DEPTHS IN METRES

SEE RELATED PUBLICATIONS: Notice to Mariners (https://www.transport.wa.gov.au/marine/nautical-charts.asp), Symbols, Abbreviations and Terms (INT 1), Tide Tables, Sailing Directions. For surveys beyond this chart refer to RAN Charts AUS 333 and AUS 753.

52' E: 296 000 | 53' | 54' | 55' | E: 300 000 | 114° 56' E | 57' | 58' | E: 304 000 | 59'

N: 6892 000 | N: 6888 000 | N: 6884 000 | N: 6880 000 | N: 6876 000 | N: 6850 500

29° 52' 12" S | 114° 59' 36" E | 30° 02' 54" S | 114° 51' 06" E

See DPI Chart Beagle Islands WA 728

See DPI Chart Greenhead DMH 628

See Inset

INDIAN OCEAN

Freds Beach | Crocodile Rock | Mace Beach | Swadling Rocks | Dumper Bay | Dumper Reef | Dumper Passage | Tailor Bay | McDonald Reef | North Dummy | McTaggart Reef | Snag Island | Pats Landing | LEEMAN | TI TREE POINT | Back Beach | Bill Wilson Reef | Freezer Boat | Webb Island | Reefs | Dann Corner | Break Reef | Bickers Apex Reef | Lipfert Island | Orton Rock | Billygoat Milligan Island Bay | Harrop Inlet | Little Anchorage | Caution | Unsurveyed

WARNING
During moderate swell seas may break over depths of about 6m.

116.3° Caution - heavy Swell (see note)

Q 0.4M | Q R 1s | Q G 1s 2M | Q(3) 5s 2M BYB | Pats Landing | Volunteer Sea Search and Rescue VMR 664 | Outfall | Oc 3.5s 16m 9M | Q(2) R 5s 4M | Fl R 3s 1M | Fl 2s 26m 12M | Caution Moorings (see note) | Drummond Rock | Water Tower

Track | Recommended | THOMAS STREET | DEE STREET | RUDDOCK STREET | MARIN DRIVE | OCEAN DRIVE | MERIDIAN

RELIABILITY DIAGRAM

100 EZB 1982 | 100 EZA 1981/85 | 50 EZA 1981 | 25 EZA 1981 | 200 EZA 1985 | 250 EZB 1982 | 100 EZA 1981/85 | Leeman | R

KEY TO SYMBOLS

400 Distance apart of main sounding lines in metres
L Lead Line depths
E Echo Sounder depths
O Optical position fixing
Z Electronic position fixing
S Sonar swept
R Reconnaissance or incomplete survey

Authorities

A Department for Planning and Infrastructure
B Royal Australian Navy
C AUSLIG
D Other

AUSTRALIA - WEST COAST

WESTERN AUSTRALIA

LEEMAN

SCALE 1 : 25 000

DEPTHS
Depths are shown in metres and decimetres, reduced to Sounding Datum, which is approximately lowest water level.

HEIGHTS
Heights are shown in metres. Underlined figures are drying heights above Sounding Datum. Overhead clearance heights are above Highest Astronomical Tide. All other heights are above Mean Higher High Water.

POSITIONS
GDA — Positions on this chart are referenced to the Map Grid of Australia, Zone 50, based on the Geocentric Datum of Australia 1994 (GDA94). For GPS use, this approximates WGS84.

PROJECTION
Transverse Mercator.

SOURCES
From the latest information available to Department for Planning and Infrastructure (DPI), including DPI surveys of 1981 and 1985, and R.A.N. surveys of 1982.

NAVIGATION MARKS
IALA Maritime Buoyage System - Region A (Red to Port).

NOTICES TO MARINERS
The information provided on this chart is subject to change. All such changes of a safety or navigational nature will be promulgated. Ensure that the latest edition of the chart is used at all times, and kept corrected with the relevant Notice to Mariners.
Current Notices to Mariners are available from DPI Chart Sales Offices and on the Internet at http://www.coastaldata.transport.wa.gov.au/.

CAUTION NOTES
Heavy Swell
During heavy swell, seas may beak on the leading line.
Moorings
Numerous private moorings exist in this area. Mariners are advised to navigate with caution.

TIDAL INFORMATION AND SOUNDING DATUM

Place	Lat °S	Long °E	Heights in metres above datum							Sounding and Tidal Datum
			HAT	MHHW	MLHW	MSL	MHLW	MLLW	LAT	
LEEMAN	29° 02'	114° 59'	1.37	0.98	0.77	0.75	0.69	0.55	0.20	3.765 below SSM HX4

LOGARITHMIC NOMOGRAM SPEED - DISTANCE - TIME

To find Speed, Distance or Time Interval, draw a line through any two factors, then interpolate for the unknown factor. eg A distance of 10 nautical miles in 120 minutes means a speed of 5 knots.

SPEED (Knots) | DISTANCE (Nautical Miles) | TIME INTERVAL (Minutes) — Example

SPEED CONVERSION TABLE

Nautical Miles Per Hour (Knots)	4	5	6	8	10	12
Miles Per Hour (Mph)	4.6	5.7	6.9	9.2	11.5	13.8
Kilometres Per Hour (Kph)	7.4	9.2	11.1	14.8	18.5	22.2

NAVIGATION MARKS

Lighthouse, major, minor light
Beacon, port, starboard
Safe water, isolated danger
Spar buoy, port, starboard
Pillar buoy, port, starboard
Mooring buoy, yachting buoy
Lead, front, rear
Special Marks (yellow cross topmark) are not primarily to assist in navigation, but indicate special features.

CARDINAL MARKS

North — Indicates safe water to the North
South — Indicates safe water to the South
East — Indicates safe water to the East
West — Indicates safe water to the West

LIGHT CHARACTERISTICS

Colour of light is white unless otherwise stated

F : Fixed
Fl : Flashing
Fl( ) : Group-flash
Q : Quick-flash
LFl : Long-flash
Oc : Occulting
Iso : Isophase
indicates lit navigation mark
G : Green R : Red
Y : Yellow Bu : Blue
s : Period in seconds
m : Focal plane height above MHHW
M : Luminous range in nautical miles

NATIONAL PARKS AND NATURE RESERVES

National Parks and Nature Reserves are gazetted for the Protection of Flora, Fauna and Landscape values. Dumping of rubbish, lighting of fires (including ground fires), firearms, pets, removal of rocks, soil and timber, driving off established tracks and disturbance of flora and fauna are all prohibited in National Parks and Nature Reserves. Camping is only allowed in gazetted areas of National Parks. Refer to Conservation and Land Management publications for further information on parks and reserves.

LEEUWIN CURRENT
The Leeuwin Current is most predominant during May - August with a surface current generally less than 1.0kn. It has an average width of 30 nautical miles and extends to a depth of approximately 200 metres, carrying warm, low salinity water from the North West Shelf area along the continental shelf south to Cape Leeuwin and then east into the Great Australian Bight. For details of currents generally refer to R.A.N. Australia Pilot Vol V.

WESTERN ROCK LOBSTER FISHERY
Between November and June, extensive lobster fishing takes place between latitude 24°S and 34°S. Mariners are advised to keep well clear of lobster pot floats and submerged lines.

FISHING
Fishing regulations apply throughout Western Australia. Refer to Department of Fisheries publications for further information.

ROADS AND TRACKS
The representation on this chart of any road or track is not necessarily evidence of a Public Right of Way.

HISTORIC SHIPWRECKS
All wrecks, 75 years old or more, are protected under an Act which prohibits the removal of artefacts or wilful damage of any sort. By this means, the sites will remain better preserved for divers in the future. Refer to WA Maritime Museum for further information.

LEGEND

Marsh and swampland
Nature Reserve / National Park
Railway, Clearance height, Bridge
Clearance height, Overhead powerline
River
Major road
Minor road
Track
Medical facility, Building
Mean high water
Mean low water
Datum mark
Cliff
Rock shoreline
Sand drift, Anchoring prohibited
GPS validation point, Helipad, Groyne
Car parking, Over-beach launching
Boat ramp, Tide rips
Parking for boats / trailers
Mangroves, Foul ground, Marine farm
Water, Fuel, Jetty, Safe anchorage
Telephone, Public toilet
Exposed wreck, Submerged wreck
Hazardous submerged reef
Reef which covers and uncovers
Coral reef / outcrop, Breakers
Rock awash, Underwater rock
Sounding above Datum, Fish haven
Danger line
2m contour
5m contour
10m contour
Depth in metres and decimetres
Approximate contour
Submarine cable
Anchorage area, No anchorage area
No fishing, Pilot boarding location
Speed limit boundary
Water skiing boundary
Prohibited area boundary
Various limits
Port Authority / Harbour boundary
Recommended track
Outfall
Dredged area boundary
Restricted area / Sensitive area
Marine protected area

LEEMAN ANCHORAGE

SCALE 1 : 10 000

50 0 100 200 300 METRES

5 000 METRES | 4 000 | 3 000 | 2 000 | 1 000 | 0 | 1 000 METRES

Department for Planning and Infrastructure
Government of Western Australia

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