



Department of  
Primary Industries and  
Regional Development

Protect  
Grow  
Innovate

# Western Australian Trochus Fishery

**Agency application on ecological sustainability  
to the Australian Government Department of  
Climate Change, Energy, the Environment and  
Water**

against the *Guidelines for Ecologically Sustainable Management of Fisheries*

**February 2025**

## Contents

Acronyms.....	3
1. Introduction .....	4
2. The Fishery .....	4
2.1 Description of the fishery .....	4
2.2 Fishing methods and gear .....	5
2.3 Target and byproduct species .....	5
2.4 Value of the fishery .....	6
3. Management regime .....	6
3.1 Commercial .....	6
3.2 Recreational .....	7
3.4 Controlling level of harvest .....	8
3.4.1 Harvest Strategy .....	8
3.5 Recovery Strategies for overfished stocks .....	8
3.6 Performance against objectives, performance indicators and performance measures.....	8
3.7 Stock Structure .....	9
4 Stock assessments .....	9
7.1 Key target and byproduct species .....	9
4.4.1 Estimates of total removals .....	9
5 Data collection, validation and monitoring .....	10
5.1 Statutory logbook reporting.....	10
5.2 Data collection, validation, and monitoring programs .....	10
5.3 Annual reporting .....	11
6 Ecosystem .....	11
6.1 Mitigating impacts on the wider ecosystem .....	11
6.2 Benthic Communities.....	11
6.3 Ecological risk assessments.....	11
6.4 Bycatch and protected species interactions.....	12
7 Enforcement of the management arrangements .....	12
8 Research.....	12
9 References.....	13
Important Disclaimer .....	13

## Acronyms

AI	Ardyaloon Incorporated
BCA	<i>Biodiversity Conservation Act 2016</i>
CITES	Convention of the International Trade of Endangered Species
DBCA	Department of Biodiversity, Conservation and Attractions
DCCEEW	Department of Climate Change, Energy the Environment and Water
DPIRD	Department of Primary Industries and Regional Development
EBFM	Ecosystem-based fisheries management
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999</i>
ERA	Ecological risk assessment
ESD	Ecologically sustainable development
ETP species	Endangered, threatened and protected species
FRMA	<i>Fish Resources Management Act 1994</i>
FRMR	<i>Fish Resources Management Regulations 1995</i>
LENS	List of Exempt Native Specimens
OCP	Operational compliance plan
SRFAR	Status Reports of the Fisheries and Aquatic Resources of WA
WA	Western Australia
WATF	Western Australian Trochus Fishery
WTO	Wildlife Trade Operation

## 1. Introduction

This agency application on ecological sustainability meets the requirements for the assessment of the Western Australian (WA) Trochus Fishery under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

This submission has been produced by the Department of Primary Industries and Regional Development (DPIRD) to enable the Department of Climate Change, Energy, the Environment and Water (DCCEEW) to assess the management arrangements of the trochus fishery against the *Guidelines for the Ecologically Sustainable Management of Fisheries – 2nd Edition* and the requirements set out in relevant sections of the EPBC Act.

## 2. The Fishery

### 2.1 Description of the fishery

The Western Australian (WA) Trochus Fishery (Fishery) is a single species, hand collection fishery which operates in WA coastal waters north of Broome in the Kimberley region of the state.

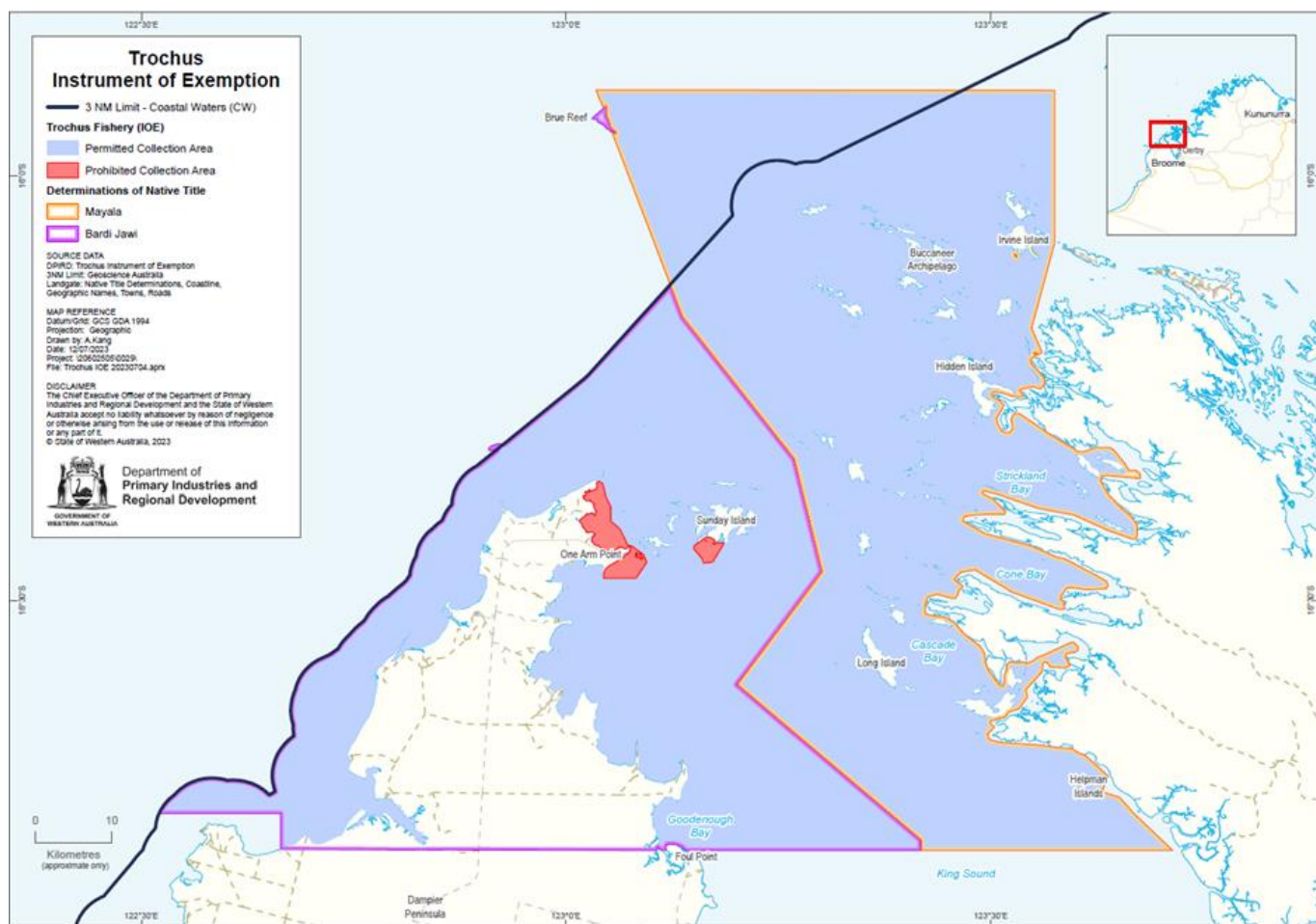
Since 1995, Trochus (*Rochia nilotica*) have been collected under the authority of an Instrument of Exemption (exemption) granted to Bardi Jawi and Mayala Native Title Holders under Section 7 of the *Fish Resources Management Act 1994* (FRMA). The exemption permits the hand collection of trochus by nominated community trochus collectors within the Bardi Jawi and Mayala Native Title claim boundaries (King Sound and the Buccaneer Archipelago) and supports Aboriginal economic development in the region. The current exemption is valid until 30 June 2026.

The Bardi, Jawi and Mayala Aboriginal communities reside at Ardyaloon or One Arm Point, also known as Bardi, an Aboriginal Australian community town on the Dampier Peninsula, in the Kimberley region of WA. The Bardi Jawi and Mayala Aboriginal communities have a significant history in the take of trochus which predates colonisation and have held authorisations to harvest trochus shell from the waters around the Dampier Peninsula and Buccaneer Archipelago since the 1960's.

The Fishery has a high cultural and economic value to the Bardi Jawi and Mayala Native Title holders providing nominated community trochus collectors with both cultural and economic opportunities. The persons specified in the exemption must also hold a commercial fishing licence (CFL).

Ardyaloon Incorporated (AI) is the commercial component of the Ardyaloon Aboriginal Community Council, located at One Arm Point, representing the Bardi Jawi and Mayala Native Title holders. AI currently hold the exemption for the communities, enabling them to commercially harvest and sell trochus. The trochus is sold through AI, who market the product and sell to buyers both nationally and internationally. The Ardyaloon Council nominate the individuals who can harvest trochus annually on behalf of the community.

There are two areas within the boundaries of the Fishery where collection of trochus shell is prohibited at all times. These are the reef areas adjacent to One Arm Point community on the Dampier Peninsula and Sunday Island, identified in red in **Figure 1**.



**Figure 1.** Area of the WA Trochus fishery, including Collection Area boundaries and Native Title Determinations.

## 2.2 Fishing methods and gear

Trochus are harvested through targeted hand collection. Fishing can be undertaken year-round, enabling the community to collect shells when weather, sea conditions and markets are most favourable.

The collectors use boats (mostly small 4-5m dinghy's) to access the outer reefs from which the trochus is handpicked and limited to those animals exposed at low tide on the reef top.

## 2.3 Target and byproduct species

The fishery collects a single target species, *Rochia nilotica*, primarily for supply to shell markets, which value the nacreous inner surface, used to make buttons and ornaments. The species inhabit intertidal and shallow subtidal areas of coral and rocky reefs, mainly in exposed aspects. The trochus are collected from remote reefs in WA either from reef tops at low tide or from the subtidal areas adjacent to the reefs.

An annual total allowable catch (TACC) of 15 tonnes (dry weight) was introduced in 2008 in conjunction with a compulsory daily research logbook.

## 2.4 Value of the fishery

The Fishery is of high social and cultural value to the local participants and provides economic development opportunities to local communities.

Trochus has not been fished since 2016/17, where the total take was less than one tonne (dry weight). Currently there is limited market demand for trochus. Despite the poor market demand, AI have requested continued ability to access and export the resource for a commercial purpose should there be an opportunity to supply markets with the product.

The trochus shells are boiled to remove the animal, and then retained and sold when market opportunities arise. Trochus shells are predominantly used for mother of pearl. The price of shell on the world market varies from year to year which influences the value of the Fishery. The major export markets in the past have been Southeast Asia and Italy, for buttons and other jewellery items. Some trochus shell is polished by community members and sold locally. The commercial value of the Fishery does not consider the social and cultural value of the Fishery to the local participants.

The Fishery is currently on the List of Exempt Native Species (LENS), allowing export of trochus product overseas until 30 May 2025.

## 3. Management regime

### Legislative framework

The Fishery is managed by DPIRD under the following legislation:

- Instrument of Exemption (Section 7(1) of the FRMA.
- *Fish Resources Management Regulations 1995* (FRMR).

### Licensing framework

- Each trochus collector nominated by AI is required to hold a CFL issued by DPIRD.

### 3.1 Commercial

The commercial take of trochus is managed via a combination of input and output controls.

Management measures include -

- Size limits (minimum and maximum)
- Annual TAC
- Spatial closures
- Method of take
- Limited area of fishery
- Compulsory daily research logbook

In addition, all trochus shell must be sold through one entity (AI), therefore catch figures are easily traceable. **Table 1** provides a summary of the current commercial management arrangements.

**Table 1.** Commercial Management Arrangements

Measure	Description	Instrument
<b>Size limits</b>	<ul style="list-style-type: none"> <li>Minimum base diameter 75mm</li> <li>Maximum base diameter 100mm</li> </ul>	<ul style="list-style-type: none"> <li>Instrument of Exemption (Section 7(1) of FRMA)</li> </ul>
<b>Annual Total Allowable Catch</b>	<ul style="list-style-type: none"> <li>15t (dry shell weight)</li> </ul>	<ul style="list-style-type: none"> <li>Instrument of Exemption (Section 7(1) of FRMA)</li> </ul>
<b>Spatial Closures</b>	No fishing is to be carried out in the following areas at any time: <ul style="list-style-type: none"> <li>One-Arm Point Closure</li> <li>Sunday Island Closure</li> </ul>	<ul style="list-style-type: none"> <li>Instrument of Exemption (Section 7(1) of FRMA)</li> </ul>
<b>Compulsory daily research logbook</b>	<ul style="list-style-type: none"> <li>Daily catch and effort record by fishing location</li> <li>Processor dry shell weights and shell size samples recorded for each collector</li> </ul>	<ul style="list-style-type: none"> <li>Instrument of Exemption (Section 7(1) of FRMA)</li> <li>Regulation 64 of FRMR</li> </ul>
<b>Method control</b>	<ul style="list-style-type: none"> <li>All trochus is to be harvested from exposed reef (no diving permitted).</li> </ul>	<ul style="list-style-type: none"> <li>Instrument of Exemption (Section 7(1) of FRMA)</li> </ul>
<b>Limited area of fishery</b>	<ul style="list-style-type: none"> <li>Operates within the Bardi Jawi and Mayala Native Title areas only.</li> </ul>	<ul style="list-style-type: none"> <li>Instrument of Exemption (Section 7(1) of FRMA)</li> </ul>

### 3.2 Recreational

The recreational take of trochus is managed via a combination of input and output controls.

There is no licence required for the recreational take of trochus, however recreational fishers operating from a boat are required to hold a current Recreational Fishing from Boat Licence (RFBL). Unlicensed fishers on recreational boats can fish if at least one other person on board has an RFBL, provided the total catch of everyone on board stays within the bag limits of the licensed fisher(s) (or combined boat limit).

Recreational bag and size limits apply Statewide (**Table 2**) and all edible molluscs (including trochus) must be landed whole.



**Table 2.** Recreational Management Arrangements

Measure	Description	Instrument
<b>Size limits</b>	<ul style="list-style-type: none"> <li>Minimum base diameter 65mm</li> </ul>	FRMR
<b>Daily bag limit</b>	<ul style="list-style-type: none"> <li>10 per person</li> </ul>	FRMR
<b>Landing</b>	<ul style="list-style-type: none"> <li>All edible molluscs (including trochus) must be landed whole and kept in the shell within 200m of the high-water mark</li> </ul>	FRMR

### 3.4 Controlling level of harvest

Trochus level of harvest is primarily managed using output controls. Commercial catch is constrained by a TACC of 15 tonnes (dry weight), set in 2008. Recreational fishing is currently regulated by a daily bag limit of ten trochus.

Size limits apply to both sectors and closed areas also protect sensitive areas, such as marine parks and reserves and culturally important sites.

#### 3.4.1 Harvest Strategy

The overarching WA Harvest Strategy Policy (DoF, 2015) ensures that harvest strategies consider impacts on target species, as well as bycatch, endangered, threatened, and protected (ETP) species, habitats, and other ecological components (Fletcher et al., 2016). This approach aligns with DPIRD's Ecosystem Based Fisheries Management policy.

Given that commercial fishing has not occurred since 2016/17 DPIRD has not developed a formal trochus harvest strategy.

### 3.5 Recovery Strategies for overfished stocks

There is currently no commercial take of trochus in the WA commercial fishery. For the five active years prior to the current no-fishing period catch remained below the TACC and effort remained low, primarily driven by international markets.

Were catch to resume, DPIRD would continue to monitor commercial effort and catches against the annual TACC. If catch exceeded the TACC, or if a significant increase in effort is identified, DPIRD will review the appropriateness of management arrangements.

### 3.6 Performance against objectives, performance indicators and performance measures

In the absence of a formal harvest strategy, the WA trochus fishery does not currently have agreed objectives, performance indicators and/or performance measures, outside of the annual TACC. This TACC was set in consultation with AI and Bardi, Jawi and Mayala Aboriginal communities and was informed by ecological, social and cultural factors.



### 3.7 Stock Structure

Trochus, *Rochia nilotica* (Linnaeus, 1767) (Class Gastropoda, Family Tegulidae) occurs on intertidal and subtidal tropical reefs throughout the Indo-Pacific, including the subtropical north-west and north east reefs of Australia.

A recent study of genetic structure within coastal and oceanic trochus populations of north western Australia (Berry et al., 2020) suggests that trochus populations from the west Kimberley coastal reefs and adjacent oceanic reefs represent two genetically independent units, with the oceanic trochus populations further subdivided into two genetically distinct units corresponding to the Rowley Shoals and Scott Reefs systems.

The lack of genetic structure observed across the Kimberley region encompassing the area of the WA commercial trochus fishery between the Dampier Peninsula and Buccaneer Archipelago strongly indicates that the fishery is targeting a discrete stock (ibid) and should be managed at this scale.

## 4 Stock assessments

### 7.1 Key target and byproduct species

*Commercial:* The hand collection method allows collectors to target trochus specific to their need (ie; number and quality) and means that collectors do not inadvertently harvest bycatch in their normal fishing activities. Commercial Trochus harvest has not been reported since 2016/17, however catch prior to this time was well below the TACC.

Given the prolonged period without catch, there is not a current stock assessment for the species.

#### 4.4.1 Estimates of total removals

##### Commercial

##### *Catch*

Commercial collection in the WA trochus fishery has varied annually, with a general downward trend over time, primarily driven by markets. Between 1985 and 1995, the trochus fishery reported catches between 30 to 73 tonnes per year. The higher reported catches coincide with the higher market prices and the availability of additional larger boats in the One Arm Point community.

In the late 2000's there was a limited period of increased catch, which preceded the implementation of an annual total allowable commercial catch (TACC) of 15t (dry weight) in 2008.

Since this time catch has remained below the TACC and generally below 5 tonnes. Between 2012 and 2015, and from 2016/17 to the present no commercial harvest occurred. Cessation of fishing during these periods have primarily been driven by limited markets.

##### *Effort*

Trochus fishing effort is recorded in logbooks and considers catch (as dry weight, in kilograms) against time (the number of hours spent collecting).

No fishing effort has been reported within the trochus fishery since 2016/17.

**Other Managed Fisheries:**

There is likely to be a low level of trochus catch in WA's trawl fisheries, particularly in the Northern Bioregion. Trawl management plans prohibit retention of specimen shell and trochus, so all catch must be returned to the water. Fishing effort within (prawn) trawl fisheries in the Kimberley is currently low.

Other hand collection fisheries including the WA Specimen Shell Managed Fishery and the WA Marine Aquarium Fishery are prohibited from collection of *R .nilotica*, but may retain other species of the Genus.

**Recreational:**

No annual estimate of recreational catch exists for trochus.

**Customary:**

No estimate of customary Trochus fishery is available, however DPIRD acknowledges the importance of Trochus to Aboriginal people in WA, especially the Bardi, Jawi and Mayala Aboriginal communities.

**Non-retained/ Bycatch:**

The hand collection method allows commercial collectors to target trochus specific to their need (i.e.; number and quality) and means that collectors do not inadvertently harvest bycatch in their normal fishing activities.

## 5 Data collection, validation and monitoring

### 5.1 Compulsory logbook reporting

All catch taken pursuant to the exemption must be entered into compulsory daily research logbooks submitted to DPIRD in accordance with Regulation 64 of the FRMR. The logbook requires collectors to record catch weight (dry weight), and time spent fishing by location. The Ardyaloon processor records beach weights (wet weight) of product received and sample trochus shell size frequencies for each collector.

To obtain live weight estimates, DPIRD applies a conversion factor to convert dry weight (shell only) to wet weight, (conversion ratio = 0.8).

Commercial data is collected and collated by DPIRD and stored in the catch and effort database system (CAES). The CAES system is audited biannually.

### 5.2 Data collection, validation, and monitoring programs

**Fishery-dependent monitoring**

Fishery-dependent monitoring is based on commercial collector returns. Trochus has not been commercially fished since 2016/17.

**Fishery-independent monitoring**

Given that there is a low level of fishing, DPIRD has not undertaken fishery independent monitoring of the trochus stock.

## 5.3 Annual reporting

### SRFAR

DPIRD reports on the status of the target species in the annual *Status Reports of the Fisheries and Aquatic Resources of Western Australia 2023/2024*.

Trochus has been assigned a medium rating for ecological risk in the annual report for 2023/2024.

## 6 Ecosystem

### 6.1 Mitigating impacts on the wider ecosystem

DPIRD utilises an integrated Ecosystems Based Fisheries Management (EBFM) approach for fisheries management in WA. The EBFM approach ensures that fishing impacts on the overall ecosystems are appropriately assessed and managed. In line with the principles of Ecologically Sustainable Development (ESD), the EBFM approach also recognises that the economic and social benefits of fishing to all users must be considered.

Implementation of EBFM involves a risk-based approach to monitor and assess the cumulative impacts on WA's aquatic resources from all fishing activities (commercial, recreational, customary), operating at a bioregional or ecosystem level. The level of risk to each resource is used as a key input to the DPIRD Risk Register, which is an integral component of the annual planning cycle for assigning activity priorities (research, management, compliance, education etc.) across each bioregion.

Trochus fishing likely has very limited adverse effects on the wider ecosystem due to the low level of catch (nil harvest since 2016/17), small number of operators and selective hand collection method, which means there is no bycatch. No ETP interactions have been recorded for the fishery. Should the department's Ecosystem-based fisheries management assessments of the resource determine that the risk to habitat or the ecosystem is unacceptable, DPIRD would determine an appropriate management response.

### 6.2 Benthic Communities

The hand collection of trochus occurs on robust limestone reef tops and rocky areas exposed at low water periods during spring tide cycles. Reefs are of an algal pavement variety that is relatively solid flat limestone dominated by foliose algae. These habitats are considered resistant to the potential impacts of trochus fishing due to their daily exposure to high-energy tidal currents. Due to the low impact collection method employed in this fishery, impacts on reef habitat and wider ecosystem are considered minimal. Additionally, the Fishery is located in an area that is largely inaccessible by road. Apart from Aboriginal communities, there are no settlements in the area.

### 6.3 Ecological risk assessments

Where possible, DPIRD undertake Ecological Risk Assessments (ERAs) periodically to assess the risk of fishing activities on target and bycatch species, and the broader ecosystem.

WA DPIRD last conducted an ERA for this fishery on 19 November 2010, with a workshop held with representatives from the Department and AI Aboriginal community representatives.

All risks identified were determined to have a negligible rating, which confirmed the previous assumption that the nature and scale of the fishery is conducted in a manner that minimises impacts on the ecosystem.

## 6.4 Bycatch and protected species interactions

The Fishery fishing method is species-specific with no bycatch being taken and animals are measured in situ prior to harvest.

There are no known interactions of the Fishery with endangered, threatened or protected (ETP) species or threatened communities. Due to the relatively selective method used in this fishery it is unlikely that the Fishery has any interactions with ETP species.

## 7 Enforcement of the management arrangements

Operational compliance plans (OCP), guide the enforcement of management arrangements for WA fisheries. OCPs are informed and underpinned by a compliance risk assessment and are reviewed every 1-2 years. OCPs have the following objectives:

- 1) to provide clear direction and guidance to officers regarding compliance activities that are required to support effective management of the fishery;
- 2) to provide a mechanism that aids the identification of future and current priorities;
- 3) to encourage voluntary compliance through education, awareness, and consultation activities; and
- 4) to review compliance strategies and their effective implementation.

Aside from the commercial management arrangements highlighted in **Table 2**, there are several conditions that must be adhered to by AI and their nominated collectors.

This includes:

- 1) AI must, by notice in writing to the Broome office, notify DPIRD of the full name(s) of employees or members who will be fishing, prior to any fishing activity being undertaken by the fishers pursuant to the exemption.
- 2) Persons nominated and who are engaged in commercial fishing must hold a current CFL.
- 3) Persons nominated and who are engaged in commercial fishing must carry a copy of the exemption at all times when carrying out activities provided for under the exemption and must be able to produce a copy of the exemption to Fisheries Officer upon request.
- 4) All catch taken pursuant to the exemption must be included on statutory daily research logbooks submitted to DPIRD in accordance with Regulation 64 of the *FRMR 1995*.

## 8 Research

Current research is focused on reporting of annual catch and effort statistics from the daily logbook.

The daily catch and effort logbook provides detail of the trochus fishing operation by AI community members, including the region and breakdown of the reef fished, the number of days fished and number of fishers, the hours fished and the number of bags of trochus

caught. The daily catch and effort logbook, along with the database entry system for this fishery was first implemented in 2008.

## 9 References

Fletcher, W.J., Chesson, J., Fisher, M., Sainsbury, K.J., Hundoe, T., Smith, A.D.M., and Whitworth, B. (2002) *National ESD Reporting Framework for Australian Fisheries: The 'How to' Guide for Wild Capture Fisheries*. FRDC Project 2000/145, Canberra, Australia.

Newman, S.J., Moore, J. and Gaughan, D.J. (eds). 2024. *Status Reports of the Fisheries and Aquatic Resources of Western Australia 2023/24: The State of the Fisheries*. Department of Primary Industries and Regional Development, Western Australia.

Berry, O., Richards, Z., Moore, G., Hernawan, U, Travers, M and Gruber, B. (2020). *Oceanic and coastal populations of a harvested macroinvertebrate *Rochia nilotica* in north-western Australia are isolated and may be locally adapted*. Marine and Freshwater Research, 71: 782-793.

## Important Disclaimer

The Chief Executive Officer of the Department of Primary Industries and Regional Development and the State of Western Australia accept no liability whatsoever by reason of negligence or otherwise arising from the use or release of this information or any part of it.

Copyright © State of Western Australia (Department of Primary Industries and Regional Development), 2025.