swell round Cape Riche and Cheyne Island creates confused patterns, resulting in uncomfortable anchorages. Groper Bluff in Wray Bay (see below) is a superior anchorage.

⚓ Cheyne Island (also known as Rabbit Island) provides some lee from the SE. Anchor off the sand beach on the west side. It is inhabited by black rabbits and visited by penguins.

⚓ West of Cheyne Island near the mainland, anchorage at 34° 35.6'S, 118° 45.0'E offers some

shelter from the SW to NW. The bottom is mostly thick weed, requiring an admiralty (fisherman) anchor well dug in. Beware of inshore rocks.

Facilities: Toilets, cold showers, boat launch, picnic area with gas barbecues.

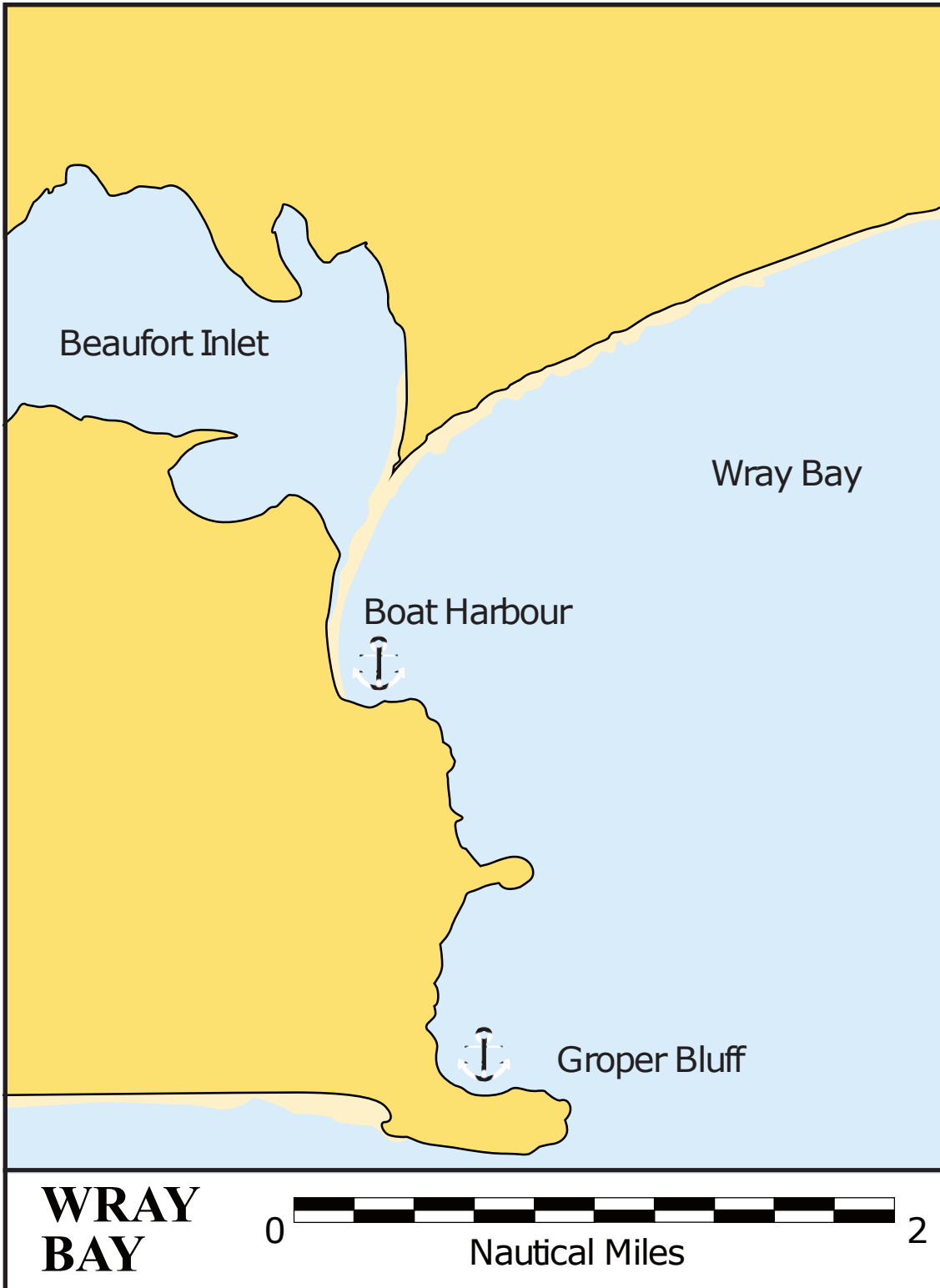
Caution: There is a reef with a depth of 5.5 m approximately 3.75 nm southeast of Cape Riche which only breaks at times.

History: Named in honour of Claud Riche, naturalist of the *Recherche*, who became lost for two days whilst searching for water. In the early 1800s sealing ships visited the bay for skins and oils. Whaling vessels soon followed and a whaling station was built on the flat rocks near the wool store. Whalebones are sometimes uncovered during heavy weather. Sandalwood was also shipped from the beach. An old wool store (1892) exists at the southern end of the beach and was used until World War II.

15.3.6 Wray Bay

34° 29'S 118° 54'E

AUS 337



Chartlet 190 Wray Bay

⚓ Anchor near Beaufort Inlet in Wray Bay, just north of Groper Bluff, over weed and sand in 2-

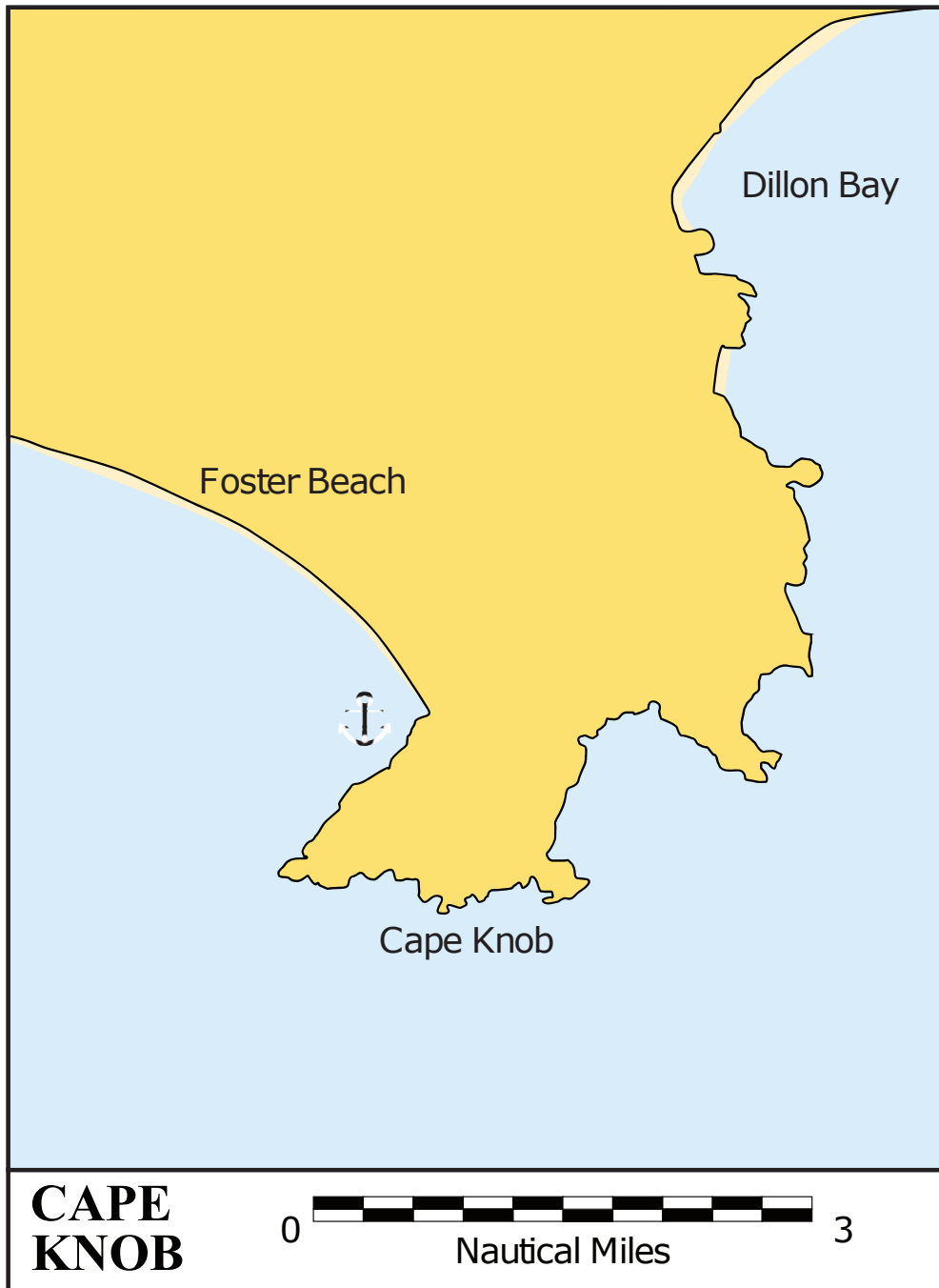
7 m. The anchorage is known as Boat Harbour and provides shelter from SW through N to NE.
Caution: Do not anchor off the salmon huts, as it is shoal and yachts tend to swing beam to the swell.

Fishing: Squid, whiting and skipjack.

15.3.7 Cape Knob

34° 31'S 119° 14'E

AUS 337



Chartlet 191 Cape Knob

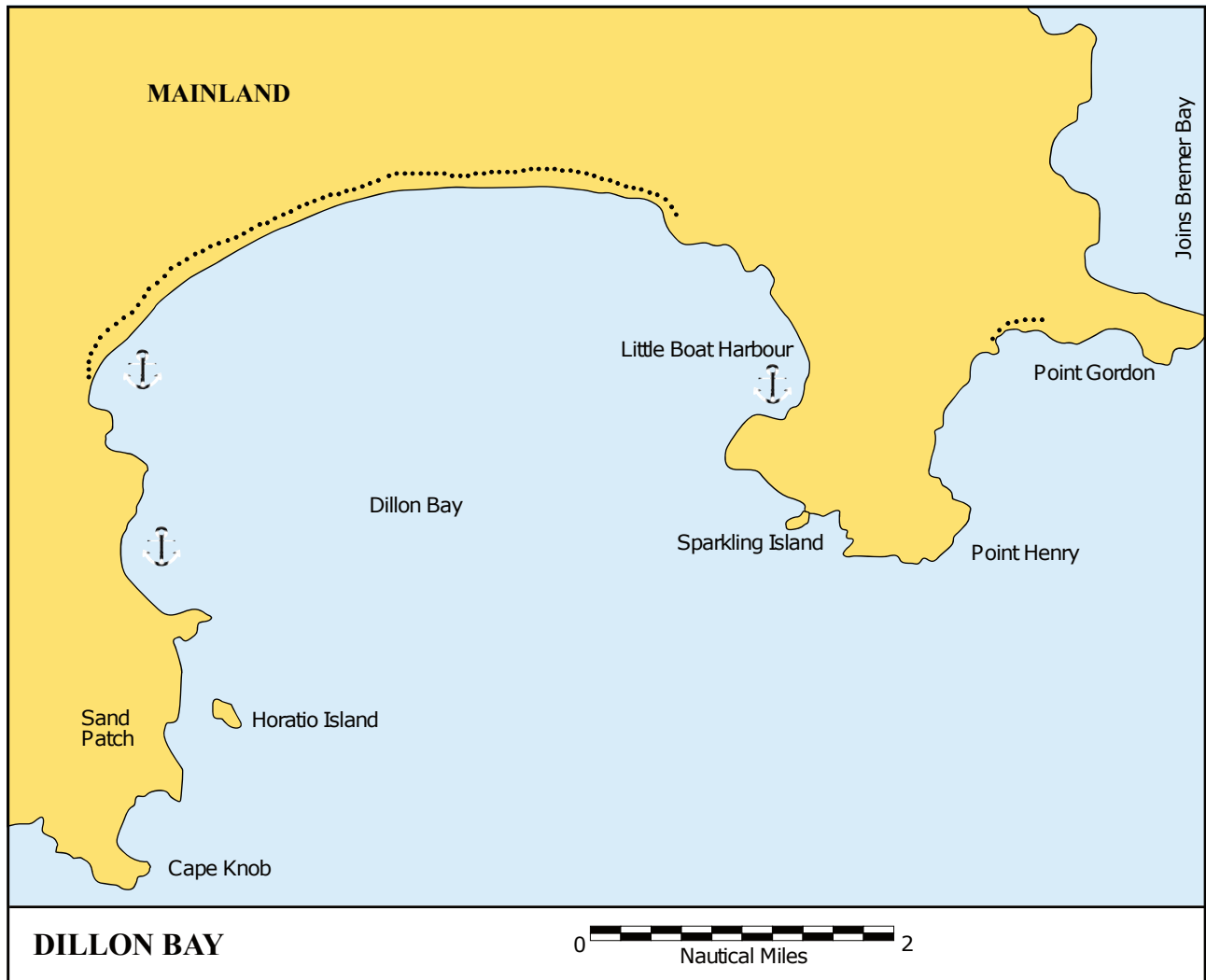
⚓ Anchorage has been taken off Foster Beach and in the bay west of Cape Knob. Acceptable

only in light E to SE conditions. Depths are likely to be greater than 15 m.

15.3.8 Dillon Bay

34° 28'S 119° 19'E

AUS 337, WA 909



Chartlet 192 Dillon Bay

Dillon Bay is about 4 nm wide with beautiful scenery.

⚓ An anchorage called Little Boat Harbour on the east side of Dillon Bay gives excellent shelter from NE to SE and even as far round as SW, although some surge may enter. Anchor in 5 m, the bottom is weed over sand. This is a good anchorage with the bonus of a beautiful white beach. Fresh water runs out of rocks and across the beach.

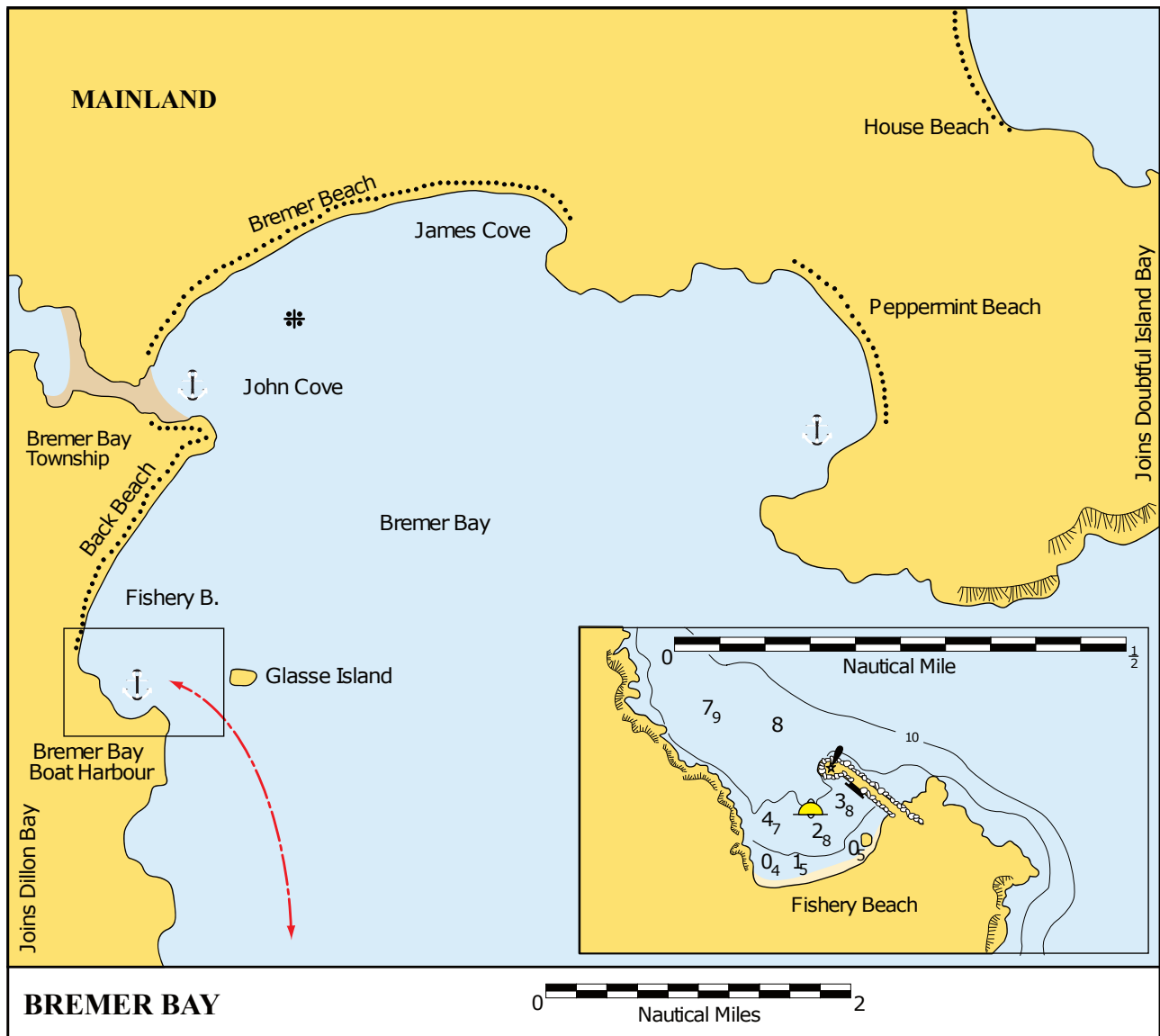
⚓ Anchorages on the west side give protection from the SW to NW with usually a tolerable roll.

Diving: Good.

15.3.9 Bremer Bay

34° 25'S 119° 26'E

AUS 337, WA 909



Chartlet 193 Bremer Bay

⚓ In Bremer Bay there is anchorage in 4 m on the northwest side in John Cove, near the Bremer Bay town site. It gives good protection from the SW and is over sand and weed. It can be very roily.

Facilities: Bremer Bay town is about 4 km away, with a hotel, caravan park, general store, post office, nursing post (see section 7.5), toilets, showers and telephone.

⚓ South of John Cove is Glasse Island and nearby Fishery Bay. The latter offers good protection from S to W winds, over sand and weed. There is a small boat harbour with a rock groyne. Some swell may be felt when there is heavy swell running outside the bay. Do not stay alongside when swell is running. The harbour is run by DoT, who provide moorings, a boat launching ramp and jetty. Charges may apply. Ph (08) 9842 7333.

Facilities: Telephone, fresh water, power, rubbish bins and fuel by tanker. Tanker arrives on

Thursdays, otherwise by special arrangement at a higher price.

Fishing: Good.

⚓ On the east shore of the bay near Peppermint Beach there is an alternative summer anchorage over sand and weed. It gives protection from SE winds, but swell can enter. The attractive sandy beach is a known surf beach, usually with a large break, making landing impossible.

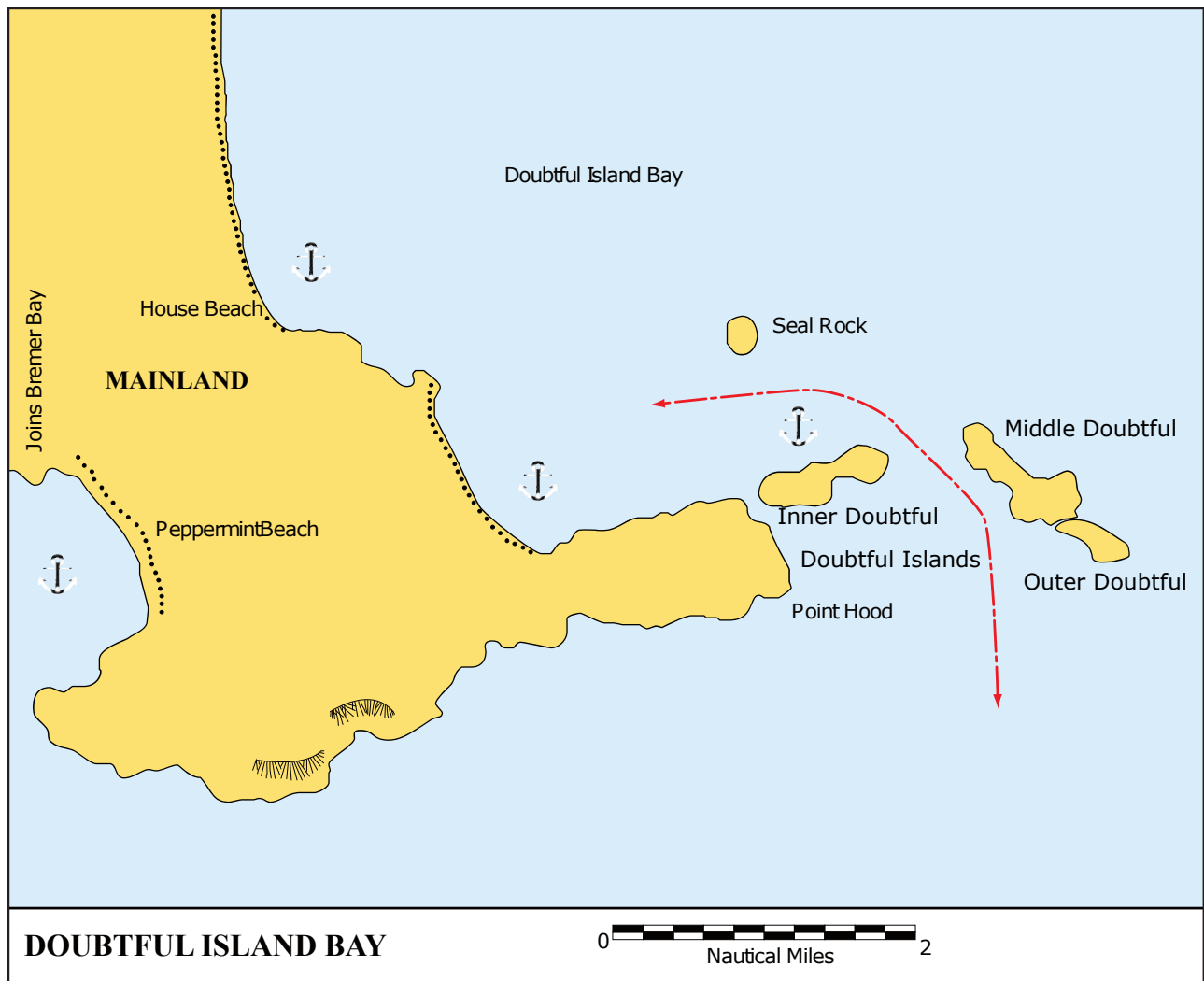
Tides: Bremer Bay. Range 1 m.

Of interest: Bremer Bay was named after Sir James Gordon Bremer, the captain of the *Tamar*.

15.3.10 Doubtful Island Bay

34° 23'S 119° 33'E

AUS 337 P2



Chartlet 194 Doubtful Island Bay

Doubtful Island Bay gives good protection from the S and W but none from N to SE. It is an attractive and picturesque area to visit, with seal colonies and rock wallabies.

⚓ Anchorage can be taken in the bay northwest of Point Hood (34° 22.6'S 119° 32.7'E) in 6 m with good holding.

⚓ There is another anchorage 2 nm further N, in about 4 m, off House Beach. There is a shack in the bush beyond the beach.

⚓ Anchorage has also been taken north of Doubtful Islands in 12 m depth.

Passage notes:

Passage between Inner Doubtful and Middle Doubtful islands is deep (37 m to 44 m). (Captain Flinders passed through this passage in the *Investigator*.) Passage between the mainland and Inner Doubtful Island is deep and satisfactory in moderate conditions.

Facilities: None.

Caution: The narrow channel between Middle and Outer Doubtful Islands produces funnelling effects during strong SW winds.

15.3.11 Point Ann

(no chartlet)

34° 10'S 119° 35'E

AUS 337

⚓ Point Ann anchorage offers protection from SW to NW and from any westerly swell. There are depths of 3-5 m over weed, sand and rubble.

Caution: There are some shallows off the point.

15.3.12 Charles Point

(no chartlet)

34° 06'S 119° 38'E

AUS 337

⚓ Charles Point is near Fitzgerald Inlet. It provides shelter from SW to NW.

15.3.13 Red Island

(no chartlet)

34° 02'S 119° 47'E

AUS 337

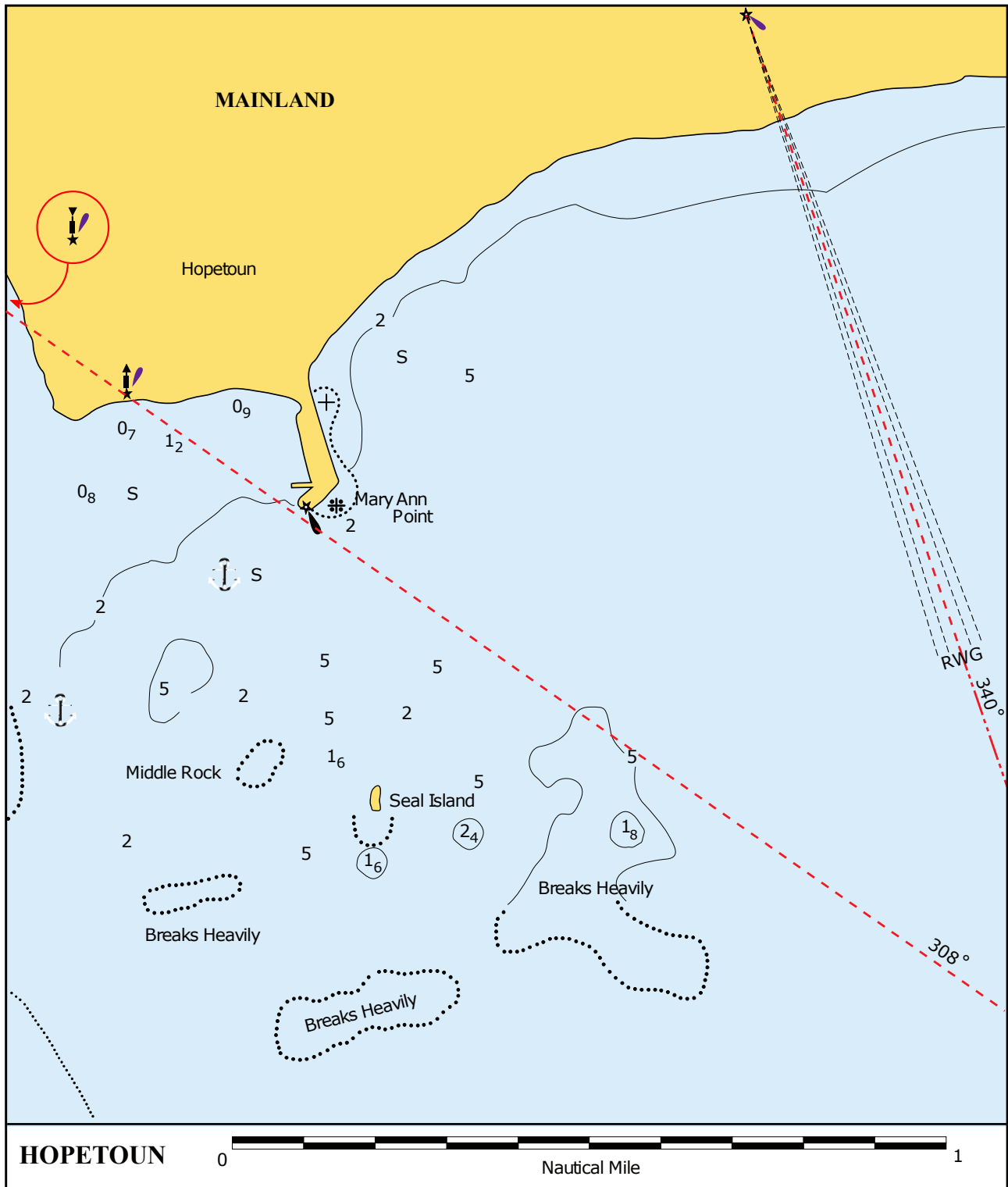
⚓ Anchorage has been reported at Red Island.

Caution: Not to be confused with the other south coast Red Island (33° 52'S, 121° 21'E on AUS 762) which lies between Fanny Cove and Butty Harbour.

15.3.14 Hopetoun

33° 57'S 120° 08'E

AUS 116, 337, WA 1104



Chartlet 195 Hopetoun

This settlement was once a port serving mining and agriculture and it still retains its old world charm. There are many historic buildings and cottage-style homes. Hopetoun is also known as Mary Ann Haven.

The approach is hazardous and should not be attempted in a heavy swell. There is a red, white and green daytime laser sector light situated on Table Hill as back marker for the first lead in (bearing 340°).

⚓ A heavy swell penetrates the anchorage but otherwise, although exposed to most winds, it is fairly calm. The anchorage offers some protection from the SE. Boating is prohibited in the northeast corner of the anchorage, but this is mostly shallow anyway.

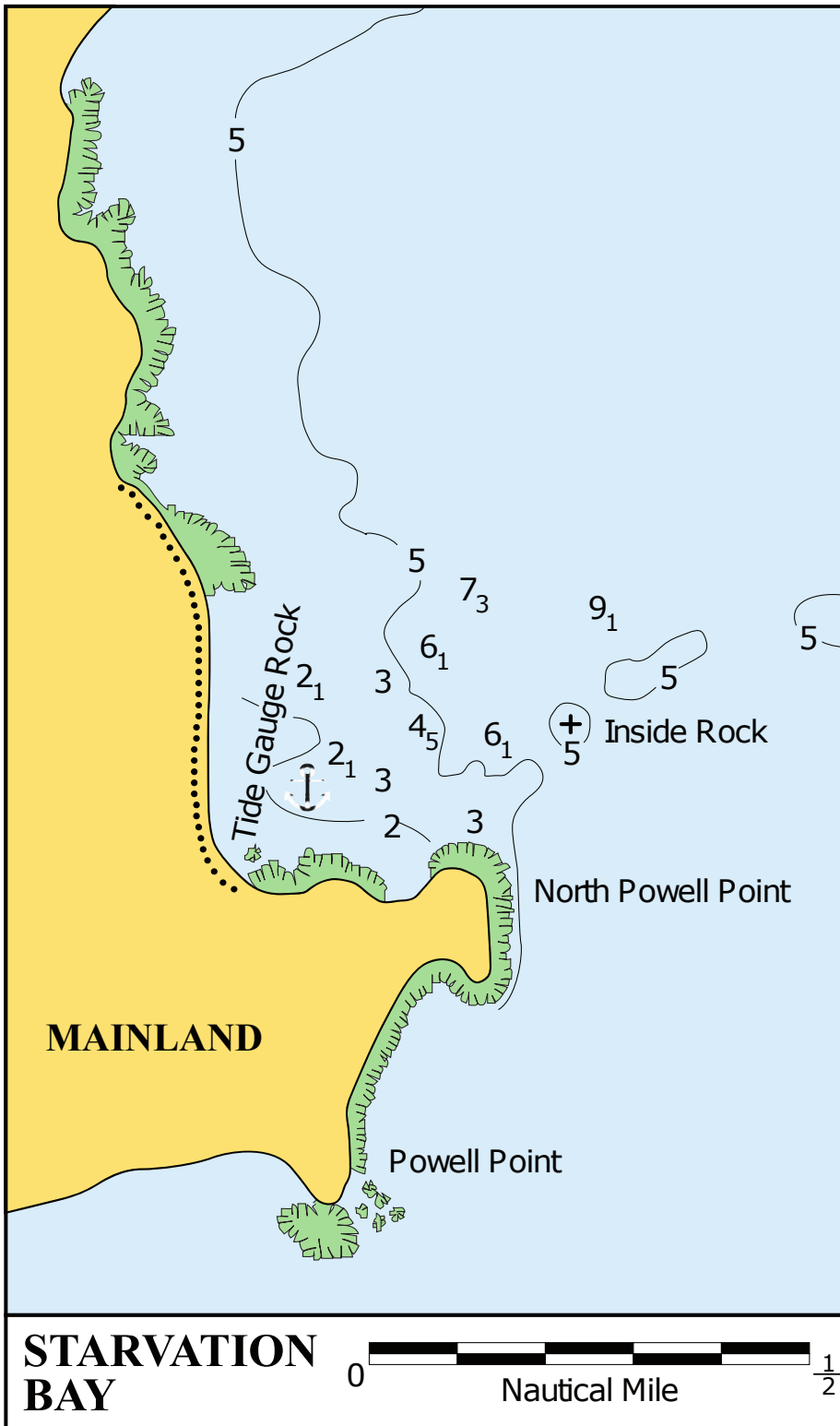
Tides: Esperance. Range 1 m.

Facilities: Water, toilets, caravan park, hotel, general store, café, post office and boat ramp. Fuel and water are available from the jetty.

15.3.15 Starvation Bay

33° 55'S 120° 34'E.

AUS116 P6, 337



Chartlet 196 Starvation Bay

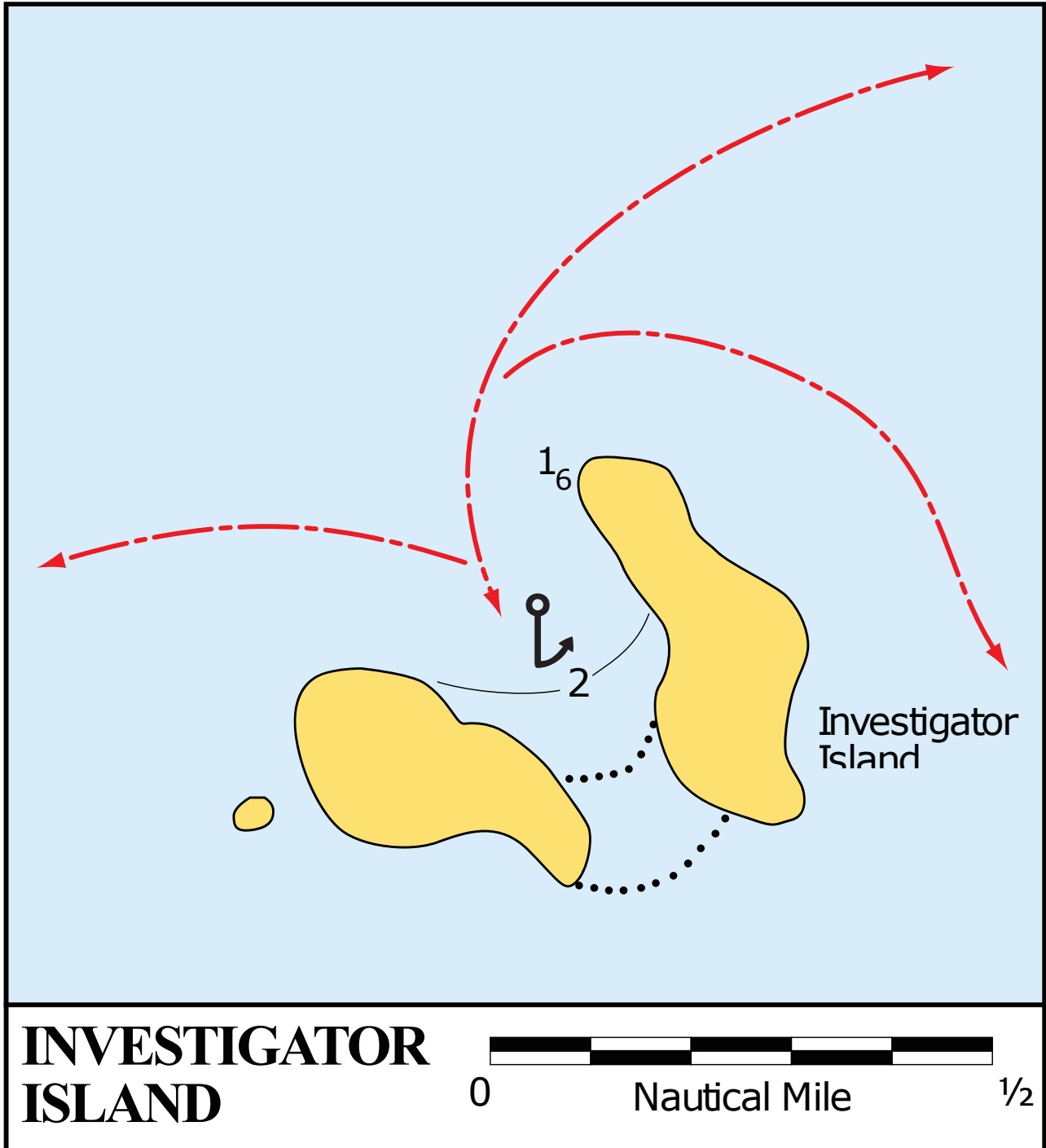
⚓ Starvation Bay gives good protection from SW to W winds and swell. S winds bring some swell.

It is rather a shallow bay so take care in any swell. The wind may shift to the E in the night, so allow room to swing. The sea bed is sand and weed.

15.3.16 Investigator Island

34° 04'S 120° 52'E

AUS 337, 762



Chartlet 197 Investigator Island

⚓ Investigator Island lies 19 nm southwest of Shoal Cape. It consists of two islets joined by a rocky beach and enclosing an almost circular basin, which offers protection from all directions

except NW to N. The depth at the anchorage is about 14 m over sand. Surge makes it difficult to land, but with care it is possible in the gap.

Caution: The seas break heavily about 3 nm east-northeast of the island (Wareen Reefs) and 1 nm to the southwest.

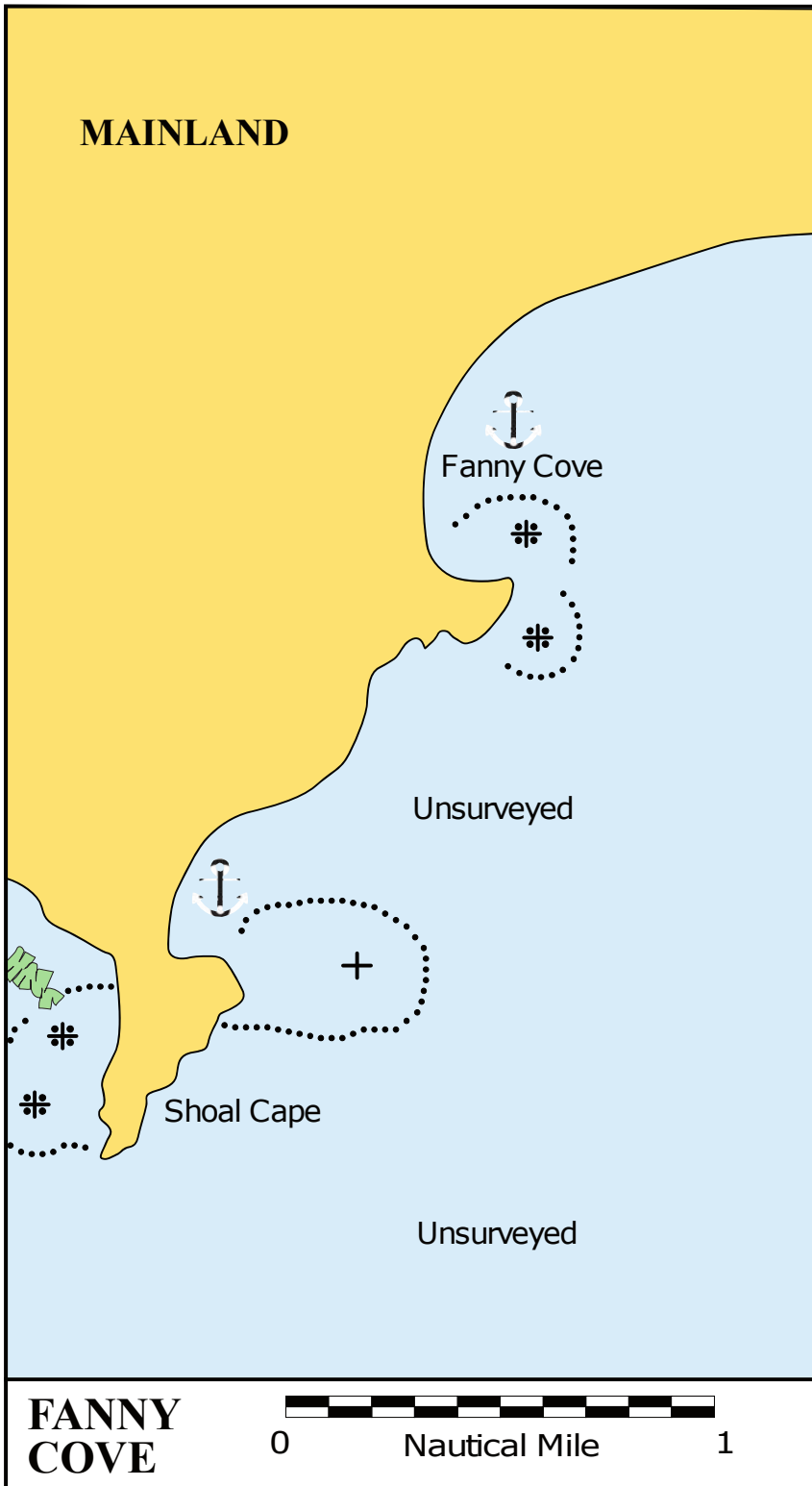
History: Locally called Rocky Island but now named officially, and with rather more distinction, Investigator Island in honour of Matthew Flinders.

Of interest: Sea lion and New Zealand fur seal colony.

15.3.17 Fanny Cove

33° 51'S 121° 12'E

AUS 762



Chartlet 198 Fanny Cove

⚓ Fanny Cove has depths less than 5 m close inshore. It offers protection from the S through W

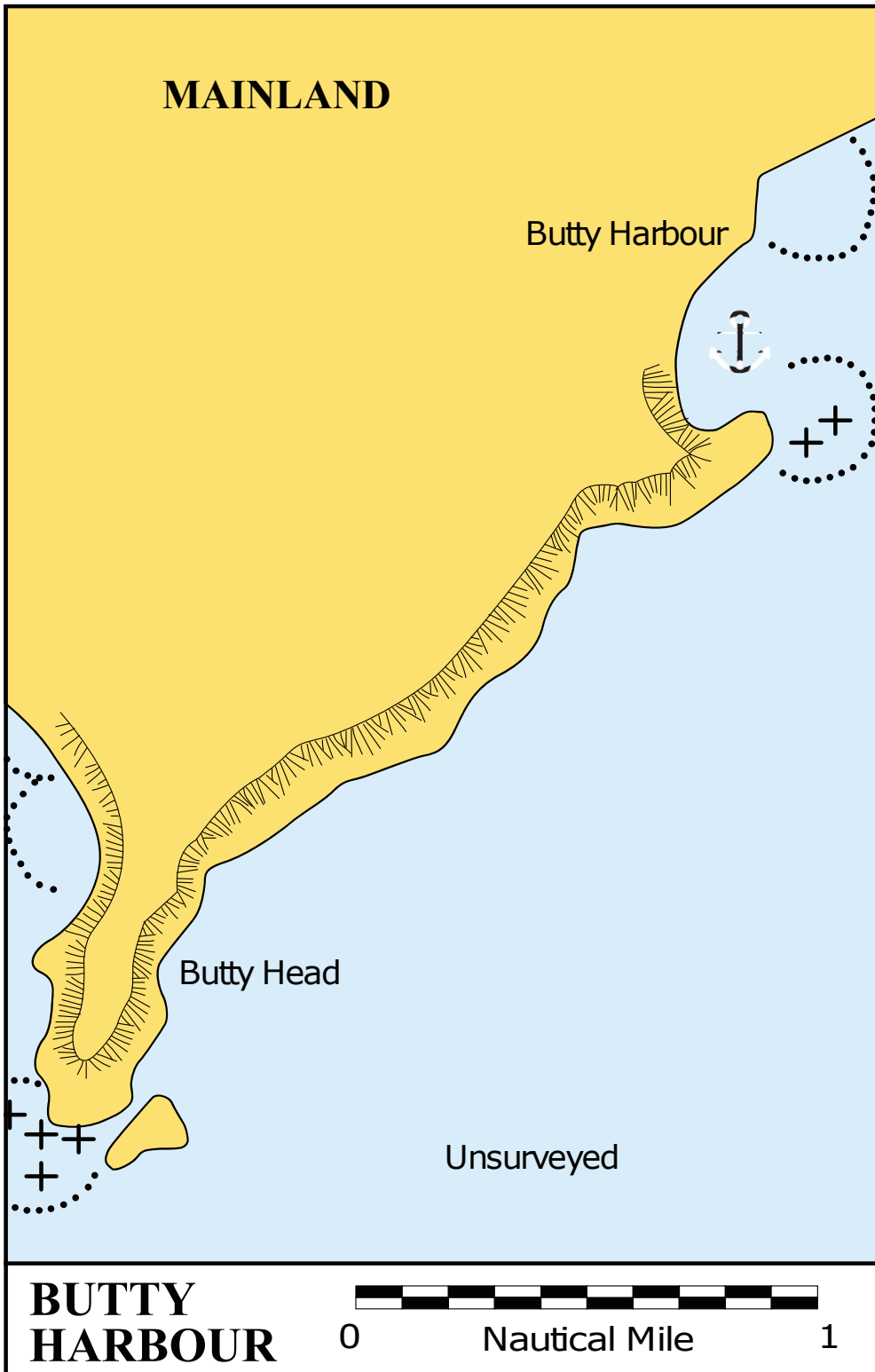
to N, with a light SW surge if any swell is present. There is protection from the SE if well tucked in to the corner, but there is room for only one or two boats. It is considered a desperation anchorage during summer months.

⚓ Anchorage at the east of Shoal Cape is preferable to Fanny Cove. Give the small point 0.5 nm north-northeast of the cape a wide berth, to clear a reported rock.

15.3.18 Butty Harbour

33° 52'S 121° 40'E

AUS 119, 762



Chartlet 199 Butty Harbour

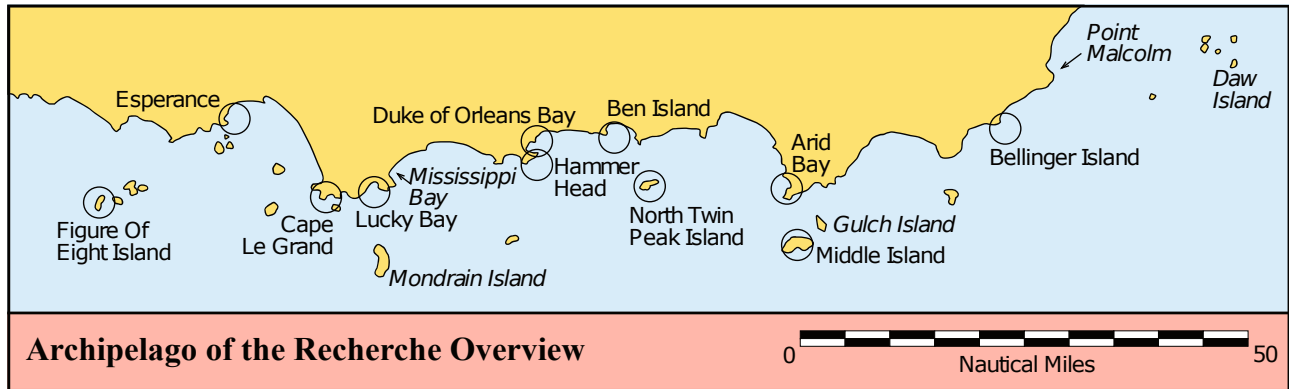
Butty Harbour is a scenic area of dunes and rocks, where freshwater seeps into rock pools.

⚓ A good anchorage can be found about 2 nm northeast of Butty Head in 3-5 m depth on weed and sand, protected from S to NW winds. Vessels to 2 m draft can shelter from the SE. Some swell may enter in moderate to heavy conditions.

Caution: Do not rely on the AUS charts; some uncharted shoals have been reported.

15.4 Archipelago of the Recherche

Charts AUS 119, 762, 763



Chartlet 200 Archipelago Of The Recherche Overview

The archipelago is an extensive group of islands and rocks separated by deep water, that lie up to 40 nm offshore and stretch 123 nm along the coast. There are also isolated reefs up to 18 nm offshore.

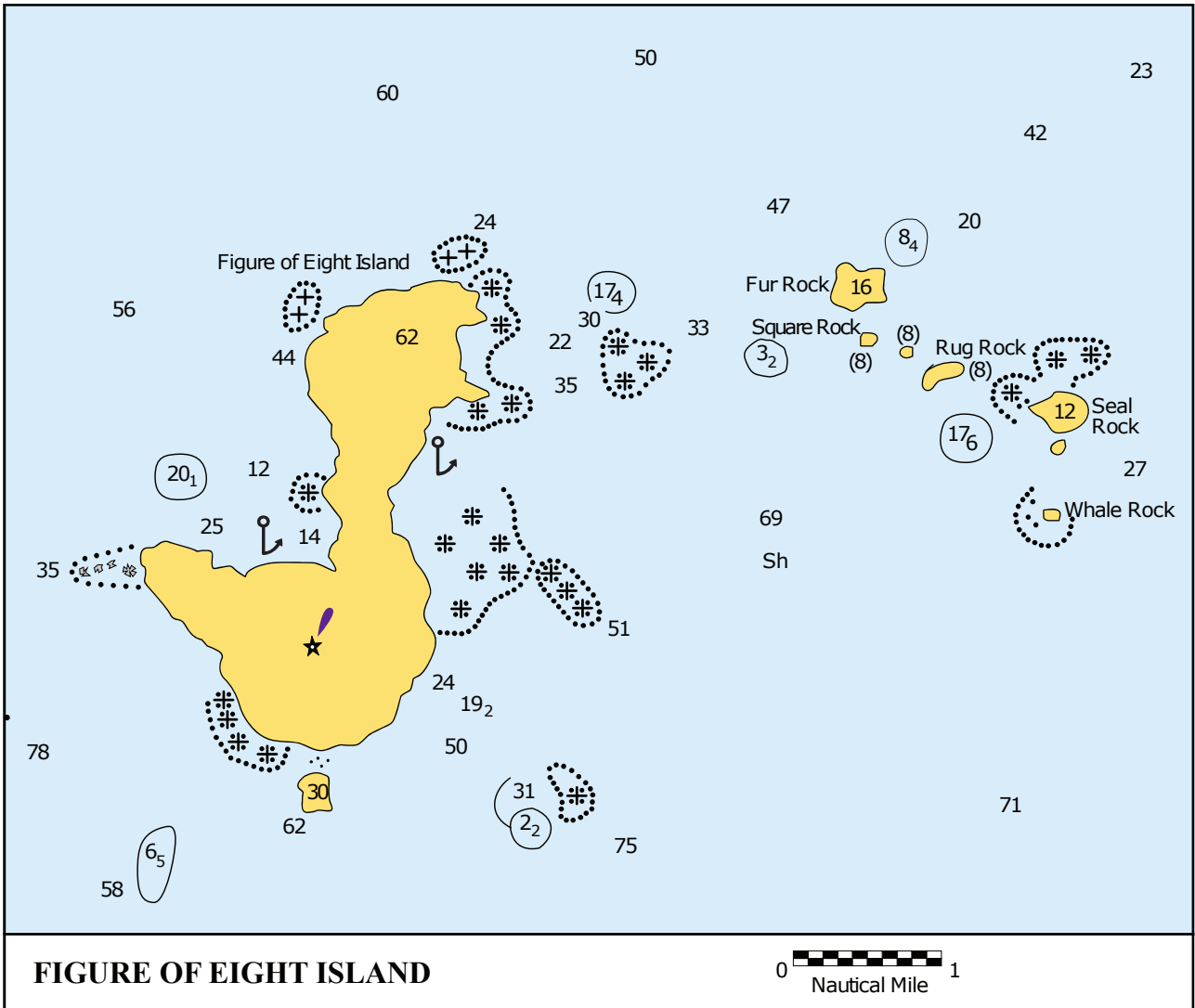
There are only a few recommended anchorages, due to the deep water close inshore and variable winds. The thick weed requires an admiralty (fisherman) anchor to be well set. There are only three islands with sand beaches: Figure of Eight, Middle and Sandy Hook.

History: Pieter Nuyts aboard the *Gulden Zeepard*, made the first recorded European sighting in 1627. D'Entrecasteaux named the area Archipelago of the Recherche after the French ship *Recherche*, a sister ship of *L'Esperance*. Flinders commented that it was an "extensive mass of dangers".

15.4.1 Figure of Eight Island

34° 03'S 121° 37'E

AUS 119, 762



Chartlet 201 Figure Of Eight Island

⚓ The west side of Figure of Eight Island in the West Group can offer some protection in deep water from SE winds. Considerable swell enters the bay. This is not a good anchorage so an anchor watch is recommended.

⚓ The eastern side, with a beach, gives protection from the SW with similar reservations as above.

15.4.2 Cull Island

(no chartlet)

33° 55.4'S 121° 54.2'E

AUS 119, 762

⚓ Anchorage has been taken on the north side of the Island, due north of the lighthouse.

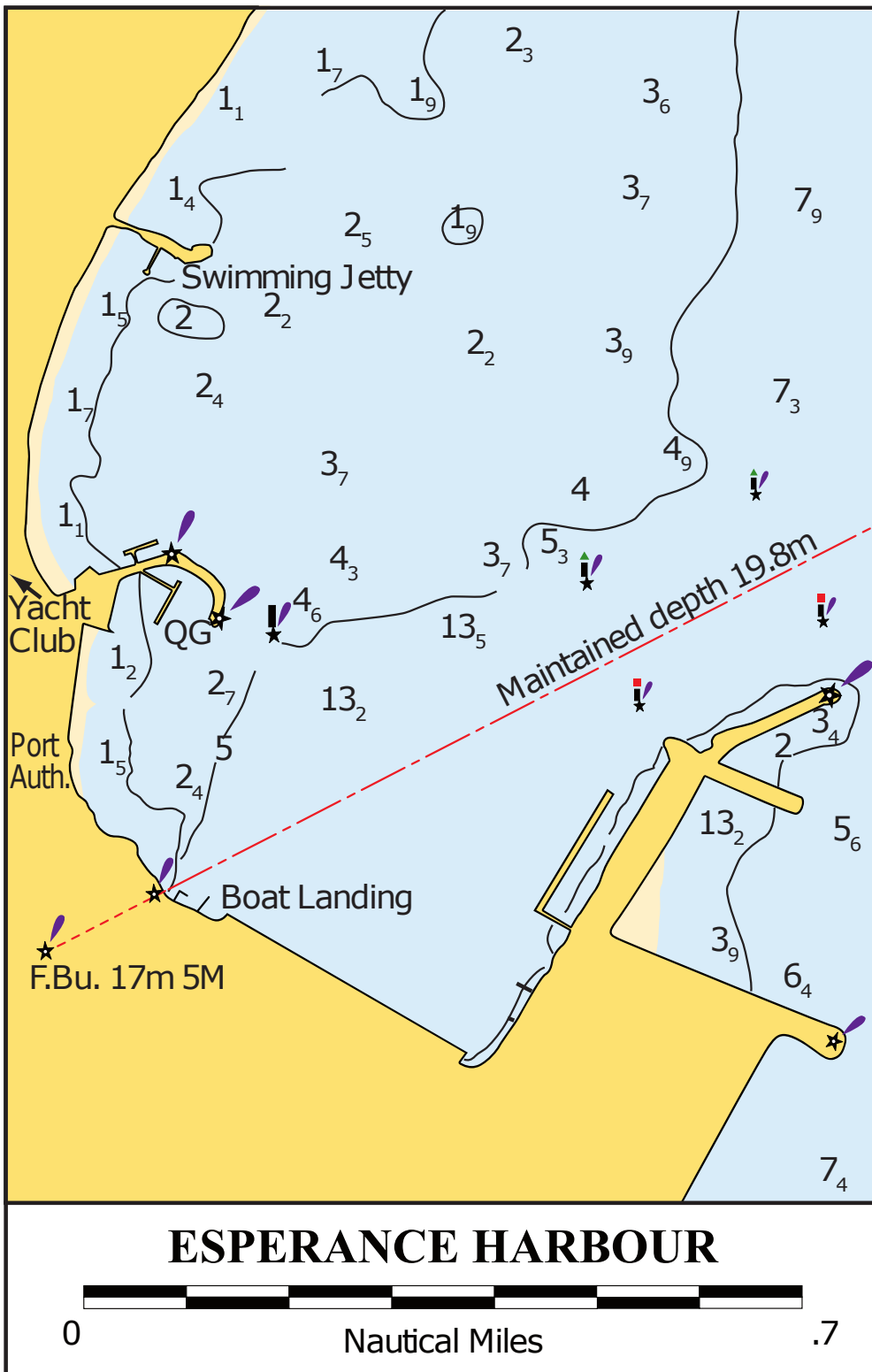
15.4.3 Esperance

33° 52'S 121° 54'E

AUS 119P1, 762



Chartlet 202 Esperance Bay



ESPERANCE HARBOUR

Chartlet 203 Esperance Harbour

Esperance is a town of 10,000 people, its major industries being tourism, agriculture, and fishing. It is a major port for nickel concentrate, iron ore and wheat. Esperance Bay Yacht Club (EBYC) is a very friendly and hospitable place. Beacons and lights mark the approach. Yachts must keep 100 m clear of the commercial wharves.

⚓ Anchorage can be taken near the EBYC, north or south of the Taylor Street Landing jetty in depths of about 2-3 m over weed and sand. The anchorage is protected from the S to NW.

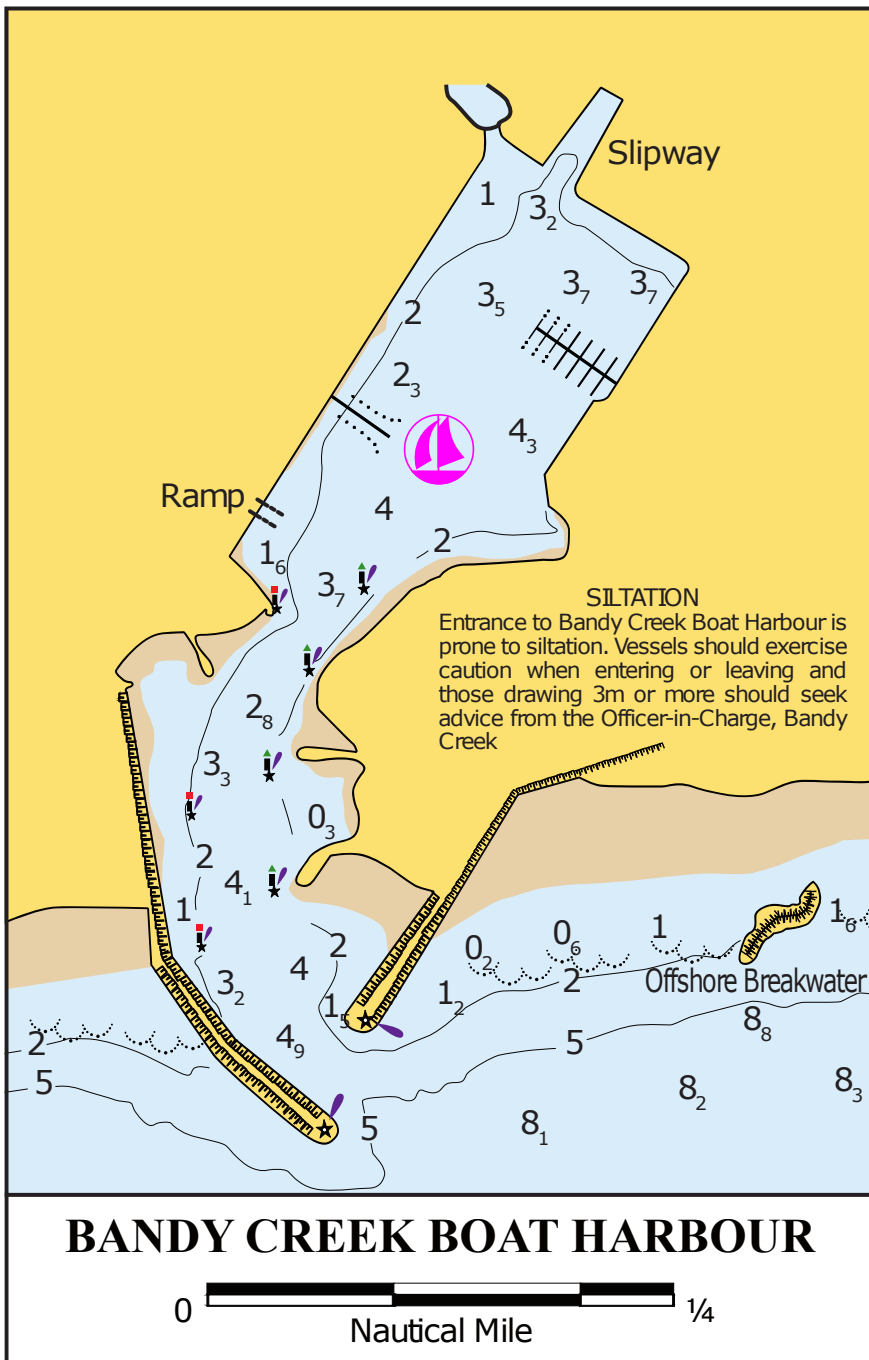
⚓ EBYC can often arrange for berthing in their marina on the south side of the jetty Ph: (08) 9071 3323 Mon-Fri 0900-1200 or Email ebyc@westnet.com.au. The jetty is missing the end bollard and a big chunk of concrete. It is open to the public, so you need to be watchful.

Tides: Esperance. Range 1 m.

Facilities: Showers, toilets, power, fuel and water on shore, but the jetty does not have water or power. The friendly EBYC bar is open Friday evenings and Saturday; meals are available. Easy walking to the town where you will find a hospital (see section 7.5), restaurants, and shops with good supplies of stores and general hardware. There are no slipping facilities except haulage out on jinkers with a tractor. Esperance has air and bus services to Perth.

15.4.4 Bandy Creek Boat Harbour

33° 50'S, 121° 56'E



Chartlet 204 Bandy Creek Boat Harbour

⚓ Bandy Creek Boat Harbour, about 2.5 nm northeast of Esperance, is a DoT operated commercial fishing boat harbour and yacht haven, protected by two breakwaters. Depths are usually greater than 3 m but silting occurs, requiring periodic dredging (usually in February and August). Contact DoT for berthing, and to obtain the latest information on depths. Ph: (08) 9076 2100.

Security is a problem at this isolated boat harbour because the gate is usually left open.

Marina facilities: Slipway, pens with power and water, service jetty. There are showers but they are in poor condition. For additional information go to:

<https://www.transport.wa.gov.au/inline/esperance-facility.asp>

Of interest: The first commercial wind farm for electricity generation was established at Esperance in 1993. Esperance experiences reliable winds with a mean annual average of nearly 15 kn.

Diving: On 14 February 1991, the 33,000 tonne *Sanko Harvest* ran aground 12 nm southwest of Esperance. The reef is now known as Harvest Reef. The *Sanko Harvest* lies in 26 m of water and is the second largest vessel in the world that can be dived on.

History: Esperance is named after a French naval vessel *L'Esperance* that sheltered from a storm in 1792, off Observatory Point.

15.4.5 Woody Island

(no chartlet)

33° 57.8'S 122° 00.7'E

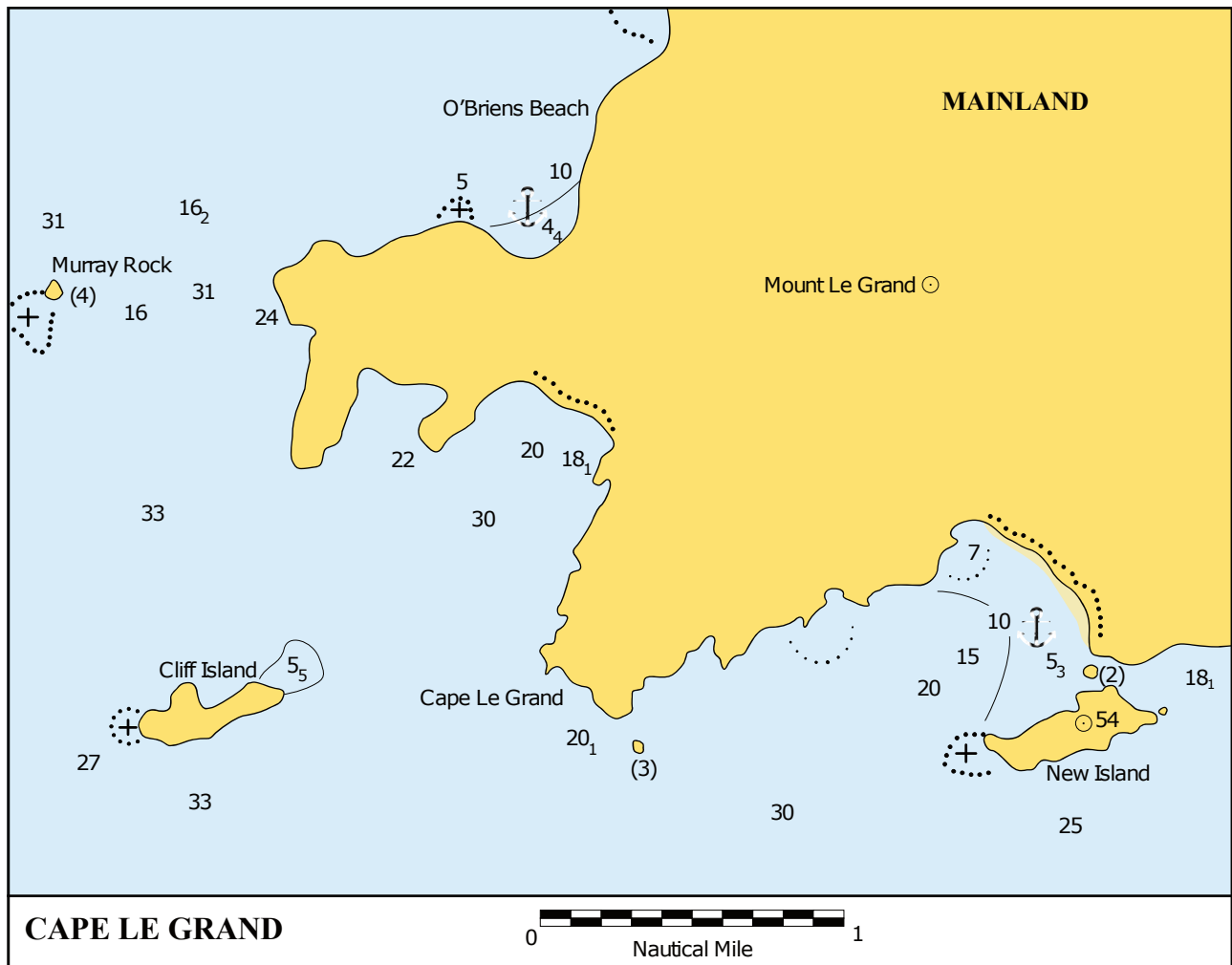
AUS 119, 762

⚓ Anchorage has been taken in the small bay on the north-northeast side of the island. There is a sturdy mooring in the middle of the bay, requiring anchorage to be taken further out in very deep water. There is a jetty and a small kiosk operated by the McKenzies (Esperance Island Cruises <http://www.esperancecruises.com.au/> Ph: (08) 9071 5757).

15.4.6 Cape Le Grand

34° 01'S 122° 07'E

AUS 119, 762, 763



Chartlet 205 Cape Le Grand

⚓ There is an anchorage 1.5 nm north of Cape Le Grand at 33° 59.4'S, 122° 06.4'E, locally known as O'Briens Beach. It provides good protection from NE to SE winds with little surge. The bottom is weed over sand in 10-12 m, with the possibility of getting in closer.

There is a DBCA campground north of O'Brien's Beach, with showers and toilets.

Caution: Beware of strong to gale force NE winds funnelling down into this anchorage. These may last several hours while a few miles to seaward the wind force is generally less.

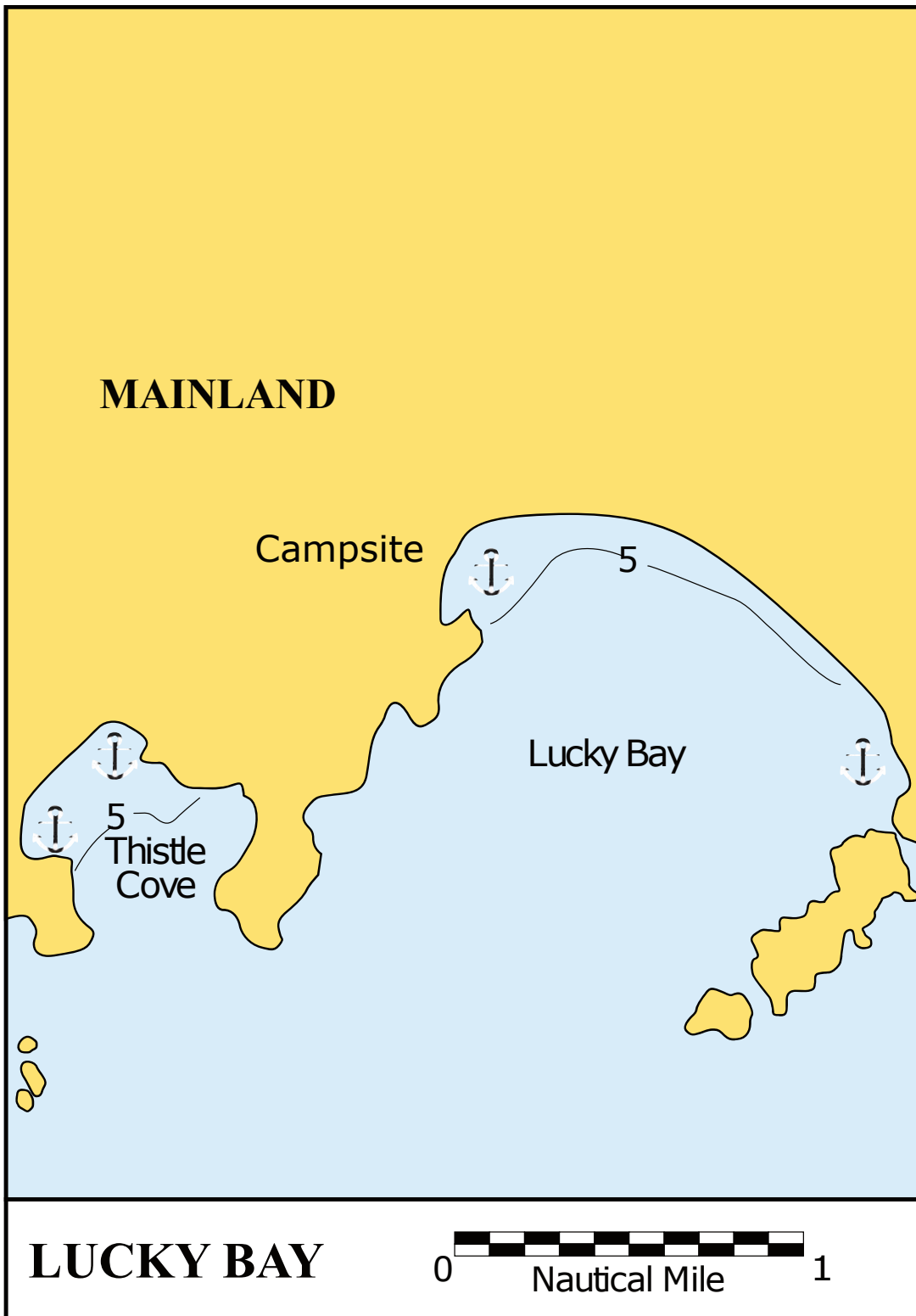
⚓ The bay formed by New Island, just east of Cape Le Grand, provides anchorage near the island with protection from the E and S but the swell can make conditions very uncomfortable.

History: Named after Lieutenant Le Grande of the *Recherche*.

15.4.7 Lucky Bay

34° 00'S 122° 14'E

AUS 762, 763



Chartlet 206 Lucky Bay

⚓ Thistle Cove (34° 00'S, 122° 12'E) immediately west of Lucky Bay is a pleasant little cove for a

picnic. It offers shelter from the NW to NE but is somewhat exposed to other directions. There is a chance of swell entering with fresh SW winds. The bottom is thick ribbon weed that is difficult to penetrate; depth 5-10 m.

History: Discovered by John Thistle, master of the *Investigator*.

⚓ The western side of Lucky Bay is the preferred anchorage with protection from the SW through N to SE. Swell is usually tolerable. The depth in the western corner of the bay is 2-3 m. The eastern side of the bay is deeper and offers better protection over sand from strong easterlies, but not westerlies.

Facilities: There is a campsite at the bay's western end with toilets and showers.

History: Matthew Flinders anchored in Lucky Bay in 1802 while charting and naming much of the coast.



Thistle Cove and Lucky Bay looking east (P Baker)

15.4.8 Mondrain Island

(no chartlet)

34° 08'S 122° 15'E

AUS 762, 763

⚓ Mondrain Island, 8 nm southeast of Cape Le Grand, has a beautiful landscape and provides day anchorage on either side.

History: Named after Pierre Mondrain, midshipman of the *Recherche*.

15.4.9 Mississippi Bay

(no chartlet)

34° 00'S 122° 17'E

AUS 763

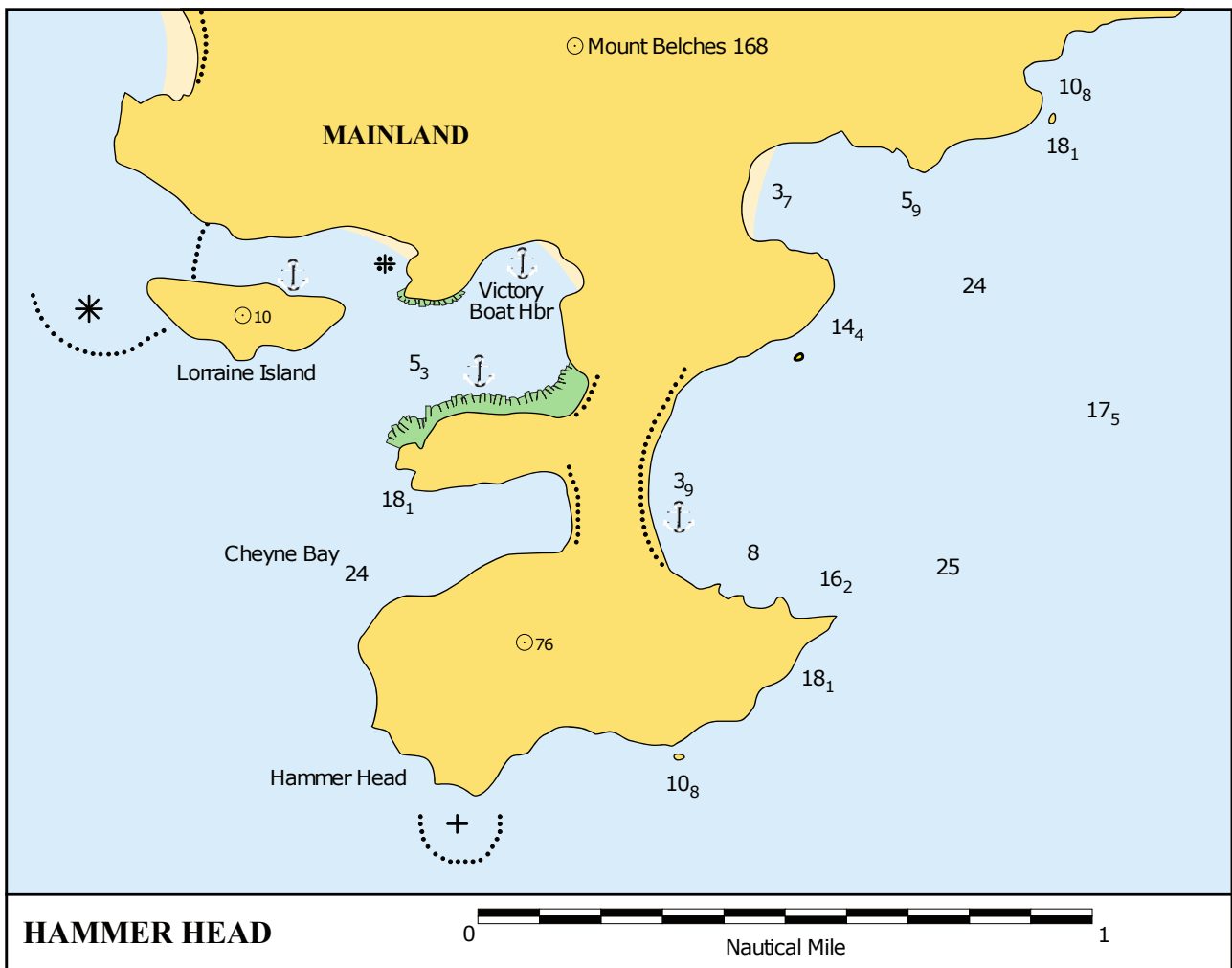
⚓ Mississippi Bay, also called Rossiter Bay, provides anchorage about 1 nm north of Mississippi Point with protection from the W.

History: This was the location where land explorer Eyre, suffering from lack of food and water, met with the American whaler *Mississippi*.

15.4.10 Hammer Head

33° 57'S 122° 34'E

AUS 119 P3, 763



Chartlet 207 Hammer Head

Hammer Head is situated in a national park. Cheyne Bay on its western side has several anchorages.

⚓ The area north of Lorraine Island is reported shallow, though with better holding than at Victory

Harbour.

⚓ Victory Boat Harbour is an excellent anchorage in the northern bay, in 5 m over sand with protection from the NE to S. There has been one report of difficulty getting the anchor to hold in strong NE winds. Note that this is a natural bay with no facilities, as distinct from a purpose-built harbour.

Of interest: From the anchorage there is easy access to the track leading to Mount Belches with a magnificent view.

⚓ In a westerly wind, anchorage can be taken in the bay east of Hammer Head.

Caution: Anchorage in the bay south of Victory Boat Harbour is suspect.

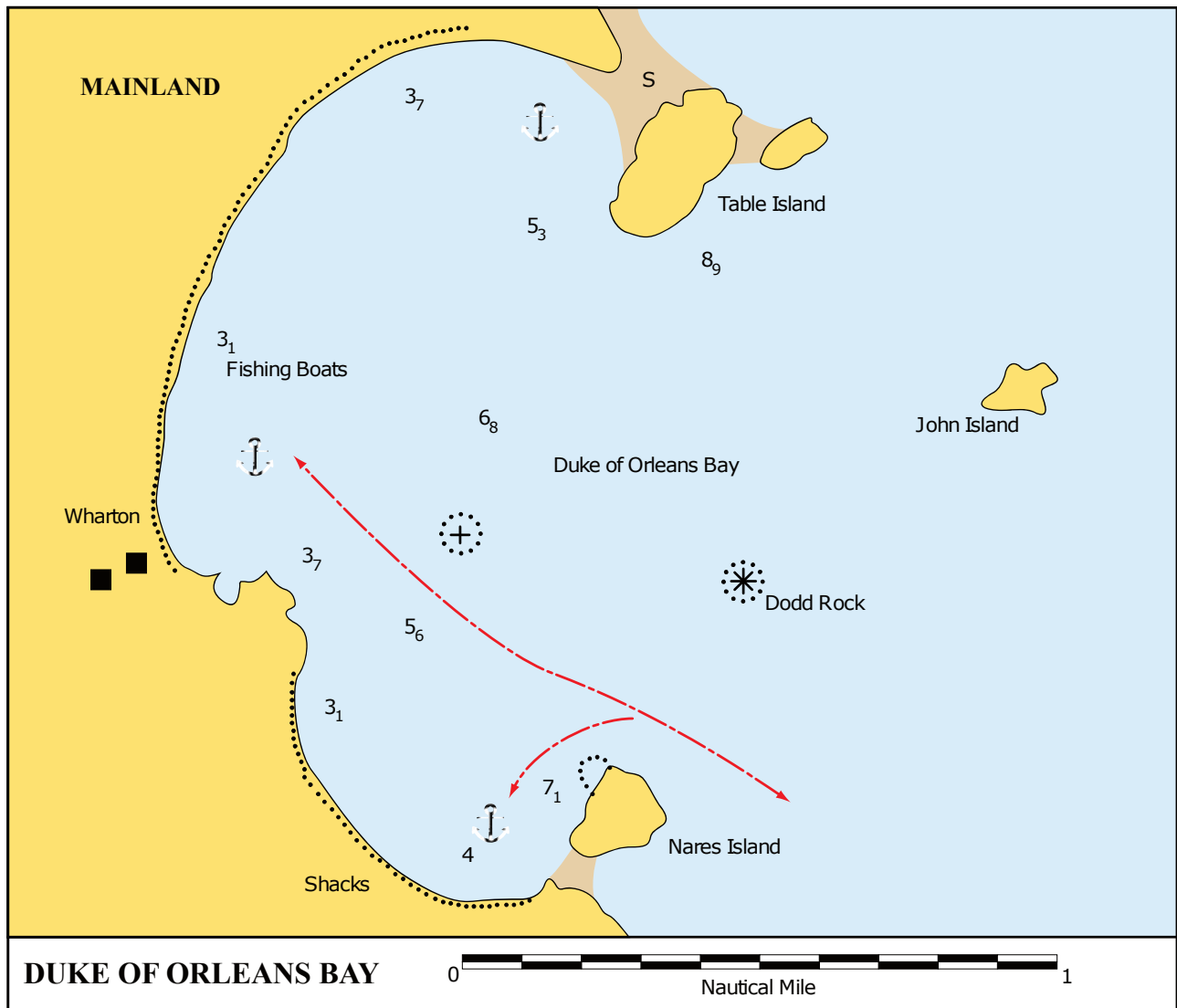


Victory Boat Harbour looking south to Hammer Head (P McHugh)

15.4.11 Duke of Orleans Bay

33° 55'S 122° 36'E

AUS 119 P3, 763



Chartlet 208 Duke Of Orleans Bay

Duke of Orleans Bay has three anchorages.

⚓ The anchorage off Wharton provides protection from S to NW.

⚓ The anchorage near Nares Island is the best of the three anchorages. It is shallower (2-3 m) close in with protection from the S to NW and provides better shelter from the SE. The bottom is thick weed over sand.

⚓ Table Island (33° 55'S, 122° 36'E) in the northeast part of Duke of Orleans Bay, has good anchorage on the northwest side. Sheltered from NE to E winds; anchor in 2-3 m over sand.

Facilities: Caravan park at Wharton. ph: (08) 9075 0033

Of interest: The walk to the top of Mount Belches is well worthwhile.

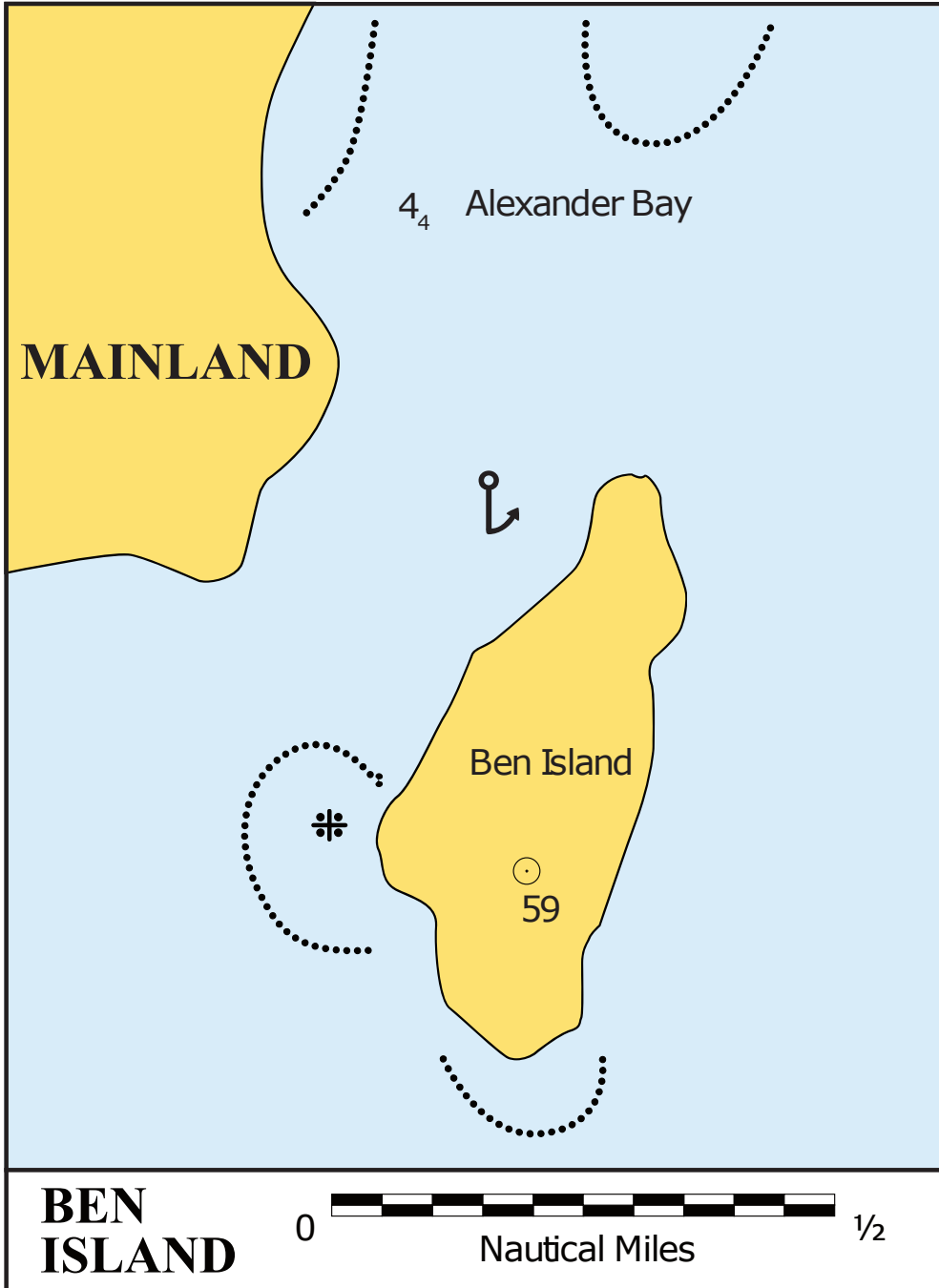
Caution: Dodd Rock usually breaks and is easy to see. The rock west of Dodd Rock towards the

shore is very difficult to spot. It has been suggested that boats should keep inshore when approaching the northern anchorage.

15.4.12 Ben Island

33° 54'S 122° 45'E

AUS 763



Chartlet 209 Ben Island

Ben Island, in the west end of Alexander Bay, has been reported by some yachts as giving protection from E to SE gale force winds. Reports from others have been less favourable.

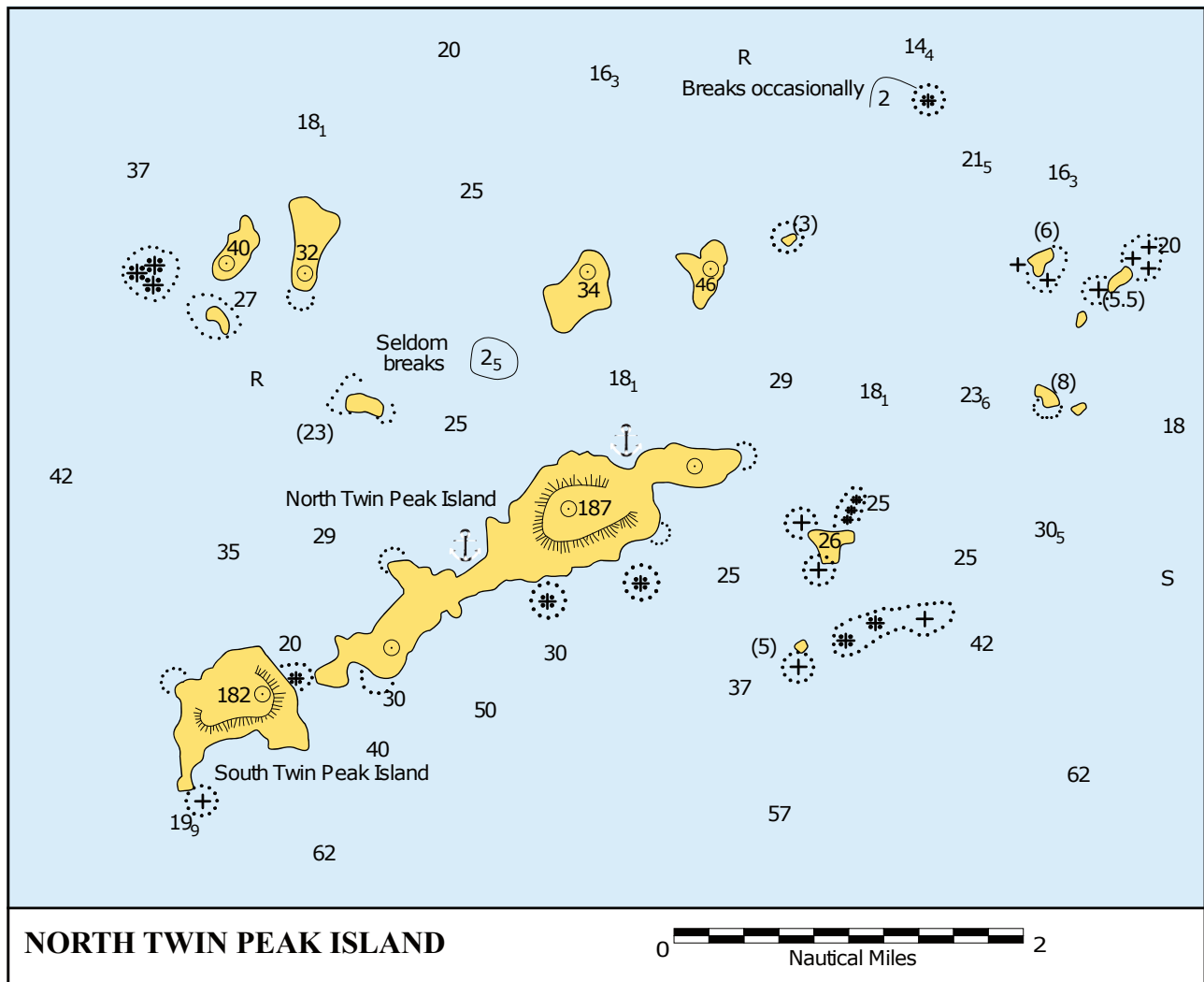
⚓ Anchorage has been taken to the north of Ben Island at 33° 53.5'S, 122° 45.4'E in 10 m of

water. The conditions were NE 8-10 kn wind with negligible swell.

15.4.13 North Twin Peak Island

34° 00'S 122° 50'E

AUS 763



Chartlet 210 North Twin Peak Island

North Twin Peak Island has anchorages on the northern side.

⚓ The westernmost anchorage (33° 59.6'S, 122° 49.8'E) requires anchoring in 10-12 m because of inshore rocks. The shoreline is all rocks.

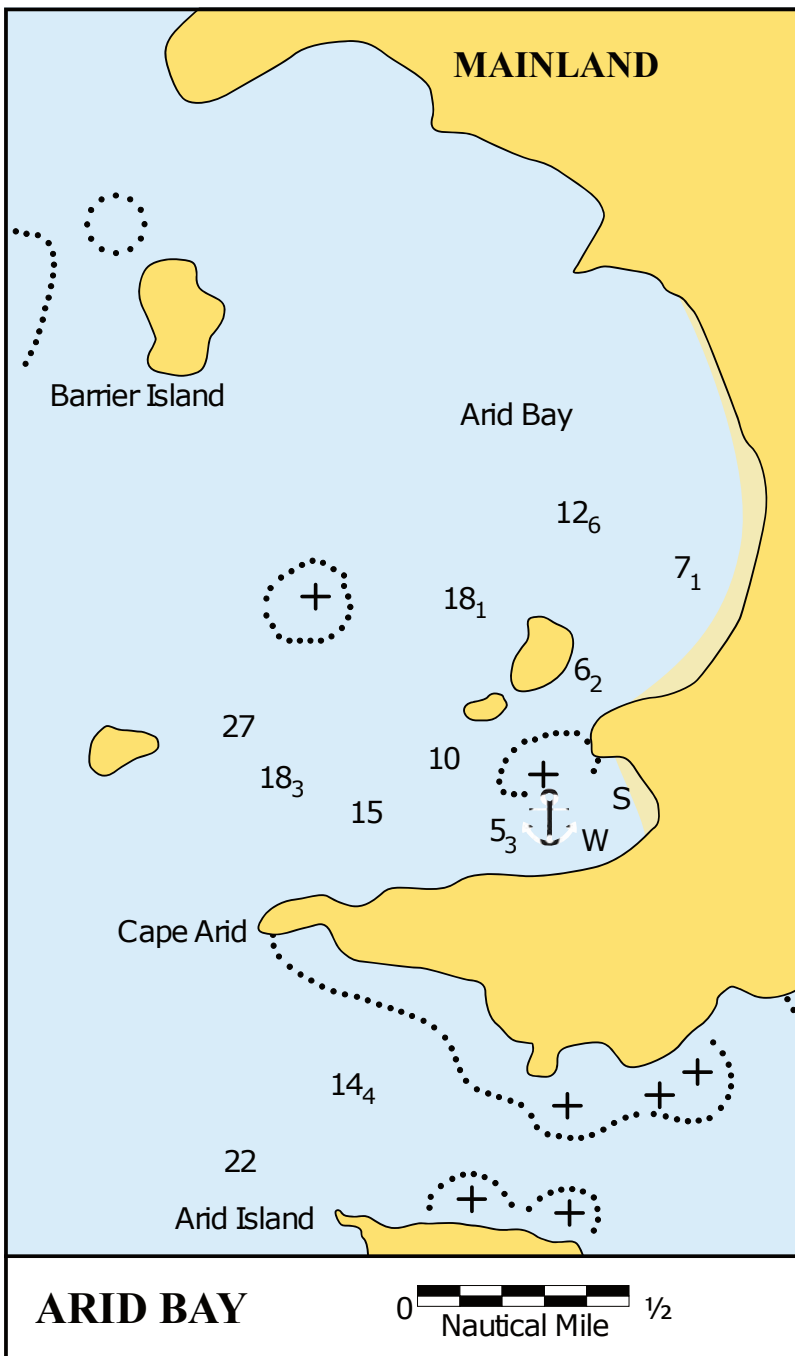
⚓ The anchorage further east off the small beach at the northern end of island is reported better in SE to S winds.

History: The peaks of the northernmost two islands are similar; from this observation Matthew Flinders named the islands the Twin Peak Islands on 14 January 1802.

15.4.14 Arid Bay

34° 00'S 123° 09'E

AUS 119 P4, 763



Chartlet 211 Arid Bay

⚓ Anchorage near Cape Arid is well protected from the E. However, unless the prevailing SW swell is moderate the anchorage and the bay are untenable. Anchor in 3-4 m over weed.

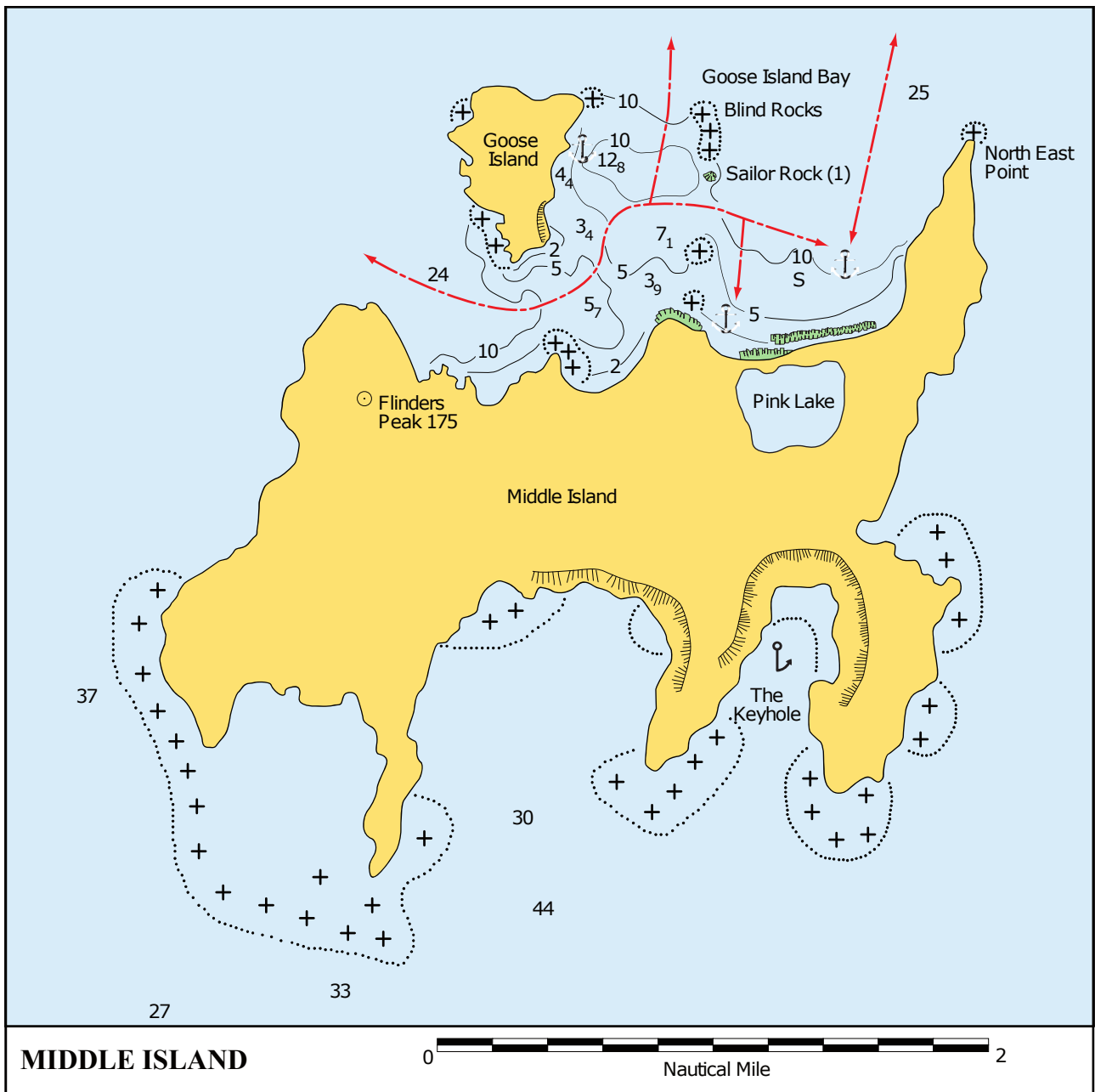
Caution: Reefs are numerous; extreme care is required when entering and leaving in cloudy weather.

Fishing: Good.

15.4.15 Middle and Goose Islands

34° 06'S 123° 11'E

AUS 119 P4, 763



Chartlet 212 Middle Island

⚓ At Middle Island there is anchorage (34° 05.4'S, 123° 12.5'E) between Middle Island and Goose Island, in Goose Island Bay under North East Point, with protection from all but N.

⚓ In SW winds anchorage may be taken up in the south of the bay, near the west end of the landing beach. It has been reported as uncomfortable, even in SE to SW conditions.

Caution: It has been reported that east of Goose Island there are areas of thick weed (kelp) making the holding suspect.

⚓ Near the southeast coast of Middle Island there is a south-facing bay named The Keyhole.

Anchor in 5-6 m LWS over good holding sand. Approach is straightforward and deep. Beware of craypots when entering The Keyhole; there is not much room to go round them at the entrance.

Of interest: Spectacular caves and limestone and granite cliffs surround the bay. It is an interesting place to visit in fine weather.

Tides: Goose Island. Range 1 m.

Facilities: There is good Telstra mobile phone coverage to the north of the island, but none in The Keyhole.

Fishing: Abalone can be picked off the rocks. Note the abalone season in this area is 1 October to 15 May. Catching abalone outside this period is an offence.

History: D'Entrecasteaux named Middle Island in 1792, since it is near the middle of the archipelago. Goose Island was named by Flinders, whose men killed 25 birds on the island in 1802. In 1999 a grave was discovered, which is believed to be the oldest marked grave in Western Australia. It is inscribed "Charles Douglas *HMS Investigator* May 18, 1803".

The Keyhole is said to be the hangout of retired African pirate Black Jack Anderson and his harem in the early 1800s. Also two escaped convicts from Tasmania are thought to have made Middle Island their hideaway.

Of interest: There is a pink-coloured lake. Flinders Peak provides good views.

Passage notes:

Middle Island/Cape Arid is often used as a point of departure for crossing the Great Australian Bight, "Departing Cape Arid bound for Cape Catastrophe". (Matthew Flinders can be thanked for these gloomy names.)



Middle Island, The Keyhole looking south (R Weston)

15.4.16 Gulch Island

(no chartlet)

34° 01'S 123° 15'E

AUS 763

⚓ Gulch Island offers good protection from all but N, with no swell. Thick weed necessitates careful anchoring. The holding is sand and some rock. The anchorage is small and about 5-9 m deep.

15.4.17 Sandy Bight - Fern Creek

(no chartlet)

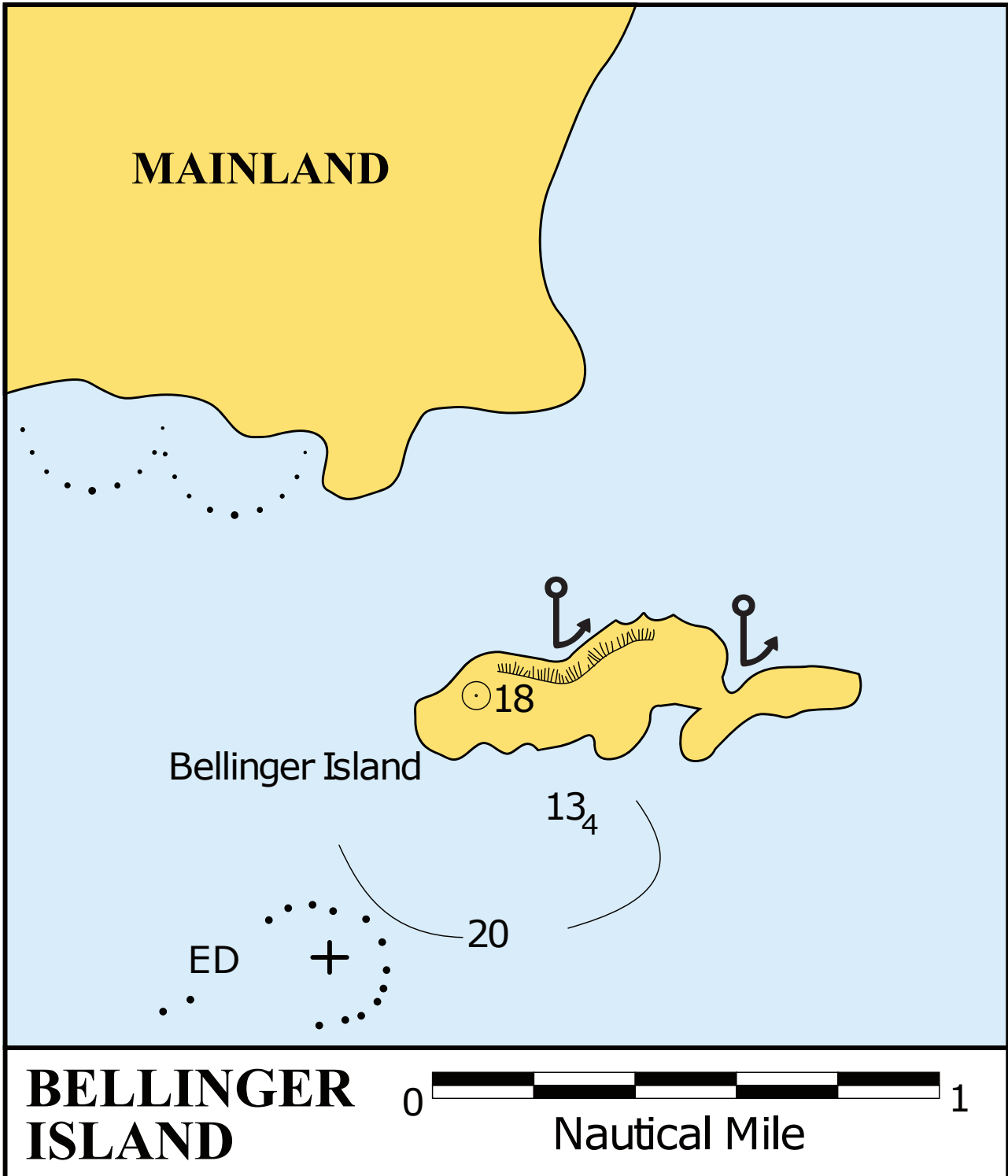
AUS 763

⚓ Anchorage has been taken at an unnamed island in Sandy Bight recommended by a local fisherman, at about 33° 55'.0S, 123° 20.0'E. Approach from the southeast. Privately owned fishermen's moorings are available by agreement.

15.4.18 Bellinger Island

33° 53'S 123° 38'E

AUS 763



Chartlet 213 Bellinger Island

Bellinger Island is 6 nm northeast of Cape Pasley. Shallows have been reported extending 1.5 nm to the south and southwest of the island. The ocean breaks through the gap in the centre of the island during high tide and in rough weather. There are anchorages on the north side of the island.

⚓ Anchorage in sand patches off the sand cliffs towards the west end of the island in 4-7 m is preferable in SE to S winds.

Caution: Off-lying rocks near the surface.

⚓ Anchorage just east of the gap is preferable in SW weather.

15.4.19 Point Malcolm

(no chartlet)

33° 48'S 123° 46'E

AUS 4727

⚓ Point Malcolm lies 7 nm northeast of Bellinger Island. It is protected from S to NW winds; anchor over sand and weed in 3 m.

Caution: Reef extends for more than 2 nm north-northeast from the point. A break is not always evident.

15.4.20 Daw Island

33° 52'S 124° 08'E

AUS 4727



Chartlet 214 Daw Island

⚓ Daw Island is about 2 nm long and 150 m high, with no off-lying dangers except for a rock off the northeast tip. The small headland at the entrance to the northwest corner of the bay has a distinctive knob. It has two small islets off its southwest coast that give protection to a small bay. This makes it effectively a horseshoe shaped bay open to NNW winds. There is a gap between the islands in the south-southwest corner through which swell can penetrate then refract, before dissipating. The location of the island varies by over 3 nm between different charting systems.



Approaching Daw Island from east. Distinct nobby bit on the NE side of island allows for easy recognition
(P&C Ainsworth)



Closing Daw Island from east (P&C Ainsworth)

Approach with the sugarloaf on the south end bearing about 140° until a small sandy beach at the head of the bay bears 145° . Take up this bearing and anchor when the depth reaches 18 m. The seabed is flat, mainly sand with good holding. Anchorage has been taken to the east of the gap at

33°51.2'S, 124° 07.9' E in 12 m water (to keep away from the gap). This location was comfortable in 20-25 kn S wind, 2-2.5 m long low swell.

Fishermen sometimes anchor northwest of the gap.

Anchorage has also been taken in 8 m depth at position 33° 51.4'S, 124° 08.0'E, though the datum for these coordinates is not known. Protected from winds from the NE through SE to SW but it is very rolly in NE winds, even close in.

Tides: Daw Island. Range 1.4 m.

Of interest: Sea lions abound. It is possible to hike to the summit, though a sign warns that death adders are present in large numbers.



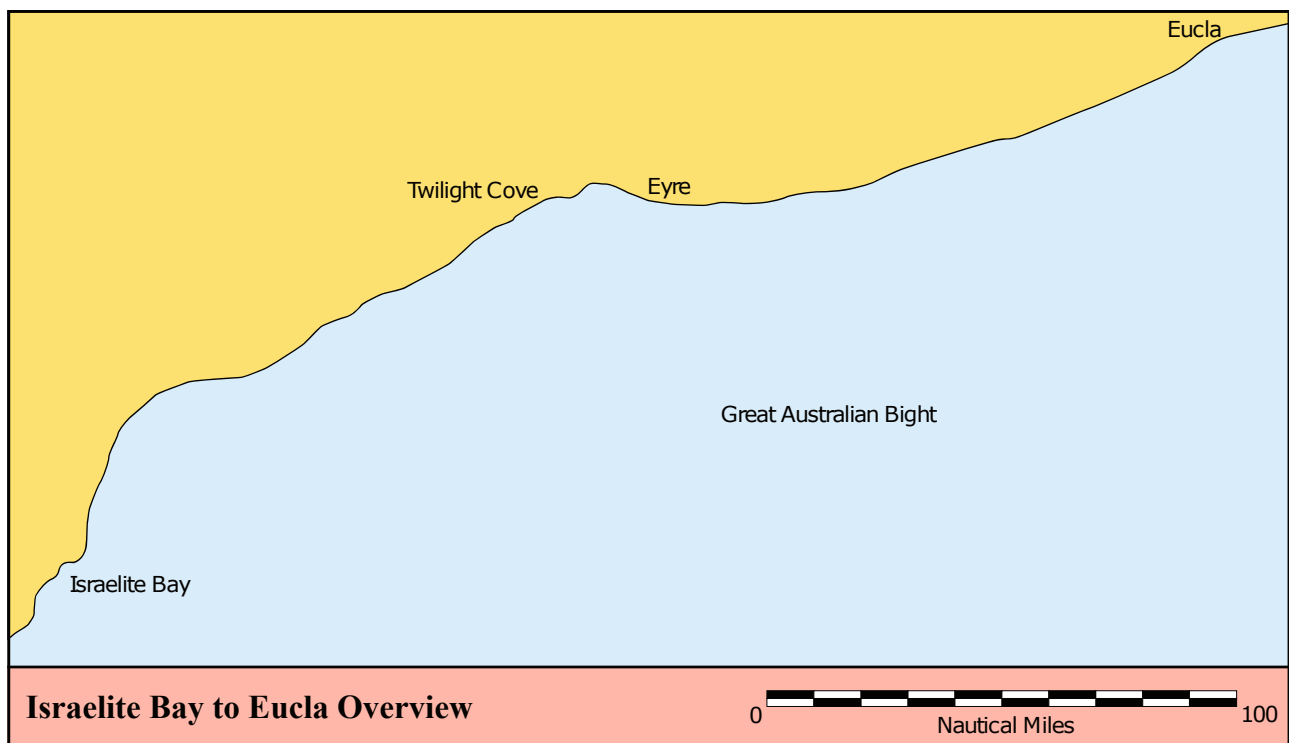
Daw island anchorage looking south (P&C Ainsworth)

Passage notes:

The anchorage has been used as a point of departure to cross the Bight as an alternative to Middle Island, which is 49 nm further west on a bearing 250°.

15.5 Israelite Bay to Eucla

Charts AUS 4727

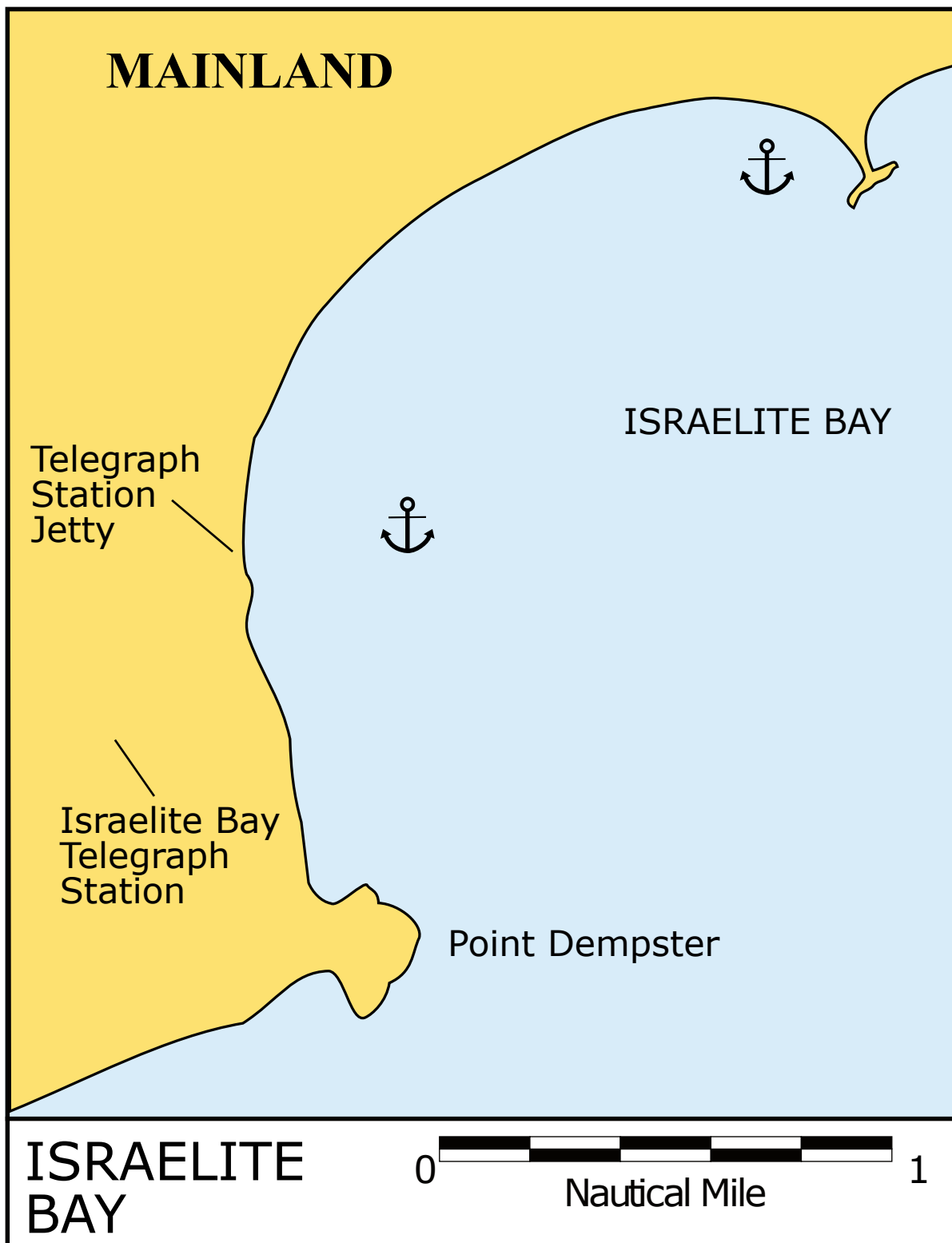


Chartlet 215 Israelite Bay To Eucla Overview

15.5.1 Israelite Bay

33° 37'S 123° 53'E

AUS 4727



Chartlet 216 Israelite Bay

⚓ Israelite Bay is formed by a reef extending about 1 nm northeast from Dempster Point. Jetty ruins are situated about 1 nm northwest of the point. From the south, the anchorage is approached keeping about 2 nm off Dempster Point. An alignment of 260° on the jetty and a slight hill in the distance leads to anchorage inside the reef, about half mile off the jetty in 7 m. With caution

anchorage may be found closer in. The bay provides good anchorage, which is sheltered from the S to NW. There is shelter from the E behind a sand and weed bank, halfway between the jetty and the southern point. There are shoals nearer the jetty and throughout the bay, best seen from aloft in favourable conditions. It has been reported that further shoaling limits access to this location.

⚓ Anchorage has been taken about 2 nm northeast of Point Dempster in 2 m water at 33° 35.6'S, 123° 54.1'E (depths 3-4 m in places further offshore). There was barely any rolling in waves 1-2 m from the southwest and winds NE 30 kn. The seabed here is mainly seagrass with some sand. Approach to the anchorage should be made heading east-northeast so as to avoid the protecting reef extending west-southwest from the nearby headland.

Facilities: None.

Of interest: The old telegraph station, which was on the transcontinental telegraph link, is worth a visit.



Anchorage in north corner of Israelite Bay (N&H Remy)

15.5.2 Twilight Cove

(no chartlet)

32° 17'S 126° 01'E

AUS 4727

⚓ Twilight Cove is near where the cliffs recede from the coast. It is 30 nm east of Point Dover and provides a good landing protected by shallows offshore.

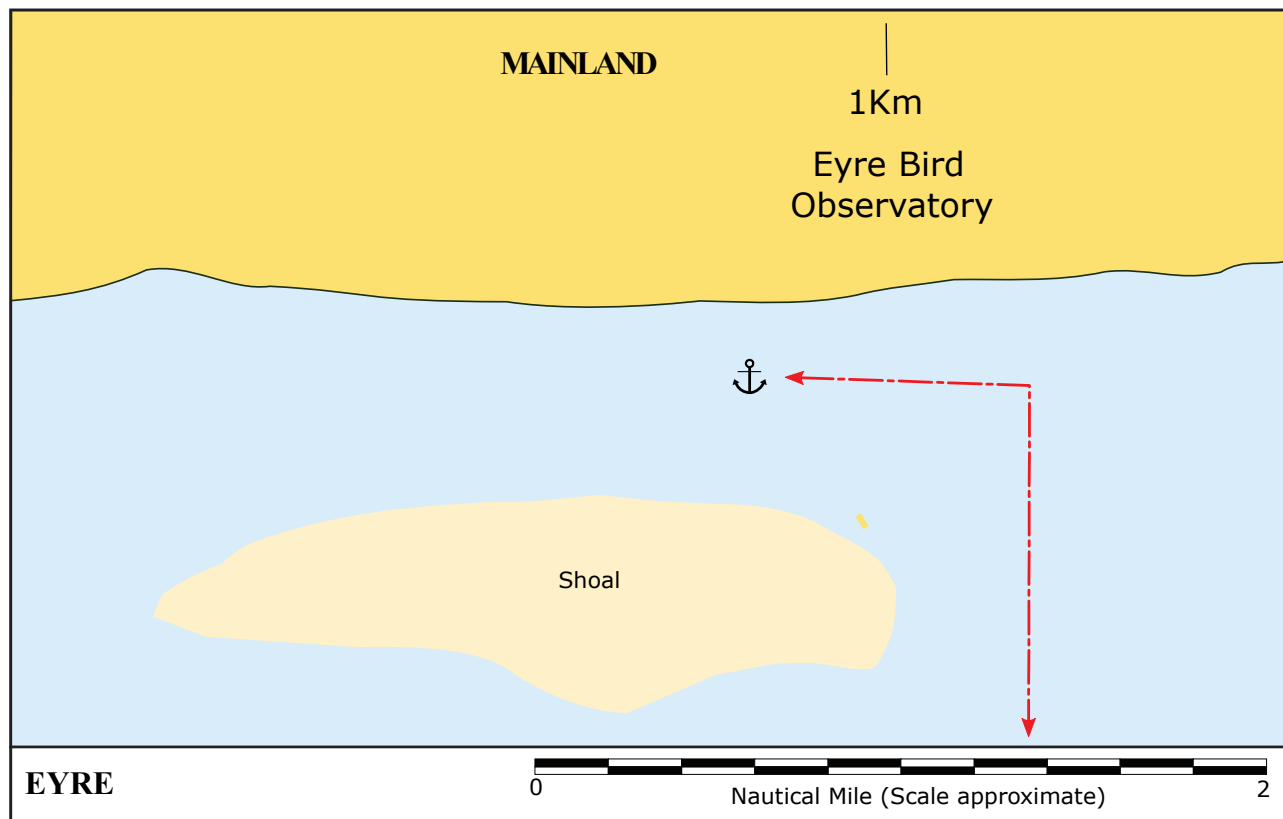
Facilities: None.

History: The cove was named after the cutter *Twilight* which was wrecked on 24 May 1877 while supplying material for the Albany to Eucla telegraph line.

15.5.3 Eyre

32° 16'S 126° 17'E

AUS 4727



Chartlet 217 Eyre

⚓ Eyre is landmarked by the Eyre sand patch and a domed sand hill. Anchorage is possible between the shallows and the shore at 32° 15.5'S, 126° 17.9'E, in 5 m over sand. Protection in a SE wind is limited, and the beach is subject to surf.

Tides: Point Eyre. Range 1.6 m.

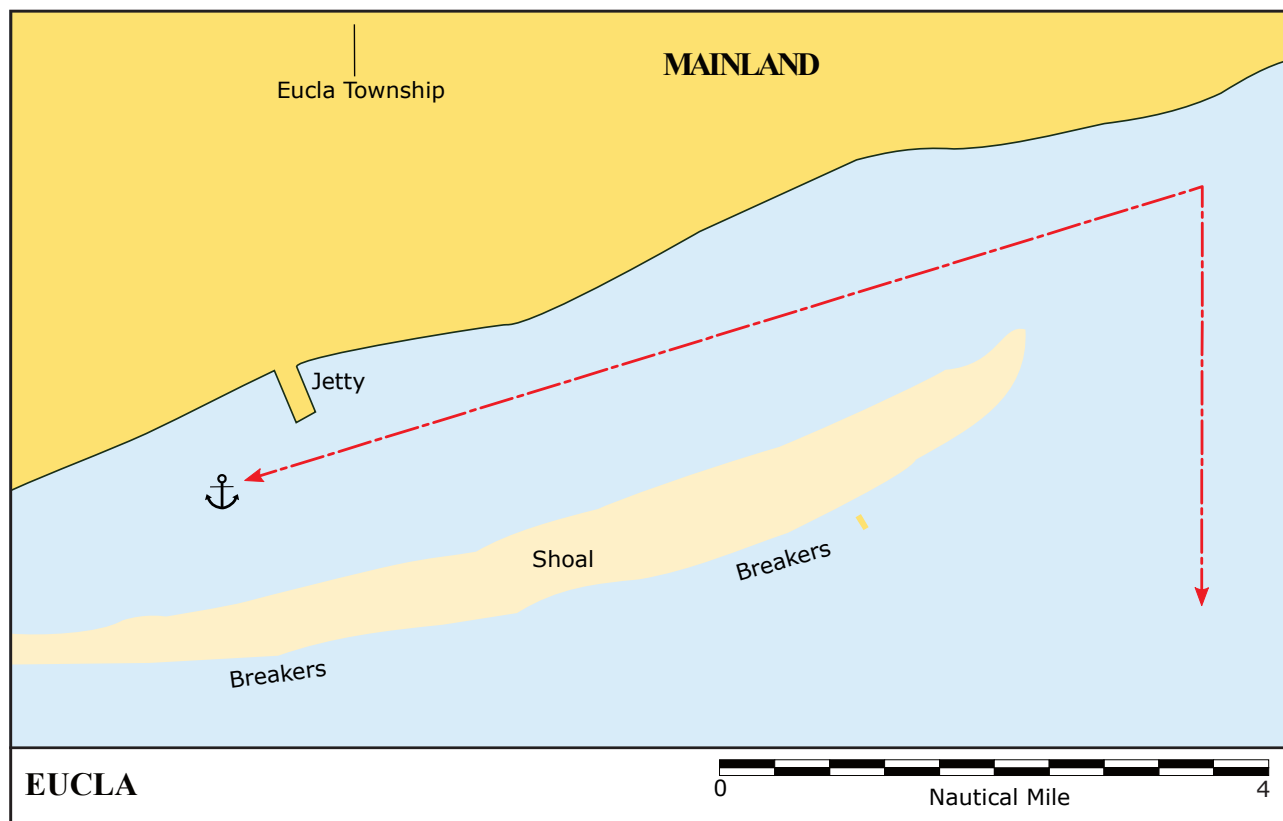
Facilities: None, though the Bird Observatory caretakers might be called on for help in an emergency Ph: (08) 9039 3450.

Of interest: The Eyre Bird Observatory is in the old telegraph station about 1 km inland. It is the most isolated research facility in Australia. It is open to day visitors www.birdlife.org.au

15.5.4 Eucla

31° 44'S 128° 53'E

AUS 4727



Chartlet 218 Eucla

⚓ Eucla is the only anchorage between Eyre and Fowlers Bay to the east, a distance of over 300 nm. While exposed to winds from SE to SW, the anchorage is protected to some extent by shoals about 6 nm long on which seas and swell break. Yachts should pass around the eastern end of these shoals.

The best landfall for Eucla is Wilson Bluff, which is 90 m high and of dark rock, east of which the lower cliffs are white. Wilson Bluff is the western extremity of the 110 nm stretch of cliffs extending into the head of the Great Australian Bight.

The approach is due north on longitude 129° 00'E. Turn west approximately 0.5 nm from the beach and continue for approximately 6 nm. Anchor in 3-6 m over sand, west of the ruined jetty. The anchorage at 31° 43.9'S, 128° 53.4'E offers protection in all weather, and even in strong SW winds it is possible to land by dinghy on the beach. A 14 m, 20 tonne yacht rode out a 30 kn southerly here "with tolerable motion".

Tides: Eucla. Range 1.4 m.

Caution: A beam swell as a result of heavy SW weather will make the approach dangerous.

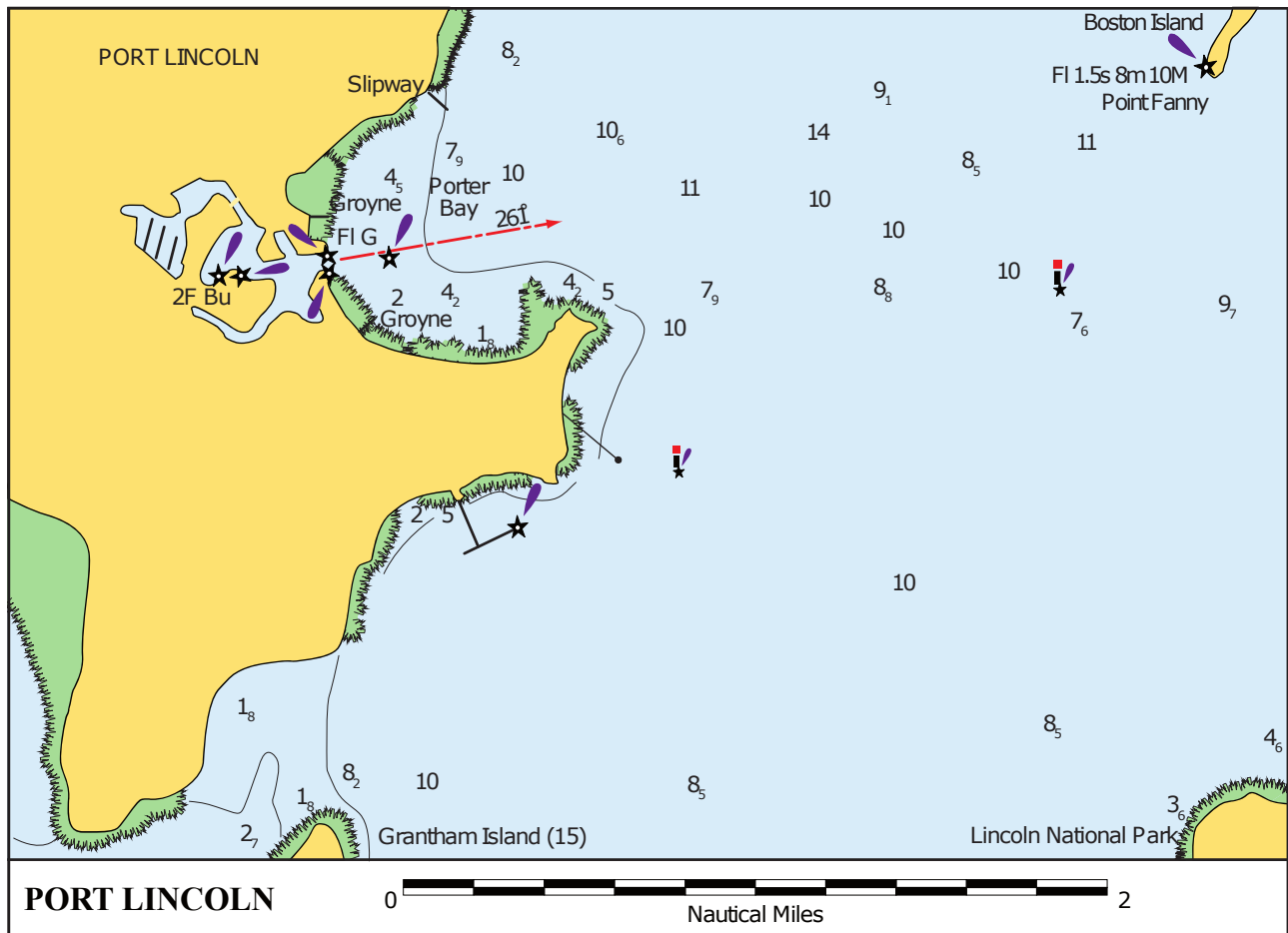
Facilities: Telstra mobile coverage in the anchorage. The settlement of Eucla is about 8 km inland and consists of a caravan park, hotel, nursing post (see section 7.5) and roadhouses with fuel. Four-wheel-drive vehicles frequent the beach and could be of assistance.

Of interest: Remains of an old telegraph station onshore.

15.5.5 Port Lincoln (S Australia)

34° 44.5'S 136° 53.0'E

AUS 134



Chartlet 219 Port Lincoln

The Lincoln Cove Marina is a combined residential, commercial and recreational marina located on the southeast side of Port Lincoln.

Enter through the south entrance keeping clear of the Fanny Point reef then proceed to the marina. The recreational marina is on the port side as you pass the entrance. Contact ph: (08) 8621 4443.

Tides: Port Lincoln. Range 1.4 m

Facilities: Great support in town for mechanical and electrical repairs. There is no toilet or shower facilities available at the Marina. The local swimming centre provides showers and toilets at a cost during opening hours. There is a Club Restaurant adjacent for toilet facilities, again only during opening hours. For a long stay there are apartments for rent.

Introduced Marine Pests

Boaters might not realise there is a big problem with marine species being introduced not only from overseas but also from interstate. The devastating spread of Japanese Kelp along the Victorian coastline is but one example. When sailing to Western Australia from the eastern states it is very important to ensure that your boat is clear of unwanted pests. Having any of these pests on your hull is a breach of the law and the Department of Fisheries (WA) conducts random audits of

recreational vessels. This is not as draconian as might first appear; they provide a very useful and straightforward checklist for boaters to work out if their boat might pose a risk, and a helpline for advice. The checklist, and lots more valuable information is available on their website at http://www.fish.wa.gov.au/Documents/biosecurity/recreational_vessel_biosecurity.pdf;charstyle:Hyperlink

If you think you have found or seen a marine pest, please contact the FishWatch 24 hour hotline on 1800 815 507.

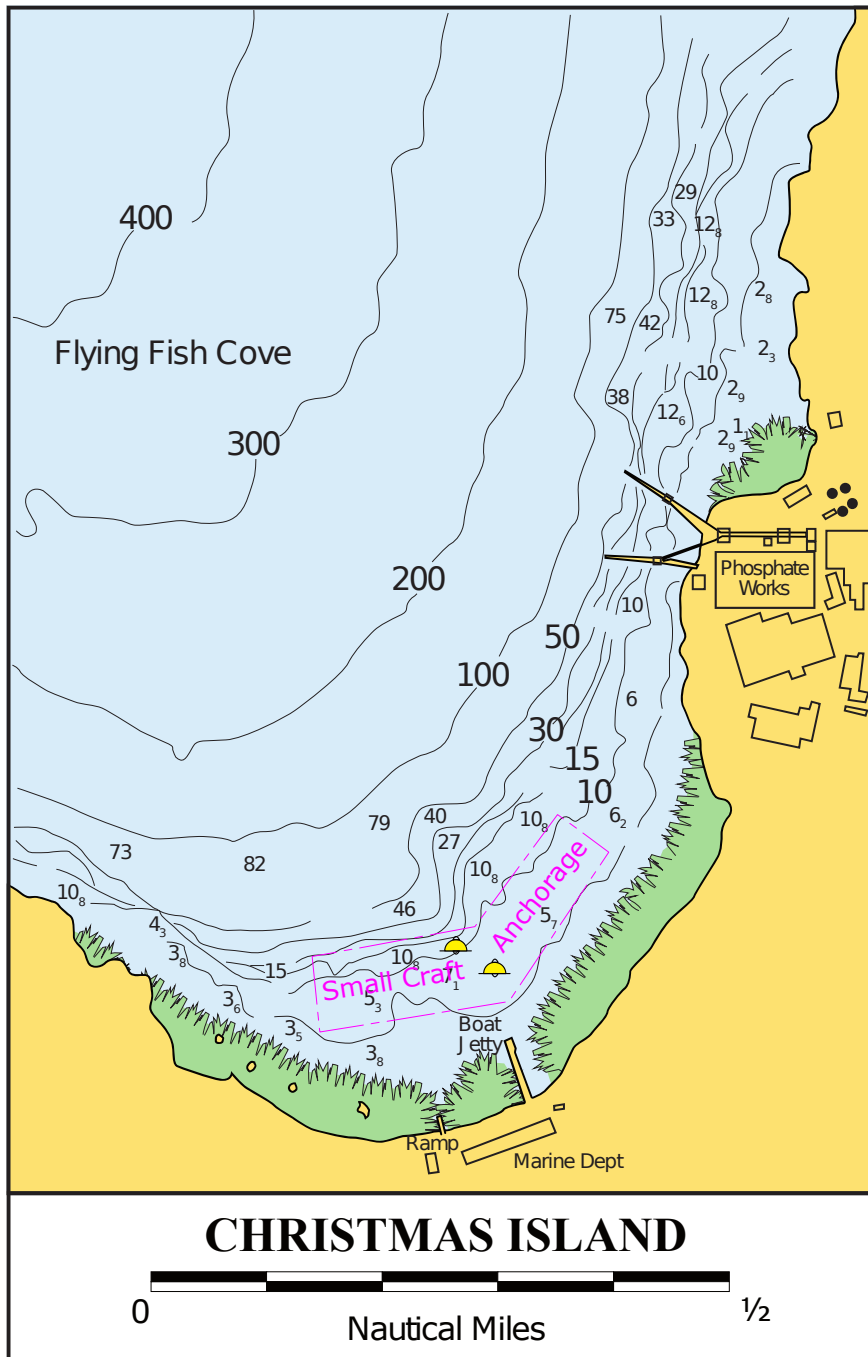
16 OFFSHORE ISLANDS

All the islands described in this chapter lie more than 150 nm off the West Australian coast. They are all Australian territory.

16.1 Christmas Island

10° 25.5.0'S 105° 40.0'E

Charts: AUS 4708, 400, 608, 920



Chartlet 220 Christmas Island

Christmas Island lies 1,400 nm northwest of Fremantle, but only 230 nm south of the Sunda Strait

separating Java and Sumatra. It covers an area of 135 sq km and has been formed from the peak of an extinct volcano. The island rises from a depth of 5,000 m, and much of the Island forms a plateau 300 m above sea level. It offers an interesting stop-over in a unique ecosystem, which has been described as the “Galapagos of the Indian Ocean”. The community comprises about 1,500 residents with a harmonious multicultural mix (60 per cent Chinese, 20 per cent Malay and 20 per cent Caucasian). A small-scale mining operation is the mainstay of the Island’s economy. The Australian Government’s immigration detention centre provided significant employment for a period in the 2000s. The island has long been a stop-over for yachts heading across the Indian Ocean, and is an optional brief stopover for the World ARC Rally. Cruise ships also occasionally visit the Island.

16.1.1 Flying Fish Cove

10° 25.5’S 105° 40.0’E

⚓ Flying Fish Cove is the only anchorage. If you are coming from the E, approach from the north after rounding Northeast Point. SE trade winds can be expected from April to November and the Cove provides satisfactory shelter during this period. Visiting from December to March is not recommended due to the increased frequency of winds from the W and NW (making the anchorage untenable), and the possibility of cyclones.

The best time for yachts to visit is late September or the first week of October (Territory Week), when residents celebrate the anniversary of the island becoming an Australian Territory.

All yachts are subject to Australian customs and quarantine regulations, even if arriving from mainland Australia (see section 10.1). On or before arrival contact Customs and Immigration on (08) 9164 7228 or VHF Ch 16 or 82 (local repeater system), tie up to an available mooring and display the yellow quarantine flag. Several moorings are provided for visiting yachts. Anchoring is prohibited in order to protect the coral gardens, which have an international reputation. There is a small charge for mooring. For further information contact the Harbour Master at westernci@pulau.cx, VHF Ch 16 or 82, or Ph: (08) 9164 8434.

Facilities: Showers and toilets, gazebos and barbecues are available. The Visitor Information Centre, post office, Westpac bank, supermarket, fuel station, pharmacy, cafés, tavern and workshop for mechanical and marine repairs are all a short walking distance from the Cove. The hospital (see section 7.5) is modern and well-equipped. There are no tropical diseases, and all services are to mainland Australian standards. There are flights to Perth twice a week, and also flights to Jakarta. Telstra is the only mobile phone service provider.

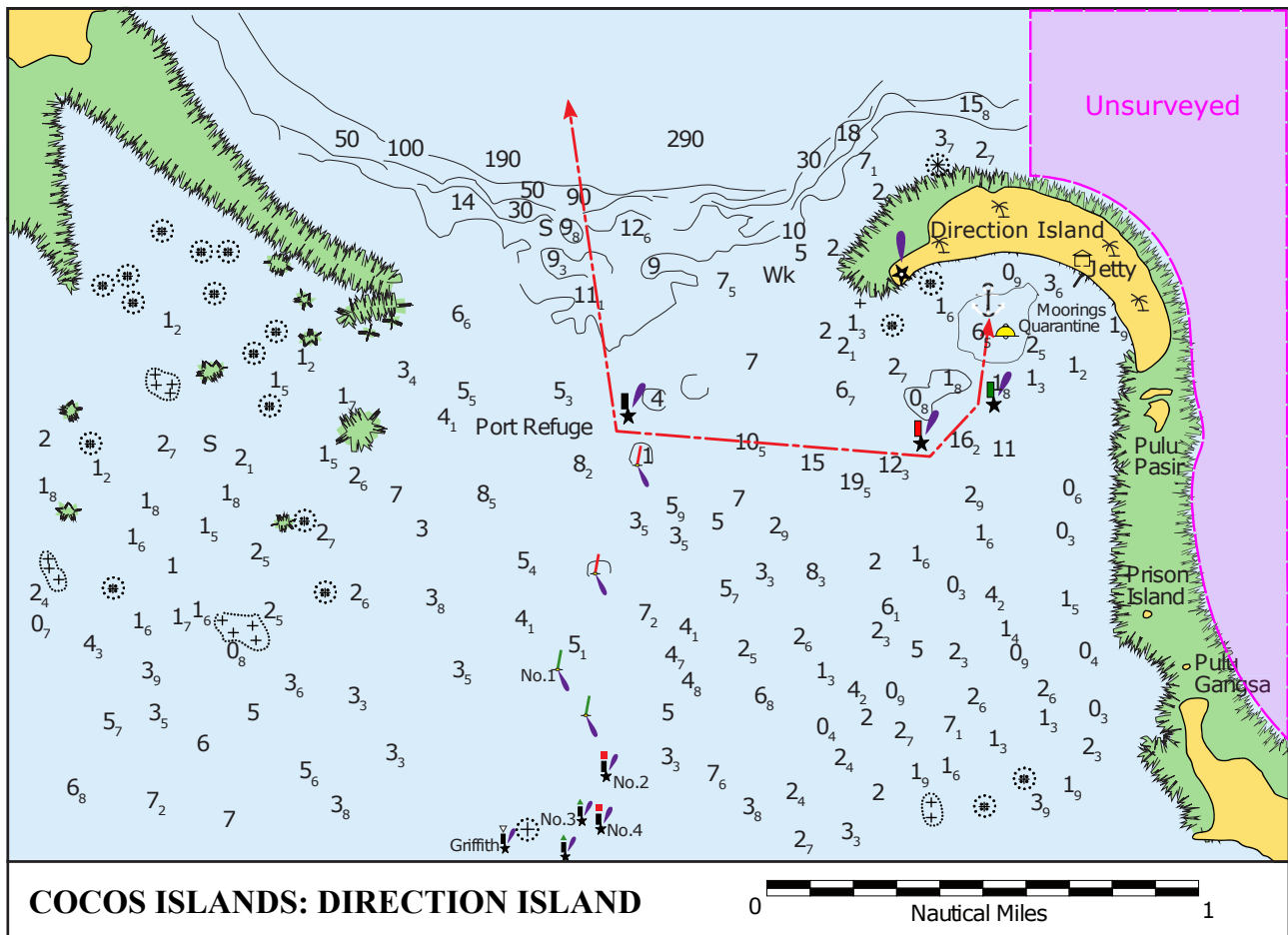
Of interest: Two-thirds of the island is a National Park, the majority of which is pristine rain-forest. In December and January tens of millions of red crabs (*Gecarcoidea natalis*) migrate down from the rainforest to the coast to breed and spawn. Many varieties of sea birds can be seen. The visitor information centre provides all the advice needed for exploring the island, and can arrange tour guides, diving and snorkelling charters and fishing charters.

History: Captain Mynors named the island on Christmas Day 1643. William Dampier landed in 1688 but no settlement took place until 1887 after phosphate was discovered.

16.2 Cocos (Keeling) Islands

12° 05.5'S 96° 52.8'E

Charts: AUS 606, 607, 4708, 4714



Chartlet 221 Cocos Islands: Direction Island

The Cocos Islands lie approximately 500 nm west of Christmas Island and 1,700 nm northwest of Fremantle. They comprise two atolls consisting of many coral islands, most of which form the southern atoll. Some charts refer to North and South Keeling Islands. Only Home Island and West Island are permanently inhabited. Home Island is the home of most Malays, where the Muslim religion is the predominant faith. Particular notice should be taken of dress standards. West Island is where you will find the Australian expatriates. The islands are 1.5 hours behind WST. i.e. UTC + 6.5.

Like Christmas Island they lie under the SE trades which blow between April and November. Excellent anchorage in sand can be found in the lee of Direction Island. The clarity of the water is superb. The first solo circumnavigator Joshua Slocum anchored here and is reputed to have said, "If there is a paradise on earth it is here at Keeling". Anchoring is restricted to Direction Island.

Customs and quarantine

All yachts are subject to Australian customs and quarantine regulations, even if arriving from mainland Australia (see section 10.1). Check with Australian Quarantine Inspection Service (AQIS) before departing your previous port. Call on VHF Ch 20 when a couple of hours out and follow their instructions regarding anchoring etc. Formalities are straightforward and quickly completed. If you

have the facility of a “bonded frozen store”, exemption may be granted.

Passage notes

Charts of the approach to the Direction Island anchorage are poor. This includes current Navionics and Garmin charts, as well as older CM93 charts. Enter from the north or northwest, starting at the conspicuous and well-charted “Port Refuge” black pile beacon at 12° 05.8’S, 96° 52.0’E. Proceed east from there to the large red port lateral pile at 12° 05.8’S, 96° 52.7’E. The next leg is the interesting one. Proceed approximately northeast to the smaller green starboard lateral pile, leaving it close to starboard. You will cross threatening-looking dark areas which are deep coral. Minimum depths of 4.5 m and 3.1 m have been reported.



Approaching Direction Island from east (M Reynolds)

⚓ From the green pile proceed north-northeast and anchor in sand, avoiding the deep coral patches in the anchorage. There is a jetty for the ferry which visits occasionally; avoid anchoring east of the jetty in order to keep out of the ferry’s path. On one very rare occasion when the wind blew 40 kn from SSE, the anchorage was barely tenable, with 1 m seas; however, once the wind backed to SE the seas were reduced. It has been reported that a slight swell enters the anchorage with the wind from NE.



Anchorage at Direction Island (M Reynolds)

Direction Island facilities:

There is a limited supply of drinking water, a telephone, barbecue, table and a shelter. Paid WiFi is available at the shelter during daytime, though it is not reliable. It is customary for visiting yachts to leave a small memento in the shelter, identified by the carving or painting of the yacht's name. It would not be unusual for as many as fifteen to twenty yachts from many countries to be at anchor during September. A ferry service runs between Home and Direction Island Monday to Saturday.

Home Island Facilities:

Facilities include a post office, internet access, supermarket, bus service, bike and dive hire services, tourist centre and a restaurant. Alcohol is duty free. There is no laundry. There is a medical centre (see section 7.5) with a resident doctor, but no hospital.

When heading west across the Indian Ocean, Cocos provides the last opportunity to stock up on any items that may have been overlooked. Cocos Island is provisioned monthly by ship and regular flights arrive from Western Australia. Food is more expensive than mainland Australia; prices vary from 20 per cent higher for tinned food to substantially more for fresh and frozen produce. Small local gardens and fishing contribute to the food supply.

Businesses are sometimes open bizarre hours - for example the fuel supplier is only open for 2 hours a day, 3 days a week.

There is a Commonwealth Bank agency on both Home and West Islands. The bank does not accept cards from other banks, nor foreign currency or travellers cheques. Most businesses accept

major credit cards and EFTPOS but it is recommended that you bring enough Australian cash with you, in small denominations. There is one ATM, at the Community Resource Centre on Home Island; it only accepts Commonwealth Bank cards and is open only during office hours.

Water, fuel and propane gas are available on Home Island. Transport is your responsibility.

Travel between Home and West Island is by local ferry which operates Mon-Sat. The airport is on West Island, with flights to Perth via Christmas Island twice a week. There are some facilities on West Island, including a bank agency, a cafe and a restaurant.



West Island beach (M Reynolds)

Of interest: Grown throughout the islands, coconuts are the sole cash crop. Copra and fresh coconuts are the major export earners.

Diving: “The rip” provides excellent snorkelling at the east end of Direction Island.

History: Captain Keeling first sighted the northern atoll in 1609. John Hare settled the southern atoll in 1826. John Clunies Ross arrived a year later and settled on Home Island. John Hare and Clunies Ross could not get on together. The upshot saw the departure of John Hare in 1831. Clunies Ross was responsible for the destruction of rainforest and the establishment of a copra plantation. Malay labourers were brought in to work the plantation. The islands have experienced a chequered history having been administered by England and Ceylon (as it was then). It is now an Australian Territory. Direction Island was used as a telegraph cable station, but little remains of the buildings.

Passage notes:

Cocos is the final departure point for many cruising yachts intending to cross the Indian Ocean. Departing yachts then head for either Chagos, Sri Lanka, India, Oman, Yemen and the Red Sea; or Seychelles, Mauritius, Madagascar, the African coast and westward around Cape Town.



On the phone in the shack at Direction Island (M Bixley)

16.3 Rowley Shoals

17° 20.0'S 119° 20.0'E (Clerke Reef)

Charts: AUS 325, 48

Rowley Shoals, comprising Imperieuse, Clerke and Mermaid Reefs, are 170 nm west-northwest of Broome. They are unique continental shelf atolls positioned on the edge of the shelf. The tidal range is greater than any other oceanic atolls, resulting in an abundance of sea and bird life. 528 species of fish and 233 species of coral are to be found there. Mermaid and Clerke Reefs, each with a navigable channel through the reef into the lagoon, are the most frequently visited of the three atolls. Mermaid Reef has the easiest navigable entrance. Imperieuse Reef channel is only navigable by dinghy.

The best time to visit the Rowley Shoals Marine Park is during August or September when the easterlies are lightest. During strong easterlies the water is less clear.

Vessel access to these marine reserve areas is restricted. It is essential to book a visit with DBCA well in advance to ensure there are moorings available for your vessel (see below). Because of their remote location, most visitors access the Rowley Shoals by charter boat, and trips are generally a minimum of five days. Peak sailing season for most of these charter operators is between September and December, when ocean conditions are most favourable. The shoals are uninhabited.

Imperieuse and Clerke Reefs make up the Rowley Shoals Marine Park (RSMP). They have permanent islands so are surrounded by State waters and are managed by DBCA. Mermaid Reef is a Marine Commonwealth Nature Reserve (MRMCNR). It does not have permanent land above the high water mark so it is surrounded by Commonwealth waters and is managed by the Commonwealth Department of the Environment, with assistance from DBCA. It's complicated! Collection of plants, animals or objects including coral or shells is prohibited anywhere in the RSMP or MRMCNR. The taking of a number of fish species is prohibited, including coral trout, wrasse, cod, grouper and tuskfish. Prior to visiting the Rowley Shoals, please ensure the following:

- There is to be no release of sewage or waste, treated or untreated, within the lagoons or within one nautical mile of the reef edge. You will be asked to provide details of your vessel's sullage capacity prior to booking moorings at the Rowley Shoals.

- Please ensure you are familiar with the Marine Park zoning scheme prior to your visit. These zones provide reference areas that help us to measure the impact of human activity on the environment as well as protect habitats and the wildlife in them.

Should it be necessary to report any wildlife in distress, environmental disturbance, suspicious vessel behaviour or other incidents whilst at the Rowley Shoals, call the DBCA Broome office.

For more information go to <http://parks.dpaw.wa.gov.au/park/rowley-shoals> and http://parks.dpaw.wa.gov.au/sites/default/files/downloads/parks/2008249_rowley_shoals_mp_brochure.pdf



Rowley shoals bird life (A Gorham)



Rowley shoals coral (A Gorham)

16.3.1 Moorings

There is no anchoring permitted in Rowley Shoals except in an emergency. To ensure safe boating and reduce anchor damage to the spectacular coral reef habitats, public moorings have been installed at various locations at each of the three atolls, for use by all visitors to the shoals.

Moorings are available on the outer edge of Imperieuse and Clerke Reef, and inside the lagoons at both Clerke Reef and Mermaid Reef. All vessels (commercial and recreational) are required to book the overnight moorings prior to their visit. Mooring bookings for all three reefs are made through the DBCA West Kimberley District Office in Broome. To avoid disappointment book well in advance of your visit to the reserves. For more detailed information on the moorings, or to make a booking, please contact:

Parks and Wildlife Service,

Broome Work Centre

111 Herbert Street

BROOME WA

PO Box 65

BROOME 6725 WA

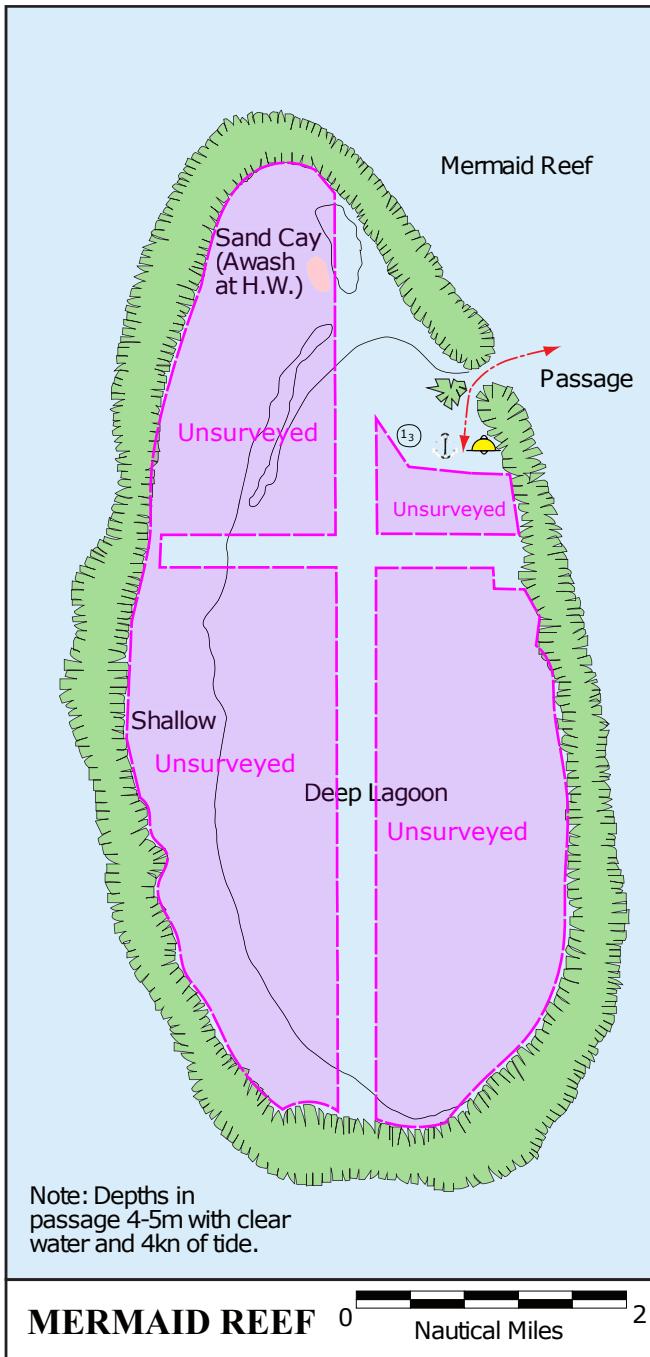
Ph: (08) 9195 5500

Email: rsmp@dpaw.wa.gov.au

16.3.2 Mermaid Reef

17° 06'S 119° 37'E

Chart: AUS 325, 48.



Chartlet 222 Mermaid Reef

The reef provides some shelter in a lagoon surrounded by coral reef. There is some swell noticeable at HW. Depths of up to 20 m are found within the lagoon. The entrance passage can be

hard to find, especially with an ebb tide, because the tide rip merges with the breakers on the reef. The passage is about 60 m wide with minimum depths about 4 m. Good visibility with the sun high is required to avoid dangers. Tidal currents and violent tide rips set through the passage at a considerable rate. There is a shoal at the inner end; hold to the south side near the reef to avoid this.

Caution 1: In clear weather the reef is not apparent until 2-3 nm off. Radar does not pick up the cay during HWS because it is below sea level then.

Caution 2: It is unwise to leave before mid-morning because the sun's reflection obscures the passage.

Moorings: Thirteen moorings are available and must be booked via DBCA Broome office.

More information at:

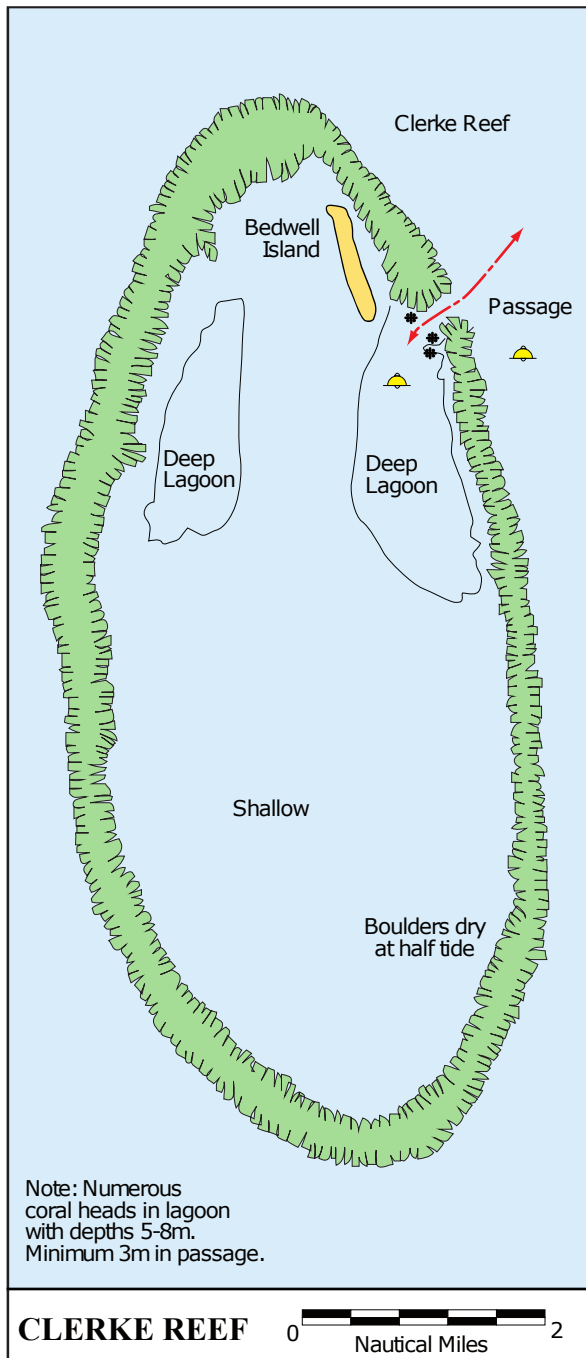
<http://www.environment.gov.au/topics/marine/marine-reserves/north-west/mermaid-overview>

History: Philip Parker King named Mermaid Reef after his ship.

16.3.3 Clerke Reef

7° 19'S 119° 21'E

AUS 325



Chartlet 223 Clerke Reef

Clerke Reef is about 15 nm southwest of Mermaid Reef. Bedwell Island, a large permanent coarse coral sand cay with no vegetation, lies near the north end of the reef.

Moorings: There are four moorings inside the lagoons and a further two moorings on the outer reef (NE corner). There is an additional government vessel mooring. Moorings must be booked via DBCA's Broome office.

Of interest and importance: Bedwell Island lies within Clerke Reef lagoon and is home to a very special population of red-tailed tropic birds, one of only two colonies on the west coast. When visiting the island DBCA have requested visitors keep a distance of at least 10 m from the birds. They are very easily disturbed when nesting.

History: Originally reported by Captain Clerke, a whaler, and later named by Philip Parker King.

16.3.4 Imperieuse Reef

17° 32'S 118° 57'E

AUS 325

There is no access to the lagoon at Imperieuse Reef. The entrance channel is only negotiable by dinghy.

All rubbish should be taken with you when departing.

Moorings: There are three moorings available on the outer reef.

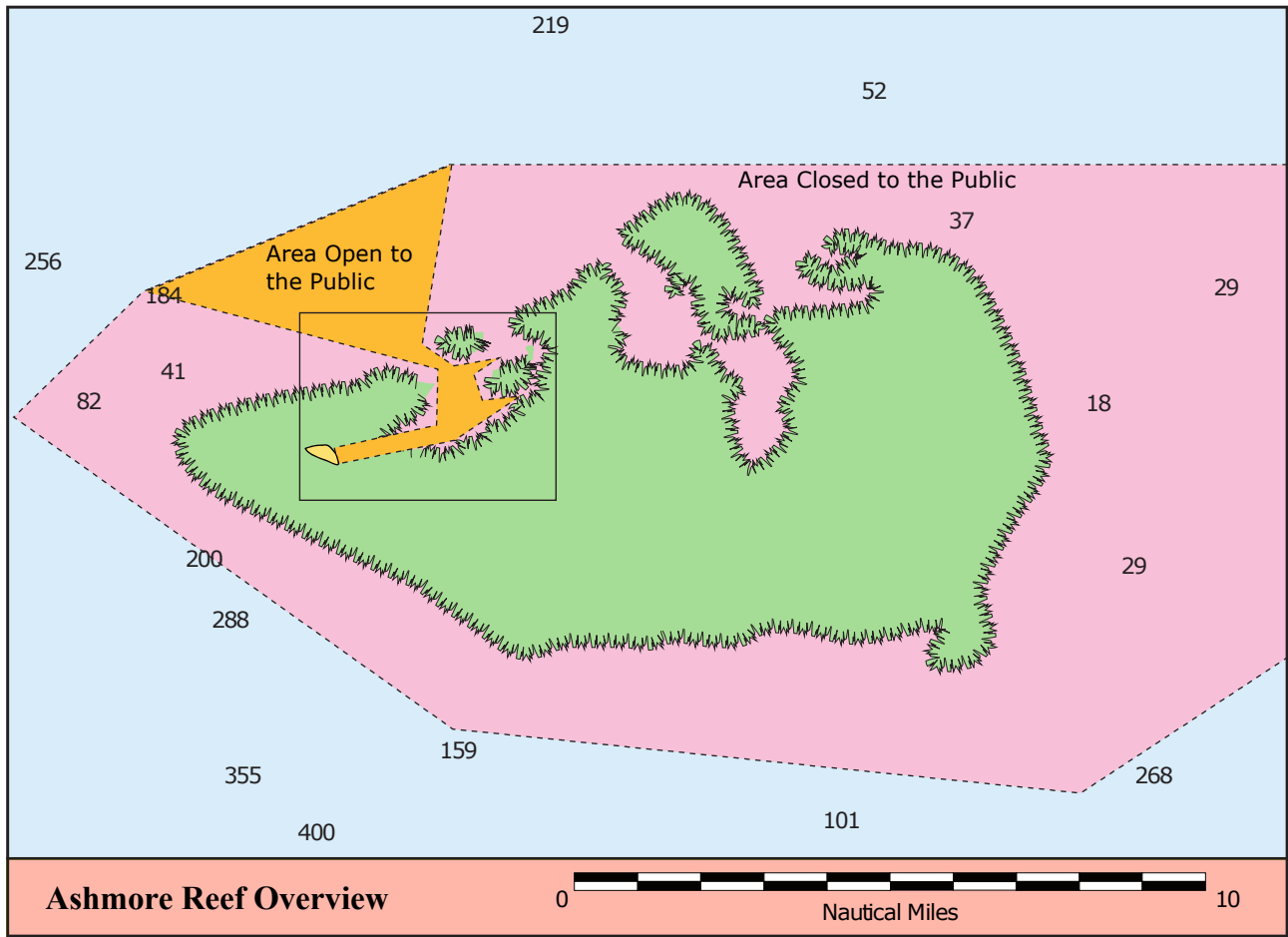
Tides: Imperieuse Reef. Range 4.5 m. The area has semi-diurnal tides. The tidal range within the lagoons is significantly less than outside the reefs. The narrow passage restricts flow, with the outgoing flow continuing until about half flood tide. The reefs are exposed about 2.5 hours either side of LW. There are large boulders on the reefs but none near the passages. Approach should be made at slack HW, and between 1000 and 1400 in order to keep the sun overhead for eyeballing the shallows.

History: The shoals are named after Captain Rowley who sighted them in 1800 in the ship *Imperieuse*. Between 1890 and 1930 the Indonesians fished trepang, trochus shells, clam meat and fish at the shoals.

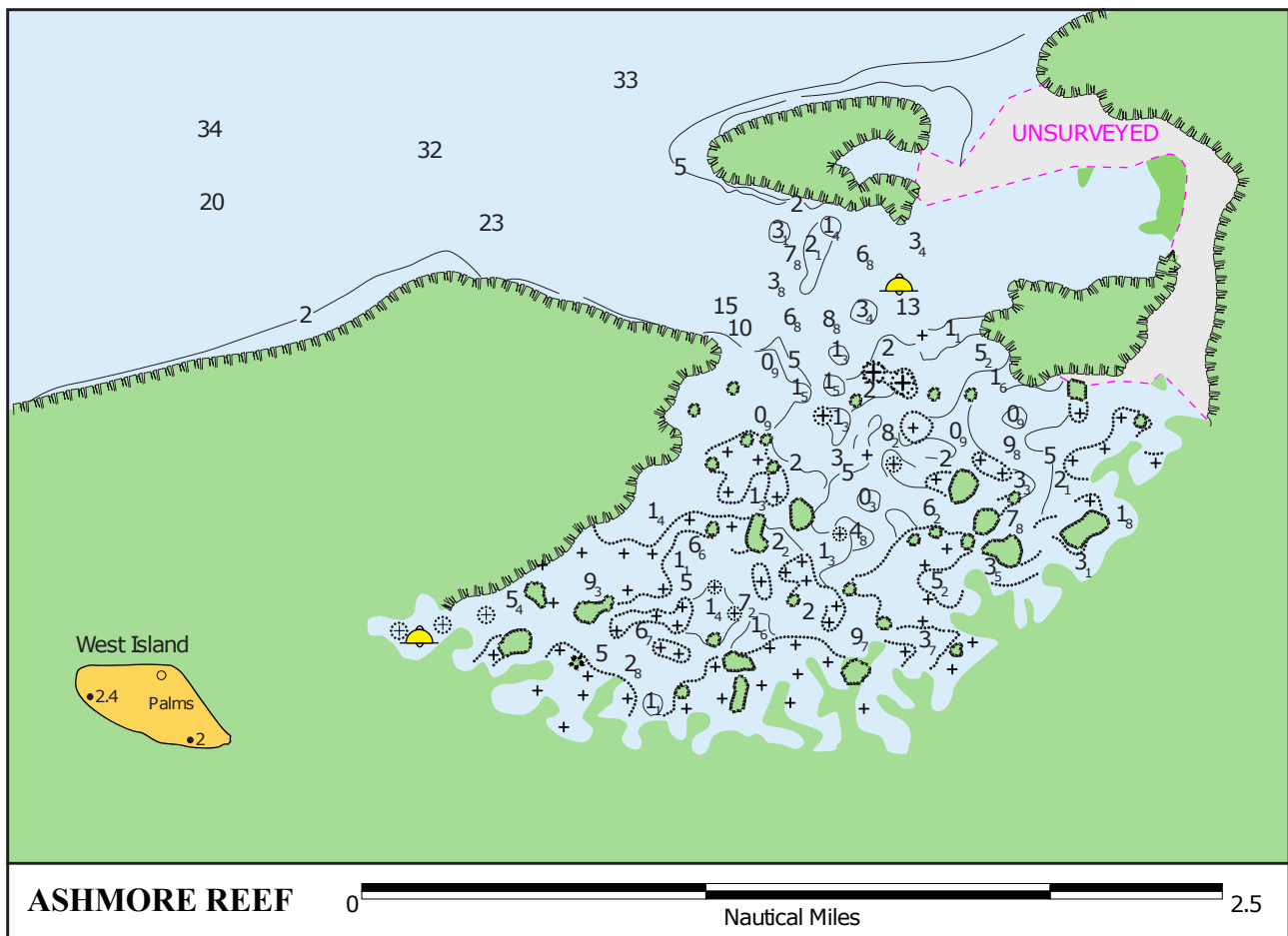
16.4 Ashmore Reef

12° 14.0'S 123° 00.0'E

Chart: AUS 44



Chartlet 224 Ashmore Reef Overview



Chartlet 225 Ashmore Reef

Ashmore Reef is a 10 nm expanse of reef located about 450 nm west of Darwin and 330 nm north of Broome. The Ashmore Reef & Cartier Island Commonwealth Marine Reserve has historical and cultural significance. In particular, traditional Indonesian fishermen have an historic and ongoing cultural and economic association with islands and reefs in the region. Resources of the Reserve have been harvested by Indonesian fishermen for hundreds of years. Traditional Indonesian fishermen continue to regularly visit Ashmore Reef National Nature Reserve for fresh water, shelter and to visit grave sites.

The Australian Border Force (formerly known as the Australian Customs Service) provides an almost permanent presence at Ashmore Reef to ensure the Reserve values are protected. The majority of Ashmore Reef National Nature Reserve is a sanctuary zone and as such is closed to the public. A small part of Ashmore is designated as national park, where public access is allowed. Within the national park area, which incorporates West Island Lagoon and the eastern part of West Island at Ashmore, all taking of native species is prohibited without a permit. Commercial tourism is also subject to permit and is considered on a case by case basis.

Do not pump out ballast, bilge water or sewage inside the Reserve.

Caution: Care should be taken when entering the lagoon. Channel markers exist for use solely by the Australian Border Force and DoE, and should not be transited or relied upon by others.

Moorings:

Public moorings have been installed in West Island Lagoon to eliminate the need to drop anchor

on coral reefs and seagrass beds. If there are no buoys available, boats should anchor outside the Reserve or in the sandy areas of West Island Lagoon. Boats should never anchor in coral and should check to be sure that their anchor and chain is not dragging or contacting coral. If an officer of the Australian Border Force is present at Ashmore Reef they can direct you to a suitable mooring. You are required to follow their safety directions

The public moorings are reached by following the waypoints suggested below, but note:

- a) they are only given to one decimal place of minutes i.e. resolution of plus or minus 100 m,
- b) your GPS might be set to a different datum to the one used for these waypoints, and
- c) the channel may have changed by the time you read this.

So use your eyes and your depth sounder!

| | | |
|-----------------------------|------------|-------------|
| 1 st Starboard: | 12° 13.4'S | 123° 00.4'E |
| 1 st Port: | 12° 13.5'S | 123° 00.4'E |
| 2 nd Starboard: | 12° 13.5'S | 123° 00.4'E |
| 3 rd Starboard: | 12° 13.7'S | 123° 00.3'E |
| 4 th Starboard: | 12° 13.9'S | 123° 00.3'E |
| 2 nd Port: | 12° 14.1'S | 123° 00.3'E |
| 5 th Starboard: | 12° 14.1'S | 123° 00.2'E |
| 3 rd Port: | 12° 14.1'S | 123° 00.2'E |
| 6 th Starboard: | 12° 14.1'S | 123° 00.2'E |
| 4 th Port: | 12° 14.1'S | 123° 00.1'E |
| 7 th Starboard: | 12° 14.0'S | 123° 00.1'E |
| 5 th Port: | 12° 14.0'S | 123° 60.0'E |
| 6 th Port: | 12° 14.0'S | 123° 60.0'E |
| 8 th Starboard: | 12° 14.0'S | 123° 60.0'E |
| 9 th Starboard: | 12° 14.0'S | 123° 59.8'E |
| 7 th Port: | 12° 14.1'S | 123° 59.7'E |
| 10 th Starboard: | 12° 14.0'S | 123° 59.7'E |
| 11 th Starboard: | 12° 14.1'S | 123° 59.5'E |
| 8 th Port: | 12° 14.1'S | 123° 59.2'E |
| 12 th Starboard: | 12° 14.1'S | 123° 59.3'E |

Fishing: Fishing is not allowed anywhere in the Reserve except for traditional fishers in the open area of West Island Lagoon, who are allowed to fish for finfish only for immediate consumption.

For more information regarding Ashmore, please contact the Ashmore Reserve Manager at the Department of the Environment on (02) 6274 1320.

For additional information visit

<http://www.environment.gov.au/resource/ashmore-reef-and-cartier-island-marine-reserves-information-visitors>