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Public Certification Report

Abrolhos Island and Mid-West Scallop Trawl Fishery

October 2021

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Fishery client	WAFIC on behalf of Far West Scallops and Elmwood/McBoats
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2 Glossary

AIMWTMF	Abrolhos Island and Mid-West Trawl Managed Fishery	GIS	Geographical Information Systems
AAC	Aquatic Advisory Committee	ICU	Industry Consultation Unit
AFMA	Australian program Management Authority	IFM	Integrated Fisheries Management
ALC	Automatic Location Communicator	IMS	Introduced Marine Species
AMM	Annual Management Meeting	IOD	Indian Ocean Dipole
ARMA	Aquatic Resources Management Act	ITQ	Individual Transferable Quota
BAP	Bycatch Action Plan	IUCN	International Union for Conservation of Nature
BMSY	Biomass at Maximum Sustainable Yield	KPI	Key Performance Indicator
BRD	Bycatch Reduction Devices	LOW	Letters of Warning
CA	Consequence Analysis	MAC	Management Advisory Committee
CALM	Conservation and Land Management	MCS	Monitoring, Control and Surveillance
CI	Confidence Interval	MFL	Managed Fishery Licence
CITES	Convention on International Trade in Endangered Species	MHW	Marne Heatwave
CL	Carapace Length	MRAG	Marine Resource Assessment Group
CMS	Convention on the Conservation of Migratory Species of Wild Animals	MSC	Marine Stewardship Council
CoA	Commonwealth of Australia	MSY	Maximum sustainable yield
CO	Compliance Observer	NPWCA	National Parks and Wildlife Conservation Act 1975
CoC	Chain of Custody	NTA	Native Title Act
CPUE	Catch per unit of effort	OCP	Operational Compliance Plan
CSIRO	Commonwealth Scientific and Industrial Research Organisation	OCS	Offshore Constitutional Settlement
CSMPA	Composite Square Mesh Panels (Aft)	OCD	Operations and Compliance Division, DPIRD
CSMPF	Composite Square Mesh Panels (Forward)	PSA	Productivity-Susceptibility Analysis
CSWA	Circular, Straight-Vertical-Bars, Wide-Bar-Spacing, and Accelerator	PSMA	Public Sector Management Act
CW	Carapace Width	RRAMF	Risk Ranked Assessment for Multiple Fisheries

DAWE	Department of Agriculture Water and the Environment	RBF	Risk Based Methodology
DBCA	Department of Biodiversity, Conservation and Attractions	RMADP	Research, Monitoring, Assessment and Development Plan
DEC	Department of Environment and Conservation WA	RSNA	Rectangular, Straight-Vertical-Bars, Narrow-Bar-Spacing and Accelerator
DoE	Department of Environment	SAFE	Sustainability Assessment for Fishing Effects
DPIRD	Department of Primary Industries and Regional Development	SAT	State Administrative Tribunal
EBFM	Ecosystem Based Fisheries Management	SKM	Sinclair Knight Merz
EEZ	Exclusive Economic Zone	SLA	Service Level Agreement
EG	Exmouth Gulf	SRR	Stock-Recruitment Relationship
EPBC Act	Environment Protection and Biodiversity Conservation Act	TACC	Total Allowable Commercial Catch
ERA	Environmental Risk Assessment	TEP	Threatened, Endangered and Protected
ESD	Ecologically Sustainable Development	T&E	Teleosts and Elasmobranchs
ETP	Endangered, Threatened and Protected	UoA	Unit of Assessment
FAM	Fisheries Assessment Methodology	UoC	Unit of Certification
FED	Fish Exclusion Devices	UWA	University of Western Australia
FHPA	Fish Habitat Protection Areas	VFAS	Voluntary Fisheries Adjustment Scheme
FMO	Fisheries and Marine Officer	VMS	Vessel Monitoring System
FRDC	Fisheries Research and Development Corporation	WA	Western Australia
FMSY	Fishing Mortality Rate at Maximum Sustainable Yield	WAFIC	WA Fishing Industry Council
FRMA	Fish Resources Management Act	WAMSI	Western Australian Marine Science Institution
FRMR	Fish Resources Management Regulations	WC Act	Wildlife Conservation Act
GCB	Gascoyne Coast Bioregion	WTO	Wildlife Trade Organisation

3 Executive summary

- This report is the Public Certification Report (PCR) which provides details of the MSC assessment process and certification decision for the Abrolhos Island and Mid-West Trawl Managed Fishery (AIMWTMF). The process began with a review of information presented by the client which has been scored by the assessment team and published as the Announcement Comment Draft Report (ACDR) on 17 February 2021. The Public Comment Draft Report (PCDR) was published 18 August 2021 and the Final Draft Report (FDR) was published 22 September 2021.
- The PCR represents the final review of information and certification decision. The FDR included any final adjustments in response to MSC's Technical Oversight and the PCDR included any adjustments required following comments from the client and Peer Reviewers.
- The site visit was conducted on 22 April 2021, held remotely due to travel restrictions that are in place as a result of the COVID-19 pandemic.
- No stakeholders, other than the client and DPIRD submitted comments for the site visit.
- The proposed Eligibility Date for this assessment is the date when the Public Certification Report is published, as we have confirmed all necessary traceability and segregation systems in the fishery are appropriately implemented.
- This is the first MSC assessment of the Abrolhos Island and Mid-West Trawl Managed Fishery (AIMWTMF). There are **no conditions**, but **three recommendations**.

Fishery strengths

- The fishery is supported well by the Western Australia Department of Primary Industries and Regional Development which provides scientific support. Extensive historical research on the fishery underpins a sound base of information to support the stock assessment and harvest strategy.
- The target species, Saucer scallop (*Ylistrum balloti)* is currently in a healthy position with the stock fluctuating around a level consistent with MSY after recovering from historically low biomass levels following a marine heatwave.
- The *Saucer Scallop Resource of the Abrolhos Islands Harvest Strategy 2020 - 2025* provides a comprehensive framework for management of the fishery. This includes a suite of Harvest Control Rules that are responsive to the state of the stock.
- The November fishery-independent trawl survey index is the primary measure of stock status. This index has been demonstrated to underpin a statistically significant stock-recruitment-environment relationship that informs the key HCRs for the fishery.
- The AIMWTMF is managed according to an EBFM framework, its Harvest Strategy including objectives is consistent with the MSC standard for each component of the ecosystem (target species, primary species (part of retained), secondary species, ETP species, habitat and ecosystem overall), and not only for target species. For each objective there are set performance indicators which are assessed annually through DPIRD internal qualitative Ecological Risk Assessments (ERA) and regularly (at least every 5 years) through qualitative ERAs with stakeholder participation.
- The AIMWTMF does not impact on "main" primary species because no unwanted species have percentage contributions to total catch ≥ 5% and no species ≥2% of the total catch are less resilient.
- The secondary species component consists of numerous different species (over 100) caught in very low quantity, with no species >5% of the total catch by the fishery. Results from recent catch composition surveys (2014-2017) show high similarity with historical data, suggesting no increase in risks to incidentally caught species. Stakeholder Ecological Risk Assessment (ERA) from 2019 found low or negligible risk from Abrolhos Island and Mid-West to secondary species.
- Compulsory logbook reporting of ETP interactions and fishery independent surveys indicate no AIMWTMF interactions in recent years.
- Currently, there are no habitats within Abrolhos Island and Mid-West region that meet the definition of VME. Coral reefs in the managed area are considered potential VMEs. Management measures are in place to limit interaction with susceptible habitats.
- The trawl footprint of the fishery has been calculated and the fishery's overlap with benthic habitat has been mapped.

- The risks to the Abrolhos Island and Mid-West ecosystem are periodically assessed in stakeholder ERA workshops. Climate change is taken into account when setting and modifying harvest strategies for the commercial invertebrate species.
- Governance performance indicators are likely to score highly with strong legal structures, well defined roles and responsibilities, an extensive consultation system and clear short and long-term objectives
- Fishery specific management performance indicators are likely to score highly with a well-defined and measurable harvest strategy, an effective decision making process and a strong compliance system.

Fishery weaknesses

- The stock has only recently recovered from historically low levels following a marine heatwave.
- The Harvest Strategy and HCRs have only been recently implemented and additional data are required to improve the robustness of these measures and reduce uncertainty.
- The stock assessment is based on a single measure and while this has been demonstrated as reliable through stock-recruitment-environment analyses, additional analyses such as catch predictions that are currently being examined are likely to improve the assessment.
- The availability of fishery-independent data from the fishery should be improved.

4 Report details

4.1 Authorship and peer review details

4.1.1 Assessors

Richard Banks (Lead assessor and P3) has considerable MSC experience having served as the Lead Assessor on several Australian Full Assessments, including the assessments for the Exmouth Gulf Prawn Managed Fishery and Shark Bay Prawn Managed Fishery, as well as a number on Australian Commonwealth Fisheries, including Northern Prawn Trawl; and South Australian Fisheries including Spencer Gulf Prawn Trawl and South Australian Sardine. Mr. Banks is an MSC qualified ND ISO 1901 team leader and qualified in the MSC risk-based framework (RBF) and Chain of Custody. Richard has also designed several fishery improvement plans in South East Asia and the Pacific, and has acted as external reviewer to a number of MSC assessments on behalf of WWF. He has over 30-years' experience in fisheries management, research and consultancy covering all regions of the World. Richard currently works as an advisor to PNA and Pacific Island countries as an offshore tuna advisor. He is an economist and fisheries management and policy programming specialist having worked on similar issues for international agencies including FAO, World Bank, ADB, MFAT, DFAT and the European Union in more than 70 countries. Richard holds a Bachelors degree in Fisheries Economics and a Masters in Agricultural Economics from the University of Portsmouth, and Imperial College, London, respectively.

Dr. Cameron Dixon (P1). Cameron Dixon works as a senior fisheries consultant at MRAG Asia Pacific. His recent work includes Marine Stewardship Council assessment and peer review, most recently as a team member on the Australian Orange Roughy, the South Australia sardine and the Australian Small Pelagic fisheries. Cameron currently leads a contract for Stock Assessment of the Victorian Abalone Fishery. In addition, he has undertaken independent reviews of fisheries assessed against the Coles' Responsible Sourcing Seafood Assessment framework and the World Wildlife Fund's Ecological Sustainability Evaluation of Seafood framework. Cameron is currently the Chair of the Northern Territory's Coastal Line Fishery Management Advisory Committee. Prior to becoming a consultant, he worked as a Senior Fisheries Scientist for 20 years in South Australia and Victoria, during which time he completed his PhD with Melbourne University researching density dependence in abalone stocks.

Kevin McLoughlin (P2) has over 30 years' experience in fisheries science and currently works as a fisheries consultant. As a Senior Fisheries Scientist with the Bureau of Rural Sciences, he engaged in a wide range of international and domestic fisheries issues with close links to Government policy. Responsibilities included production of BRS Fishery Status Reports—these have had a major influence on the direction of Australia's fisheries management and policy. Mr McLoughlin represented BRS on many committees and groups such as Australian Fishery Management Authority fishery assessment groups (including for the Southern and Eastern Scalefish and Shark Fishery, the Northern Prawn Fishery, the Bass Strait Scallop Fishery, and the Western Tuna and Billfish Fishery), DAFF's Shark Implementation Group for implementation of the National Plan of Action for Sharks, and others. He represented Australia on scientific issues at the Indian Ocean Tuna Commission and was Chair of the IOTC Working Party on Ecosystems and Bycatch. Mr McLoughlin has worked predominantly on Principle 1 aspects of MSC assessments but has also undertaken Principle 2 and 3 work, as well as peer review and surveillance audits for several fisheries. He has completed MSC training and has no conflict of interest in relation to this fishery. His MSC work includes being a team member for the assessment of the Fiji albacore longline fishery, the New Zealand Albacore Fishery, the New Zealand Skipjack Fishery, the Parties to the Nauru Agreement Western and Central Pacific Skipjack and Yellowfin unassociated purse seine fishery, the Tri Marine Western and Central Pacific Skipjack and Yellowfin Tuna Fishery, Australia's Northern Prawn Fishery and Australia's blue grenadier fishery.

A discussion between team members regarding conflict of interest and biases was held and none were identified.

4.1.2 Peer Reviewers

Dr Isobel Bloor has an educational background in marine ecology, environmental management and fisheries with an MSc in Marine Ecology and Environmental Management and a PhD in cuttlefish fisheries and ecology. Dr Bloor has spent the last seven years working for Bangor University, where she is based full-time in the Isle of Man leading a contract providing independent scientific and advice to the Isle of Man Government on

all their commercial fisheries. During this period Dr Bloor has been an active member of the ICES working group on scallop stock assessment and continues to represent the Isle of Man on the ICES Working Group for Cephalopods. Dr Bloor has been actively involved in the MSC process, providing all the scientific research and advice for the Isle of Man queen scallop trawl fishery, including writing reports for annual reviews and participating in audits. Since 2013 Dr Bloor has been working on developing stock assessment methods and undertaking stock assessments for both king and queen scallop fisheries for the Isle of Man and for the wider Irish Sea (in collaboration with colleagues from other institutes). Dr Bloor is actively involved in several industry groups and provides regular scientific advice to support these groups, in particular the Scallop Management Board. Dr Bloor has lead and coordinated the research and scientific advice for all commercially fished species in the Isle of Man (king scallop, queen scallop, whelk, crab, lobster, squid etc) and undertakes the annual scallop stock assessment surveys.

Dr Jo Gascoigne has been working in fisheries (research and consultancy) since 1995 and hence has over 25 years of experience in the field. She has completed a PhD in fisheries research (the population dynamics and management of exploited or rare species). She has spent the last several years of her career as a consultant on a mixture of MSC assessments and associated projects, and longer-term projects focusing mainly on fisheries management and policy analysis.

Dr Johan Groeneveld has over 20 years' experience as a fisheries scientist, with a focus on marine fisheries and their impacts on target and bycatch species. He obtained a PhD in 2001 at the University of Cape Town in South Africa and is presently a Senior Scientist at the Oceanographic Research Institute (ORI) and an Honorary Associate Professor at the University of KwaZulu Natal. His experience-base includes 12 years of applied fisheries research and management of commercial spiny lobster fisheries in South Africa, 2 years as an advisor to the fisheries ministry in Oman, and 9 years as a senior scientist at ORI, with a portfolio targeting regional fisheries research and development projects. He regularly undertakes consulting projects, including for the fishing industry and clients such as the World Bank, UNEP and the FAO. He has worked extensively on collaborative fisheries development projects in the Western Indian Ocean region. He has also published regularly in the peer-reviewed literature and is on the editorial boards of 'Fisheries Research', and 'Western Indian Ocean Journal of Marine Science'.

Dr Goeneveled has been involved in fisheries certification based on Marine Stewardship Council principles since 2009 and has participated as team member or individually in pre-assessments, full assessments, auditing and peer-review of a range of fisheries, including Bahamas spiny lobster fishery, French Polynesia albacore and yellowfin longline fishery, South African hake trawl fishery, Normandy and Jersey lobster fishery and Tristan da Cunha lobster fishery.

4.2 Version details

Table 1 – Fisheries program documents versions

Document	Version number
MSC Fisheries Certification Process	**Version 2.2**
MSC Fisheries Standard	**Version 2.01**
MSC General Certification Requirements	**Version 2.4.1**
MSC Reporting Template	**Version 1.2**

5 Description of the fishery

5.1 Unit(s) of Assessment and Unit(s) of Certification

5.1.1 Unit(s) of Assessment

MRAG Americas has confirmed that this fishery is within scope for MSC fisheries certification through the following determinations (FCP v2.2 7.4):

7.4.2.1 The following taxa are not target species under Principle 1:

a. Amphibians
b. Reptiles
c. Birds
d. Mammals

7.4.2.2 The fishery does not use poisons or explosives.

7.4.2.3 The fishery is not conducted under a controversial unilateral exemption to an international agreement.

7.4.2.4 No member of the client group has been successfully prosecuted for a forced or child labour violation in the last 2 years

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7.4.2.10 The fishery has not been convicted for a shark finning violation in the last 2 years.

7.4.2.11 The fishery has a mechanism for resolving disputes and disputes do not overwhelm the fishery.

7.4.2.12 The fishery is not enhanced.

7.4.2.13 The fishery is not based on introduced species.

Table 2 – Unit of Assessment (UoA)

UoA	Description
Species	Saucer scallop (*Ylistrum balloti*).
Stock	Abrolhos Islands and Mid-West Saucer scallop (*Ylistrum balloti).*
Fishing gear type(s) and, if relevant, vessel type(s)	Twin demersal otter trawl
Client group	WAFIC on behalf of Far West Scallops and Elmwood/McBoats
Other eligible fishers	No other eligible fishers.
Geographical area	The waters of the Indian Ocean between 27°51’ S and 29°03’ S, on the landward side of the 200 m isobath

5.1.2 Unit(s) of Certification

Table 3 – Unit of Certification (UoC)

UoC 1	Description
Species	Saucer scallop (*Ylistrum balloti).*

Stock	Abrolhos Islands and Mid-West Saucer scallop (*Ylistrum balloti).*
Fishing gear type(s) and, if relevant, vessel type(s)	Twin demersal otter trawl
Client group	WAFIC on behalf of Far West Scallops and Elmwood/McBoats
Fishing Vessels	Caden III, NFT West, KVF Orpheus, Portofino, Advancer, Morning Star IV
Geographical area	

5.1.3 Scope of assessment in relation to enhanced or introduced fisheries

There is no evidence of enhancement or introduced species in this fishery.

The fishery

Saucer scallops are fished by scallop trawlers in the Abrolhos Islands and Mid-West. All boats use low-opening demersal otter trawls and each fleet has a standard net size and gear configuration. recreational and traditional fishing of Saucer scallops is permitted however catches are negligible in the context of managing the saucer scallop resource of Abrolhos Islands.

The fishery comprises 10 Fish Managed Licences (FML) with up to seven boats operating each year. Far West Scallops own eight of the 10 FMLs, with McBoats owning the remaining two. The size of vessel in the fishery ranges from 22.5 to 24.9 m.

The amount of effort fluctuates each year commensurate with scallop abundance.

The fishery is currently managed through input controls including gear restrictions and spatial and temporal closures. Fishing activity is monitored using the Vessel Monitoring System (VMS).

The AIMWTMF was closed to fishing for five years from 2012 to 2016 in response to low scallop abundance caused by adverse environmental conditions (2010/11 marine heatwave). Since the fishery reopened to limited fishing in 2017, catches have been between 150 and 796 tonnes whole weight, per year (30 to 160 tonnes meat weight). The status of scallop stocks in the Abrolhos Islands has now improved and the current harvest strategy aims to maintain these at sustainable levels using a conservative co-management approach under normal environmental conditions.

In 2002, bycatch reduction device (BRD) trials commenced in the AIMWTMF to test different turtle exclusion devices (TEDs) or grids in the nets. Since 2003, no fishing for scallops may be carried out in these fisheries unless all otter trawl nets, except for try nets, are fitted with a BRD when in use. Specifically, a rigid inclined barrier (installed at an angle no greater than 60 deg), which comprises vertical bars spaced a minimum of 200 mm apart, must be attached to the circumference of the net (DoF 2004; Figure 1). This will guide large animals (including turtles) and/or objects towards an escape opening forward of the grid, which must be at least 750 mm wide transversely across the net and 500 mm along the net from the mid-point of the width measurement.

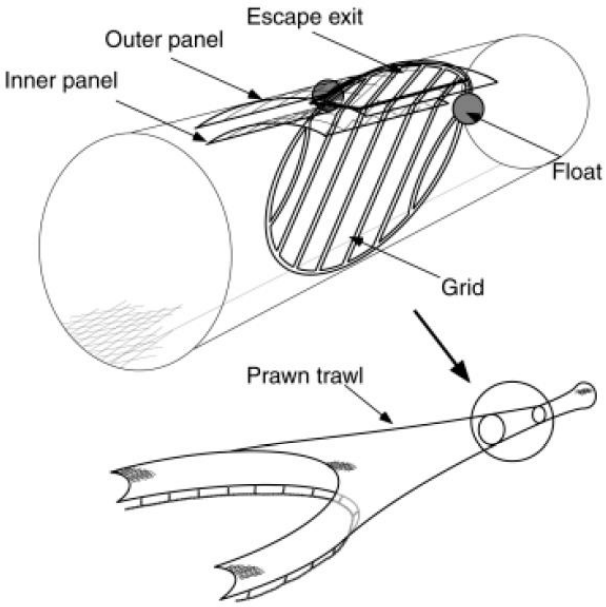


Figure 1. Diagrammatic representation of the type of bycatch reduction device used in Western Australian trawl fisheries, including the scallop trawl fisheries (Source: DoF 2004).

Trawling takes place in the day and or night, in waters less than 40 m and each tow can last in duration from 30 minutes up to three hours, depending on scallop abundance. Tow speed is around 2.5 to 3.5 knots.

The area extends out into Commonwealth waters, however, many of the principal fishing grounds are within State waters (DoF 2004). Within the fishery boundary, historically established fishing grounds are known as traditional fishing grounds (Figure 2) where fishing with main gear is permitted anytime in the season whereas any other areas need to be tested with ‘try-gear’ to determine scallop abundance prior to fishing.

Trawling is only permitted between 1 May and 31 October in any one year with total area closures near major population centres.

Historically the fishery operated from the second Tuesday in April (to fit in with the rock lobster fishery in the region) and generally lasted between one and eight weeks, with the length of season dependent on scallop distribution and abundance. In 2003 and 2005 the season was extended due to high scallop abundance. In 2017, the first year that fishing was permitted after the severe stock decline after the marine heatwave in 2010/11, the fishing season was set at five months (1 March to 1 August) to allow industry to optimise the meat size and quality.

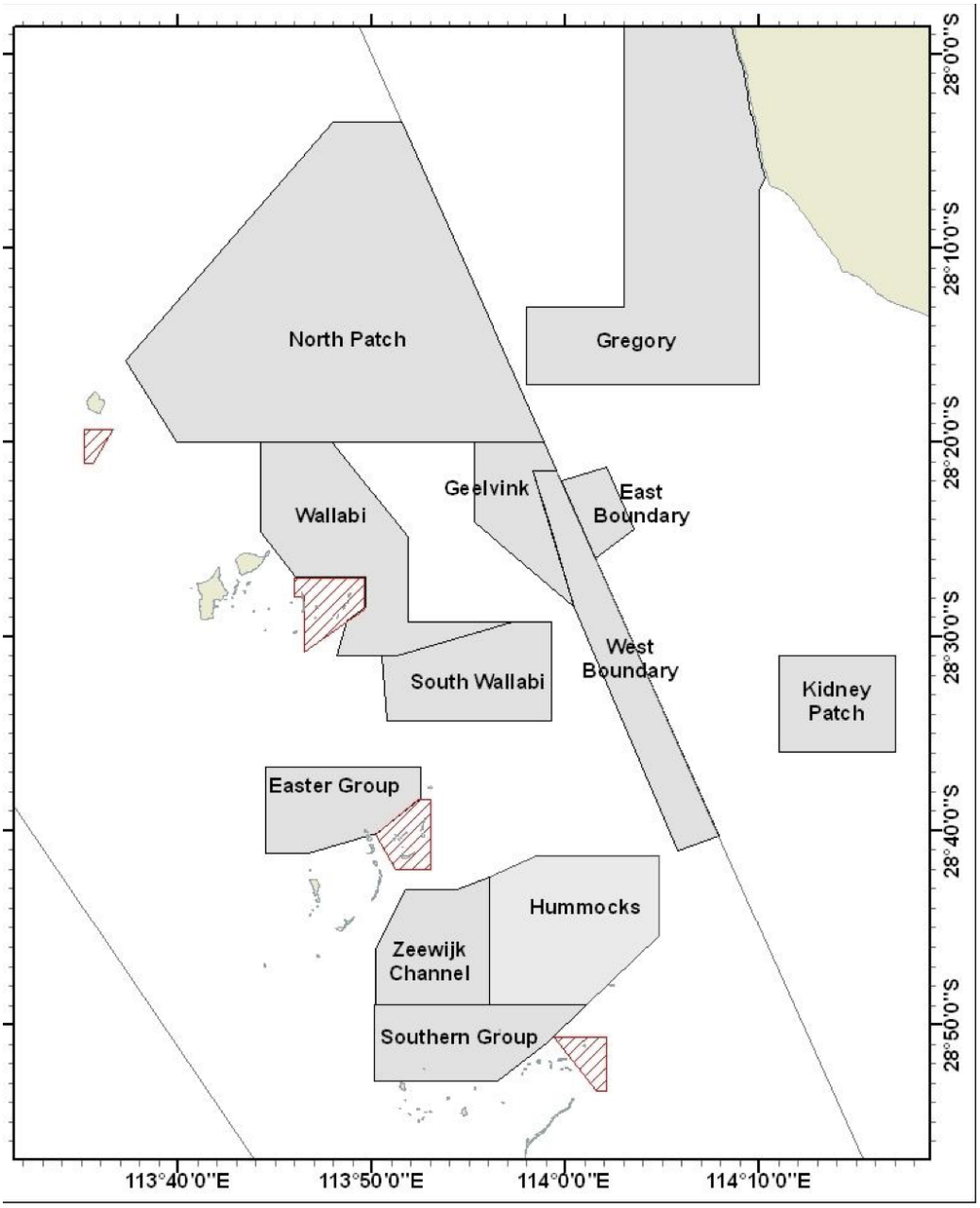


Figure 2. Traditional scallop trawl areas in the AIMWTMF .

The fishery currently operates under a maximum total net headrope capacity restriction of 256.1 m. Recent amendments to the management plan (GoWA 2018) have seen the removal of the headrope unitisation scheme in favour of a standardised net headrope allocation where each Managed Fishery Licence (MFL) has an equal allocation of net headrope length. Each licensed vessel is permitted to fish for scallops, using an otter trawl net or nets with a headrope length not exceeding 25.61 m in scallop fishing areas. This allows each vessel to operate using two 12.8 m (7ftm) nets in twin gear configuration. Vessels operating in the prawn

fishing area (Port Gregory) are permitted to use a maximum of two otter trawl nets, with each net having a maximum headrope length of 14.62 m (8 ftm).

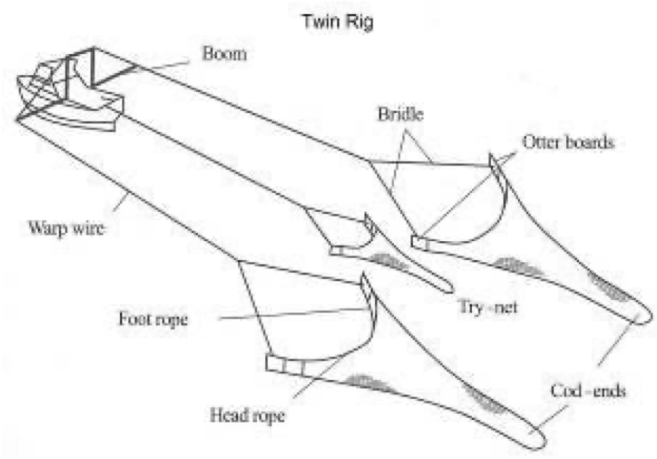


Figure 3: Standard twin-rig otter trawl; (Source: adapted from Sterling 1998; cited in Kangas et al. 2019)

The boats tow otter boards, each being no greater than 2.29 m in length and 0.91 m in breadth (DoF 2004). The mesh size of nets must not be less than 100 mm and chafers or liners may not cover more than the bottom half of the cod end. The trawlers carry the skipper and up to 12 crew.

Scallops are shucked, processed at sea and frozen. The majority of product is exported with small quantities left in the shell or in the half-shell to supply the local gourmet seafood markets.

5.2 Assessment results overview

5.2.1 Determination, formal conclusion and agreement

As the fishery is in scope for MSC certification and achieves at least a 60 score for each Performance Indicator, and at least an 80 score for each Principle, following client, peer, and public review, MRAG Americas has decided to certify it as sustainable according to the MSC Fisheries Standard.

5.2.2 Principle level scores

Table 4 - Principle level scores

Principle	Saucer scallop (*Ylistrum balloti*)
Principle 1 – Target species	**85.0**
Principle 2 – Ecosystem impacts	**89.7**
Principle 3 – Management system	**98.8**

5.2.3 Summary of conditions

There are no conditions.

5.2.4 Recommendations

Three non-binding recommendations are made for the AIMWTMF (Table 5).

Table 5: Recommendations

Recommendation 1	
Performance Indicator	PI 1.2.4 (c)
Recommendation	Spawning stock-recruitment-environment analyses suggest that the November spawning index is a good predicter of future recruitment, along with water temperature. This result was achieved despite acknowledged uncertainty in the estimate of November spawning density caused by an inconsistent number of sites surveyed each year. It is recommended to conduct a review of the November survey and its subsequent biomass measure to reduce uncertainty and to assess the appropriateness of the measure for data specific to the fishery.
Recommendation 2	
Performance Indicator	PI 2.1, 2.2 and 2.3 components
Recommendation	As indicated in the report, there is sufficient information available from sources such as logbooks and fishery-independent surveys to meet the requirements of the performance indicators at the SG80 level or above for PIs 2.1, 2.2 and 2.3. As the intention of the survey trawls is to include small “recruit (0+)” individuals, the nets used are smaller mesh (prawn nets) than typical scallop trawl gear. This will inevitably bias the bycatch data to include more and smaller animals that would ordinarily escape through the mesh of commercial scallop trawls. Hence, the data presented will reflect a wider species composition than is taken in the commercial fishing gear. In addition, the samples on which this data is based were taken during the recovery phase of this fishery (following the 2011 marine heatwave). Also, the most recent survey data available for this assessment dates to 2017. There was discussion with DPIRD during the site visit that side-by-side trials of scallop gear and prawn gear are being considered for the fishery. The assessors recommend that this would be a useful approach to provide improved information from the fishery to be considered at surveillance audits (in relation to primary, secondary and ETP species) to better address the relevant performance indicators. Alternatively, observer data from the fishery could serve the same purpose and attempts should be made to collect observer data from the fishery, especially if the abovementioned surveys are not undertaken.
Recommendation 3	
Performance Indicator	PI 3.2.4
Recommendation	Although SG60 and SG80 are met, a number of external reviews on key parts of the management system are somewhat dated. The assessors recommend that the harvest strategy and fishery specific management plan, along with DPIRDs Compliance policy and actions be externally reviewed over the next 5 years.

6 Traceability and eligibility

6.1 Eligibility date

Eligibility Date for this assessment is the date when the Public Certification Report is published. We have confirmed that all the necessary traceability and segregation systems in the fishery are appropriately implemented.

6.2 Traceability within the fishery

Table 6 – Traceability within the fishery

Factor	Description
Will the fishery use gears that are not part of the Unit of Certification (UoC)? -	No.
Will vessels in the UoC also fish outside the UoC geographic area? -	Some vessels may fish outside the area from time to time in other managed fisheries. The vessels do not do so on the same trip. There is a clear separation between certified and uncertified activities, including unloading of all MSC product before fishing occurs outside the UoC.
Do the fishery client members ever handle certified and non-certified products during any of the activities covered by the fishery certificate? This refers to both at-sea activities and on-land activities. - Transport - Storage - Processing - Landing - Auction If Yes, please describe how any risks are mitigated.	Retained bycatch as disclosed above is uncertified. There is no risk because the species handled are distinctly different and are separated on sorting.
Does transhipment occur within the fishery? -	No.
Are there any other risks of mixing or substitution between certified and non-certified fish?	No. Separate packaging. Vessels focusing on one fishery at a time do not share trips, and unload before going on to another fishery.

When targeting scallops, fishing does not occur beyond the AIMWTMF fishing area. VMS records assure that the vessels do not fish for scallops out of area.

The scallop catch is unloaded into an aluminium tray as it comes on board. The scallops are raked into a stainless-steel shucking table. Unwanted bycatch and debris are returned to the sea via side chutes with continually flowing water. The scallop meat is shucked into 14 kg plastic tubs; or in some cases processed into half shell. The scallop meat is transferred into yellow baskets and washed in stainless steel wash tanks. The scallop meat is then transferred to 40 litre fish tubs and stored under a frozen hatch. The scallop meat is weighed to 14 kg and then put into pre marked plastic bags. The bag is then laid into a plastic tray and sealed. Each bag is dated and the vessel name and establishment number ticked. The processed, packaged and trayed scallop meat is snap frozen. After testing for temperature, the frozen scallop meat is transferred from the snap freezer to the hold. For transportation, the frozen scallop meat is placed on pallets, loaded into refrigerated transport and dispatched. All pallets are labelled with vessel name, establishment number, area of catch (i.e. the fishery) and the catching period.

Catch information is recorded on logbooks after each haul, and submitted on landing to DPIRD. The logbook records are legally required. These data are also cross-checked from factory receiving records. The information available specifically contains reference to species caught (estimated catch (kg), round weight, time and date of haul, and location).

Pallets are transported to two dedicated processing facilities, (Far West Scallop processing facility in Fremantle and McBoats in Geraldton). If required, excess product is sent to a public cold store on a temporary basis.

Vessels in the Far West and McBoats fleets are licensed to operate in different scallop fisheries (Shark Bay, Abrolhos Islands and the South Coast). Vessels unload all product prior to traveling to and fishing a new fishery. For example, all Shark Bay product is unloaded and transported to the processing facility or cold store prior to traveling to and fishing at Abrolhos Island. Therefore, the fishing vessels do not require CoC.

All product is processed at Far West's or McBoats dedicated processing facilities in Fremantle and Geraldton respectively. Product is segmented by both vessel and fishery/area of catch to prevent product mixing. Product is thawed, graded, packed into smaller units (e.g. 300g, 1, 2 kg) and then refrozen. Finished (fully processed) product is then re-palletised, with all pallets labelled by grade/size and fishery of origin. The Fremantle cold store is the "primary receiver" of all AIMWTMF product.

Although all product is processed and stored in the same facilities, strict labelling and segmentation protocols reduce the risk of products mixing.

Because the processing facilities source product from the different fisheries, where there is a potential risk of mixing, there will be a need for each company to hold an MSC Chain of Custody Certificate.

Product is then sold to both export (principally in Asia) and domestic markets, including food retailers (Coles) and other food service sector distributors.

These procedures have been in place for many years. There is no realistic opportunity for non-certified product to mix with the certified scallops.

All cold stores are Commonwealth Department of Agriculture approved export facilities and scallops travel under export CoC with transfer certificates.

The scope of this certification ends at the point of landing to shore. Product may then enter further chains of custody. Thus, shoreside primary processors, regardless of ownership, and all other entities taking ownership of product in the supply chain, will need Chain of Custody certification.

Points of landing

The ports of landing are restricted to Geraldton and Fremantle when the season ends.

Eligibility to enter chains of custody

The scope of this certification ends at the point of landing to shore. Product may then enter further chains of custody. Thus, shoreside primary processors, regardless of ownership, and all other entities taking ownership of product in the supply chain, will need Chain of Custody certification. Processing that takes place on board at sea is covered within the fishery certificate. The point of intended change of ownership is normally sometime after primary processing since the client group members own the shoreside processing facilities.

7 Scoring

7.1 Summary of Performance Indicator level scores

Principle	Component	Weight		Performance Indicator (PI)	Weight	Score
One	Outcome	0.333	1.1.1	Stock status	1.000	90
	Management	0.667	1.2.1	Harvest strategy	0.250	85
			1.2.2	Harvest control rules & tools	0.250	80
			1.2.3	Information & monitoring	0.250	80
			1.2.4	Assessment of stock status	0.250	85
Two	Primary species	0.200	2.1.1	Outcome	0.333	100
			2.1.2	Management strategy	0.333	95
			2.1.3	Information/Monitoring	0.333	100
	Secondary species	0.200	2.2.1	Outcome	0.333	80
			2.2.2	Management strategy	0.333	85
			2.2.3	Information/Monitoring	0.333	85
	ETP species	0.200	2.3.1	Outcome	0.333	90
			2.3.2	Management strategy	0.333	80
			2.3.3	Information strategy	0.333	80
	Habitats	0.200	2.4.1	Outcome	0.333	100
			2.4.2	Management strategy	0.333	85
			2.4.3	Information	0.333	80
	Ecosystem	0.200	2.5.1	Outcome	0.333	90
			2.5.2	Management	0.333	95
			2.5.3	Information	0.333	100
Three	Governance and policy	0.500	3.1.1	Legal &/or customary framework	0.333	100
			3.1.2	Consultation, roles & responsibilities	0.333	100
			3.1.3	Long term objectives	0.333	100
	Fishery specific management system	0.500	3.2.1	Fishery specific objectives	0.250	100
			3.2.2	Decision making processes	0.250	100
			3.2.3	Compliance & enforcement	0.250	100
			3.2.4	Monitoring & management performance evaluation	0.250	90

Overall weighted Principle-level scores	Score
Principle 1 - Target species	**85.0**
Principle 2 - Ecosystem	**89.7**
Principle 3 - Management	**98.8**

7.2 Principle 1

7.2.1 Distribution and stock structure

Ballot's Saucer scallops in Australian waters are now classified as *Ylistrum balloti* (formerly *Amusium balloti*) following a recent revision of the genus Amusium (Myrnhardt et al. 2014). It is distributed from Israelite Bay in Western Australia, across the tropics, to the southern coast of New South Wales. Ballot's Saucer Scallop occur along most of the coast of Western Australia but given the vast length of this coastline and the potential for regional differences in recruitment, four separate management units have been established in this jurisdiction for those areas where Ballot's Saucer Scallop occur in commercial quantities (Kangas and Zeller 2018). The greatest numbers in WA are found in Shark Bay and around the Abrolhos Islands (Joll 1989a). In Western Australian waters, the Shark Bay population is considered to be located at the northern-extent of the distribution of the species, while the Abrolhos Islands population on the edge of the continental shelf is considered to be at the most offshore extent of the distribution of this species (Kangas et al. 2021).

At the Abrolhos Islands, Ballot's Saucer scallops generally occur in depths of 20-40 m and tends to be restricted to areas of bare sand in the more sheltered environments found in embayments and in the lee of islands and reef systems (Kangas et al. 2021).

7.2.2 Life History

Kangas et al. (2021) and Chandrapavan et al. (2020) provide detailed descriptions of life history traits including reproduction, recruitment, age and growth, size at maturity, habitat and movements, and natural mortality. The following is a brief summary of relevant information from these reports.

Saucer scallops have been recorded reaching 140 mm in length and living up to 3-4 years, however, most appear to live for 2-3 years and usually attain a maximum size around 115 mm (Heald 1978; Dredge 1981). Information, primarily from Shark Bay, indicated that *Y. balloti* generally mature at around 90 mm shell height at approximately one year (Joll and Caputi 1995a) although smaller scallops (~70 mm shell height) were found with maturing gonads in Queensland (Williams and Dredge 1981). A more recent study in Abrolhos Islands indicates mature individuals as small as 55 mm shell height (Chandrapavan et al. 2020).

Scallops are broadcast spawners, releasing their eggs and sperm into the surrounding waters for fertilisation to occur. Spawning appears to occur all year, however at much lower levels between March and August (Kangas et al. 2021). The timing of spawning is crucial to ensure temperatures and concentrations of phytoplankton are adequate for larval development and water temperatures between 18 and 20°C are optimal for larval survival (Cragg 2006). Larvae cannot survive temperatures above 24°C.

The spawning period is from September to May and can be separated into early (Sep-Jan) and late (Feb-May) spawning phases. The early spawning produces recruits five months later between February and May with some of the faster growing individuals capable of spawning towards April/May (**Figure 4**). These recruiting juveniles are detected during the February/March surveys (< 60 mm SH). Early spawned recruits grow rapidly and become the larger sized mature adults (>90 mm SH) (residual scallops) and are observed during the November survey and these come into spawning condition between September and January. This cohort is the larger residuals fished the following year.

The later spawning phase between February and May produces 0+ recruits that are sometimes observed during the November survey at around 6-8 months of age (~60-80 mm SH) (**Figure 4**). These late spawned recruits mature over summer and become mature adults by April/May and come into spawning condition. A proportion of this cohort will also be harvested during the fishing season prior to spawning (pre-spawned scallops) and the rest will grow through to be sampled during the November survey as 1+ residual scallops.

Research suggests that reproduction and survival of larvae are greatly influenced by environment conditions, particularly water temperature (Chandrapavan et al. 2020). Changes in environmental patterns may lead to different periods of the spawning cycle having a greater importance as contributors to overall recruitment (Joll and Caputi 1995a, b).

Once settled, Saucer scallops only move short distances, primarily for predator avoidance but once disturbed can lift themselves off the bottom and swim up to 23 m (Joll 1989b). The sensitivity of *Y. balloti* to disturbance and its swimming ability allows it to be fished by otter trawl gear compared to other scallop species that are captured by dredges (Himmelman et al. 2009).

There are currently no estimates of natural mortality for *Y. balloti* from WA. However, the natural mortality coefficient, M, of the saucer scallop *Y. balloti* within its central Queensland distribution has been estimated from the survival of tagged scallops to be approximately 0.025 per week (Dredge 1985).

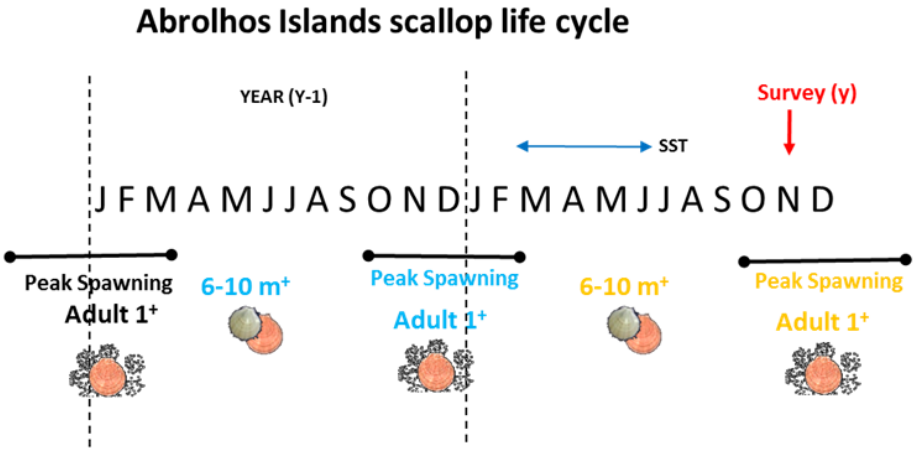


Figure 4. Life cycle diagram of *Y. balloti* along the Abrolhos Islands. Peak spawning between September and February gives rise to recruits that grow and mature over the following 12 months and enter their first spawning event by the following spring/summer (Chandrapavan et al. 2020).

Table 7. Summary of biological parameters for *Ylistrum balloti*

Parameter	Value(s)	Comments / Source(s)
Growth parameters	$L_t = L_\infty(1 - \exp(-K(t - t_0)))$	
L_∞ (mm)	102 - 109 mm	
K (year^{-1})	0.0515 - 0.0588	
t_0 (years)	12-24 days	Rose et al. (1988)
Maximum age (years)	4	Dredge (1988)
Maximum size (mm)	150 mm shell height SH	
Natural mortality, M (year^{-1})	1.2 year^{-1}	Dredge (1988)
Length-weight parameters (mature)	$W = a$ (SH) $- b$, changes seasonally with gonad development	Dredge (1981)
a	0.552	
b	32.406	
Reproduction	Generally gonochoristic, broadcast spawners but some hermaphrodites	Dredge (1981), Joll (1988)
Maturity parameters	Logistic	
A_{50} (years)	8 months	
A_{95} (years)	10 months	
L_{50} (mm)	54 mm SH	Chandrapavan et al. (2020)
L_{95} (mm)	70 mm SH	Chandrapavan et al. (2020)
Fecundity	3.20×10^5 to 2.65×10^6 (at 85 to 107 mm SH) Batch / Annual fecundity	Dredge (1981)
Size-fecundity parameters	$F = (a\,\mathrm{SH} - b)^3$	
a	0.5477	(calculated from Dredge 1981)
b	0.214	(calculated from Dredge 1981)
Spawning frequency	Potentially multiple spawners, spawning period 4-8 months	

7.2.3 Fishery history

The full history of the development of the AIMWTMF can be found at Kangas et al. (2021). The following summary comprises extracts of text from this report.

The AIMWTMF operates within the Abrolhos Islands Ecosystem off the west coast of Western Australia. The Houtman Abrolhos Islands is located in the northern section of the west coast bioregion approximately 60 km off the coast of Geraldton. The Abrolhos comprises a complex of 122 low-lying islands and reefs located on the edge of the continental shelf where the 50 m isobath curves around to encompass the islands (Johannes et al. 1983).

Catches varies widely (20-1300 t meat weight) depending on the strength of recruitment, which is influenced by the spawning stock abundance, strength of the Leeuwin Current, water temperature and current and eddies. Extreme environmental events, as was observed with an extreme marine heatwave in the summer of 2010/11, have had a significant impact on scallop stocks, with a fishery closure for 5 years up to 2017.

Scallops are solely fished in the AIMWTMF by dedicated scallop trawlers. All boats use low-opening demersal otter trawls and standard net size and gear configuration. Since 2003, all otter trawl nets, except for try nets, have been fitted with a BRD when fishing for scallops.

The Abrolhos Islands area was first fished commercially for scallops during the late 1960s; however, no fishing occurred in the region between 1969 and 1972 (Joll 1989a). The fishery then operated intermittently over the next five years, with catches ranging from 0.3 to 6.7 t of scallop meat landed by between three and six vessels. After a poor season in 1977 (0.8 t meat weight), fishing for scallops again ceased during 1978 – 1979 (Joll 1989a) but recommenced in 1980, with just two vessels in operation. Both catches and vessel numbers increased over the next few years, primarily due to an increase in scallop price, improvements in operating efficiency, an apparent increase in scallop stocks, and a decrease in the problems associated with larval nematodes (Joll 1989a).

Vessel numbers increase dramatically after the 1983 licence limitation implemented at Shark Bay (Harris et al. 1999). This increase in fishing pressure affected profitability and in 1986, the fishery was moved from an open-entry to a limited-entry fishery, with a maximum of 30 licences available (Joll 1989a). Following this decision, the maximum number of boats allowed to operate was gradually reduced through a two-for-one net reduction on transfer of license until there were 17 licenses operating. There are currently 10 licencees in the AIMWTMF, after an industry-funded buyback in late-2010. The number of boats that actually operate depends on the likely catch for the season and in recent years has generally been between three and five boats. Scallop landings have varied dramatically over the last few decades, and are dependent on sporadic recruitment, which appears to be strongly influenced by environmental conditions.

The fishery consists of traditional fishing grounds where fishing with main gear is permitted anytime in the season whereas any other areas need to be tested with ‘try-gear’ to determine scallop abundance prior to fishing. Historically the fishery operated from the second Tuesday in April (to fit in with the rock lobster fishery in the region) and generally lasted between one and eight weeks, with the length of season dependent on scallop distribution and abundance. In 2003 and 2005 the season was extended due to high scallop abundance. In 2017, the first year fishing was permitted after the severe stock decline after the Marne Heatwave (MHW) in 2010/11, the fishing season was set at five months (1 March to 1 August) to allow industry to optimise the meat size and quality.

The fishery currently operates under a maximum total net headrope capacity restriction of 256.1 m. Recent amendments to the management plan have seen the removal of the headrope unitisation scheme in favour of a standardised net headrope allocation where each MFL has an equal allocation of net headrope length. Each licensed vessel is permitted to fish for scallops or prawns, using an otter trawl net or nets with a headrope length not exceeding 25.61 m in scallop fishing areas. This provides for each vessel to operate using two 12.8 m (7 ftm) nets in twin gear configuration. Vessels operating in the prawn fishing area (Port Gregory) are permitted to use a maximum of two otter trawl nets, with each net having a maximum headrope length of 14.62 m (8 ftm).

The boats tow otter boards, each being no greater than 2.29 m in length and 0.91 m in breadth (DoF 2004). The mesh size of nets must not be less than 100 mm and chafers or liners may not cover more than the bottom half of the cod end. The vessels which target western king prawns in the Port Gregory area of the

fishery are permitted to tow nets with mesh no less than 45 mm in the cod end, and 51 mm in the remainder of the net. The trawlers carry the skipper and up to 12 crew.

7.2.4 Monitoring data

A range of monitoring measures are in place for the AIMWTMF. These are presented in Table 8 and described thereafter as summaries primarily taken directly from Kangas et al. (2021).

Table 8. Summary of information available for assessing the AIMWTMF (CAES = Catch and Effort System)

Data type	Fishery-dependent or independent	Purpose / use	Area of collection	Frequency of collection	History of collection
CAES	Dependent	Monthly catch and effort by blocks	Fishery	Monthly	1967 to 1990
Daily scallop logbook data	Dependent	Annual catches and catch rates as indicators of abundance	Detailed shot latitude and longitude	Daily Shot by shot (since 1998)	Logbook since 1991
Processor unloads	Dependent	Validates the estimated catches			Since 1991
Pre-season surveys	Independent	Catch prediction and abundance of recruits (0+) and residuals (1+)	Common sites throughout traditional fishing grounds	November Feb/Mar	Since 1998 Since 2014
VMS data	Dependent	Verify boat locations for logbook analysis		Every fishing season	2001
Environmental (SST, LC, ENSO)		Correlations between environmental variables and stock abundance	Selected sites within fishing grounds,	Monthly and seasonal and during surveys	Since 1980s, salinity and temperature logger on net during surveys 2019.2020

Logbooks and catch disposal records

Daily logbooks

Daily logbooks have been completed by commercial scallop fishers since 1991. Daily catch and effort were recorded as shot by shot. The spatial information was initially recorded in a 10 x 10 nautical mile block or fishing ground format. The daily catch and effort information was then summarised by day commencing at 0600 hrs each day and by block up to 1997. Since 1998, spatial information has been collected on a shot-by-shot basis with latitude and longitude co-ordinates for the start of the trawl. The majority of scallops are shucked at sea and most weights recorded as meat weight (meat weight is on average approximately 20 % of the whole weight). For catch, the skippers record the estimated number of baskets of shell (i.e. whole animal) and what the estimated meat weight for that basket of shell is. By comparing the recorded nightly meat weight and the number of baskets of whole shell, the estimated meat weight can be weighted up or down as appropriate. Since 2017, some operators have landed whole shell (and lesser quantities of half shell) and this weight has been recorded and converted into meat weight by a standard formula.

The daily logbooks are checked, entered and validated by the trawl science staff on a monthly basis and any possibly erroneous entries or gaps are checked directly with skippers or the fishing company. Annual spatial data validation is undertaken using GIS and random checks of data entry is made through using VMS location records for all fisheries. Data quality (completeness, shot by shot detail for location, trawl start time and

duration and water depth and catch amount) from individual skippers is variable but has improved since 2000 (i.e. more accurate estimate when compared to processor unloads).

Processor returns

Catch unload information has been provided by processors since 1991 and is used to validate the logbook data. Licensee catch landings (processor returns) are collected generally on a monthly basis and are used to adjust the daily logbook catch estimates. Licensee catch landings are considered to provide an accurate representation of actual landings because there is a high degree of consistency between these records and daily logbook records. Note that there is no evidence of substantial illegal catches of scallops in any of the fisheries that could affect the accuracy of licensee catch landings data.

Fishery Independent Surveys (FIS)

Scallop surveys have been undertaken annually in their current form (larger number of trawls within designated fishing grounds) since 1997 and are used to estimate scallop abundance (mainly 1+ residuals) and size composition and data on meat size and quality. Typically, 20 – 25 sites are sampled within the key fishing grounds, the locations of which were based on fisher knowledge and earlier research surveys (Figure 5). Within the fishing grounds there are designated 'boxes' (sites) which are approximately 1x1 nm (except the main ground in the Hummocks fishing area which is 2 x 2 nm) and within which trawls need to be undertaken. Up to five sites/trawls occur within a fishing ground, with a minimum of two (Figure 5).

Within the 'site boxes' there will be variation annually around the actual trawl paths given the weather and sea state (swell and wave height) but only one trawl is done in one box. The industry sometimes seeks to do further sampling to investigate areas outside the survey boxes such as areas that they caught scallops in the previous fishing year to see if they still contain scallops at reasonable abundances. These additional sites are not included in the survey index but are used by industry to guide their fishing strategies. If a large abundance of scallop is found outside traditional survey sites, they are noted in the Status of Fisheries and Aquatic Resources Report (SoFAR) and considered as part of the weight-of-evidence information for stock assessment. The number of sites undertaken within a fishing ground is largely consistent among years particularly for the more southern fishing grounds where traditionally scallops are more abundant. However, in the northern fishing grounds, sometimes only one trawl site is fished if the abundance is very low. The November/December fishery independent survey is generally conducted over two days/nights. Sampling was conducted by industry boats up to 2013 (under direction of Departmental staff on-board), the RV Naturaliste undertook sampling (using the same nets/gear) from 2014 through the closure period of the fishery. Since re-opening the fishery in 2017, an additional survey in February (two nights) has been incorporated into the survey regime with the RV Naturaliste doing the February survey with an industry boat undertaking the November survey with both using the same sampling gear.

Twin six-fathom headrope length flat nets with 50 mm mesh in the panels and 45 mm in the cod-end are used for all surveys. This configuration does not change from year to year although both the RV Naturaliste and commercial boats now use bison boards compared to wooden boards used historically. The duration of each trawl is 20 minutes (trawl period begins when the trawl gear started to fish (winches cease paying out until the commencement of retrieving the trawl gear) and the start and end latitude and longitude is recorded to calculate distance trawled. Processing each shot involves recording numbers of scallops (if the catch is in excess of two baskets, only one basket is counted, and the total number of scallops obtained by multiplying the number of scallops in one basket for the total number of baskets). To obtain dorso-ventral length (SH) frequency measurements, a sample of 100 to 150 scallops is taken from one net from each site and if low numbers, both sides are combined.

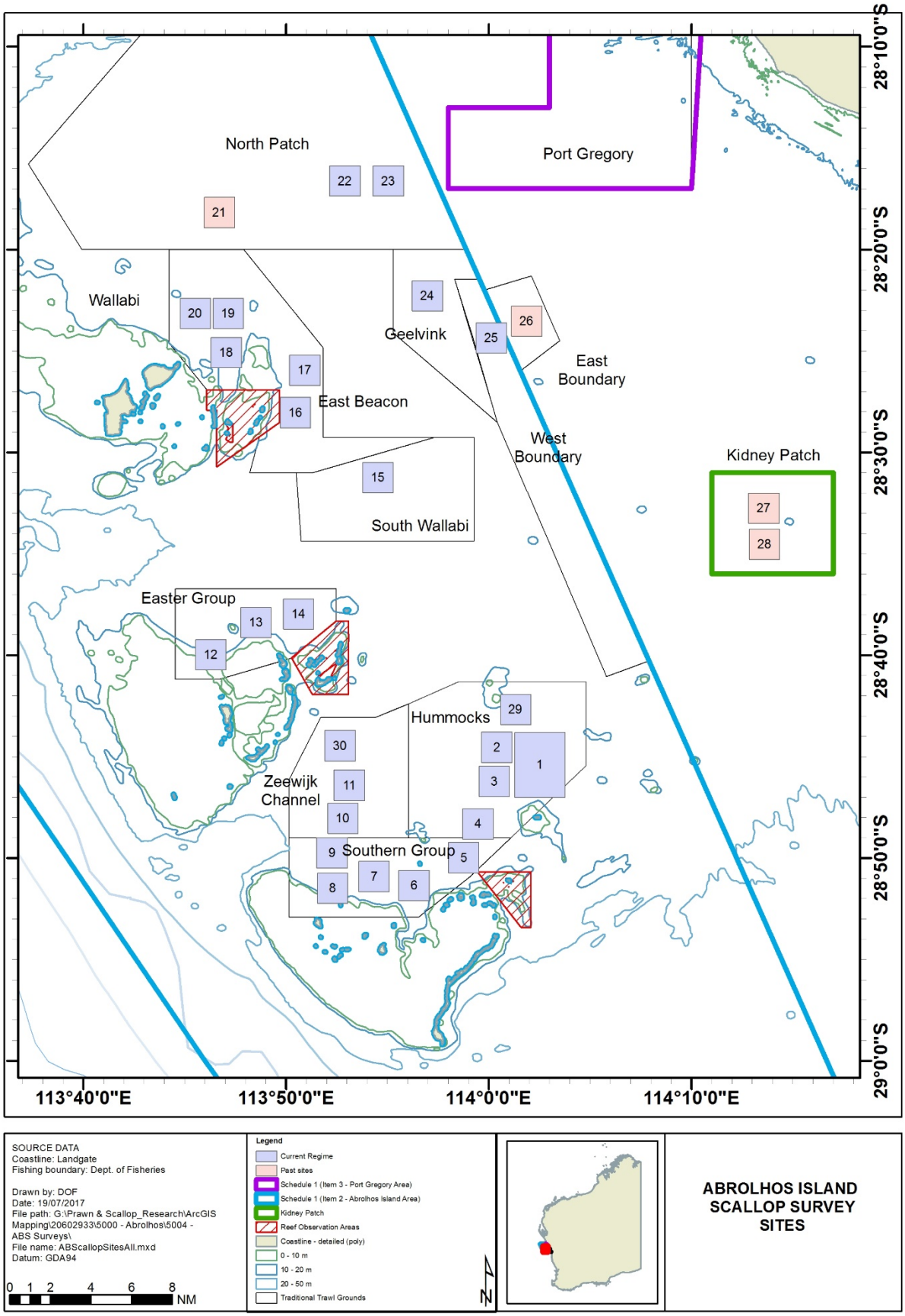


Figure 5. Fishing grounds (bounded and labelled areas) and sites (boxes) for the November fishery independent survey.

The survey provides data on the abundance of recruits (0+) and residual (1+) scallops (number per nautical mile) and shell height frequency data for scallops from each sampling site, trawl duration, distance trawled and environmental (depth, water temperature, sea conditions) information for each site. A data logger attached to the trawl gear has been used since 2019 to record salinity and temperature information during each trawl. All of these data are entered (with manual checking) into an Access database.

As the speed at which trawling takes place influences the efficiency of the trawl gear (L. Joll, unpublished data, Department of Fisheries as cited by Kangas et al. 2021) the catch (by recruit, residual and total) is standardised according to:

$$c_{st} = \frac{c}{3.2331 - 0.6485v}$$

where v denotes the trawl speed in knots and c and cst the catch and the standardised catch respectively (see also Mueller et al. 2008) i.e. the equivalent catch at a speed of 3.4 knots. The standardised number of residuals, recruits and total number of scallops were further converted to densities, d, taking into account the distance trawled and the number of nets and their spread,

$$d = \frac{c_{st}}{2Tw}$$

Here, T and w denote the shot distance and the width per net in nautical miles, assuming a width of six fathoms (10.97 m) head rope for each net.

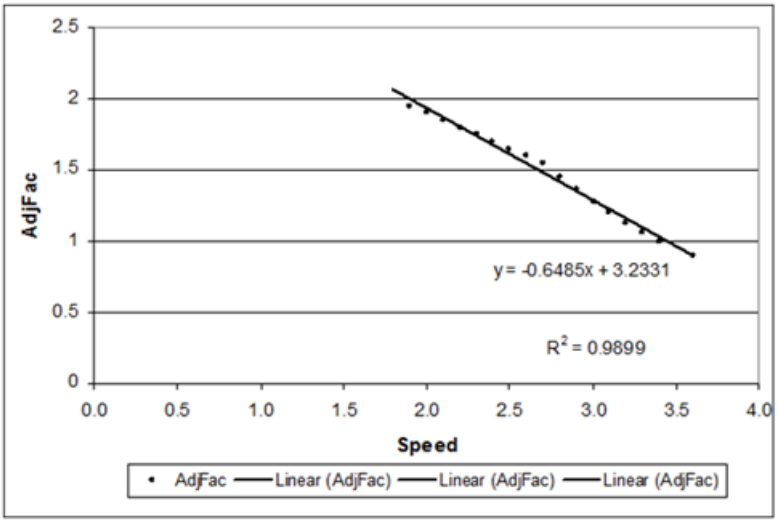


Figure 6. Adjustment factor in relation to trawl efficiency with speed compared to a standard 3.4 knot.

Spatial extent of the fishery

The spatial extent of fishing (referred to as the trawl footprint) is calculated by combining the compulsory fishery-dependent logbook data and fishery-independent satellite (VMS) data from 2010 to 2019 (Table 9, noting 2012 to 2016 were closed to fishing). For each trawl shot, the logbook data includes a start location (latitude and longitude), date and time (AWST) and duration of each trawl on a given fishing day. The VMS collects spatial information for each vessel, including vessel call signs, location (latitude and longitude), date and time (UTC), speed and bearing, and stored securely at DPIRD.

Table 9. Total annual AIMWTMF spatial effort and spatial effort within the Abrolhos Fish Habitat Protection Area (km²) since 2001.

Year	Total Spatial Effort of Fishery (km²)	Spatial Effort within FHPA (km²)	Vessels Operating
2001	189	96	16
2004	93	66	16
2005	416	291	17
2006	79	71	14
2007	47	40	14
2008	210	190	15
2010	188	170	15
2011	237	229	8
2017	139	120	4
2018	107	95	4
2019	333	156	5

Other sources of fishing mortality

There is no recreational scallop fishery in the Abrolhos Islands (Ryan et al. 2013, 2015, 2017). Customary fishing and illegal, unreported and unregulated fishing is believed to be limited.

Other information gathered for the fishery

Databases with environmental variables (e.g., water temperature, wind and sea level) are continuously updated and extended as new data become available from collections by DPIRD, internet sources and from other agencies (e.g., Caputi et al. 2015, Chandrapavan et al. 2020). These data are used to explore the extent to which these factors affect recruitment strength (Chandrapavan et al. 2020) and whether the environmental conditions are likely to be conducive for good recruitment which can influence harvesting strategies. The MHW, (Caputi et al. 2015, Caputi et al. 2016) significantly impacted scallop stocks in the Abrolhos Islands and therefore extreme events and climate change continues to be a key focus for this fishery.

7.2.5 Assessment of Stock Status

The harvest strategy (DPIRD 2020) is underpinned by a primary measure of abundance that assesses the status of the stock relative to target, threshold and limit reference point levels on an annual basis. The measure is based on mean scallop density from the annual November fishery-independent trawl survey and it aims to ensure that spawning stocks are sufficient prior to opening the fishery each year. This measure is used as a proxy measure for biomass in this report to assess the status of scallop stocks against MSC's framework. The guidance states "*SA2.2.3 confirms that teams may allow the use of surrogate or proxy indicators and reference points in scoring both stock biomass and exploitation rate. The terms "likely", and "highly likely" are used to allow scoring by either qualitative or quantitative approaches.*"

Scallop catch rates in November surveys are adjusted based on trawl speed. The density for each site is then calculated considering the distance trawled and the number of nets and their spread. To this extent, the assessment incorporates several sources of uncertainty. The "November spawning stock density" is calculated as the arithmetic mean of the density of scallops per nautical mile for all trawl sites done in November each year. Given that there are some years where all sites are not covered, the current approach can lead to bias and over-estimation in years when sites are missed because they were likely to be of low abundance. Kangas et al (2021) report that "*the total index may not provide an accurate reflection of the 'average' stock abundance for the whole fishery but leads to a more reliable catch prediction as fishers' target areas of higher abundances*". Thus, while this uncertainty has been identified, it has not been incorporated into the assessment.

A stock-recruitment-environment relationship for the Abrolhos Island scallop fishery has been determined analytically (Chandrapavan et al. 2020, Kangas et al. 2021), and this understanding underpins the selection of limit, threshold and target levels of November spawning density that are used here as proxy measures for

stock status. The limit reference point for the fishery is set at 250 scallops per nautical mile, while the target reference point is set at 750 scallops per nautical mile (DPIRD 2020).

Chandrapavan et al. (2020) report "*the current stock-recruitment-environment (SRE) relationship suggests spawning stock levels greater than 420 scallops/nm (log 6) have generally led to recruitment levels greater than 280 scallops/nm (log 5.5) that have allowed the fishery to operate. When sufficient spawning stock levels are available, cooler SSTs < 23 °C have produced recruitment levels above 1800 scallop/nm (e.g. 2002, 2004, 2007, 2010, 2018 and 2016), while warmer SSTs > 23 °C have produced average to poor recruitment which have generally resulted in catches being < 50 t or the fishery being closed. The recruitment failure during 2012 is associated with the warmest SST during May – June 2011 at 25°C, the tail end of the temperature signal from the 2011 MHW event. Subsequent recruitment was likely impaired by low spawning stock levels from 2012 to 2015, while the recovery in 2016 can be attributed to the return of cooler winter SST of 22.2°C during 2015. This was associated with one of the strongest recorded El Niño events. The improved recruitment observed during 2016 indicates spawning stock levels as low as 29 scallops/nm can produce above average recruitment level of 988 scallops/nm under conducive environmental conditions.*"

GSA2.2.3.1 states "*Where proxies are used that are not expressed as percentages of B0, teams should generally ensure that:*

• *Any reference point used as a proxy for scoring the PRI is set above the point where there is an appreciable risk of recruitment failure; and*

• *Any reference point used as a proxy for the MSY level maintains the stock well above the PRI and at levels of production and stock sizes consistent with BMSY or a similar highly productive level*".

On the basis of the low abundance that scallops have recovered from (29 scallops per nautical mile) and the consistently adequate levels of recruitment obtained from abundances >420 scallops per nautical mile, the selection of 250 and 750 scallops per nautical mile for the limit and target reference levels, respectively, appear appropriately conservative. Importantly, this includes accounting for the uncertainties associated with the November survey index itself (i.e. arithmetic mean of all survey site densities), which can be biased when sites of low abundance are not done in any given year. While we do consider this appropriately precautionary, it should be noted that we have recommended that review of factors such as site selection and the approach to calculating the mean density be undertaken.

GSA2.7 provides background on the Assessment of Stock Status PI (PI 1.2.4) and states "*This PI considers how the fishery assesses information to provide an understanding of stock status and the effectiveness of the harvest strategy. Some harvest strategies assess stock status using empirical indicators and do not require use of quantitative assessment models. In such cases, the assessment PI will be scored relative to the robustness of that indicator (which may also have contributed to the score for the Information PI).*

For some harvest strategies stock assessment methods may not be model based but based on stock status relative to empirical reference points (e.g., catch rate, density, survey abundance, among other things), and decision rules may be constructed of rules using these indices rather than analytical assessments. Other harvest strategies may utilise complex analytical models.

For the Abrolhos scallop fishery, the reference points are based on the stock-recruitment-environment relationship. Kangas et al. (2021) reference an unpublished report (Caputi et al. submitted) but provide some details of results of the assessment. They state "*Spawning stock (SS) was estimated to be the scallop abundance in the fishery independent survey in November (Y) and the recruitment (Rec) was the stock abundance from fishery independent surveys the following year (Y+1); lnRec = 0.65lnSS + 2.15, R2 = 0.412, p = 0.0013. Given the significant decline in scallop stocks in Abrolhos Islands after the 2010/11 MHW, the effect of SST between March and June (post spawning period for settlement of juvenile scallops) on recruitment was also examined which was not significant at p=0.05. However, combining SS and the environment in a stock-recruitment-environment relationship (SRER) indicated a relatively strong relationship; lnRec = 0.71lnSS -1.62SST + 39.7211 (bSS, p= 0.0017) (bSST, p = 0.0118), R2 = 0.58, p = 0.00026."*

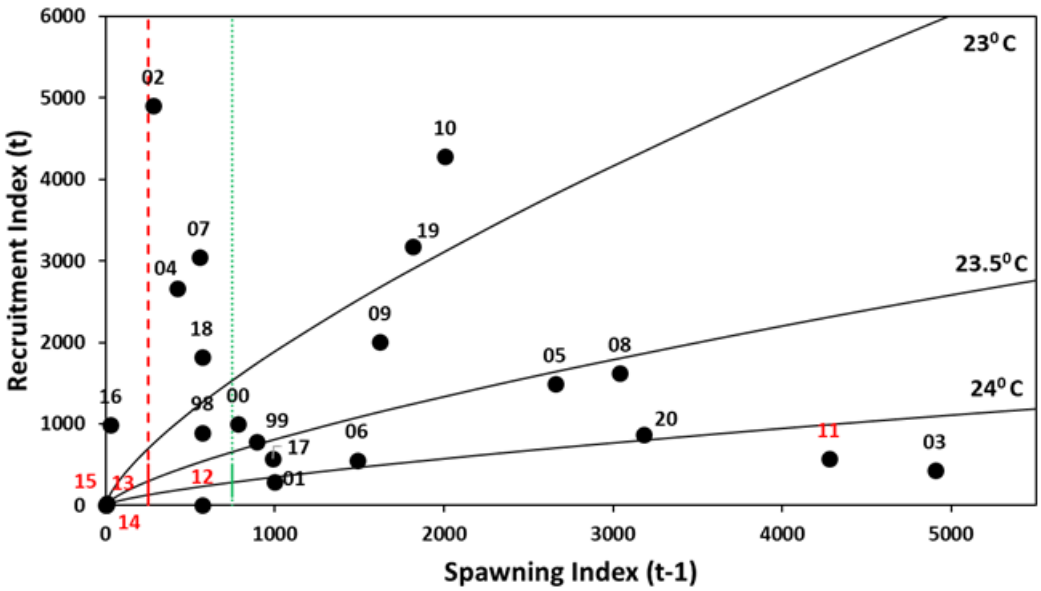


Figure 7. Relationship between the annual mean scallop abundance index (ln total scallops/nm trawled (Y-1)) in November with the annual mean scallop abundance index (in total scallops/nm trawled in Y) between 2000 and 2019. The year of recruitment is indicated on the graph with the SST (oC) in March to June lines shown. The dashed red line is the current limit spawning stock reference level and the dotted green line is the threshold reference level. (Source Kangas et al. 2021).

Current Stock Status

The 2019 November survey index was 3,339 scallops per nautical mile (Figure 8). This is well above the target reference point (750 scallops per nautical mile) and around 14 times the limit reference point (250 scallops per nautical mile). On this basis, there is a high degree of certainty the stock is above a point of recruit impairment, and it is likely that the stock is at least around a point of maximum sustainable yield. However, given the stock has recently recovered from very low biomass levels following a marine heatwave event, the stock has only been at these very high levels for the last two years (November survey index was just below target in November 2017).

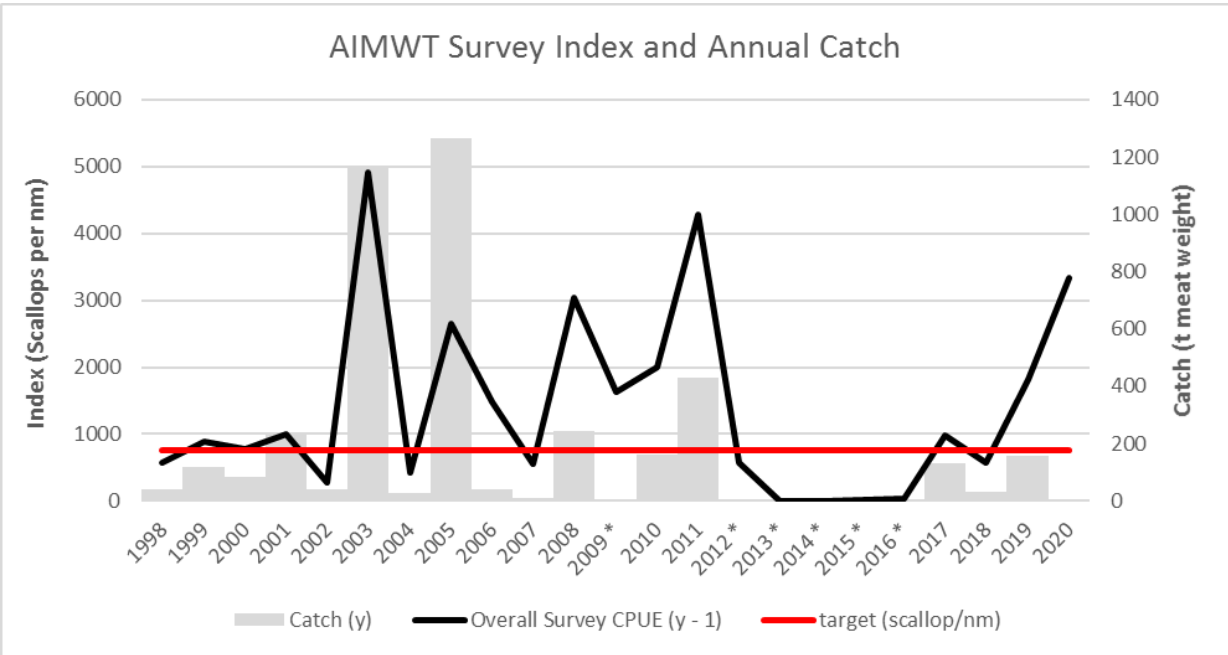


Figure 8. Annual pre-season scallop abundance (no./nm) in November (Y) for the AIMWTMF between 1998 and 2020 and commercial landings (t meat weight). The red line indicates the target scallop abundance reference level (no./nm trawled) for November. * No fishing.

7.2.6 Uncertainty in the assessment

There are two key components to the assessment: the November trawl survey and the analysis of the stock-recruitment-environment relationship.

Kangas et al. (2021) describe in detail the approach to the stratified survey design which is based in the traditional fishing areas of the fishery. They acknowledge some uncertainty in the comparison of mean estimates each year stating "*The number of research trawls undertaken within a fishing ground are largely consistent among years particularly for the more southern fishing grounds where traditionally scallops are more abundant. In the northern fishing grounds, sometimes only one trawl is undertaken if the abundance is very low. This means the total index may not provide an accurate reflection of the 'average' stock abundance for the whole fishery but leads to a more reliable catch prediction as fishers' target areas of higher abundances*". While this uncertainty is acknowledged, it is not dealt with directly in the estimate of the Performance Indicator. However, as previously discussed, the reference points have been selected at such precautionary levels that the uncertainty in the estimate of spawning biomass is accounted for in an indirect manner. This is further acknowledged by Kangas et a (2021) who reports "*In the HS the mean November survey catch rates are used to assess whether fishing should commence or not i.e. that the stock is above or below the limit. The robustness of this measure is yet to be fully evaluated as it has only recently been adopted (DPIRD 2020)."*

As presented previously, Kangas et al (2021) also describes the method used to adjust the abundance of survey data based on differences in trawl speed (as described under *Fishery Independent Surveys* in the *Monitoring* section).

Chandrapavan et al. (2020) provide discussion of the stock-recruitment-environment analysis that includes a detailed description of the uncertainties in the assessment. In summary, the authors conclude that the observed relationship at the scale of the fishery is very strong, while acknowledging a lack of understanding in finer scale processes e.g., small scale hydrodynamic processes that may play a critical role in the larval settlement distribution across the islands groups that are highly variable year to year.

Kangas et al. (2021) report that a range of additional factors are also taken into account to reduce uncertainty in assessment information. They state:

"• Very high scallop abundance areas that have been identified in surveys may not be as productive as expected due to crowding, stunting and poor meat quality that has been observed previously. To reduce uncertainty, within season commercial catch and catch rates are used to evaluate stock abundance and stock status.

• The survey in Feb/March will provide a basis for comparison with the longer-term November survey in terms of scallop abundance, size composition and subsequent annual landings.

• Fishery-dependent information is used by fishers within season to cease fishing at or above the target catch rate level. This data is verified by the Department at the end of the season. Due to highly patchy and variable nature of scallop cessation of fishing at a pre-determined catch rate (and in practise above the limit) ensures breeding stock protection.

• The level of uncertainty in the catch prediction and requirement to protect breeding stock is further assisted by identification of areas of small scallops (either from surveys or by fishers whilst fishing) and subsequently implementing small-scale spatial closures for the rest of the season.

• Accounting for uncertainty in fishery dependent data is by validating catch information against processor returns and regular communication with fishers."

7.2.7 Peer Review of Assessment

Annual internal reviews are undertaken for DPIRD's annual SoFAR reports and as part of the Status of Australian Fish Stock Reports (fish.gov.au).

The Department of Agriculture, Water and Environment (DAWE) for the Australian Government assessed the fishery in 2015 as being sustainable under the provisions of the Environment Protection and Biodiversity Conservation (EPBC) Act 1999.

An external review by Professor Malcolm Haddon was conducted for Shark Bay prawn and scallop fisheries in 2019. While the approach for the science and stock assessment methodology for scallops in the AIMWTMF

reflect that conducted in Shark Bay (Haddon 2019), critical differences do exist such as the number of sites surveyed and their frequency. Thus, while the review is relevant, some aspects of the review would be useful to be repeated specifically for the Abrolhos Island fishery.

7.2.8 Weight of evidence risk-based assessment

DPIRD assesses stock status using a risk-based, weight of evidence approach. Kangas et al. (2021) report "*all stock assessments undertaken by the WA Department take a risk-based, weight-of-evidence approach (Fletcher 2015). This requires specifically the consideration of each available 'line of evidence', both individually and collectively, to generate the most appropriate overall assessment conclusion. The lines of evidence include the outputs that are generated from each available quantitative method, plus any qualitative lines of evidence such as biological and fishery information that describe the inherent vulnerability of the species to fishing. For each species, all of the lines of evidence are then combined within the Department's ISO 31000-based risk assessment framework (see Fletcher 2015; Appendix 2) to determine the most appropriate combinations of consequence and likelihood to determine the overall current risk status."*

The November survey index presented above is one of the key measures in the weight of evidence approach. While the following additional information does not directly support the assessment of stock status made here under the MSC framework, it nevertheless presents relevant biological information that supports the current assessment of a sustainable stock, and some of the information is directly relevant to the Harvest Strategy and Harvest Control Rules.

Kangas et al. (2021) report:

Commercial Annual catch: Fluctuating landings are largely a reflection of high recruitment variability and more recently with recruitment impairment post-2010/11 MHW event. The fishery had recovered by 2017 (as indicated by the mean scallop abundance in November 2016 survey) and landings since the re-opening of the fishery has been between 30 and 160 tonnes meat weight in the lower end of the historical catch range. This line of evidence suggests the annual landings, since the re-opening of the fishery in 2017 are within the range of landings observed historically. The evidence does not indicate that currently there is any stock depletion.

Annual commercial fishing effort: The historical fishing effort in this fishery has varied between 468 and 14,782 trawl hours. Five boats fished in 2019 for 2,728 trawl hours, which is in the lower end of the historical effort range. This line of evidence indicates that the level of fishing effort should not cause stock depletion.

Catch distribution: In 2019 scallops were caught within the traditional scallop grounds. The logbook information indicates that most scallops were retained from areas that were identified as higher scallop catch rates during the November 2018 survey and fishing effort occurred in primarily three traditional fishing grounds. This line of evidence indicates that effort distribution reflected the abundance and distribution of scallops within the Abrolhos Islands that were identified through fishery independent surveys. There is no evidence to indicate that the fishery exploited aggregations of scallops in areas not identified by surveys.

Annual fishery-dependent catch rates: The annual commercial catch rate of 58 kg meat/hr in 2019 was in the mid-range of overall catch rates (30-75 kg meat/hr) seen historically in the fishery apart from very high catch rate years of 2003, 2005 and 2008 where catch rates were 125 to 195 kg meat/hr. Annual scallop fleet trawl catch rates in 2019 are in the mid-range of the historical catch rates and do not indicate any stock depletion.

Size composition data: In November 2018 and 2019 one broad cohort is observed with a mean size of scallops between 80 and 95 mm SH. In March 2019 two cohorts were evident at 40-50 mm SH and 80-90 mm SH with similar abundances of both size classes indicating further recruitment. This line of evidence indicates good recruitment in 2019 and the presence of a larger cohort of scallops does not indicate a heavy depletion of spawning stock.

Stock-recruitment analysis (SRR and SRER): Water temperatures greater than 24oC during the scallop larval and settlement time has a significant negative impact on scallop recruitment. These relationships were used to set the limit and target reference levels in the harvest strategy. In 2018 and 2019, the spawning index was above the target reference level (750 scallops/nm). These lines of evidence indicate that the spawning stock level in the Abrolhos Islands is adequate. Water temperature conditions in 2019 was favourable for scallop recruitment.

7.2.9 Harvest Strategy and Harvest Control Rules

The fundamental components of the harvest strategy for the fishery includes limited licensing, gear restrictions, seasonal closures, fishery independent surveys and monitoring of catch through logbooks, catch disposal records and VMS (Table 10). A formal harvest strategy for the fishery was published in June 2020 (DPIRD 2020) that documents they key components of the harvest strategy, including the harvest control rules (HCRs). The harvest strategy has been developed in line with the DPRD's Harvest Strategy Policy for Aquatic Resources (Department of Fisheries 2015) and is consistent with relevant national harvest strategy policies and guidelines (e.g., Sloan et al. 2014; Department of Agriculture and Water Resources 2018a, b).

Table 10. Management measures and instrument of implementation for the Abrolhos Islands scallop resource (source DPIRD 2020).

Measure	Description	Instrument
Limited Entry	Only 10 Managed Fishery Licences are permitted to operate in the AIMWTMF.	*AIMWTMF Management Plan*
Temporal Closures	No retention of scallops is permitted during the key spawning period.	*AIMWTMF season arrangements*
Spatial Closures	Parts of the fishery are permanently closed to trawling activities. Areas are also periodically closed to protect aggregations of juvenile and spawning scallops.	*AIMWTMF Management Plan and Voluntary agreement*
	There are also two port area closures in place within three nautical miles of Geraldton and Port Gregory.	*Section 115 Order — Abrolhos Islands Fish Habitat Protection Area Order 1999*
	The Reef Observation Areas within the Fish Habitat Protection Area are permanently closed to trawling.	
Gear Restrictions	Includes controls on size of ground chain, mesh size and shape, headrope length and the dimensions of otter boards.	*AIMWTMF Management Plan*
Bycatch Reduction Devices (BRDs)	The fleet is required to have BRDs in the form of grids in all standard nets.	*AIMWTMF Management Plan*
Reporting	Fishers are required to report all retained species catches, effort, ETP species interactions and fishing location in statutory daily logbooks.	*FRMR*
	Fishing activities are also monitored via the satellite VMS.	*AIMWTMF Management Plan*

The key ecological objective of the harvest strategy is to maintain spawning stock biomass of Saucer scallops above a threshold level, where the main factor affecting recruitment is the environment. The harvest strategy recognises that while scallop recruitment is naturally highly variable both spatially and temporally, recent studies have demonstrated a spawning stock-recruitment-environment relationship that provides a sound basis for reference points for the fishery that can meet the key ecological objective.

The harvest strategy follows a "constant escapement policy" (Kangas et al. 2021) designed to ensure that a minimum level of scallop spawning stock is left at the end of each fishing season. The performance indicators, reference levels and HCRs aim to provide the spawning stock with a very high level of protection (including fishery closure) in years when scallops are naturally low in abundance, such as occurred after a marine heatwave event.

Performance Indicators and Reference Levels

Performance Indicators based on fishery-independent and fishery-dependent data are used to monitor relative stock levels at certain times during the scallop fishing season. The primary performance indicator is from the November survey, which provides an index of scallop spawning stock abundance. These data have informed the current reference points for each component of the resource, including a limit below which recruitment may be impaired and thus the fishery will not open for the upcoming fishing season (Table 11).

The target level is considered as the range of index values above a threshold level, below which the season opening will be delayed to maximise the opportunity for scallops to spawn before fishing commences. A supplementary survey undertaken in February/March is used in conjunction with the information available from the November survey to review the appropriateness of the season opening. This second survey also provides an indication of any areas abundant with juvenile scallops that can be protected. Fishery-dependent catch rates and size information provided to DPIRD by active fishing vessels is used to inform any further voluntary spatial closures to protect juvenile scallops, and scallop fishing can cease within 48 hours if the catch rate (150 kg/day) to cease fishing is reached.

Table 11. Harvest strategy performance indicators, reference levels and control rules for the Abrolhos Islands saucer scallop resource (source: DPIRD 2020).

Performance Indicators	Reference Levels	Control Rules
November index of scallop spawning stock levels (mean survey catch rates across all main trawl areas)	**Target:** >750 scallops per nautical mile	If the index is above the Threshold, the scallop fishing season will be set to open on 1 March
	Threshold: 750 scallops per nautical mile	If the index is equal to or below the Threshold but above the Limit, delay scallop fishing season opening until February/March survey information is available to inform an appropriate management response (see below)
	Limit: 250 scallops per nautical mile	If the index is equal to or below the Limit, the scallop fishery will remain closed for the next fishing season and a recovery strategy implemented to return the stock to the target level
1. February/March index of scallop residual levels (mean survey catch rates of 1+ scallops across all main trawl areas), and 2. February/March survey scallop size information (in each main trawl area)	**Threshold:** 750 1+ scallops per nautical mile; and/or >50% of scallops <60 mm (measured in baskets[4])	If either Threshold is breached, review all available information and implement precautionary management measures aimed to return the stock to the target level (e.g. delay season opening and/or implement spatial/temporal closures, see Section 3.4.2)
	Limit: 250 1+ scallops per nautical mile	If the index is equal to or below the Limit, fishery remains closed

Application of Harvest Control Rules

Each performance indicator and reference level is accompanied by HCRs that direct management actions (Table 11). The HCRs aim to maintain the resource above the threshold level (i.e. within the target range), or rebuild it where it has fallen below the threshold (undesirable) or the limit (unacceptable) levels. Triggering a limit or threshold level typically initiates a review of all available information to determine an appropriate management response. The extent of management action taken is determined by the extent to which a performance indicator has breached a reference point, increasing in line with an increasing risk to the resource. The review process also includes consideration of future research and monitoring to ensure the indicator returns to the target level, as well as the compliance response needed to ensure management changes are adequately enforced. The range of management measures that may be used include:

- delaying opening of the scallop fishing season to 1 May to maximise the opportunity for scallops to spawn;
- reducing the spatial extent of fishing to protect areas dominated by juvenile scallops; and/or
- increasing the commercial catch rate threshold to cease fishing earlier in the season where scallop recruitment is low to maximise their contribution to next year's catch and the spawning stock.

The ability to, and timeframe for, implementing these changes depends on the legal instrument under which the management measure occurs (DPIRD 2020).

Recovering Depleted Stocks

If stocks fall below the limit reference level, a recovery strategy is developed and implemented to ensure that the resource can rebuild at an acceptable rate, considering environmental conditions (Department of Fisheries 2015). A key component of the recovery strategy includes closing the fishery to scallop trawling until the stock has returned to above the threshold level. Precautionary management measures would be applied in the first few years after re-opening the fishery. Before the stock is considered to have rebuilt, a review of the harvest strategy is to be undertaken to ensure the original HCRs remain appropriate to maintain the stock above the threshold levels in the future.

Review of alternative measures to reduce unwanted catch of target species

In the MSC guidance, GSA3.5.3 states "*in cases where there is negligible unwanted catch of a species, the team may use their discretion as to whether the scoring issue would be scored, but the decision should be made in accordance with a precautionary approach. When determining what is 'negligible' the MSC does not specify a set cut-off; the team may consider the significance of the catch in relation to things like the proportion of the unwanted catch as part of the total catch or as part of the total amount of unwanted catch, as well as the regularity of the catch occurring when deciding whether it is negligible*".

The fishery currently does not collect data on the proportion of juvenile scallops in the catch. However, the management system aims to actively avoid them. DPIRD (2020) report "*Central to this harvest strategy is a co-management approach, whereby industry will abide by voluntary closures of areas with an abundance of juvenile scallops. Where more than half of the scallop landed by a trawl shot are <60 mm in size, this information will be reported to the Department and all other fishing vessels so that the area can be avoided for the remainder of the fishing season. This cooperative framework is also used to monitor fishing in areas outside of the traditional trawl grounds within the fishery. In line with an agreed protocol (see Appendix 1), vessels which undertake exploratory fishing in areas outside of the traditional trawl grounds within the fishery, do so using try gear, with catch rate and size information from these try shots provided to the Department and other skippers within the fleet*". These measures intend to limit the mortality of juvenile scallops during the fishing season. Similarly, the same rules apply (i.e. >50% of the catch <60mm) to fishery independent survey data to determine whether or not spatial closures should apply.

While the management system is designed to minimise the capture of unwanted target species, including the use of large diamond mesh that selects predominately large scallops, there are currently no data to measure the effectiveness of this system. Despite this, we have assessed the fishery as having a negligible unwanted catch due primarily to tag-recapture studies of scallops undertaken in the similar Shark Bay trawl fishery that catches both scallops and prawns (Kangas et al 2011). The authors conducted a multiple tag-recapture experiment on consecutive nights that provided estimates of survival and recapture in summer and winter periods. The study concluded that scallop survival was generally high during winter despite this time being post-spawning when scallops aren't in their greatest condition. Survival was lower in summer periods, which was expected to be related to heat stress associated with exposure at higher air temperatures (it was an average of 28°C in summer compared to 18°C in winter). *Y. ballotti* cannot fully seal their shell opening and thus are highly susceptible to desiccation stress (Kangas et al 2011).

The current season for the fishery runs from 1 May (the start of winter) to 31 October (2/3 the way through spring). On this basis, we consider that the survival of discarded scallops is likely to be high, even if caught on multiple occasions. In combination with the management measures already in place to minimise capture, we consider there is no need to assess review of alternative measures for the target species.

7.2.10 Catch profiles

Scallop landings from the AIMWMTF have fluctuated markedly from <20 tonnes (meat weight) to up to 1300 tonnes (meat weight, Figure 9). Catches are dependent on sporadic recruitment, which appears to be strongly influenced by environmental conditions (Kangas et al. 2021, Chandrapavan et al. 2020).

The fishery was closed from 2012-2016 and following recovery, catches in meat weight from 2017 to 2019 have been 130.2 t, 31.0 t and 159.1 t, respectively.

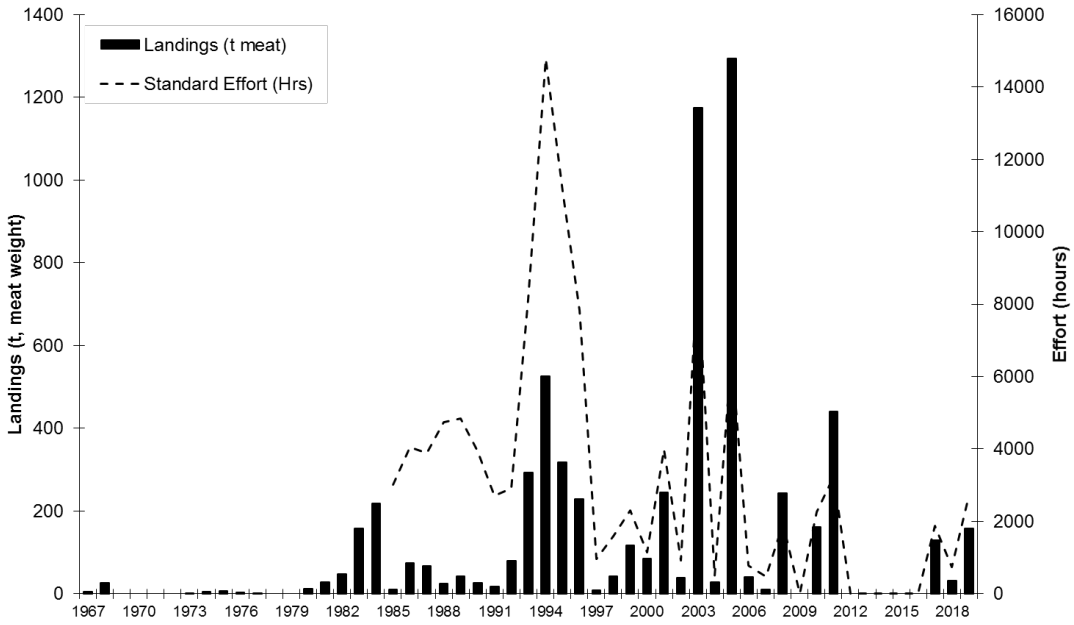


Figure 9. Annual total retained catches (tonnes meat weight) and fishing effort (standard hours trawled) in the commercial AIMWTMF between 1967 and 2019 (no fishing between 2012 and 2016) (source Kangas et al. 2021).

7.2.11 Total Allowable Catch (TAC) and catch data

Table 12 – Catch Data (TACs not in place for the fishery) – Saucer scallop (*Ylistrum balloti).*

TAC	**Year**	**Na**	**Amount**	**Na**
UoC share of TAC	**Year**	**2019**	**Amount**	**159.1 t meat weight**
UoC share of TAC	**Year**	**2018**	**Amount**	**31.0 t meat weight**
Total green weight catch by UoC (all operators in the fishery are within the UoC)	**Year (most recent)**	**2019**	**Amount**	**159.1 t meat weight**
	Year (second most recent)	**2018**	**Amount**	**31.0 t meat weight**

7.2.12 Principle 1 Performance Indicator scores and rationales

PI 1.1.1 – Stock status

PI 1.1.1		The stock is at a level which maintains high productivity and has a low probability of recruitment overfishing		
Scoring Issue		SG 60	SG 80	SG 100
a	Stock status relative to recruitment impairment			
	Guide post	It is **likely** that the stock is above the point where recruitment would be impaired (PRI).	It is **highly likely** that the stock is above the PRI.	There is a **high degree of certainty** that the stock is above the PRI.
	Met?	**Yes**	**Yes**	**Yes**
Rationale				

The 2019 November survey index was 3,339 scallops per nautical mile (Kangas et al. 2021). This is around 14 times the limit reference point of 250 scallops per nautical mile. It is noted that under favourable environmental conditions, the stock recorded higher than average levels of recruitment from a spawning stock that was only 29 scallops per nautical mile (Chandrapavan et al. 2020). Despite some uncertainty in the calculation of the November spawning index and a lack of error bars presented on the November survey figures, the magnitude of the result suggests that there is a high degree of certainty the stock is above the PRI and SG60, 80 and 100 are met.

b	Stock status in relation to achievement of Maximum Sustainable Yield (MSY)			
	Guide post		The stock is at or fluctuating around a level consistent with MSY.	There is **a high degree of certainty** that the stock has been fluctuating around a level consistent with MSY or has been above this level over recent years.
	Met?		**Yes**	**No**
Rationale				

The 2019 November survey index was 3,339 scallops per nautical mile (Kangas et al. 2021). The target reference point is 750 scallops per nautical mile and stock-recruitment-environment analyses suggest that stock sizes >420 scallops per nautical mile generally lead to satisfactory recruitment (Chandrapavan et al. 2020). On this basis, it is likely that the stock is at least around a point of maximum sustainable yield and SG80 is met. However, given the stock has recently recovered from very low biomass levels following a marine heatwave event, the stock has only been at these very high levels for the last two years (November survey index was just below target in November 2017) and therefore there is not a high degree of certainty that **the** stock has been fluctuating around a level consistent with MSY or has been above this level over recent years. SG100 is not met.

References

Chandrapavan A, Kangas M, Caputi N. (2020). Understanding recruitment variation (including the collapse) of Ballot's saucer scallop stocks in Western Australia and assessing the feasibility of assisted recovery measures for improved management in a changing environment. Fisheries Research Report No. 308 Department of Primary Industries and Regional Development, Western Australia. 76pp.

Kangas, M.I., Chandrapavan, A., Wilkin, S, Fisher, E.A., and Evans, S (2021). Western Australian Marine Stewardship Council Report Series No. 20: Resource Assessment Report Abrolhos Islands and Mid-West Trawl Managed Fishery Resource. Department of Primary Industries and Regional Development, Western Australia.

Stock status relative to reference points			
	Type of reference point	Value of reference point	Current stock status relative to reference point
Reference point used in scoring stock relative to PRI (SIa)	November survey index	250 scallops per nautical mile	2019: 3,359 scallops per nautical mile
Reference point used in scoring stock relative to MSY (SIb)	November survey index	750 scallops per nautical mile	2019: 3,359 scallops per nautical mile

Draft scoring range and information gap indicator added at Announcement Comment Draft Report

Draft scoring range	**≥80**
Information gap indicator	

Overall Performance Indicator scores added from Client and Peer Review Draft Report

Overall Performance Indicator score	**90**
Condition number (if relevant)	

PI 1.1.2 – Stock rebuilding

PI 1.1.2		Where the stock is reduced, there is evidence of stock rebuilding within a specified timeframe		
Scoring Issue		SG 60	SG 80	SG 100
a	Rebuilding timeframes			
	Guide Post	A rebuilding timeframe is specified for the stock that is the **shorter of 20 years or 2 times its generation time**. For cases where 2 generations is less than 5 years, the rebuilding timeframe is up to 5 years.		The shortest practicable rebuilding timeframe is specified which does not exceed **one generation time** for the stock.
	Met?	**NA**		**NA**
Rationale				

The saucer scallop stock is not depleted hence this performance indicator does not apply.

b	Rebuilding evaluation			
	Guide Post	Monitoring is in place to determine whether the rebuilding strategies are effective in rebuilding the stock within the specified timeframe.	There is **evidence** that the rebuilding strategies are rebuilding stocks, **or it is likely** based on simulation modelling, exploitation rates or previous performance that they will be able to rebuild the stock within the **specified timeframe**.	There is **strong evidence** that the rebuilding strategies are rebuilding stocks, **or it is highly likely** based on simulation modelling, exploitation rates or previous performance that they will be able to rebuild the stock within the **specified timeframe**.
	Met?	**NA**	**NA**	**NA**
Rationale				

References

Draft scoring range and information gap indicator added at Announcement Comment Draft Report

Draft scoring range	
Information gap indicator	

Overall Performance Indicator scores added from Client and Peer Review Draft Report

Overall Performance Indicator score	**NA**
Condition number (if relevant)	

PI 1.2.1 – Harvest strategy

PI 1.2.1		There is a robust and precautionary harvest strategy in place		
Scoring Issue		SG 60	SG 80	SG 100
a	Harvest strategy design			
	Guide Post	The harvest strategy is **expected** to achieve stock management objectives reflected in PI 1.1.1 SG80.	The harvest strategy is responsive to the state of the stock and the elements of the harvest strategy **work together** towards achieving stock management objectives reflected in PI 1.1.1 SG80.	The harvest strategy is responsive to the state of the stock and is **designed** to achieve stock management objectives reflected in PI 1.1.1 SG80.
	Met?	**Yes**	**Yes**	**No**
Rationale				

The fundamental components of the harvest strategy for the fishery includes limited licensing, gear restrictions, seasonal closures, fishery independent surveys and monitoring of catch through logbooks, catch disposal records and VMS.

A formal harvest strategy document for the fishery was published in June 2020 (DPIRD 2020) that documents they key components of the harvest strategy, including the harvest control rules (HCRs). The harvest strategy has been developed in line with the DPIRD's Harvest Strategy Policy for Aquatic Resources (Department of Fisheries 2015) and is consistent with relevant national harvest strategy policies and guidelines (e.g. Sloan et al. 2014; Department of Agriculture and Water Resources 2018a, b).

There are only 10 licensed fishers allowed to fish in the AIMWTMF. Gear restrictions include limitations on the size of the groundchain, mesh size and shape, headrope length and the dimensions of otterboards. There are a range of temporal and spatial closures enforced for the fishery including full closure during the spawning period, permanent spatial closures and spatial closures implemented to protect juvenile and or spawning scallops.

There are several monitoring measures in place. Daily logbooks have been completed by commercial scallop fishers since 1991, with catch and effort recorded shot by shot. Initially catches were reported in spatial grids but from 1998, spatial information was collected on a shot-by-shot basis with latitude and longitude co-ordinates for the start of the trawl. Estimates of meat weight are provided based on a meat to whole weight relationship and the estimated number of baskets. Processor data are used to validate and adjust catch estimates. The daily logbooks are checked, entered and validated by Departmental staff on a monthly basis and any possibly erroneous entries or gaps are checked directly with skippers or the fishing company. Annual spatial data validation is undertaken using GIS and random checks of data entry is made through using VMS location records for all fisheries.

Fishery Independent Surveys (FIS) have been undertaken annually in November since 1997 and are used primarily to estimate scallop abundance (spawning biomass) and size composition. The number of research trawls undertaken within a fishing ground are largely consistent among years particularly for the more southern fishing grounds where traditionally scallops are more abundant. However, in some years fewer sites are surveyed in northern grounds when abundance is low and this causes some uncertainty in comparison of estimates between years. Since re-opening the fishery in 2017, an additional survey in February has been done to increase robustness of the harvest strategy. The survey provides data on the abundance of recruits (0+) and residual (1+) scallops (number per nautical mile) and shell height frequency data for scallops from each sampling site, trawl duration, distance trawled and environmental (depth, water temperature, sea conditions) information for each site. A data logger attached to the trawl gear has been used since 2019 to record salinity and temperature information during each trawl.

The fundamental components of the harvest strategy are expected to achieve stock management objectives reflected in PI 1.1.1 SG80 and thus SG60 is met.

Fishery-independent and -dependent data are used to inform the Performance Indicators and HCRs for the fishery that aim to meet the key ecological objective of the harvest strategy which is to maintain spawning stock biomass of Saucer scallops at a level where the main factor affecting recruitment is the environment. The harvest strategy (DPIRD 2020) recognises that while scallop recruitment is naturally highly variable both spatially and temporally, recent studies have demonstrated a spawning stock-recruitment-environment relationship that provides a sound basis for reference points

for the fishery to meet the key ecological objective. The harvest strategy follows a “constant escapement policy” (Kangas et al. 2021) designed to ensure that a minimum level of scallop spawning stock is left at the end of each fishing season. The performance indicators, reference levels and HCRs aim to provide the spawning stock with a very high level of protection (including fishery closure) in years when scallops are naturally low in abundance, such as occurred after the marine heatwave event. On this basis, the harvest strategy is responsive to the state of the stock and the elements of the harvest strategy work together towards achieving stock management objectives reflected in PI 1.1.1 SG80. Thus SG80 is met.

It is acknowledged that the harvest strategy is only new and DPIRD (2020) and Kangas et al. (2021) refer to work in progress that is aiming to evaluate and improve elements of the harvest strategy. This may improve scoring over time. At this point in time, SG100 is not met.

	Harvest strategy evaluation			
b	Guide post	The harvest strategy is **likely** to work based on prior experience or plausible argument.	The harvest strategy may not have been fully **tested** but evidence exists that it is achieving its objectives.	The performance of the harvest strategy has been **fully evaluated** and evidence exists to show that it is achieving its objectives including being clearly able to maintain stocks at target levels.
	Met?	**Yes**	**Yes**	**No**
Rationale				

The harvest strategy for the AIMWTMF is very similar to the MSC certified Shark Bay Prawn Fishery. An external review of the science and stock assessment methodology for the Shark Bay Prawn and Scallop Fisheries was conducted by Professor Malcolm Haddon in 2019 (Unpublished report). On this basis, the harvest strategy is likely to work based on prior experience or plausible argument and SG60 is met.

There is a range of monitoring data and data analyses that provide evidence that the harvest strategy is achieving its objectives. November survey data have provided an index of spawning biomass since 1997. These data have tracked abundance through the marine heatwave event, the subsequent fishery closure and more recently the stock recovery. The harvest strategy has been augmented with February survey data since 2017 that track recruitment to the fishery and residual spawning biomass. The November survey index has been analysed with environmental data to provide a robust understanding of the stock-recruitment-environment relationship that provides a robust predictive tool to combine survey results with in-season water temperatures to predict the likelihood of successful recruitment. Finally, fishery-dependent data are monitored on a daily basis to track the health of the stock during fishing and to inform when to close the fishery at the end of the season. In combination these measures are sufficient to pass at SG80.

The fishery has only recently recovered and while the HCRs have been used for a while they have only been recently formalised, and the performance of the harvest strategy has not yet been fully evaluated. On this basis, SG100 is not met.

	Harvest strategy monitoring			
c	Guide post	Monitoring is in place that is expected to determine whether the harvest strategy is working.		
	Met?	**Yes**		
Rationale				

The fishery has a range of monitoring measures in place that are expected to determine whether or not the strategy is working. These include: monitoring of catch through logbooks, catch disposal records and processor data; monitoring of daily catch and CPUE to inform HCRs; fishery independent surveys to monitor spawning stocks, recruitment and areas of juvenile habitat requiring protection; VMS to ensure compliance with spatial and temporal closures and to validate position data, and; licensing and compliance programs. On this basis, SG60 is met.

d	Harvest strategy review			
	Guide post			The harvest strategy is periodically reviewed and improved as necessary.
	Met?			**Yes**
Rationale				

DPIRD (2020) states "*The WA Harvest Strategy Policy recognises that fisheries change over time and that a review period should be built into each harvest strategy to ensure that it remains relevant (Department of Fisheries 2015). This harvest strategy will remain in place for a period of five years, after which time it will be fully reviewed. However, given that this is the first formal harvest strategy for this resource, this document may be subject to review and amended as appropriate within this five-year period.*"

On this basis, SG100 is met.

e	Shark finning			
	Guide post	It is **likely** that shark finning is not taking place.	It is **highly likely** that shark finning is not taking place.	There is a **high degree of certainty** that shark finning is not taking place.
	Met?	**NA**	**NA**	**NA**
Rationale				

Not applicable as the target species are not sharks.

f	Review of alternative measures			
	Guide post	There has been a review of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality of unwanted catch of the target stock.	There is a **regular** review of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality of unwanted catch of the target stock and they are implemented as appropriate.	There is a **biennial** review of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality of unwanted catch of the target stock, and they are implemented, as appropriate.
	Met?	**NA**	**NA**	**NA**
Rationale				

The management system aims to actively minimise the capture of unwanted, juvenile scallops. DPIRD (2020) report "*Central to this harvest strategy is a co-management approach, whereby industry will abide by voluntary closures of areas with an abundance of juvenile scallops. Where more than half of the scallop landed by a trawl shot are <60 mm in size, this information will be reported to the Department and all other fishing vessels so that the area can be avoided for the remainder of the fishing season. This cooperative framework is also used to monitor fishing in areas outside of the traditional trawl grounds within the fishery. In line with an agreed protocol (see Appendix 1), vessels which undertake exploratory fishing in areas outside of the traditional trawl grounds within the fishery, do so using try gear, with catch rate and size information from these try shots provided to the Department and other skippers within the fleet*". These measures intend to limit the capture of juvenile scallops during the fishing season. Similarly, the same rules apply (i.e. >50% of the catch <60mm) to fishery independent survey data to determine whether or not spatial closures should apply.

While the management system is designed to minimise the capture of unwanted target species, including the use of large diamond mesh that selects predominately large scallops, there are currently no data to measure the effectiveness of this system. Despite this, we assess the fishery as having a negligible unwanted catch. Tag-recapture studies of scallops undertaken in the similar Shark Bay trawl fishery (Kangas et al 2011) concluded that scallop survival was high during winter despite this time being post-spawning when scallops aren't in their greatest condition. Survival was lower in summer periods, which was expected to be related to heat stress associated with exposure at higher air temperatures (it was an average of 28°C in summer compared to 18°C in winter). *Y. ballotti* cannot fully seal their shell opening and thus are highly susceptible to desiccation stress (Kangas et al 2012).

The current season for the fishery runs from 1 May (the start of winter) to 31 October (2/3 the way through spring). On this basis, data suggest that the survival of discarded scallops is likely to be high, even if caught on multiple occasions. In combination with the management measures already in place to minimise capture, we consider that unwanted catch of scallops is negligible and there is no need to assess review of alternative measures for the target species.

References

Department of Agriculture and Water Resources (2018a). Commonwealth Fisheries Harvest Strategy Policy. Canberra, June. CC BY 4.0.

Department of Agriculture and Water Resources (2018b). Guidelines for the Implementation of the Commonwealth Fisheries Harvest Strategy Policy. Canberra, June. CC BY 4.0.

Department of Fisheries (2015). Harvest Strategy Policy and Operational Guidelines for the Aquatic Resources of Western Australia. Fisheries Management Paper No. 271. Department of Fisheries, Western Australia.

DPIRD (2020) Saucer Scallop Resource of the Abrolhos Islands Harvest Strategy 2020 – 2025 Version 1.1. June 2020. Fisheries Management Paper No. 299.

Kangas, M.I, Chandrapavan, A., Hetzel, Y.L. and Sporer, E.C. (2012). Minimising gear conflict and resource sharing issues in the Shark Bay trawl fisheries and promotion of scallop recruitment. Fisheries Research Report No. 229. Department of Fisheries, Western Australia. 136p.

Sloan, S.R., Smith, A.D.M., Gardner, C., Crosthwaite, K., Triantafillos, L., Jeffries, B. and Kimber, N. (2014). National Guidelines to Develop Fishery Harvest Strategies. FRDC Report – Project 2010/061. Adelaide, South Australia.

Draft scoring range and information gap indicator added at Announcement Comment Draft Report

Draft scoring range	**≥80**
Information gap indicator	

Overall Performance Indicator scores added from Client and Peer Review Draft Report

Overall Performance Indicator score	**85**
Condition number (if relevant)	

PI 1.2.2 – Harvest control rules and tools

PI 1.2.2		There are well defined and effective harvest control rules (HCRs) in place		
Scoring Issue		SG 60	SG 80	SG 100
a	HCRs design and application			
	Guide post	**Generally understood** HCRs are in place **or available** that are **expected** to reduce the exploitation rate as the point of recruitment impairment (PRI) is approached.	**Well defined** HCRs are **in place** that **ensure** that the exploitation rate is reduced as the PRI is approached, are expected to keep the stock **fluctuating around** a target level consistent with (or above) MSY, or for key LTL species a level consistent with ecosystem needs.	The HCRs are expected to keep the stock **fluctuating at or above** a target level consistent with MSY, or another more appropriate level taking into account the ecological role of the stock, **most** of the time.
	Met?	**Yes**	**Yes**	**No**
Rationale				

At the highest level, limited licensing and gear restrictions limit the overall impact on the fishery. Within season, a combination of spatial and temporal closures is implemented, informed by a range of data sources, to maintain spawning stocks and reduce exploitation as PRI is approached.

The primary annual measure of stock status is the November survey index. Target, threshold, and limit reference levels determined from a stock-recruitment-environment relationship are used to determine if and when the fishery should be opened. If the November survey index is below the limit level the fishery is closed for the season and a recovery strategy is implemented. If the index is between the limit and target (i.e. threshold) then the timing of the season opening is reliant upon the February survey results. February survey results can also lead to spatial closures to protect juvenile scallops or spawning scallops in any year.

During fishing, fishers are expected to report to DPIRD when catches of juvenile scallops reach unacceptable levels. These areas will also be closed to fishing to prevent growth overfishing. Finally, as catch rates are reduced toward the end of the season, rules regarding the minimum catch per day are used to determine when to close the fishery. This aims to reduce exploitation to ensure that a minimum residual spawning biomass is available for spawning in the following year.

In combination, these well-defined HCRs ensure that the exploitation rate is reduced as the PRI is approached, and they are expected to keep the stock fluctuating around a target level consistent with (or above) MSY. On this basis SG60 and SG80 are met. The HCRs have not been active long enough to determine whether they are expected to maintain stocks at these levels most of the time, and thus SG100 is not met.

b	HCRs robustness to uncertainty			
	Guide post		The HCRs are likely to be robust to the main uncertainties.	The HCRs take account of a **wide** range of uncertainties including the ecological role of the stock, and there is **evidence** that the HCRs are robust to the main uncertainties.
	Met?		**Yes**	**No**
Rationale				

The HCRs consider, and are likely to be robust to, the main uncertainties.

Kangas et al. (2021) indicate that there is some uncertainty in the November survey index as the survey design is "largely similar" among years but not identical. Importantly, in years when all survey sites are not done due to perceived likley low abundance, this can result in an over-estimate of relative density compared to years when all sites are completed. Also, the November survey index is presented as a mean and does not account explicitly for uncertainty (i.e. error bars). However, reference levels have been set in a highly conservative manner that appears to account for the majority of this uncertainty. Notably, the fishery recovered from a very low abundance of 29 scallops per nautical mile and the limit reference point has been set at 250 scallops per nautical mile. In addition, consistently adequate levels of recruitment have been obtained from abundances of >420 scallops per nautical mile, and the target reference point has been set at 750 scallops per nautical mile. Thus, while there are some uncertainties acknowledged, the Harvest Strategy appears to account effectively for these uncertainties.

Despite the uncertainty in the November survey index, it should be noted that the November survey index accounted for 45% of the 58% of explained variation (water temperature was the other 13%) in the stock-recruitment-environment relationship (Chandrapavan et al. 2020). In their analysis, the authors conclude that the observed relationship at the scale of the fishery is very strong (and this is the scale of the HCR), while acknowledging a lack of understanding in finer scale processes e.g. small scale hydrodynamic processes that may play a critical role in the larval settlement distribution across the islands groups that are highly variable year to year.

Finally, there is a high degree of confidence in the catch data provided by fishers as it is entered and validated by department staff, and it is also validated against processor records. There is less certainty around reporting of juvenile scallops by fishers to inform within season spatial closures.

From the available information, the HCRs are considered likely to be robust to the main uncertainties and SG80 is met. However, there is insufficient evidence to pass at SG100.

	HCRs evaluation			
c	Guide post	There is **some evidence** that tools used **or available** to implement HCRs are appropriate and effective in controlling exploitation.	**Available evidence indicates** that the tools in use are appropriate and effective in achieving the exploitation levels required under the HCRs.	**Evidence clearly shows** that the tools in use are effective in achieving the exploitation levels required under the HCRs.
	Met?	**Yes**	**Yes**	**No**

Rationale

The guidance for SA2.5.7 states "*Where information is not available on the exploitation rate consistent with achieving a long term MSY, proxy indicators and reference points may be used to evaluate the effectiveness of HCRs in scoring issue (c)"*. In addition, SA2.5.7.1 states "*Where proxies are used to score scoring issue (c), the team shall justify their use as reasonable proxies of the exploitation rate*".

The key message from this guidance is the need to demonstrate the effectiveness of the tools in use in maintaining stocks at levels to achieve a long term MSY. Exploitation rates are not explicitly measured in the AIMWTMF harvest strategy, however survey data (Kangas et al. 2021) and the analysis of the stock-recruitment-environment relationship (Chandrapavan et al. 2020) does provide some evidence on the effectiveness of the HCRs in achieving the required exploitation levels.

Exploitation is controlled under the HCRs primarily through temporal and spatial closures. This is most crucial at the start of the season to ensure that the stock has had the appropriate opportunity to spawn, and at the end of the season to ensure that the residual spawning biomass is sufficient for the following year. The available evidence strongly suggests that there is a robust spawner-recruit relationship that is influenced by water temperature (Chandrapavan et al. 2020). The reference levels and HCRs, informed by November and February surveys, ensure that the stock has had the appropriate opportunity to spawn. Environmental considerations such as water temperature can also be taken into account regarding when to open the season.

There is less evidence that the rules to close the season are effective at ensuring sufficient spawning biomass the following November because the rules have only been in place for the last two years. Nevertheless, the available evidence indicates that they are appropriate, and the rules were developed in consultation with experienced fishers. On this basis, SG60 and SG80 are met. Data for several more years will be required to provide clear evidence that the end of season rules in particular are effective, and on this basis SG100 is not met.

References

Chandrapavan A, Kangas M, Caputi N. (2020). Understanding recruitment variation (including the collapse) of Ballot's saucer scallop stocks in Western Australia and assessing the feasibility of assisted recovery measures for improved management in a changing environment. Fisheries Research Report No. 308 Department of Primary Industries and Regional Development, Western Australia. 76pp.

Kangas, M.I., Chandrapavan, A., Wilkin, S, Fisher, E.A., and Evans, S (2021). Western Australian Marine Stewardship Council Report Series No. 20: Resource Assessment Report Abrolhos Islands and Mid-West Trawl Managed Fishery Resource. Department of Primary Industries and Regional Development, Western Australia.

DPIRD (2020) Saucer Scallop Resource of the Abrolhos Islands Harvest Strategy 2020 – 2025 Version 1.1. June 2020. Fisheries Management Paper No. 299.

Draft scoring range and information gap indicator added at Announcement Comment Draft Report

Draft scoring range	**≥80**
Information gap indicator	

Overall Performance Indicator scores added from Client and Peer Review Draft Report

Overall Performance Indicator score	**80**
Condition number (if relevant)	

PI 1.2.3 – Information and monitoring

PI 1.2.3		Relevant information is collected to support the harvest strategy		
Scoring Issue		SG 60	SG 80	SG 100
a	Range of information			
	Guide post	**Some** relevant information related to stock structure, stock productivity and fleet composition is available to support the harvest strategy.	**Sufficient** relevant information related to stock structure, stock productivity, fleet composition and other data are available to support the harvest strategy.	A **comprehensive range** of information (on stock structure, stock productivity, fleet composition, stock abundance, UoA removals and other information such as environmental information), including some that may not be directly related to the current harvest strategy, is available.
	Met?	**Yes**	**Yes**	**No**
Rationale				

There is a wide range of information gathered for the fishery, sufficient to support the harvest strategy.

Ballot's Saucer Scallop occur along most of the coast of Western Australia, but given the vast length of this coastline and the potential for regional differences in recruitment, four separate management units have been established in this jurisdiction for those areas where Ballot's Saucer Scallop occur in commercial quantities (Kangas and Zeller 2018).

Available information includes:

- Basic biology that is well understood including reproduction, recruitment, age and growth, size at maturity, habitat and movements, and natural mortality. Summarised by Kangas et al. (2021) and Chandrapavan et al. (2020).
- Catch data determined through daily logbooks, catch disposal records and processor returns.
- Fishery Independent Surveys (FIS) undertaken in November since 1997 and February since 2017 that provide catch rate, size, and meat quality data.
- Spatial extent of the fishery (trawl footprint) obtained from logbook and VMS data.
- A range of environmental data are regularly collected and included in analyses including water temperature, wind and sea level, and salinity.
- Estimates of recreational catch (zero for the scallops in this region).

Weight of evidence stock assessments are conducted annually that examine all available data for the fishery in a risk-based approach (Kangas et al. 2021). This information is sufficient to meet both SG60 and SG80.

The SG100 guidepost requires that a comprehensive range of information is available for the fishery. In the MSC guidance, SA2.6.4 indicates that scoring for PI 1.2.3 should consider the veracity of the information. While a range of information is obtained for the fishery, the primary limitation appears to be a lack of direct measures of biomass and fishing mortality. It is also noted that a number of analyses are planned for the fishery to strengthen the harvest strategy however insufficient data are available at the moment. As the harvest strategy and HCRs are implemented, the information base is likely to strengthen, however at this point in time SG100 is not met.

b	Monitoring			
	Guide post	Stock abundance and UoA removals are monitored and **at least one indicator**	Stock abundance and UoA removals are **regularly monitored at a level of**	**All information** required by the harvest control rule is monitored with high

		is available and monitored with sufficient frequency to support the harvest control rule.	**accuracy and coverage consistent with the harvest control rule**, and **one or more indicators** are available and monitored with sufficient frequency to support the harvest control rule.	frequency and a high degree of certainty, and there is a good understanding of inherent **uncertainties** in the information [data] and the robustness of assessment and management to this uncertainty.
	Met?	**Yes**	**Yes**	**No**
Rationale				

Stock abundance is measured through FIS conducted in November and February each year. While the November survey is limited to the traditional fishing grounds and resulting recruitment usually varies spatially, the November survey index has been demonstrated as a reliable predictor of overall recruitment to the fishery despite known uncertainties. Stock abundance is supplemented by the February survey which measures both 1+ and recently settled juveniles (0+). In addition, February surveys can be used to identify areas with high abundances of small scallops that should be closed to fishing.

UoA removals are monitored accurately throughout the season. A catch prediction is made at the start of the year based on the November survey, but insufficient data have been gathered to date to test this relationship. Catch data are however used during the season to monitor the total catch and determine when the season should end, based on HCRs of minimum catch per day that aim to ensure sufficient biomass remains for the following spawning season.

The available information suggests that stock abundance and UoA removals are regularly monitored at a level of accuracy and coverage consistent with the harvest control rule, and one or more indicators are available and monitored with sufficient frequency to support the harvest control rule. On this basis SG60 and SG80 are met. However, the harvest strategy has only been recently implemented and additional data are required to understand the uncertainties in the data and improve its robustness. On this basis SG100 is not met.

c	Comprehensiveness of information			
	Guide Post		There is good information on all other fishery removals from the stock.	
	Met?		**Yes**	
Rationale				

There is no recreational or traditional harvest of Saucer scallops in the Abrolhos Islands. Thus all removals of scallops are those reported by commercial fishers. Overall, the information is sufficient to meet the SG80 level.

References

Chandrapavan A, Kangas M, Caputi N. (2020). Understanding recruitment variation (including the collapse) of Ballot's saucer scallop stocks in Western Australia and assessing the feasibility of assisted recovery measures for improved management in a changing environment. Fisheries Research Report No. 308 Department of Primary Industries and Regional Development, Western Australia. 76pp.

Kangas, M.I., Chandrapavan, A., Wilkin, S, Fisher, E.A., and Evans, S (2021). Western Australian Marine Stewardship Council Report Series No. 20: Resource Assessment Report Abrolhos Islands and Mid-West Trawl Managed Fishery Resource. Department of Primary Industries and Regional Development, Western Australia.

Kangas, M and Zeller, B, (2018), Ballot's Saucer Scallop Ylistrum balloti, in Carolyn Stewardson, James Andrews, Crispian Ashby, Malcolm Haddon, Klaas Hartmann, Patrick Hone, Peter Horvat, Stephen Mayfield, Anthony Roelofs, Keith Sainsbury, Thor Saunders, John Stewart, Simon Nicol and Brent Wise (eds) 2018, Status of Australian fish stocks reports 2018, Fisheries Research and Development Corporation, Canberra.

Draft scoring range and information gap indicator added at Announcement Comment Draft Report

Draft scoring range	**≥80**
Information gap indicator	

Overall Performance Indicator scores added from Client and Peer Review Draft Report

Overall Performance Indicator score	**80**
Condition number (if relevant)	

PI 1.2.4 – Assessment of stock status

PI 1.2.4		There is an adequate assessment of the stock status		
Scoring Issue		SG 60	SG 80	SG 100
a	Appropriateness of assessment to stock under consideration			
	Guide post		The assessment is appropriate for the stock and for the harvest control rule.	The assessment takes into account the major features relevant to the biology of the species and the nature of the UoA.
	Met?		**Yes**	**No**
Rationale				

The harvest strategy (DPIRD 2020) is underpinned by a primary measure of abundance that assesses the status of the stock relative to target, threshold and limit reference point levels on an annual basis. The measure is based on mean catch rates from an annual November fishery-independent trawl survey and it aims to ensure that spawning stocks are sufficient prior to opening the fishery each year. This measure is used as a proxy measure for biomass in this report. The appropriateness of this measure and its reference points are examined analytically through a stock-recruitment-environment relationship (Chandrapavan et al. 2020). Here, we argue that despite acknowledged uncertainties the proxy measure, and its supporting analysis, is sufficiently robust on its own noting that the guidance states "*In some cases, it may reasonably be argued that one good proxy is better than two or more weak proxies*".

The annual density index is calculated as the mean density of all scallops sampled in the November survey, due to primarily one cohort being evident at this time of year in the majority of years (Kangas et al. 2021). It is acknowledged that the estimate can be biased in years when not all survey sites are done, Despite these uncertainties, a statistically significant, stock-recruitment-environment relationship for the Abrolhos Island scallop fishery has been determined analytically based on the November survey index (Chandrapavan et al. 2020, Kangas et al. 2021), and this understanding underpins the limit reference point for the fishery of 250 scallops per nautical mile, and the target reference point of 750 scallops per nautical mile (DPIRD 2020). These reference points are highly conservative and appear to account for the uncertainties in the November survey index.

We note that the assessment approach is similar to that of the MSC certified Shark Bay Prawn Fishery. In addition, the Shark Bay Prawn and Scallop fishery stock assessment has been independently reviewed (Haddon 2019) which provides additional confidence that the approach is appropriate. On this basis, the assessment is appropriate for the stock and for the harvest control rule and SG80 is met. However, given the assessment is not a fully integrated population model that takes into account the major features relevant to the biology of the species and the nature of the UoA, SG100 is not met.

b	Assessment approach			
	Guide post	The assessment estimates stock status relative to generic reference points appropriate to the species category.	The assessment estimates stock status relative to reference points that are appropriate to the stock and can be estimated.	
	Met?	**Yes**	**Yes**	
Rationale				

The assessment is based on the November survey index. This index is used as a spawning biomass index in the stock-recruitment-environment analysis which demonstrates that the measure is appropriate for the stock. Chandrapavan et al. (2020) report "*the current stock-recruitment-environment (SRE) relationship suggests spawning stock levels greater than 420 scallops/nm (log 6) have generally led to recruitment levels greater than 280 scallops/nm (log 5.5) that have allowed the fishery to operate. When sufficient spawning stock levels are available, cooler SSTs < 23 °C have produced recruitment levels above 1800 scallop/nm (e.g. 2002, 2004, 2007, 2010, 2018 and 2016), while warmer SSTs > 23 °C have produced average to poor recruitment which have generally resulted in catches being < 50 t or the fishery being closed. The recruitment failure during 2012 is associated with the warmest SST during May – June 2011 at 25°C, the*

tail end of the temperature signal from the 2011 MHW event. Subsequent recruitment was likely impaired by low spawning stock levels from 2012 to 2015, while the recovery in 2016 can be attributed to the return of cooler winter SST of 22.2°C during 2015. This was associated with one of the strongest recorded El Niño events. The improved recruitment observed during 2016 indicates spawning stock levels as low as 29 scallops/nm can produce above average recruitment level of 988 scallops/nm under conducive environmental conditions."

GSA2.2.3.1 states "*Where proxies are used that are not expressed as percentages of B0, teams should generally ensure that:*

• *Any reference point used as a proxy for scoring the PRI is set above the point where there is an appreciable risk of recruitment failure; and*

• *Any reference point used as a proxy for the MSY level maintains the stock well above the PRI and at levels of production and stock sizes consistent with BMSY or a similar highly productive level*".

On the basis of the low abundance that scallops have recovered from (29 scallops per nautical mile) and the consistently adequate levels of recruitment obtained from abundances >420 scallops per nautical mile, the selection of 250 and 750 scallops per nautical mile for the limit and target reference levels, respectively, appear appropriate for the stock despite some known uncertainties associated with the November survey index. On this basis, SG60 and SG80 are met.

	Uncertainty in the assessment			
c	Guide post	The assessment **identifies major sources** of uncertainty.	The assessment **takes uncertainty into account**.	The assessment takes into account uncertainty and is evaluating stock status relative to reference points in a **probabilistic** way.
	Met?	**Yes**	**Yes**	**No**
Rationale				

As described above, the assessment comprises two distinct analyses 1) the November survey index based on a fishery-independent trawl survey and 2) the stock-recruitment-environment relationship.

Kangas et al. (2021) identify the sources of uncertainty in the November survey index. One major source of uncertainty is differences in trawl speed among survey shots over time. To take the uncertainty in trawl speeds into account, a statistical adjustment procedure is applied to standardise the measure. A second source of uncertainty is variations in the survey design between years, with fewer shots done in areas of very low abundance. This effects the survey index average but results in an index that more accurately reflects commercial catch rates as fishers avoid areas with low abundance. The variations in survey design are not directly accounted for through adjustment of the survey index, however as previously described, the limit and target reference points appear to be set at conservative levels such that this uncertainty is not likely to be a risk to sustainability. Nevertheless, here we recommend that a review of factors such as site selection be undertaken to improve the robustness of the November survey measure. Finally, Kangas et al. (2021) report that uncertainty in the comparison of survey results between years is minimised by ensuring that standardised gear is used over time and surveys are conducted at the same time of year.

Chandrapavan et al. (2020) provide discussion of the stock-recruitment-environment analysis that includes a detailed description of the uncertainties in the assessment. In summary, the authors conclude that the observed relationship at the scale of the fishery is very strong, while acknowledging a lack of understanding in finer scale processes e.g. small scale hydrodynamic processes that may play a critical role in the larval settlement distribution across the islands groups that are highly variable year to year.

All major sources of uncertainty in the November survey index are accounted for directly with the exception of the number of sites surveyed each year. The stock-recruitment-environment analysis indicates that the November survey index is a useful measure of spawning biomass despite these uncertainties and thus SG60 and SG80 are met. However, the assessment does not evaluate stock status relative to reference points in a probabilistic way, thus SG100 is not met.

	Evaluation of assessment			
d	Guide post			The assessment has been tested and shown to be robust. Alternative hypotheses and assessment approaches have been rigorously explored.

	Met?			**Yes**
Rationale				

Although only recently formalised, the assessment approach for the fishery has been developed over a number of years. During this period, November surveys have tracked biomass through a stock collapse caused by a marine heatwave event as well as its subsequent recovery. Analyses of these fishery independent measures against future catch shows striong correlations. The stock-recruitment-environment analysis demonstrates that the November survey index is a robust predictor of future recruit and explains 45% of the total variation (13% to water temperature and the rest unexplained). The assessment is based on a similar approach to the MSC certified Shark Bay Prawn Fishery which has been shown to be robust. The approach has been independently reviewed by a leading stock assessment scientist (Haddon 2019). SG100 is met.

e	Peer review of assessment			
	Guide post		The assessment of stock status is subject to peer review.	The assessment has been **internally and externally** peer reviewed.
	Met?		**Yes**	**No**
Rationale				

Annual internal reviews are undertaken for DPIRD's annual SoFAR report and as part of the Status of Australian Fish Stock Reports (fish.gov.au).

The DAWEepartment of the Environment for the Australian Government assessed the fishery in 2015 as being sustainable under the provisions of the Environment Protection and Biodiversity Conservation (EPBC Act 1999.

An external review by Professor Malcolm Haddon was conducted for Shark Bay prawn and scallop fisheries in 2019 (Haddon 2019) and the science and stock assessment methodology for scallops in the AIMWTMF reflect that conducted in Shark Bay. However, we recommend that components of the review be undertaken for the Abrolhos land fishery itself, particularly regarding statistical analysis of November survey data and the November spawning index.

References

Chandrapavan A, Kangas M, Caputi N. (2020). Understanding recruitment variation (including the collapse) of Ballot's saucer scallop stocks in Western Australia and assessing the feasibility of assisted recovery measures for improved management in a changing environment. Fisheries Research Report No. 308 Department of Primary Industries and Regional Development, Western Australia. 76pp.

Haddon 2019 – Shark Bay Trawl Fisheries Science Review. Report to DPIRD.

Kangas, M.I., Chandrapavan, A., Wilkin, S, Fisher, E.A., and Evans, S (2021). Western Australian Marine Stewardship Council Report Series No. 20: Resource Assessment Report Abrolhos Islands and Mid-West Trawl Managed Fishery Resource. Department of Primary Industries and Regional Development, Western Australia.

Draft scoring range and information gap indicator added at Announcement Comment Draft Report

Draft scoring range	**≥80**
Information gap indicator	

Overall Performance Indicator scores added from Client and Peer Review Draft Report

Overall Performance Indicator score	**85**
Condition number (if relevant)	
Recommendation	**#1**

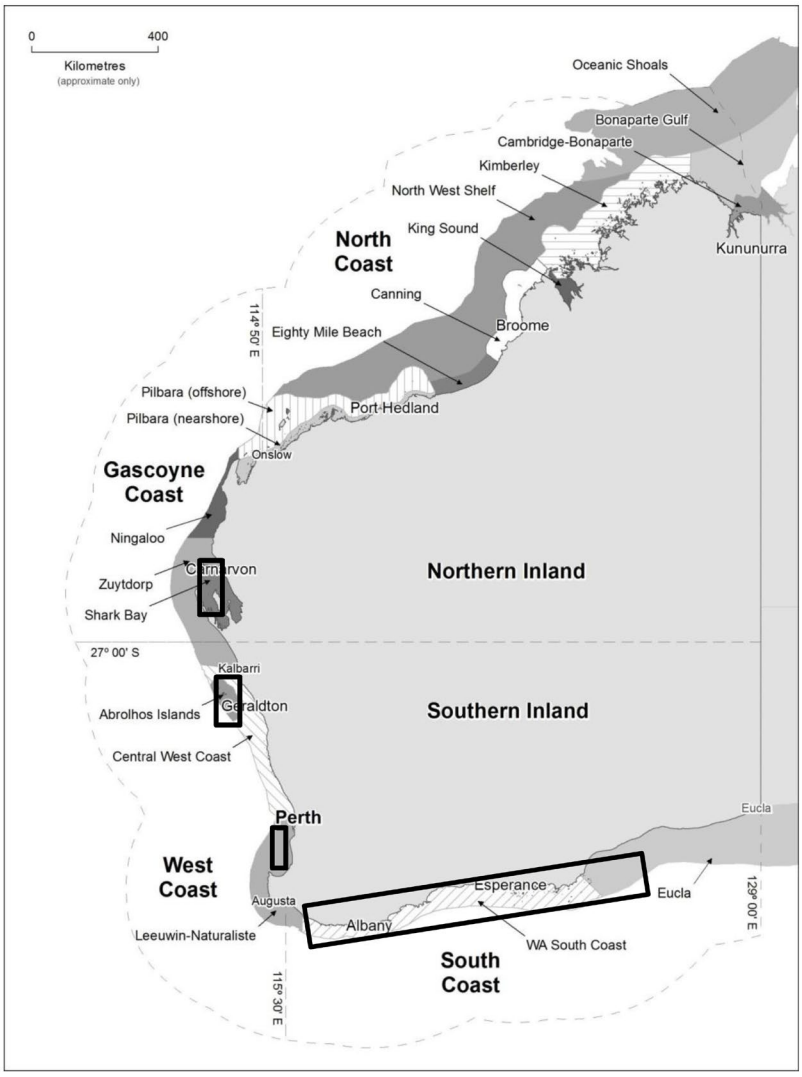
7.3 Principle 2

7.3.1 Principle 2 background

Principle 2 assessment involves examination of the UoA's impact on non-target species; endangered, threatened or protected (ETP) species; habitats; and ecosystems.

The boundaries and extent of the fishery are shown in Figure 2. The Houtman Abrolhos Islands (Abrolhos) are an archipelago of 122 small islands approximately 65-90 km offshore from Geraldton, WA. The Abrolhos are divided into four main island groups: North Island, Wallabi Group, Easter Group, and Southern (Pelsaert) Group, separated by 40 m deep channels (Figure 2). The waters around the islands (to 3 nm) are protected as a Fish Habitat Protection Area (FHPA).

The Abrolhos Islands are located in the overlap between northern tropical and southern temperate waters, within the stream of the Leeuwin Current which carries warm, low-nutrient tropical water southward from northwestern Australia. Water temperatures of 20-22°C support a unique blend of temperate and tropical species. The islands are the southernmost area of major coral reef in the Indian Ocean (Figure 10).



The AIMWTMF is managed according to an ecologically-based fisheries management (EBFM); (Fletcher et al., 2012) framework, with specific objectives established for each component of the ecosystem: target species, non-target retained species (byproduct), non-retained species (bycatch), endangered species, habitat, and the ecosystem overall. The harvest strategy for the fishery includes objectives consistent with the MSC standard for each of these components (DPIRD, 2020). For each objective there are set performance indicators which are assessed annually through DPIRD internal qualitative Ecological Risk

Assessments (ERAs) and periodically through qualitative ERAs with stakeholder participation (see Text Box). The latest ERA workshop with external stakeholders was held in September 2019 (DPIRD-ERA, 2020). Previous environmental assessments for the fishery, conducted in 2004 and 2008, also commented on risk rankings for ETPs. (DoF, 2004; 2008). Harvest strategies for WA aquatic resources managed by DPIRD are also consistent with the principles of Ecologically Sustainable Development (ESD); (Fletcher 2002).

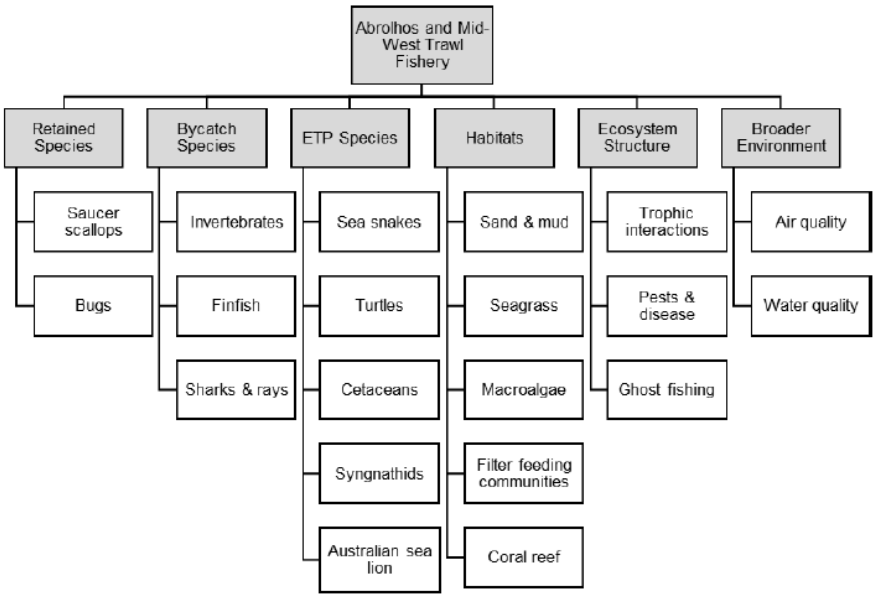
Overview of Ecological Risk Assessment

Ecological risk assessments (ERAs) are used widely across Western Australia's fisheries as a component of their Ecosystem-Based Fisheries Management (EBFM) approach (Fletcher et al. 2012). The risk assessment methodology utilises a consequence-likelihood analysis, which involves the examination of the magnitude of potential consequences from fishing activities and the likelihood that those consequences will occur given current management controls. Details of the latest AIMWTMF, conducted in 2019, are provided in DPIRD-ERA (2020; https://www.fish.wa.gov.au/Documents/wamsc_reports/wamsc_report_no_15.pdf).

The risk analysis process assists in separating minor acceptable risks from major, unacceptable risks and prioritising management actions. Once the relevant components and issues for the AIMWTMF were identified, the process to prioritise each was undertaken using the ISO 31000-based qualitative risk assessment methodology (DPIRD-ERA 2020). The assessment utilised a 4×4 matrix, where the consequence levels ranged from 1 (e.g. minor impact to fish stocks) to 4 (e.g. major impact to fish stocks) and likelihood levels ranged from 1 (remote; i.e. < 5 % probability) to 4 (likely; i.e. ≥ 50 % probability). Scoring involved an assessment of the likelihood that each level of consequence is occurring, or is likely to occur within the 5-year period specified for the assessment. Different levels of risk have different levels of acceptability, with different requirements for monitoring and reporting, and management actions:

- risks identified as negligible or low are considered acceptable, requiring either no or periodic monitoring, and no specific management actions;
- issues identified as medium risk are considered acceptable providing there is specific monitoring, reporting, and management measures are implemented;
- risks identified as high are considered 'not desirable', requiring strong management actions or new control measures to be introduced in the near future;
- severe risks are considered 'unacceptable' with major changes to management required in the immediate future.

The identified AIMWTMF ecological components for assessment are shown below:



The threats for each assessment component were assessed using a consultative and structured workshop procedure, recording the circumstances of each interaction and risk analysis for all participants to view and clarify as necessary during the workshop. The workshop was convened with industry experts and stakeholders in September 2019. The starting point for the workshop was a DPIRD internal ERA conducted in July 2019, which identified the assessment components for the target species, secondary retained species, bycatch species, ETP species, habitats and ecological communities and broader ecosystem (DPIRD-ERA 2020).

Fishery removals are monitored through daily logbooks which are validated through processor unloads for all fisheries. However, bycatch data is not currently reported in these logbooks. As described in the Principle

1 section of the report, annual scallop surveys have been undertaken since 1997 and are used to estimate scallop abundance. Typically 20 – 25 sites are sampled within the key fishing grounds, the locations of which were based on fisher knowledge and some earlier research surveys (conducted in 1980s) (). Within the fishing grounds there are designated 'boxes' which are approximately 1x 1 nm (except the main ground in the Hummocks fishing area which is 2 x 2 nm) and within which trawls need to be undertaken. Up to five trawls can occur within a fishing ground, usually with a minimum of two.

The large-mesh (100 mm) trawl nets used in the scallop fishery results in minimal byproduct, as many species are able to escape from the nets. Additionally, all nets are fitted with bycatch reduction devices (BRDs) in the forms of grids, which further reduce the amount of byproduct by excluding larger individuals.

DPIRD provided the assessors with species composition data for the AIMWTMF based on fishery-independent surveys completed at locations throughout the fishery. As the intention of those trawls is to include small "recruit (0+)" individuals the nets used are smaller mesh (prawn nets) than typical scallop trawl gear. This will inevitably bias the bycatch data to include more and smaller animals that would ordinarily escape through the mesh of commercial scallop trawls. Hence, the data presented will reflect a wider species composition than is taken in the commercial fishing gear. In addition, the samples on which this data is based were taken during the recovery phase of this fishery (following the 2011 marine heatwave). As a result, the catches of scallops were lower during these surveys than in typical years. The data has been adjusted to account for this using mean historical survey data to provide the species composition shown in Table 13.

Bycatch survey methods and periodicity for the Abrolhos Islands scallop fishery will be standardised to the methods used in Exmouth Gulf and Shark Bay Prawn fisheries. A bycatch survey for the Abrolhos Scallop fishery has been prioritised for the 2021 season and results will include matched weights of catch/bycatch from individual trawl shots as well as a survey of bycatch taxa encountered in the survey (DPIRD email 22 December 2020).

Table 13. AIMWTMF catch composition in % contribution by weight – data from fishery independent surveys 2014-2017: target species in bold blue; secondary species in light blue; there are no primary species. Data has been adjusted using mean historical survey data to account for low abundance of scallops in survey years due to marine heatwave. Nets used during surveys are smaller mesh (prawn nets) than typical scallop trawl gear, resulting in catches of small specimens not typical of the AIMWTMF.

Common name	Species/Family name	% of total
Ballot's saucer scallop	*Ylistrum balloti*	85.58
Asymmetrical goatfish	*Upeneus asymmetricus*	4.03
Large-scaled grinner	*Saurida undosquamis*	2.58
Red-barred grubfish	*Parapercis nebulosa*	1.00
Coral prawn	*Metapenaeopsis crassissima*	0.94
Swimmer crab	*Portunus rugosus*	0.62
Yellow-striped goatfish	*Parupeneus chrysopleuron*	0.55
Long-spined flathead	*Platycephalus longispinis*	0.49
Spiny-headed flounder	*Engyprosopon grandisquama*	0.35
Flounder	*Engyprosopon maldivensis*	0.30
Bar-tailed flathead	*Platycephalus endrachtensis*	0.27
Threadfin emperor	*Lethrinus genivittatus*	0.27
Painted grinner	*Trachinocephalus myops*	0.26
Western butterfish	*Pentapodus vitta*	0.25
Long-finned gurnard	*Lepidotrigla argus*	0.23
Big eye snapper	*Lutjanus Lutjanus*	0.22

Orange-spotted toadfish	*Torquigener pallimaculatus*	0.21
Hick's toadfish	*Torquigener hicksi*	0.15
Stout whiting	*Sillago robusta*	0.14
Bay whiting	*Sillago ingenuua*	0.13
100+ species each < 0.1%		1.43

7.3.2 Primary species

Primary species are defined as species that are not covered under P1, and where management tools and measures are in place, intended to achieve stock management objectives reflected in either limit or target reference points. In cases where a species would be classified as primary due to the management measures of one jurisdiction but not another that overlaps with the UoA, that species needs be considered as primary (MSC, 2018a, p.27).

A species is considered 'main' if:

- the catch by the UoA comprises 5% or more by weight of the total catch of all species by the UoA (SA3.4.2.1, MSC, 2018a, p. 33) or
- the species is classified as 'Less resilient' and the catch of the species by the UoA comprises 2% or more by weight of the total catch of all species by the UoA (SA3.4.2.2, MSC, 2018a, p.33)

A species is 'Less resilient' if:

- The productivity of the species indicates that it is intrinsically of low resilience, for instance, if determined by the productivity part of a PSA that it has a score equivalent to low or medium productivity; or
- Even if its intrinsic resilience is high, the existing knowledge of the species indicates that its resilience has been lowered due to anthropogenic or natural changes to its life-history (SA3.4.2.2a, MSC, 2018a, p33).

Based on *Status reports of the fisheries and aquatic resources of Western Australia* 2018/19 (Gaughan and Santoro, 2020) and the 2014-17 survey sampling (Table 13), no species meets the definition of primary species in the AIMWTMF catch.

The MSC-certified Western Australia Rock Lobster Fishery also operates in the region of the Abrolhos Islands, however there is no overlap which requires consideration of primary species. An industry-developed *Responsible Fishing Code of Conduct* (West Coast Trawl Association 2017) includes protocols for trawling in traditional areas, reducing interactions with rock lobster pots, anchoring and disposal of shell and disposal of rubbish and waste.

The 2019 ERA of the fishery found the risk for bycatch and byproduct species to be negligible (DPIRD-ERA, 2020).

7.3.3 Secondary species

The MSC defines **secondary species** as species that are in the scope of MSC standard (fish and shellfish species) and that are not managed according to reference points. In other regions, secondary species include some out-of- scope species that are not ETPs, although in Australia, all out-of-scope species, in general, constitute ETPs.

The MSC specifies that:

"Secondary species could in some cases be landed intentionally to be used either as bait or as food for the crew or for other uses, but may also, in some cases, represent incidental catches that are undesired but somewhat unavoidable in the fishery. Given the often-unmanaged status of these species, it is unlikely that reference points for their biomass or fishing mortality to be in place, as well as a general lack of data availability is to be expected" (MSC, 2018b, p.46).

<u>Main Secondary Species</u>

The same definitions of 'main' and 'less resilient' species apply as for primary species.

Available catch composition data is based on the 2014-17 surveys (Table 13). No species represents more than 5% of the catch. Only two species comprise more than 2% of the catch (Table 13) and neither of these is considered 'less resilient'. As a result, there are no 'main' secondary species.

Minor Secondary Species

All other species in the catch that are not target, primary or ETP species are minor secondary. These species comprise less than 15% of the total catch, based on the fishery-independent surveys (Table 13). This figure is likely to be higher than the actual catch percentage from the fishery as smaller mesh net is used in the surveys. Asymmetrical goatfish (4.03%) and large-scaled grinner (2.58%) are the two most represented bycatch. All other species each represent less than 1% of the catch and more than 100 species with a catch composition of less than 0.1% represent a total of 1.43%.

In addition, slipper lobsters or bugs (*Thenus* spp.) can be retained by the client fishery. Reported landings of these species have been very low in recent years and represented less than 0.1% of the catch between 2008 and 2018 (DPIRD-ERA, 2020). The reported landings of bugs in 2018 was 0.04 t and less than 1 kg in 2019.

The 2019 ERA of the fishery found the risk for bycatch and byproduct species to be negligible (DPIRD-ERA, 2020).

7.3.4 Endangered, Threatened, Protected Species (ETPs)

ETP species are species that are recognised by national ETP legislation or listed in the binding international agreements such as Appendix 1 of the Convention on International Trade in Endangered Species (CITES), or binding agreements concluded under the Convention on Migratory Species (CMS). The federal Department of Agriculture, Water and the Environment (DAWE) is responsible for administering the EPBC Act. The EPBC Act provides a framework for the protection and management of environmentally significant flora, fauna and ecological communities. The EPBC Act is the Australian government's central piece of environmental legislation for the management of ETP species.

Several ETP species are listed under the EPBC Act for the West Coast and South Coast regions in which the AIMWTMF operates. These ETP species mostly comprise of elasmobranchs, cetaceans, turtles and migratory seabirds. In addition to the EPBC Act, these species are protected by various international agreements (International Union for Conservation of Nature and Natural Resources (IUCN)) and state legislation *(Biodiversity Conservation Act 2016)*. The AIMWTMF has been accredited under the EPBC Act Part 13 since 2003, with the export approval extended to 2025 (DoE, 2015). A 2004 assessment against the EPBC Act criteria, based on information prior to the introduction of BRDs, comments on risk assessment outputs for ETPs (DoF 2004). The report indicates potential capture interactions with:

Turtles Loggerhead turtles (*Caretta caretta*) and green turtles (*Chelonia mydas*). Both of these species are towards the southern extent of their range, and do not breed in the Abrolhos because water temperatures are too low (DoF 2004). The 2004 risk ranking was negligible. The 2020 ERA risk ranking was also negligible.

Syngnathids are occasionally caught in the AIMWTMF and are generally discarded. Low numbers are caught by prawn trawlers (~1 per night) and numbers are likely to be lower for the scallop fishery given the larger mesh sizes and slower speeds. The 2004 risk ranking was low. The 2020 ERA risk ranking was negligible.

Sea snakes are caught in low numbers in the AIMWTMF but are generally returned to the water in a live state and have relatively good survival following their return to the water. The 2004 risk ranking was low. The 2020 ERA risk ranking was negligible.

It is a statutory requirement for commercial fishers to report any interactions of ETP species in their logbooks, however, no interactions have been reported in logbooks (or during fishery-independent surveys) since 2008. Reporting requirements are included as a standing item on the agenda for the fishery's annual pre-season briefings. The main ETP species of concern for interactions with boats and fishing gear are cetaceans, marine turtles, syngnathids, sea snakes and Australian sea lions. However, trawl speed is very slow (2-3 knots while trawling and up to 9 knots while steaming), making it highly unlikely that wildlife would be struck by vessels.

The full implementation of BRDs in the AIMWTMF has markedly reduced the capture of turtles in other trawl fisheries (Shark Bay and Exmouth Gulf). Syngnathids are typically associated with seagrass and macroalgal habitats, with large components of the nearshore waters to the east of the Abrolhos Islands closed to scallop trawling. The fishery-independent survey data (Table 13) does not reveal any interaction with ETPs.

Periodic ERAs are undertaken by DPIRD as part of its EBFM framework and the outputs inform the development of harvest strategies. The latest ERA for the AIMWTMF (DPIRD-ERA, 2020) indicates that all ETP species that interact with the fishery were considered to be at negligible risk from the fishery. The ERA found no reported interactions to date for sea snakes, turtles, cetaceans, syngnathids, Australian sea lions or seabirds.

DPIRD has signed an MOU with Australian Department of Environment (now the DAWE) regarding reporting of protected and listed species interactions with WA state fisheries which requires publication of annual statistics to fishery and gear level (where not prohibited by confidentiality requirements). Interaction reports are published in the annual reports of the status of fisheries and the aquatic resources of Western Australia, produced by the DPIRD and available on DPIRD's website (www.fish.wa.gov.au). Recent Western Australia fishery status reports for the AIMWTMF have reported no protected species interactions.

7.3.5 Habitats

The MSC standard requires that fisheries do not cause serious or irreversible harm to the structure and function of the habitat.

Serious or irreversible harm to "structure or function" of the habitat means changes caused by the UoA that fundamentally alter the capacity of the habitat to maintain its structure and function (MSC,2018a, 30).

The MSC's definition of **"serious or irreversible harm**" for habitat is similar to the FAO Guidelines' definition of "significant adverse impacts". A key consideration in both definitions is the concept of reversibility or recoverability. Both definitions consider the time frame required for a habitat to recover. Damage requiring 5-20 years (or more) from which to recover should be considered "serious or irreversible" or "significantly adverse", consistent with FAO (2009 in MSC, 2018b, p.83). The MSC defines "recovery" as recovering to at least 80% of the level to which the habitat would eventually recover in the absence of all fishing, considering the existing environmental and anthropomorphic conditions – a hypothetical climax state under existing conditions. This is often referred to in the text as an "unimpacted" level. The MSC has nominated the 80% level as a reasonable point at which to expect most of the habitat's structure and function (including abundance and biological diversity) to have been restored, taking into consideration the likely logistic population growth of habitat-forming organisms (MSC, 2018b, p.83)

'Main' habitats are those that are commonly encountered and Vulnerable Marine Ecosystems, while all other habitats classify as 'minor'.

<u>Commonly Encountered Habitat</u>

A commonly encountered habitat is defined as a habitat that regularly comes into contact with a gear used by the fishery under assessment, considering the spatial (geographical) overlap of fishing effort with the habitat's range within the management area(s) covered by the governance body(s) relevant to that fishery (MSC, 2018a, p.51).

<u>Vulnerable Marine Ecosystems (VME)</u>

VMEs are defined on the basis of FAO guidelines (FAO 2009; MSC, 2018b, p.82). VMEs have one or more of the following characteristics: uniqueness or rarity; functional significance of the habitat; fragility; life-history traits of component species that make recovery difficult; or structural complexity. There are no VMEs identified or considered by the Western Australian government or by the management authority. However, given that the Abrolhos Islands are the southernmost area of major coral reef in the Indian Ocean, there are potential VMEs in the managed area of the fishery.

<u>Abrolhos Islands Region Habitats and Impacts</u>

The Abrolhos Islands have been relatively well studied and are noted for their high biodiversity, particularly of fish, molluscs, corals, and echinoderms. The biodiversity of this ecosystem is attributed to the mixture of temperate and tropical species, and the location of islands near the edge of the continental shelf. The

Abrolhos Islands are an ecological mid-point in a gradient extending from the tropical ecosystems of Shark Bay, south along the shelf to the substantially temperate species mix at Rottnest Island (Chandrapavan et al., 2020).

The Houtman Abrolhos Islands National Park was created in July 2019. The national park is vested with the Conservation and Parks Commission and managed by the Department of Biodiversity, Conservation and Attractions (DBCA). The Park encompasses all unoccupied islands and parts of islands not occupied by commercial fishers and aquaculture operators and extends to the high water mark with curtilages around the jetty at East Wallabi Island and the proposed jetty at Beacon Island. Previously, the archipelagos islands were managed by DPIRD as an A-Class marine reserve, within which various zones accommodated the needs of commercial and recreational fishing and conservation. The terrestrial area occupied by commercial fishers and aquaculture operators remain vested in the Minister for Fisheries for the purpose of "conservation of flora and fauna, tourism and for purposes associated with the fishing and aquaculture industries". The State waters surrounding the Abrolhos Islands have special status as a gazetted fish habitat protection area (FHPA) since 1999 for the:

- conservation and protection of fish, fish breeding areas, fish fossils or the aquatic eco-system;
- culture and propagation of fish and experimental purposes related to that culture and propagation; or
- management of fish and activities relating to the appreciation or observation of fish.

The occupied islands and the FHPA are managed by DPIRD. There are a number of activities permitted to be undertaken within the FHPA. Some commercial fishing is permitted to continue in the Abrolhos FHPA under those fisheries' management plans (e.g., Western Rock lobster, AIMWTMF, West Coast Demersal Scale Fish, Octopus, Marine Aquarium Fish). DPIRD, in administering and managing the Abrolhos FHPA consider that those fisheries' management plans establish appropriate management arrangements in keeping with the purposes of the FHPA.

Although Saucer scallops are widely distributed in Western Australian waters, the species tends to be restricted to areas of bare sand in the more sheltered environments found in the lee of islands and reef systems (DPIRD, 2020). The impact of scallop trawling on habitats is monitored by estimating the annual spatial trawl footprint of the scallop fishery and ensuring it does not extend across more than 20% of the entire AIMWTMF. The spatial extent of fishing in the AIMWTMF is calculated annually using fishery-dependent logbook data and vessel VMS data. The spatial footprint of the fishery varies annually in relation to the patchiness of annual scallop settlement and the determination of areas of abundance through the fishery-independent surveys. Fishing activity since 2007 has primarily focused to the north and east of the island groups, mostly in waters deeper than 20 m (Figure 11). Generally, in years when fishing is permitted, approximately 5-11% of the allowable fishing area is trawled (1.9% in 2018 and 5.7% in 2019) (Kangas et al., 2020).

To estimate the spatial extent of the trawl footprint per fishing season, a 500 m^2 grid was created incorporating the entire AIMWTMF excluding areas that are permanently closed to fishing (e.g., Reef Observation Areas) (DoF 2020). The cell size was based on the fishing patterns, including average speed and direction. VMS data from all vessels operating within the fishery for the season was aggregated into this spatial grid, and each grid cell that contained relevant VMS data was considered to be fished. An entire grid cell was considered to be fished if a single VMS data detection point occurred within it, acknowledging that this method will overestimate the trawled area, but enables standardisation for different gear sizes, spread-ratios and tow speeds within the fishery. Finally, the spatial extent of the trawl footprint for an extended period was estimated by combining the sum of effort for all relevant VMS data (i.e. cumulative effort) when the fishery was operational between 2010 and 2019, inclusive, and is based on the presence or absence of VMS detections within the 500 m^2 cells. Noting that the fishery was closed to fishing from 2012 to 2016, the cumulative trawl footprint of the AIMWTMF between 2010 and 2019 was 573 km^2, which accounts for 4.35% of the AIMWTMF (Figure 11). Of this spatial effort, 380 km^2 was within the Houtman Abrolhos Islands FHPA, which for the 2010-2019 period cumulatively equates to ~15% of the total area of the FHPA. For the 2019 season, the AIMWTMF trawl footprint covered an area of 333 km^2, which is ~2.5% of the total area of the AIMWTMF (13165 km^2). Of the 2019 effort, 156 km^2 was within the Abrolhos FHPA, which equates to ~6.25% of the total area of the FHPA. The cumulative trawl footprint is shown in Figure 11.

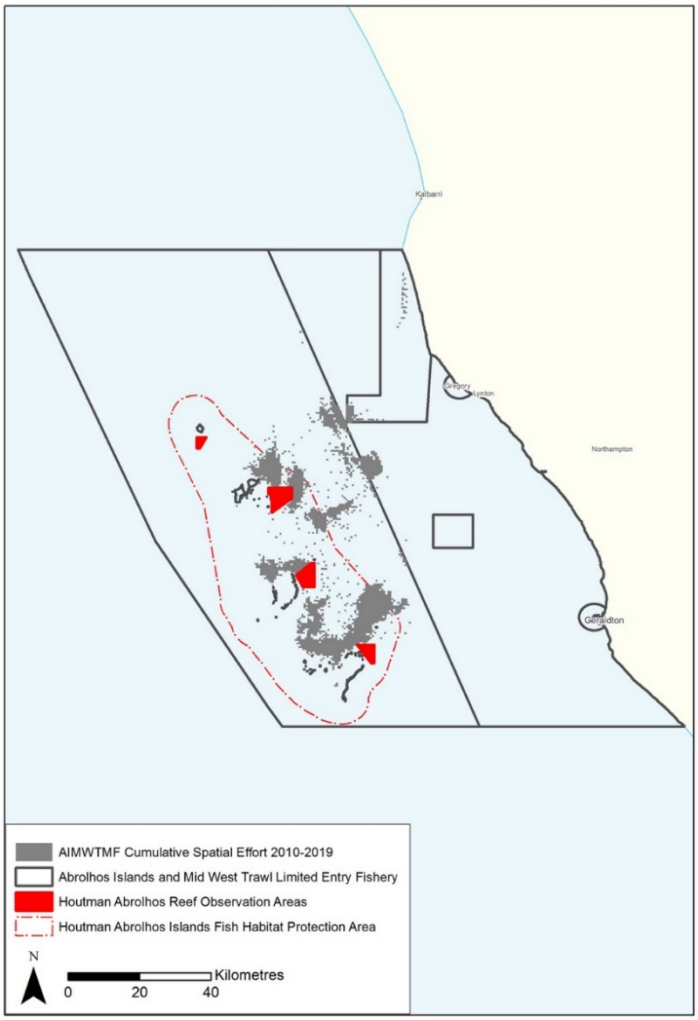


Figure 11. AIMWTMF cumulative spatial effort 2010-2019 (grey shaded). Individual blocks are representative of 500 m^2 area (Source: DoF 2020).

Recent mapping of the AIMWTMF and habitat association has been undertaken by WA DPIRD (DPIRD 2020). Two of the maps used hydroacoustic mapping techniques, *Marine Futures* (Radford et al., 2008 cited in DPIRD-ERA 2020) and *Mid-West Aquaculture Development Zone* (MWADZ) (DoF 2016) and the other satellite remote sensing (Evans et al. 2012) (Figure 12). In 2017, Western Australia declared the MWADZ, located in an area of open water near the southern region of the Abrolhos Islands group, as the state's second marine finfish aquaculture development zone. The *Marine Futures* and MWADZ maps provide the most comprehensive spatial extent of broad habitats in relation to AIMWTMF fishing effort (DPIRD 2020). Overlaying the 2010-19 AIMWTMF effort data on the Marine Futures Project habitat map (Radford et al., 2008; cited in DPIRD-ERA 2020) (available habitat data shown in Figure 12), shows that the AIMWTMF predominantly occurs on sand (57.9%), with mixed reef and sand (38.1%) and reef habitat (3.3%). This is comparable to the effort observed within the MWADZ habitat (Figure 12) (DPIRD unpublished data 2015), of which 91.9% targets sand, 1.4% sparse mixed assemblage, 1% mixed assemblage, 0.2% reef and 0.2 sand/mixed assemblage. An additional 5.3% is defined as "none modelled with confidence".

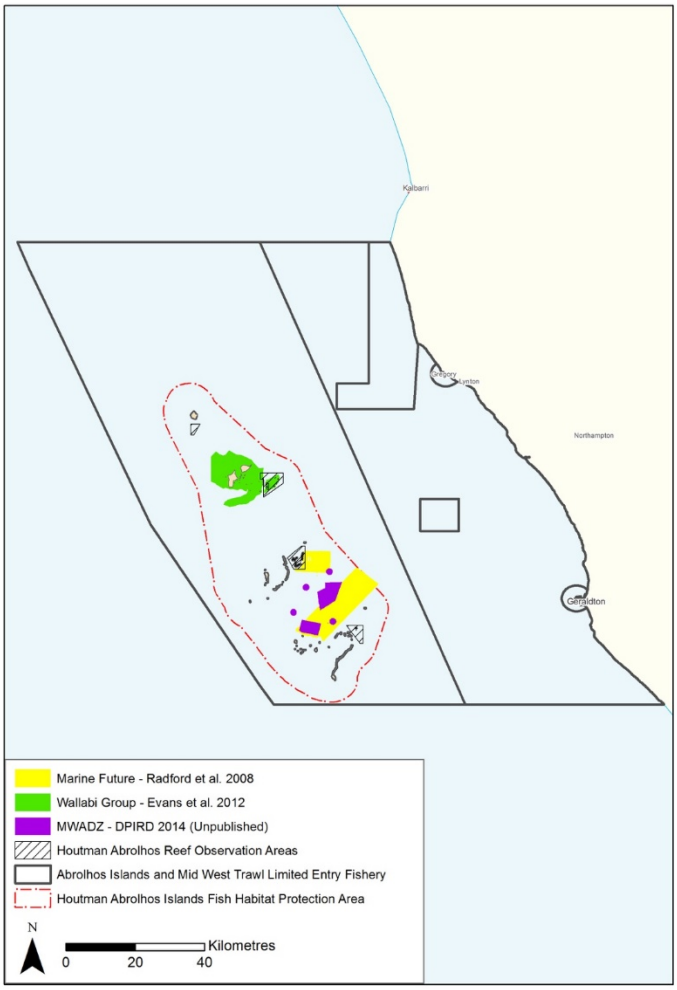


Figure 12. Examples of the spatial distribution of habitat mapping available for AIMWTMF (Source: DoF 2020).

Demersal scallops are not found in sponge habitat; hence sponge gardens are not targeted by the trawl fleet. Fishers also actively avoid hard reef areas since trawl gear cannot withstand direct contact. Vessels are equipped with technology which allows for fairly accurate targeting of areas suitable for trawling. As the scallop season is short (usually less than 3 months), any impacts on habitat would be confined to a limited period (DPIRD-ERA, 2020). Although the fishery generally operates over sandy areas to target scallops, and avoids areas that can damage fishing gear (e.g., reefs), there is potential for the fishery to interact with other benthic habitats which may be vulnerable to trawl fishing, such as sponges, seagrasses and soft corals. The *Responsible Fishing Code of Conduct* (West Coast Trawl Association 2017) includes a protocol for exploring non-traditional areas of the fishery. Skippers are required to take every precaution to know and understand the ground they are working on before they commence fishing. Vessels are equipped with technology which allows for fairly accurate targeting of areas suitable for trawling. To minimise impacts on vulnerable habitats when fishing outside traditional areas, the harvest strategy specifies a move on rule that triggers vessels that encounter vulnerable habitats to cease fishing in the area and return to the cumulative trawl footprint (DPIRD, 2020). If more than one basket of vulnerable habitat per nautical mile trawled is found in a shot when undertaking exploratory fishing of non-traditional trawl grounds then a move-on rule is triggered. Fishing is ceased and coordinates for the area trawled during the shot are reported to the Department such that a notice can be distributed to all active vessels to avoid area (Figure 13). Fishers return to the cumulative trawl footprint until additional habitat assessments have been conducted.

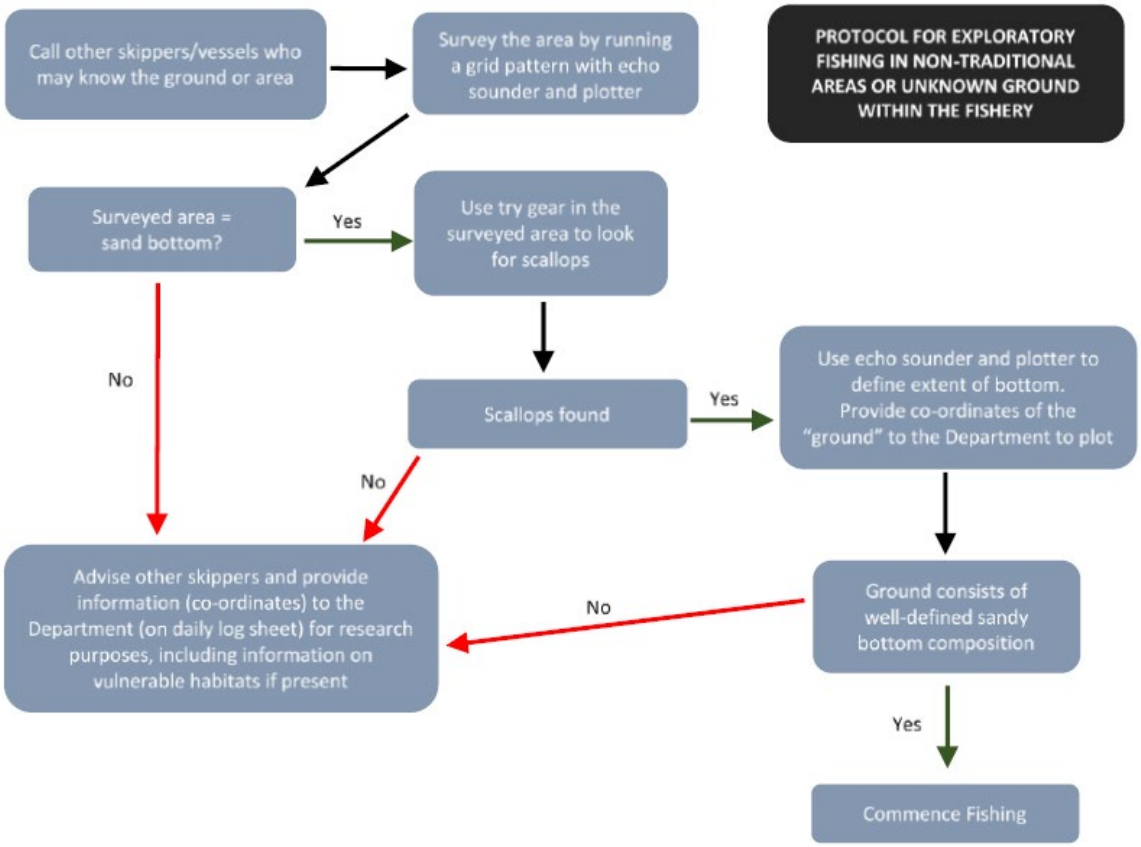


Figure 13. Protocol for Exploratory Fishing in Non-Traditional Areas or Unknown Ground Within the Fishery (Source: DPIRD 2020).

Quantitative studies of other WA trawl fisheries suggest that sand habitats are relatively resilient to fishing (Pitcher et al., 2017). Research in similar fisheries has demonstrated that the otter trawl systems used by the AIMWTMF have the least impact on habitats of all forms of trawling (Collie et al., 2000 cited in DPIRD-ERA, 2020). In southwest WA, Laurenson et al. (1993; cited in DPIRD-ERA, 2020) compared trawled and untrawled areas using trawl samples and underwater video. This study concluded that the dominant fauna of each area (sand bottom) showed marked similarities, although each group had a different composition of less abundant species. Underwater video observation of both areas before and after the completion of the depletion experiment failed to detect any visual impact on the substrate or habitat. These results and more recent studies (e.g. Mazor et al., 2017; cited in DPIRD-ERA, 2020), indicate that trawling causes only minor and short-lived impacts to sandy habitats.

The periodic ERAs undertaken by DPIRD consider impacts on habitats. The latest ERA for the AIMWTMF (DPIRD-ERA, 2020) indicates that impacts on sandy habitat, where most of the fishing occurs, present a low risk. The risk to other habitat components considered (seagrass, microalgae, filter feeding communities and coral reefs) is assessed as negligible.

Management measures in place to limit the impact of the fishery on habitats are listed in the harvest strategy (DPIRD, 2020). These include:

- Limited entry;
- Gear controls, including allocated headrope length;
- Seasonal closures that limit the impact of fishing to a few months each year;
- Spatial closures including Reef Observation Areas such that 37 % of the licence area is permanently closed to trawling; and
- Exploratory trawl guidelines and protocols as outlined in the *Code of Conduct* (including talking to other skippers, surveying the area with echo sounder prior to trawling, shooting with try net prior to deploying the main net) (Figure 13).

7.3.6 Ecosystem

Fisheries should not cause serious or irreversible harm to the structure or function of the ecosystem where they are undertaking their fishing activities. Serious or irreversible harm to "structure or function" means changes caused by the UoA that fundamentally alter the capacity of the ecosystem to maintain its structure and function (MSC, 2018a, p. 30). For the ecosystem component, this is the reduction of key features most crucial to maintaining the integrity of its structure and functions and ensuring that ecosystem resilience and productivity are not adversely impacted. This includes, but not limited to, permanent changes in the biological diversity of the ecological community and the ecosystem's capacity to deliver ecosystem services (MSC, 2018a, p. 30).

No specific quantitative analysis on the wider ecosystem impacts of the AIMWTMF appears to have been undertaken. The ecosystem impacts of Western Australia's scallop fisheries are considered to be low risk, with the total biomass taken by these operations being relatively small. Most ecosystem impacts from fishing activities in the AIMWTMF are likely to be due to the removal of the target species The high natural recruitment variability, and therefore scallop stock abundance variability, and short life span (up to 3 years) also means that few predators will have become highly dependent on the species.

In addition to examining the risks posed by the fishery to byproduct, bycatch, ETPs and habitats, the recent ERA assessed the broader risks of impacts of the fishery on the ecosystem, such as (DPIRD-ERA, 2020):

- Trophic interactions due to removal of retained species;
- Trophic interactions due to discarding bycatch;
- Risks of translocation of pests and disease;
- Risks of ghost fishing;
- Risks to broader environment such as fuel discharge and turbidity.

The ERA workshop participants considered that all these risks were negligible (DPIRD-ERA, 2020).

Only a small proportion of the total allowable area of the fishery is fished. Generally, in years when fishing is permitted, approximately 5-11% of the allowable fishing area is trawled (in 2019 this was 5.7%) (Kangas et al., 2020). The weight of evidence suggests that the UoA is highly unlikely to disrupt the key elements underlying ecosystem structure and function to a point where there would be a serious or irreversible harm.

The AIMWTMF harvest strategy contains measures to address all main impacts of the AIMWTMF on the ecosystem (DPIRD-ERA, 2020), and measures are in place for each component: target, retained species/primary, bycatch/secondary, ETPs, and habitats. The plan includes management objectives, performance indicators, reference levels and control rules.

The sixth objective of the AIMWTMF Harvest Strategy 2020-2025 is to ensure the effects of fishing do not result in serious or irreversible harm to ecosystem processes. Performance indicators specified for this objective are: based on periodic risk assessments incorporating i) current management arrangements, ii) use of BRDs, iii) catch levels, iv) number of recorded ETP interactions, and v) extent of area trawled annually.

The effects of climate change on the coastal ecosystems of Western Australia have become clear after an extreme marine heatwave in 2011, with significant loss of seagrass and declines in some commercial invertebrate stocks. The series of years with low scallop recruitment meant that the spawning stock was reduced to historic low levels during 2012–2014 in the Abrolhos Islands, leading to a delayed the recovery of this stock (Caputi et al., 2019). Surveys of the Abrolhos Islands stock, for example, achieved an average catch rate of 0.4 scallops per nautical mile of trawling in 2012 and 2013 compared to 1000's of scallops per nautical mile before the heatwave. The effects of climate change and factors influencing the recovery of marine invertebrate stocks, including target and primary species, have been the focus of research since. A number of peer reviewed journal articles have been published on this subject. A summary of this research is presented in Caputi et al. (2019).

7.3.7 Cumulative impacts from MSC fisheries

To ensure that the cumulative impact of MSC fisheries is within sustainable limits, the combined impact of a UoA and other overlapping UoAs is considered when assessed against the MSC Fisheries Standard v2.0. Potential overlapping fisheries are indicated in **Table 21**.

For P2 primary species, the CAB evaluates whether the cumulative impact of overlapping MSC UoAs hinders the recovery of 'main' primary species. For secondary species, cumulative impacts only need to be considered in cases where two or more UoAs have 'main' catches that are 'considerable', defined as a species being 10% or more or the total catch. For ETP species, the combined impacts of MSC UoAs needs to be evaluated, but only in cases where either national and/or international requirements set catch limits for ETP species. All of the requirements for cumulative impacts for species are applicable to their respective Outcome PIs. Given the scoring of the AIMWTMF for the outcome PIs relevant to primary species, secondary species and ETPs, there is no requirement to consider cumulative impacts.

For habitats, cumulative impacts are evaluated in the management PI (2.4.2). The requirements here aim to ensure that vulnerable marine ecosystems (VMEs) are managed such that the impact of all MSC UoAs does not cause serious and irreversible harm to VMEs. There are no VMEs identified in the region, but as discussed above, potential VMEs due to the presence of coral reefs in the region of the AIMWTMF.

Table 14. Scoring elements

Component	Scoring elements	Designation	Data-deficient
P1	Saucer scallop (*Ylistrum balloti*)	Target	No
P2, Secondary	Asymmetrical goatfish (*Upeneus asymmetricus*)	Minor	Yes
P2, Secondary	Large-scaled grinner (*Saurida undosquamis*)	Minor	Yes
P2, Secondary	Asymmetric goatfish (*Upeneus asymmetricus*)	Minor	Yes
P2, Secondary	Red-barred grubfish (*Parapercis nebulosa*)	Minor	Yes
P2, Secondary	Coral prawn (*Metapenaeopsis crassissima*)	Minor	Yes
P2, Secondary	Swimmer crab (*Portunus rugosus*)	Minor	Yes
P2, Secondary	Yellow-striped goatfish (*Parupeneus chrysopleuron*)	Minor	Yes
P2, Secondary	Long-spined flathead (*Platycephalus longispinis*)	Minor	Yes
P2, Secondary	Spiny-headed flounder (*Engyprosopon grandisquama*)	Minor	Yes
P2, Secondary	Flounder (*Engyprosopon maldivensis*)	Minor	Yes
P2, Secondary	Bar-tailed flathead (*Platycephalus endrachtensis*)	Minor	Yes
P2, Secondary	Threadfin emperor (*Lethrinus genivittatus*)	Minor	Yes
P2, Secondary	Painted grinner (*Trachinocephalus myops*)	Minor	Yes
P2, Secondary	Western butterfish (*Pentapodus vitta*)	Minor	Yes

P2, Secondary	Long-finned gurnard (*Lepidotrigla argus*)	Minor	Yes
P2, Secondary	Big eye snapper (*Lutjanus lutjanus*)	Minor	Yes
P2, Secondary	Orange-spotted toadfish (*Torquigener pallimaculatus*)	Minor	Yes
P2, Secondary	Hick's toadfish (*Torquigener hicksi*)	Minor	Yes
P2, Secondary	Stout whiting (*Sillago robusta*)	Minor	Yes
P2, Secondary	Bay whiting (*Sillago ingenuua*)	Minor	Yes
P2, Secondary	100+ species each < 0.1%	Minor	Yes
P2, ETP	None reported	NA	No
P2, Habitat	Sand environment	Commonly Encountered	No
P2, Habitat	Seagrass dominated	Minor	No
P2, Habitat	Macroalgae	Minor	No
P2, Habitat	Filter feeding communities	Minor	No
P2, Habitat	Coral reefs	VME	No
P2, Ecosystem	Abrolhos Islands ecosystem	NA	No

7.3.8 Principle 2 Performance Indicator scores and rationales

PI 2.1.1 – Primary species outcome

PI 2.1.1		The UoA aims to maintain primary species above the point where recruitment would be impaired (PRI) and does not hinder recovery of primary species if they are below the PRI		
Scoring Issue		SG 60	SG 80	SG 100
a	Main primary species stock status			
	Guide post	Main primary species are **likely** to be above the PRI. OR If the species is below the PRI, the UoA has measures in place that are **expected** to ensure that the UoA does not hinder recovery and rebuilding.	Main primary species are **highly likely** to be above the PRI. OR If the species is below the PRI, there is either **evidence of recovery** or a demonstrably effective strategy in place **between all MSC UoAs which categorise this species as main**, to ensure that they collectively do not hinder recovery and rebuilding.	There is a **high degree of certainty** that main primary species are above the PRI **and are** fluctuating around a level consistent with MSY.
	Met?	**Yes**	**Yes**	**Yes**
	Rationale			

Based on Status reports of the fisheries and aquatic resources of Western Australia 2018/19 (Gaughan and Santoro, 2020) and the 2014-17 survey sampling (Table 13), no species meets the definition of primary species in the AIMWTMF catch. This is consistent with a score of 100 when a fishery does not impact on a component (SA3.2.1, MSC, 2018a, p30).

Because there are no main primary species the fishery scores 100 for this SI.

b	**Minor primary species stock status**			
	Guide post			Minor primary species are highly likely to be above the PRI. OR If below the PRI, there is evidence that the UoA does not hinder the recovery and rebuilding of minor primary species.
	Met?			**Yes**
Rationale				

As indicated above, no primary species are identified in the AIMWTMF catches. As for si(a), a **default score of 100** applies.

References

Gaughan, D.J. and Santoro, K. (eds). 2020. Status Reports of the Fisheries and Aquatic Resources of Western Australia 2018/19: The State of the Fisheries. Department of Primary Industries and Regional Development,

Western Australia.
https://www.fish.wa.gov.au/Documents/sofar/status_reports_of_the_fisheries_and_aquatic_resources_2018-19.pdf.

MSC (2018a). MSC fisheries standard, v.2.1, 31 August 2018. Marine Stewardship Council, London, 133 pp. Available at: https://www.msc.org/docs/default-source/default-document-library/for-business/program-documents/fisheries-program-documents/msc-fisheries-standard-v2-01.pdf?sfvrsn=8ecb3272_11.

Draft scoring range and information gap indicator added at Announcement Comment Draft Report

Draft scoring range	**≥80**
Information gap indicator	

Overall Performance Indicator scores added from Client and Peer Review Draft Report

Overall Performance Indicator score	**100**
Condition number (if relevant)	

PI 2.1.2 – Primary species management strategy

PI 2.1.2		There is a strategy in place that is designed to maintain or to not hinder rebuilding of primary species, and the UoA regularly reviews and implements measures, as appropriate, to minimise the mortality of unwanted catch		
Scoring Issue		SG 60	SG 80	SG 100
a	Management strategy in place			
	Guide Post	There are **measures** in place for the UoA, if necessary, that are expected to maintain or to not hinder rebuilding of the main primary species at/to levels which are likely to be above the PRI.	There is a **partial strategy** in place for the UoA, if necessary, that is expected to maintain or to not hinder rebuilding of the main primary species at/to levels which are highly likely to be above the PRI.	There is a **strategy** in place for the UoA for managing main and minor primary species.
	Met?	**Yes**	**Yes**	**Yes**
Rationale				

As indicated at PI 2.1.1, there are no primary species identified and the UoA has no impact on this component. As a result a partial strategy is not required. **SG60 and SG80 and are met**.

To score a 100 on this component a management strategy should be in place for P2 species. There is a strategy in place to manage all bycatch species. These consist of measures in place mainly for the management of the target species combined with measures specifically designed for the management of non-target species, as set out in the AIMWTMF harvest strategy (DPIRD, 2020). Measures include limited entry, gear specifications, bycatch reduction devices, control of trawl footprint, permanently closed areas and an annual closed season. In addition, there are regular ecological risk assessments. **SG100 is met**.

b	**Management strategy evaluation**			
	Guide Post	The measures are considered **likely** to work, based on plausible argument (e.g., general experience, theory or comparison with similar fisheries/species).	There is some **objective basis for confidence** that the measures/partial strategy will work, based on some information directly about the fishery and/or species involved.	**Testing** supports **high confidence** that the partial strategy/strategy will work, based on information directly about the fishery and/or species involved.
	Met?	**Yes**	**Yes**	**No**
Rationale				

No species in the AIMWTMF is classified as primary and this scoring issue does not need to be scored at SG60 and SG80. However, a strategy for P2 species needs to be in place for the SG100 to be met. The management strategy for non-target species is evaluated against the performance indicators set out in the AIMWTMF Harvest Strategy (DPIRD, 2020) based on information on the time and location of the impact (through VMS), assessment of the risk the fishery poses to these species, target species, bycatch and habitat research, compliance outcomes, etc.

The ERA 2020 indicates ongoing negligible risk to non-target species, supporting a level of confidence that the strategy will work. However, additional information on bycatch, preferably based on surveys using the same gear as used in the fishery, is required to meet SG100. The assessors note that bycatch survey methods and periodicity for the Abrolhos Islands scallop fishery will be standardised to the methods used in Exmouth Gulf and Shark Bay Prawn fisheries in coming years.

c	**Management strategy implementation**

	Guide Post		There is **some evidence** that the measures/partial strategy is being **implemented successfully**.	There is **clear evidence** that the partial strategy/strategy is being **implemented successfully and is achieving its overall objective as set out in scoring issue (a).**
	Met?		**Yes**	**Yes**

Rationale

DPIRD runs a compliance system (see Principle 3) with Fisheries and Marine Officers (FMO) delivering compliance and education programs and undertaking regular patrols to verify compliance with fisheries regulations, gear and fishing operations (e.g. closures). No systematic non-compliance has been identified. Overall, there is evidence that the strategy for all non-target species is implemented successfully. **SG80 and SG100 are met**.

d	**Shark finning**			
	Guide post	It is **likely** that shark finning is not taking place.	It is **highly likely** that shark finning is not taking place.	There is a **high degree of certainty** that shark finning is not taking place.
	Met?	**NA**	**NA**	**NA**

Rationale

No shark species are managed in AIMWTMF, thus no shark species are primary, and this scoring issue is not applicable.

e	**Review of alternative measures**			
	Guide post	There is a review of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality of unwanted catch of main primary species.	There is a **regular** review of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality of unwanted catch of main primary species and they are implemented as appropriate.	There is a **biennial** review of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality of unwanted catch of all primary species, and they are implemented, as appropriate.
	Met?	**NA**	**NA**	**NA**

Rationale

No species in the AIMWTMF has been classified as primary, hence this scoring issue is not applicable.

References

DPIRD (2020). Saucer Scallop Resource of the AIMWTMF Harvest Strategy 2020 – 2025, Version 1.1. June 2020. Department of Fisheries, WA. Available at: http://www.fish.wa.gov.au/Documents/management_papers/fmp299.pdf.

DPIRD-ERA (2020). Western Australian Marine Stewardship Council Report Series No. 15: Ecological Risk Assessm of the Abrolhos Islands and Mid-West Trawl Managed Fishery. DPIRD, Western Australia. https://www.fish.wa.gov.au/Documents/wamsc_reports/wamsc_report_no_15.pdf.

Gaughan, D.J. and Santoro, K. (eds). 2020. Status Reports of the Fisheries and Aquatic Resources of Western Australia 2018/19: The State of the Fisheries. Department of Primary Industries and Regional Development, Western Australia. https://www.fish.wa.gov.au/Documents/sofar/status_reports_of_the_fisheries_and_aquatic_resources_2018-19.pdf.

Draft scoring range and information gap indicator added at Announcement Comment Draft Report

Draft scoring range	**≥80**
Information gap indicator	

Overall Performance Indicator scores added from Client and Peer Review Draft Report

Overall Performance Indicator score	**95**
Condition number (if relevant)	

PI 2.1.3 – Primary species information

PI 2.1.3		Information on the nature and extent of primary species is adequate to determine the risk posed by the UoA and the effectiveness of the strategy to manage primary species		
Scoring Issue		SG 60	SG 80	SG 100
a	Information adequacy for assessment of impact on main primary species			
	Guide Post	Qualitative information is **adequate to estimate** the impact of the UoA on the main primary species with respect to status. **OR** **If RBF is used to score PI 2.1.1 for the UoA:** Qualitative information is adequate to estimate productivity and susceptibility attributes for main primary species.	Some quantitative information is available and is **adequate to assess** the impact of the UoA on the main primary species with respect to status. **OR** **If RBF is used to score PI 2.1.1 for the UoA:** Some quantitative information is adequate to assess productivity and susceptibility attributes for main primary species.	Quantitative information is available and is **adequate to assess with a high degree of certainty** the impact of the UoA on main primary species with respect to status.
	Met?	**Yes**	**Yes**	**Yes**
Rationale				

DPIRD produces annual reports on the status of fisheries and the aquatic resources of Western Australia, offering a complete view of the fisheries and fished stocks in the area. These reports are published on DPIRD's website (www.fish.wa.gov.au).

Also, quantitative information on catch composition is available from surveys conducted during 2014-2017 (Table 13). The assessors note that these surveys use smaller prawn mesh than typical scallop gear resulting in increased catches of small specimens. This information, together with the latest status of fisheries report (Gaughan and Santoro 2020) were used to identify any primary species in the AIMWTMF catch (species with management tools in place – limit or target reference points- in the UoA or in overlapping fisheries). Logbooks also provide information on potential bycatch species (e.g., bugs, crabs, squid). It was reported at the site visit that the total catch of these species has been less than 100 kg annually in recent years.

The available information indicates that there are no main primary species.

Information is available and is **adequate to assess with a high degree of certainty** that the UoA has no impact on main primary species. **SG60, 80 and 100 are met.**

b	**Information adequacy for assessment of impact on minor primary species**			
	Guide Post			Some quantitative information is adequate to estimate the impact of the UoA on minor primary species with respect to status.
	Met?			**Yes**
Rationale				

As indicated above, no primary species are identified in the AIMWTMF catches. Some quantitative information is available to support that no main or minor primary species are taken. **SG100 is met**. Whilst there is sufficient information from logbooks and surveys available to address this scoring issue, the survey information is somewhat

dated and has been collected using gear that is different to the commercial fishing gear used. Future consideration of the ability of the fishery to meet MSC requirements would benefit from the collection of observer data and/or additional survey information. A recommendation has been raised to improve the availability of information.

C	Information adequacy for management strategy			
	Guide post	Information is adequate to support **measures** to manage **main** primary species.	Information is adequate to support a **partial strategy** to manage **main** primary species.	Information is adequate to support a **strategy** to manage **all** primary species, and evaluate with a **high degree of certainty** whether the strategy is achieving its objective.
	Met?	**Yes**	**Yes**	**Yes**
Rationale				

A management strategy for primary species is not required because there are no primary species in the catch. Nevertheless, there is adequate information to support a strategy to manage all non-target species, if any of those species become primary. **SG60, SG80 and SG100 are met**.

References

Gaughan, D.J. and Santoro, K. (eds). 2020. Status Reports of the Fisheries and Aquatic Resources of Western Australia 2018/19: The State of the Fisheries. Department of Primary Industries and Regional Development, Western Australia. https://www.fish.wa.gov.au/Documents/sofar/status_reports_of_the_fisheries_and_aquatic_resources_2018-19.pdf.

Draft scoring range and information gap indicator added at Announcement Comment Draft Report

Draft scoring range	**≥80**
Information gap indicator	

Overall Performance Indicator scores added from Client and Peer Review Draft Report

Overall Performance Indicator score	**100**
Condition number (if relevant)	
Recommendation	**#2**

PI 2.2.1 – Secondary species outcome

PI 2.2.1		The UoA aims to maintain secondary species above a biologically based limit and does not hinder recovery of secondary species if they are below a biological based limit		
Scoring Issue		SG 60	SG 80	SG 100
A	Main secondary species stock status			
	Guide post	Main secondary species are **likely** to be above biologically based limits. OR If below biologically based limits, there are **measures** in place expected to ensure that the UoA does not hinder recovery and rebuilding.	Main secondary species are **highly likely** to be above biologically based limits. OR If below biologically based limits, there is either **evidence of recovery** or a **demonstrably effective partial strategy** in place such that the UoA does not hinder recovery and rebuilding. AND Where catches of a main secondary species outside of biological limits are **considerable**, there is either **evidence of recovery** or a, **demonstrably effective strategy in place between those MSC UoAs that have considerable catches of the species**, to ensure that they collectively do not hinder recovery and rebuilding.	There is a **high degree of certainty** that main secondary species are above biologically based limits.
	Met?	**Yes**	**Yes**	**No**
Rationale				

Quantitative information on catch composition is available from 2014-17 surveys (see Table 13). No species reached the cut-off of 5% average percentage contribution individually. Only two species comprised more than 2% individually, asymmetrical goatfish (*Upeneus asymmetricus*) and large-scaled grinner (*Saurida undosquamis*). Based on a risk assessment across multiple WA fisheries (Evans and Molony, 2010), neither of these could be considered less resilient. These two species were also assessed as low risk in a 2019 ERA for the Shark Bay prawn trawl fishery (Stoklosa, 2019). Although bugs (*Thenus* spp.) can be retained by the fishery the reported landings of bugs in 2018 was 0.04 t and less than 1 kg in 2019.

There are no main secondary species. The score is capped at 80 as per MSC FCP Annex PF 5.3.2.

B	**Minor secondary species stock status**			
	Guide post			Minor secondary species are highly likely to be above biologically based limits. OR If below biologically based limits', there is evidence that the UoA does not hinder the recovery and rebuilding of secondary species
	Met?			**No**

	Rationale
More than one hundred species are represented in the 2014-2017 survey data. This is a more diverse range of species than would be taken with AIMWTMF fishing gear as prawn trawl gear has been used in these surveys. The information that is available does not allow an assessment of minor secondary species outcome at SG100. In this case, **a score of 80 is given by default**.	
References	

Evans, R. and Molony, B. W. 2010. Ranked Risk Assessment for Bycatch in Multiple Fisheries: a Bioregional Risk Assessment Method. Fisheries Research Report No. 212. Department of Fisheries, Western Australia. 88pp.

MSC (2018a). MSC fisheries standard, v.2.1, 31 August 2018. Marine Stewardship Council, London, 133 pp. Available at: https://www.msc.org/docs/default-source/default-document-library/for-business/program-documents/fisheries-program-documents/msc-fisheries-standard-v2-01.pdf?sfvrsn=8ecb3272_11.

Draft scoring range and information gap indicator added at Announcement Comment Draft Report

Draft scoring range	**≥80**
Information gap indicator	

Overall Performance Indicator scores added from Client and Peer Review Draft Report

Overall Performance Indicator score	**80**
Condition number (if relevant)	

PI 2.2.2 – Secondary species management strategy

PI 2.2.2		There is a strategy in place for managing secondary species that is designed to maintain or to not hinder rebuilding of secondary species and the UoA regularly reviews and implements measures, as appropriate, to minimise the mortality of unwanted catch		
Scoring Issue		SG 60	SG 80	SG 100
A	Management strategy in place			
	Guide post	There are **measures** in place, if necessary, which are expected to maintain or not hinder rebuilding of main secondary species at/to levels which are highly likely to be above biologically based limits or to ensure that the UoA does not hinder their recovery.	There is a **partial strategy** in place, if necessary, for the UoA that is expected to maintain or not hinder rebuilding of main secondary species at/to levels which are highly likely to be above biologically based limits or to ensure that the UoA does not hinder their recovery.	There is a **strategy** in place for the UoA for managing main and minor secondary species.
	Met?	**Yes**	**Yes**	**No**

Rationale

No main secondary species have been identified for the AIMWTMF, hence a management strategy is not required to meet SG60 and SG80 requirements. To meet SG 100 on this component, a management strategy should be in place for the UoA for all P2 species since gear loss or other incidental impacts could still occur. DPIRD details the measures in place for the fishery in the AIMWTMF Harvest Strategy (DPIRD, 2020). Non-specific measures include limited entry, gear specifications, BRDs, control of trawl footprint, permanently closed areas and an annual closed season. In addition, there are regular ERAs. There is a commitment for regular quantitative data collection through fishery surveys. These measures have the potential to constitute a strategy to meet SG100 requirements. However, at this stage it is not clear the measures do satisfy SG100 requirements. Surveys using the AIMWTMF scallop gear are required to provide an improved picture of bycatch. In addition, a bycatch action plan would strengthen the arrangements for the fishery.

Overall, a strategy for main secondary species is not required and SG60 and SG80 are met. SG100 is not met.

b	**Management strategy evaluation**			
	Guide post	The measures are considered **likely** to work, based on plausible argument (e.g. general experience, theory or comparison with similar UoAs/species).	There is **some objective basis for confidence** that the measures/partial strategy will work, based on some information directly about the UoA and/or species involved.	**Testing** supports **high confidence** that the partial strategy/strategy will work, based on information directly about the UoA and/or species involved.
	Met?	**Yes**	**Yes**	**No**

Rationale

Based on survey information, the AIMWTMF catch of secondary species is represented by many species, each with very low contributions to the catch. None of the species is a main secondary species. ERAs are conducted on an ongoing basis. The consistency of the results from ERAs conducted in finding bycatch to be at a negligible or low risk provides an objective basis for confidence that the measures/partial strategy are working (DoF 2004, DPIRD-ERA, 2020). **SG60 and SG80 are met**.

The assessors conclude that **SG100 is not met** pending improved bycatch information based on surveys using the AIMWTMF scallop gear.

c	Management strategy implementation			
	Guide post		There is **some evidence** that the measures/partial strategy is being **implemented successfully**.	There is **clear evidence** that the partial strategy/strategy is being **implemented successfully and is achieving its objective as set out in scoring issue (a).**
	Met?		**Yes**	**Yes**
Rationale				

There are no main secondary species. Nevertheless, the use of BRDs, as a measure to reduce secondary species catch has been compulsory since 2005. Compliance with the management measures for secondary species can be demonstrated through the VMS monitoring (compliance with closures and footprint control) and the fact that there is no evidence of systematic non-compliance with the use of BRDs. **SG80 and SG100 requirements are met.**

d	Shark finning			
	Guide post	It is **likely** that shark finning is not taking place.	It is **highly likely** that shark finning is not taking place.	There is a **high degree of certainty** that shark finning is not taking place.
	Met?	**NA**	**NA**	**NA**
Rationale				

Sharks species were not identified in the bycatch species from the 2014-2017 survey data (Table 13) and are likely to escape via BRDs if encountered. Shark finning has not been raised as a compliance issue in AIMWTMF. The issue is not relevant for this fishery.

e	Review of alternative measures to minimise mortality of unwanted catch			
	Guide post	There is a review of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality of **unwanted** catch of main secondary species.	There is a **regular** review of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality of **unwanted** catch of main secondary species and they are implemented as appropriate.	There is a **biennial** review of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality of **unwanted** catch of all secondary species, and they are implemented, as appropriate.
	Met?	**Yes**	**Yes**	**No**
Rationale				

There have been reviews of the potential effectiveness and practicality of alternative measures to minimise AIMWTMF-related mortality of unwanted catch of secondary species during BRD trials and implementation. The ongoing ERAs provide information on the effectiveness of measures to reduce mortality of unwanted catch. There are no main secondary species, hence **SG60 and SG80 requirements are met**. It is not evident that there are regular reviews of the effectiveness of the measures in place, **SG100 is not met**.

Although SG60 and SG80 are met, the information on secondary species is based on regular fishery-independent surveys using prawn trawl nets rather than scallop nets. These nets catch a high diversity of species in small numbers. There is no indication in the available information that any of the secondary species would be classified as main if the surveys were undertaken with scallop nets. However, there was discussion with DPIRD during the site visit that side-by-side trials of scallop gear and prawn gear are being considered for the fishery. The assessors recommend that this would be a useful approach to provide improved information from the fishery to be considered at surveillance audits (Recommendation #2).

References

DoF (2004). Final Application to DAWE on the Abrolhos Islands and Mid West Trawl Managed Fishery For Consideration under Parts 13 and 13A of the Environment Protection and Biodiversity Conservation Act 1999, June 2004. Department of Fisheries, Government of Western Australia.

DPIRD-ERA (2020). Western Australian Marine Stewardship Council Report Series No. 15: Ecological Risk Assessment of the Abrolhos Islands and Mid-West Trawl Managed Fishery. DPIRD, Western Australia. https://www.fish.wa.gov.au/Documents/wamsc_reports/wamsc_report_no_15.pdf.

Draft scoring range and information gap indicator added at Announcement Comment Draft Report

Draft scoring range	**≥80**
Information gap indicator	

Overall Performance Indicator scores added from Client and Peer Review Draft Report

Overall Performance Indicator score	**85**
Condition number (if relevant)	
Recommendation	**See Recommendation #2**

PI 2.2.3 – Secondary species information

PI 2.2.3		Information on the nature and amount of secondary species taken is adequate to determine the risk posed by the UoA and the effectiveness of the strategy to manage secondary species		
Scoring Issue		SG 60	SG 80	SG 100
a	Information adequacy for assessment of impacts on main secondary species			
	Guide post	Qualitative information is **adequate to estimate** the impact of the UoA on the main secondary species with respect to status. OR **If RBF is used to score PI 2.2.1 for the UoA:** Qualitative information is adequate to estimate productivity and susceptibility attributes for main secondary species.	Some quantitative information is available and **adequate to assess** the impact of the UoA on main secondary species with respect to status. OR **If RBF is used to score PI 2.2.1 for the UoA:** Some quantitative information is adequate to assess productivity and susceptibility attributes for main secondary species.	Quantitative information is available and **adequate to assess with a high degree of certainty** the impact of the UoA on main secondary species with respect to status.
	Met?	**Yes**	**Yes**	**Yes**
Rationale				

Available information sources include logbook data, survey data, VMS monitoring, DPIRD published reports on fisheries status and ERA reports. There are no main secondary species, hence **SG60, SG80 and SG100 requirements are met**. As with PI 2.1.3, future consideration of the ability of the fishery to meet MSC requirements would benefit from the collection of observer data and/or additional survey information. A recommendation has been raised to improve the availabilty of information.

b	Information adequacy for assessment of impacts on minor secondary species			
	Guide post			Some quantitative information is adequate to estimate the impact of the UoA on minor secondary species with respect to status.
	Met?			**No**
Rationale				

There is some quantitative catch information on minor secondary species, although because most species have low abundance in the catch and little is known about their stock status, information is not adequate to estimate impact of the UoA on minor secondary species with respect to status. Improved information on bycatch is required from surveys using AIMWTMF fishing gear. **SG100 is not met**.

c	Information adequacy for management strategy			
	Guide post	Information is adequate to support **measures** to manage **main** secondary species.	Information is adequate to support a **partial strategy** to manage **main** secondary species.	Information is adequate to support a **strategy** to manage **all** secondary species, and **evaluate** with a **high degree of certainty** whether the strategy is **achieving its objective**.

	Met?	**Yes**	**Yes**	**No**
Rationale				

There are no main secondary species, hence **SG60 and SG80 requirements are met**. As indicated above, there is some quantitative catch information on minor secondary species from the 2014-2017 survey data. There is also an ongoing ERA process examining potential impacts on bycatch species. There is insufficient quantitative information to support a strategy for all secondary species with a high degree of certainty. In addition, improved information on bycatch is required from surveys using AIMWTMF fishing gear. **SG100 is not met**.

References

DoF (2004). Final Application to Australian Government Department of the Environment and Heritage (now DAWE) on the Abrolhos Islands and Mid West Trawl Managed Fishery For Consideration under Parts 13 and 13A of the Environment Protection and Biodiversity Conservation Act 1999, June 2004. Department of Fisheries, Government of Western Australia.

DPIRD-ERA (2020). Western Australian Marine Stewardship Council Report Series No. 15: Ecological Risk Assessment of the Abrolhos Islands and Mid-West Trawl Managed Fishery. DPIRD, Western Australia. https://www.fish.wa.gov.au/Documents/wamsc_reports/wamsc_report_no_15.pdf.

Gaughan, D.J. and Santoro, K. (eds). 2020. Status Reports of the Fisheries and Aquatic Resources of Western Australia 2018/19: The State of the Fisheries. Department of Primary Industries and Regional Development, Western Australia. https://www.fish.wa.gov.au/Documents/sofar/status_reports_of_the_fisheries_and_aquatic_resources_2018-19.pdf.

Draft scoring range and information gap indicator added at Announcement Comment Draft Report

Draft scoring range	**≥80**
Information gap indicator	

Overall Performance Indicator scores added from Client and Peer Review Draft Report

Overall Performance Indicator score	**85**
Condition number (if relevant)	
Recommendation	**See Recommendation #2**

PI 2.3.1 – ETP species outcome

PI 2.3.1		The UoA meets national and international requirements for the protection of ETP species The UoA does not hinder recovery of ETP species		
Scoring Issue		SG 60	SG 80	SG 100
a	Effects of the UoA on population/stock within national or international limits, where applicable			
	Guide post	Where national and/or international requirements set limits for ETP species, the **effects of the UoA** on the population/ stock are known and **likely** to be within these limits.	Where national and/or international requirements set limits for ETP species, the **combined effects of the MSC UoAs** on the population /stock are known and **highly likely** to be within these limits.	Where national and/or international requirements set limits for ETP species, there is a **high degree of certainty** that the **combined effects of the MSC UoAs** are within these limits.
	Met?	**NA**	**NA**	**NA**
Rationale				
There are no national or international requirements relevant to the AIMWTMF that set limits on ETP species.				
b	Direct effects			
	Guide post	Known direct effects of the UoA are likely to not **hinder recovery** of ETP species.	Direct effects of the UoA are **highly likely** to not **hinder recovery** of ETP species.	There is a **high degree of confidence** that there are no **significant detrimental direct effects** of the UoA on ETP species.
	Met?	**All ETPs-Yes**	**All ETPs-Yes**	**All ETPs-Yes**
Rationale				

Several ETP species are listed under the EPBC Act for the region in which the AIMWTMF operates. These ETP species mostly comprise elasmobranchs, cetaceans, Australian sea lions, turtles, sea snakes and migratory seabirds. It is a statutory requirement for commercial fishers to report any interactions of ETP species in their logbooks, however, no interactions have been reported in logbooks (or during fishery-independent surveys in recent years) since 2008. ERAs undertaken for the fishery have suggested a potential low level of interaction with turtles, sea snakes and syngnathids.

Turtles
Prior to the introduction of BRDs, loggerhead turtles (*Caretta caretta*) and green turtles (*Chelonia mydas*) were reported as being incidentally caught in very low numbers in the AIMWTMF. Both of these species are towards the southern extent of their range, and do not breed in the Abrolhos because water temperatures are too low. There have been no reported interactions since the introduction of BRDs. The latest ERA for the fishery (DPIRD-ERA, 2020) indicates the risk ranking for turtles as negligible.

Sea snakes
Sea snakes were also reported as caught in low numbers in the AIMWTMF prior to the use of BRDs. They were generally returned to the water in a live state, with a relatively good survival following their return to the water. The 2019 ERA for the fishery indicates the risk ranking for sea snakes as negligible (DPIRD-ERA, 2020).

Syngnathid
Prior to the use of BRDs, syngnathids were also occasionally caught in the AIMWTMF and generally discarded. Low numbers are caught by prawn trawlers (~1 per night) and numbers are likely to be lower for the scallop fishery given the larger mesh sizes and slower speeds. Syngnathids are typically associated with seagrass and macroalgal habitats, with large components of the nearshore waters to the east of the Abrolhos Islands closed to scallop trawling. The 2019 ERA for the fishery indicates the risk ranking for syngnathids as negligible (DPIRD-ERA, 2020).

Australian sea lions
The Abrolhos Islands mark the northern-most habitat of the Australian sea lion (*Neophoca cinerea*). Trawl speed is very low (2 – 3 knots while trawling and up to 9 knots while steaming), making it highly unlikely that wildlife would be struck by

the boat where avoidance behaviour is not impeded. It is also considered that sea lions are unlikely to forage in trawl nets (DPIRD-ERA, 2020). The risk ranking for sea lions in the latest ERA is reported as negligible.

Cetaceans
Trawl speed is very low (2 – 3 knots while trawling and up to 9 knots while steaming), making it highly unlikely that wildlife would be struck by the boat where avoidance behaviour is not impeded (DPIRD-ERA, 2020). Migration through the area is largely occurring outside the fishing season in the Abrolhos Islands. No interactions have been reported. The risk ranking for cetaceans in the latest ERA is reported as negligible.

Seabirds
The Abrolhos Islands are an important breeding site for seabirds. Trawl nets in the fishery are set well below the surface and fishing is primarily conducted at night (DPIRD-ERA, 2020). The ERA also reports that the breeding season of seabirds does not overlap with fishing season and that the low quantity of bycatch is not a significant attraction to seabirds. The risk ranking for seabirds in the latest ERA is reported as negligible.

Overall, there is a high degree of confidence that there are no significant detrimental direct effects on ETP species. **SG60, SG80 and SG100 requirements are met**.

c	Indirect effects			
	Guide post		Indirect effects have been considered for the UoA and are thought to be **highly likely** to not create unacceptable impacts.	There is a **high degree of confidence** that there are no **significant detrimental indirect effects** of the UoA on ETP species.
	Met?		**All ETPs-Yes**	**All ETPs-No**

Rationale

The MSC vocabulary does not clearly define “indirect effects” to ETP populations, although these can be interpreted as effects other than derived from direct contact with fishing gear or fishing activities. Indirect effects can include boat strike, entanglements in lost gear or population structure effects (e.g. selective catch of certain sizes and life stages of a species), or potential food web effects such as competition with ETP species for prey. The client indicated at the site visit that fishing nets are rarely lost and are highly likely to be recovered if lost.

Some potential ETP interactions have been considered as indirect effects in ERAs and DAWE EPBC Act assessments, and the fishery was not considered to have significant detrimental indirect effects. For example, trawl speed is very low (2 – 3 knots while trawling and up to 9 knots while steaming), making it highly unlikely that wildlife would be struck by the boat where avoidance behaviour is not impeded. The trawl footprint is a small proportion of the Abrolhos Island region and effects on population structure are unlikely. Indirect effects have been considered for the UoA and are highly unlikely to create unacceptable impacts. **SG80 is met.**

Given that there is not observer coverage of the fishery, there is not the high level of confidence required to meet SG100.

References

DPIRD-ERA (2020). Western Australian Marine Stewardship Council Report Series No. 15: Ecological Risk Assessment of the Abrolhos Islands and Mid-West Trawl Managed Fishery. DPIRD, Western Australia. https://www.fish.wa.gov.au/Documents/wamsc_reports/wamsc_report_no_15.pdf.

Kangas, M.I., Morrison, S., Unsworth, P., Lai, E., Wright, I. and Thomson, A. 2007. Development of biodiversity and habitat monitoring systems for key trawl fisheries in Western Australia. Final report to Fisheries Research and Development Corporation on Project No. 2002/038. Fisheries Research Report No. 160, Department of Fisheries, Western Australia, 334p. Available at: http://www.fish.wa.gov.au/Documents/research_reports/frr160.pdf.

Draft scoring range and information gap indicator added at Announcement Comment Draft Report

Draft scoring range	**≥80**
Information gap indicator	

Overall Performance Indicator scores added from Client and Peer Review Draft Report

Overall Performance Indicator score	**90**
Condition number (if relevant)	

PI 2.3.2 – ETP species management strategy

PI 2.3.2		The UoA has in place precautionary management strategies designed to: - meet national and international requirements; - ensure the UoA does not hinder recovery of ETP species. Also, the UoA regularly reviews and implements measures, as appropriate, to minimise the mortality of ETP species		
Scoring Issue		SG 60	SG 80	SG 100
a	Management strategy in place (national and international requirements)			
	Guide post	There are **measures** in place that minimise the UoA-related mortality of ETP species, and are expected to be **highly likely to achieve** national and international requirements for the protection of ETP species.	There is a **strategy** in place for managing the UoA's impact on ETP species, including measures to minimise mortality, which is designed to be **highly likely to achieve** national and international requirements for the protection of ETP species.	There is a **comprehensive strategy** in place for managing the UoA's impact on ETP species, including measures to minimise mortality, which is designed to **achieve above** national and international requirements for the protection of ETP species.
	Met?	**NA**	**NA**	**NA**
Rationale				

There are no national or international requirements relevant to the AIMWTMF that set limits on ETP species.

b	Management strategy in place (alternative)			
	Guide post	There are **measures** in place that are expected to ensure the UoA does not hinder the recovery of ETP species.	There is a **strategy** in place that is expected to ensure the UoA does not hinder the recovery of ETP species.	There is a **comprehensive strategy** in place for managing ETP species, to ensure the UoA does not hinder the recovery of ETP species.
	Met?	**All ETPs-Yes**	**All ETPs-Yes**	**All ETPs-No**
Rationale				

General management measures in place include a limited entry licensing system, effort restrictions, gear controls, closed seasons and fishing day caps, spatial and temporal closures and reporting systems. The AIMWTMF harvest strategy includes an objective to ensure fishing impacts do not result in serious or irreversible harm to ETP species populations (DPIRD, 2020). The major performance indicator for ETPs in the AIMWTMF Harvest Strategy is the periodic undertaking of ERAs. Compulsory use of BRDs reduces potential capture of ETPs. There is compulsory reporting of ETP interactions. Only a small proportion of the total allowable area of the fishery is trawled each year (1.9% in 2018 and 5.7% in 2019). The measures in place comprise a strategy that is expected to ensure the UoA does not hinder the recovery of ETP species. **SG60 and SG80 are met**.

However, it is difficult to identify trends in ETP interactions and limited information on ETP populations in the region exists. There is no observer program to provide information on potential interactions. The strategy cannot be considered fully tested and comprehensive. **SG100 is not met**.

c	**Management strategy evaluation**			
	Guide post	The measures are **considered likely** to work, based on **plausible argument** (e.g., general experience, theory or	There is an **objective basis for confidence** that the measures/strategy will work, based on **information** directly about the fishery and/or the species involved.	The strategy/comprehensive strategy is mainly based on information directly about the fishery and/or species involved, and a **quantitative analysis**

		comparison with similar fisheries/species).		supports **high confidence** that the strategy will work.
	Met?	**All ETPs-Yes**	**All ETPs-Yes**	**All ETPs-No**

Rationale

Available information (surveys and logbook data) indicates that there has been no interaction with ETPs in the AIMWTMF recorded in logbooks since 2008. There are periodic ERAs to evaluate the risk posed by the fishery to bycatch species, ETPs, habitats and the ecosystem. The recent ERA found a negligible level of risk for ETP species (DPIRD-ERA, 2020). **SG60 and SG80 requirements are met**. The available information does not allow for a quantitative analysis that supports high confidence that the strategy will work. **SG100 is not met**.

d	Management strategy implementation			
	Guide post		There is some **evidence** that the measures/strategy is being implemented successfully.	There is **clear evidence** that the strategy/comprehensive strategy is being implemented successfully and **is achieving its objective as set out in scoring issue (a) or (b).**
	Met?		**All ETPs-Yes**	**All ETPs-No**

Rationale

Reporting of the ETP interactions in logbook data and from surveys suggests that there have been no interactions recorded in logbooks since 2008. There are well-established monitoring and compliance systems for the fishery. **SG80 requirements are met**. There is not enough information to conclude that there is clear evidence that the strategy is being implemented successfully. **SG100 is not met**.

e	Review of alternative measures to minimize mortality of ETP species			
	Guide post	There is a review of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality of ETP species.	There is a **regular** review of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality of ETP species and they are implemented as appropriate.	There is a **biennial** review of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality ETP species, and they are implemented, as appropriate.
	Met?	**NA**	**NA**	**NA**

Rationale

The low level of ETP interaction, the ongoing use of ERAs and assessed negligible level of risk support an argument that this is not applicable.

References

DPIRD (2020). Saucer Scallop Resource of the Abrolhos Islands Harvest Strategy 2020 – 2025, Version 1.1. June 2020. Department of Fisheries, WA. Available at: http://www.fish.wa.gov.au/Documents/management_papers/fmp299.pdf.

DPIRD-ERA (2020). Western Australian Marine Stewardship Council Report Series No. 15: Ecological Risk Assessment of the Abrolhos Islands and Mid-West Trawl Managed Fishery. DPIRD, Western Australia. https://www.fish.wa.gov.au/Documents/wamsc_reports/wamsc_report_no_15.pdf.

Draft scoring range and information gap indicator added at Announcement Comment Draft Report

Draft scoring range	**≥80**

Information gap indicator	

Overall Performance Indicator scores added from Client and Peer Review Draft Report

Overall Performance Indicator score	**80**
Condition number (if relevant)	

PI 2.3.3 – ETP species information

PI 2.3.3		Relevant information is collected to support the management of UoA impacts on ETP species, including: - Information for the development of the management strategy; - Information to assess the effectiveness of the management strategy; and - Information to determine the outcome status of ETP species		
Scoring Issue		SG 60	SG 80	SG 100
a	Information adequacy for assessment of impacts			
	Guide Post	Qualitative information is **adequate to estimate** the UoA related mortality on ETP species. **OR** **If RBF is used to score PI 2.3.1 for the UoA:** Qualitative information is **adequate to estimate productivity and susceptibility** attributes for ETP species.	Some quantitative information is **adequate to assess** the UoA related mortality and impact and to determine whether the UoA may be a threat to protection and recovery of the ETP species. **OR** **If RBF is used to score PI 2.3.1 for the UoA:** Some quantitative information is **adequate to assess productivity and susceptibility attributes** for ETP species.	Quantitative information is available to assess with a high degree of certainty the **magnitude of UoA-related impacts, mortalities and injuries and the consequences for the status** of ETP species.
	Met?	**All ETPs-Yes**	**All ETPs-Yes**	**All ETPs-No**
Rationale				

As indicated above, periodic ERAs are undertaken to assess the risk posed to ETPs by the fishery. The risk has been found to be negligible (DPIRD-ERA, 2020). There is also compulsory reporting of ETP interactions in logbooks and there are surveys on the target species which are able to provide information on potential interactions. No ETP interactions have been reported in logbooks. This information is adequate to assess potential UoA related mortality and impact, and to determine whether the UoA may be a threat to protection and recovery of the ETP species. **SG60 and SG80 requirement are met**. There is no independent observer information from the fishery and available information is **not sufficient to meet SG100 requirements**. As with PIs 2.1.3 and 2.2.3, future consideration of the ability of the fishery to meet MSC requirements would benefit from the collection of observer data and/or additional survey information. A recommendation has been raised to improve the availabilty of information.

b	Information adequacy for management strategy			
	Guide post	Information is adequate to support **measures** to manage the impacts on ETP species.	Information is adequate to measure trends and support a **strategy** to manage impacts on ETP species.	Information is adequate to support a **comprehensive strategy** to manage impacts, minimize mortality and injury of ETP species, and evaluate with a **high degree of certainty** whether a strategy is achieving its objectives.
	Met?	**All ETPs-Yes**	**All ETPs-Yes**	**All ETPs-No**
Rationale				

No interactions have been reported in logbooks or from surveys since 2008. The level of monitoring in place is sufficient to monitor and manage potential impacts given the low level of interaction. The AIMWTMF Harvest Strategy (DPIRD, 2020) has a control rule to implement a management response if there is an identified increase in risk levels (within 3

months i there is an identified 'high risk' and immediately if a 'severe risk' is found). **SG60 and SG80 requirements are met**.

Information is not yet adequate to support a comprehensive strategy and evaluate with a high degree of certainty whether the strategy is achieving its objectives. **SG100 is not met**.

References

DPIRD (2020). Saucer Scallop Resource of the Abrolhos Islands Harvest Strategy 2020 – 2025, Version 1.1. June 2020. Department of Fisheries, WA. Available at: http://www.fish.wa.gov.au/Documents/management_papers/fmp299.pdf.

DPIRD-ERA (2020). Western Australian Marine Stewardship Council Report Series No. 15: Ecological Risk Assessment of the Abrolhos Islands and Mid-West Trawl Managed Fishery. DPIRD, Western Australia. https://www.fish.wa.gov.au/Documents/wamsc_reports/wamsc_report_no_15.pdf.

Draft scoring range and information gap indicator added at Announcement Comment Draft Report

Draft scoring range	**≥80**
Information gap indicator	

Overall Performance Indicator scores added from Client and Peer Review Draft Report

Overall Performance Indicator score	**80**
Condition number (if relevant)	
Recommendation	**See Recommendation #2**

PI 2.4.1 – Habitats outcome

PI 2.4.1		The UoA does not cause serious or irreversible harm to habitat structure and function, considered on the basis of the area covered by the governance body(s) responsible for fisheries management in the area(s) where the UoA operates		
Scoring Issue		SG 60	SG 80	SG 100
a	Commonly encountered habitat status			
	Guide post	The UoA is **unlikely** to reduce structure and function of the commonly encountered habitats to a point where there would be serious or irreversible harm.	The UoA is **highly unlikely** to reduce structure and function of the commonly encountered habitats to a point where there would be serious or irreversible harm.	There is **evidence** that the UoA is highly unlikely to reduce structure and function of the commonly encountered habitats to a point where there would be serious or irreversible harm.
	Met?	**Yes**	**Yes**	**Yes**
Rationale				

The Abrolhos Islands have been relatively well studied and are noted for their high biodiversity, particularly of fish, molluscs, corals, and echinoderms. The biodiversity of this ecosystem is attributed to the mixture of temperate and tropical species, and the location of islands near the edge of the continental shelf. Although saucer scallops are widely distributed in Western Australian waters, the species tends to be restricted to areas of bare sand in the more sheltered environments found in the lee of islands and reef systems (DPIRD, 2020).

The trawl footprint of the AIMWTMF is monitored using VMS data. Cumulatively, between 2010 and 2019, the trawl footprint was estimated to be 573 km^2, which accounts for 4.35% of the AIMWTMF (Figure 11). The commonly encountered habitat is sandy substrate. The fishery avoids fishing areas that can be damaged by fishing gear (e.g. reefs). Vessels are equipped with technology which allows for fairly accurate targeting of areas suitable for trawling. Maps overlaying the 2010-19 AIMWTMF effort data on available habitat maps (Radford et al., 2008, cited in DPIRD-ERA 2020) shows that the AIMWTMF predominantly occurs on sand (57.9%), with mixed reef and sand (38.1%) and reef habitat (3.3%) (Figure 12). The Western Australian State waters surrounding the Abrolhos Islands have special status as a gazetted FHPA, established in part for the conservation and protection of fish and fish breeding areas. Of the trawl footprint for 2010-2019, cumulative effort covered and area of 380 km^2 within the FHPA, approximately15% of the total area of the FHPA. For the 2019 season, the AIMWTMF trawl footprint covered an area of 333 km^2, which is ~2.5% of the total area of the AIMWTMF (13165 km^2). Of the 2019 effort, 156 km^2 was within the Abrolhos FHPA, which equates to ~6.25% of the total area of the FHPA.

Quantitative studies of other WA trawl fisheries suggest that sand habitats are relatively resilient to fishing (Pitcher et al., 2017). Research in similar fisheries has demonstrated that the otter trawl systems used by the AIMWTMF have the least impact on habitats of all forms of trawling (Collie et al., 2000 cited in DPIRD-ERA, 2020). Studies from prawn trawl fisheries provide an indication of the impacts of trawling activities. In southwest WA, Laurenson et al. (1993; cited in DPIRD-ERA, 2020) compared trawled and untrawled areas using trawl samples and underwater video. This study concluded that the dominant fauna of each area (sand bottom) showed marked similarities, although each group had a different composition of less abundant species. Underwater video observation of both areas before and after the completion of the depletion experiment failed to detect any visual impact on the substrate or habitat. These results and more recent studies (e.g. Mazor et al., 2017; cited in DPIRD-ERA, 2020), indicate that trawling causes only minor and short-lived impacts to sandy habitats.

Benthic habitats were assessed at the 2019 ERA and the resultant scores for sand habitat were low risk (DPIRD-ERA, 2020).

There is evidence that the UoA is highly unlikely to reduce structure and function of the commonly encountered habitats to a point where there would be serious or irreversible harm. **SG60, SG80 and SG100 are likely to be met.**

b	VME habitat status			
	Guide post	The UoA is **unlikely** to reduce structure and function of the VME	The UoA is **highly unlikely** to reduce structure and function of the VME	There is **evidence** that the UoA is highly unlikely to reduce structure and function of the VME habitats to

		habitats to a point where there would be serious or irreversible harm.	habitats to a point where there would be serious or irreversible harm.	a point where there would be serious or irreversible harm.
	Met?	**Yes**	**Yes**	**Yes**

No VMEs have been identified in the region of the AIMWTMF. However, given that the Abrolhos Islands are the southernmost area of major coral reef in the Indian Ocean, there are potential VMEs in the managed area of the fishery. As described above, only a small prportion of the total allowable fishing area is trawled (1.9% in 2018 and 5.7% in 2019) (Kangas et al., 2020b). In addition, fishing takes place predominantly on sandy habitat. The impact of scallop trawling on habitats is monitored by estimating the annual spatial trawl footprint of the scallop fishery and ensuring it does not extend across more than 20% of the entire AIMWTMF. The spatial extent of fishing is calculated annually using fishery-dependent logbook data and vessel VMS data. The spatial distribution of cumulative fishing effort for 2010-2019 is shown in Figure 11. A level of experimental fishing is allowed outside traditional fishing areas. There is potential for the fishery to interact with benthic habitats which may be vulnerable to trawl fishing, such as sponges, seagrasses and soft corals, during this exploratory fishing. There are guidelines and protocols for this exploratory fishing, as outlined in the Code of Conduct. These guidelines include including talking to other skippers, surveying the area with echo sounder prior to trawling, shooting with try net prior to deploying the main net). A move on rule will be triggered when the component of vulnerable habitat bycatch in the fishery exceeds a specified amount.

The level of monitoring of the trawl footprint and the measures in place to restrict the impact of fishing in non-traditional areas suggests that **SG60, SG80 and SG100 levels are met**.

	Minor habitat status			
c	Guide post			There is **evidence** that the UoA is highly unlikely to reduce structure and function of the minor habitats to a point where there would be serious or irreversible harm.
	Met?			**Yes**
Rationale				

As can be seen from SI(a), there is relatively low interaction with habitats other than sandy substrate and potentially mixed reef and sand. Minor habitats examined in the 2019 ERA are seagrasses, macroalgae, filter feeding communities and coral reefs (DPIRD-ERA, 2020). Protection is afforded to seagrasses and macroalgae by significant closures in nearshore waters east of the Abrolhos Islands (DPIRD-ERA, 2020). Similarly, there are closures of reef conservation areas. The Abrolhos FHPA was declared in 1999. The 2019 ERA found the minor habitat elements to be at negligible risk.

The protection in place and the low overlap of the fishery is evidence that the UoA is highly unlikely to reduce structure and function of the minor habitats to a point where there would be serious or irreversible harm. **SG100 is achieved.**

References

DPIRD (2020). Saucer Scallop Resource of the Abrolhos Islands Harvest Strategy 2020 – 2025, Version 1.1. June 2020. Department of Fisheries, WA. Available at: http://www.fish.wa.gov.au/Documents/management_papers/fmp299.pdf.

DPIRD-ERA (2020). Western Australian Marine Stewardship Council Report Series No. 15: Ecological Risk Assessment of the Abrolhos Islands and Mid-West Trawl Managed Fishery. DPIRD, Western Australia. https://www.fish.wa.gov.au/Documents/wamsc_reports/wamsc_report_no_15.pdf.

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Pitcher, C.R., Ellis, N., Jennings, S., Hiddink, J.G., Mazor, T., Kaiser, M.J., Kangas, M.I., McConnaughey, R.A., Parma, A.M., Rijnsdorp, A.D. and Suuronen, P. 2017. Estimating the sustainability of towed fishing-gear impacts on seabed habitats: a simple quantitative risk assessment method applicable to data-limited fisheries. Methods in Ecology and Evolution, 8(4), pp.472-480. Available at: https://besjournals.onlinelibrary.wiley.com/doi/full/10.1111/2041-210X.12705.

Draft scoring range and information gap indicator added at Announcement Comment Draft Report

Draft scoring range	**≥80**
Information gap indicator	

Overall Performance Indicator scores added from Client and Peer Review Draft Report

Overall Performance Indicator score	**100**
Condition number (if relevant)	

PI 2.4.2 – Habitats management strategy

PI 2.4.2		There is a strategy in place that is designed to ensure the UoA does not pose a risk of serious or irreversible harm to the habitats		
Scoring Issue		SG 60	SG 80	SG 100
a	Management strategy in place			
	Guide post	There are **measures** in place, if necessary, that are expected to achieve the Habitat Outcome 80 level of performance.	There is a **partial strategy** in place, if necessary, that is expected to achieve the Habitat Outcome 80 level of performance or above.	There is a **strategy** in place for managing the impact of all MSC UoAs/non-MSC fisheries on habitats.
	Met?	**Yes**	**Yes**	**No**
Rationale				

DPIRD together with the DBCA manage and conserve the aquatic habitats of Western Australia, including the Abrolhos Islands. All commercial fisheries and recreational fisheries are managed by DPIRD. Management measures in place to limit the impact of the fishery on habitats are listed in the AIMWTMF Harvest Strategy (DPIRD, 2020). These include:

- Limited entry;
- Gear controls, including allocated headrope length;
- Seasonal closures that limit the impact of fishing to a few months each year;
- Spatial closures including Reef Observation Areas such that 37 % of the licence area is permanently closed to trawling; and
- Exploratory trawl guidelines and protocols as outlined in the Code of Conduct (including talking to other skippers, surveying the area with echo sounder prior to trawling, shooting with try net prior to deploying the main net) (see Figure 13).

Extensive trawl closures provide protection to sensitive benthic habitat such as coral reef and seagrass beds. For the AIMWTMF the main measure that is specifically designed for habitat management is measuring and controlling trawl footprint. Fishing activities (location and intensity) are monitored by DPIRD via VMS, with all licensed fishing boats operating in the AIMWTMF required to have an operational Automatic Location Communicator. VMS data is used to estimate annual and multiannual footprint and footprint overlap with different habitat types. The AIMWTMF Harvest Strategy (DPIRD, 2020) contains measures to ensure the spatial trawl footprint of the scallop fishery does not extend across more than 20% of the entire AIMWTMF (DPIRD, 2020).

There is a partial strategy in place that is expected to achieve the Habitat Outcome 80 level of performance, **SG60 and SG80 requirements are likely to be met**.

In the main, the management arrangements in place for the UoA apply to other DPIRD-managed fisheries in the region, however it is not clear that these arrangements comprise a strategy in all cases. **SG100 is not met**.

b	Management strategy evaluation			
	Guide post	The measures are **considered likely** to work, based on plausible argument (e.g. general experience, theory or comparison with similar UoAs/habitats).	There is some **objective basis for confidence** that the measures/partial strategy will work, based on **information directly about the UoA and/or habitats** involved.	**Testing** supports **high confidence** that the partial strategy/strategy will work, based on **information directly about the UoA and/or habitats** involved.
	Met?	**Yes**	**Yes**	**No**
Rationale				

A FHPA was established in 1999 and there are protected areas in the region of the fishery. There are measures in place to limit the trawl footprint to ensure low impact on sensitive habitat elements (e.g. filter feeder habitat, coral reefs, seagrass meadows). Commonly encountered habitat is predominantly sandy substrate for which there is

evidence that the fishery has limited impact. The 2019 ERA found that the risk posed to sand habitat was low, and the risk to other habitat was negligible. There is an objective basis for confidence that the partial strategy is working. **SG60 and SG80 are met**. Further information is required to conclude that there is testing to support high confidence, as required to meet SG100.

c	Management strategy implementation			
	Guide post		There is **some quantitative evidence** that the measures/partial strategy is being implemented successfully.	There is **clear quantitative evidence** that the partial strategy/strategy is being implemented successfully and is achieving its objective, as outlined in scoring issue (a).
	Met?		**Yes**	**Yes**
Rationale				

To ensure compliance with the specified closures, fishing activities (location and intensity) are monitored by DPIRD via a VMS, with all licensed fishing boats operating in the AIMWTMF required to install an operational Automatic Location Communicator. Using VMS data, trawl footprint is estimated and monitored, and there has been mapping of the overlap with habitat types (Figure 12). The cumulative trawl footprint for 2010-2019, indicates effort took place in approximately15% of the total area of the FHPA This is clear quantitative evidence that the strategy is implemented successfully. **SG80 and SG100 are achieved.**

d	Compliance with management requirements and other MSC UoAs'/non-MSC fisheries' measures to protect VMEs			
	Guide post	There is **qualitative evidence** that the UoA complies with its management requirements to protect VMEs.	There is **some quantitative evidence** that the UoA complies with both its management requirements and with protection measures afforded to VMEs by other MSC UoAs/non-MSC fisheries, where relevant.	There is **clear quantitative evidence** that the UoA complies with both its management requirements and with protection measures afforded to VMEs by other MSC UoAs/non-MSC fisheries, where relevant.
	Met?	**Yes**	**Yes**	**Yes**
Rationale				

As indicated at PI 2.4.1, there are potential VMEs in the managed area of the fishery due to the presence of coral reefs in the region. The impact of scallop trawling on habitats is monitored by estimating the annual spatial trawl footprint of the scallop fishery and ensuring it does not extend across more than 20% of the entire AIMWTMF. For the 2019 season, the AIMWTMF trawl footprint covered an area of 333 km2, which is ~2.5% of the total area of the AIMWTMF (13165 km2). Extensive trawl closures provide protection to sensitive benthic habitat such as coral reef and seagrass beds. Fishing activities (location and intensity) are monitored by DPIRD via VMS, with all licensed fishing boats operating in the AIMWTMF required to have an operational Automatic Location Communicator. Data is available on the distribution of fishing in relation to the habitat.

A level of exploratory fishing outside traditional fishing areas is permitted. To minimise impacts on vulnerable habitats when fishing outside the traditional areas, the harvest strategy specifies a move on rule that triggers vessels that encounter vulnerable habitats to cease fishing in the area and return to the cumulative trawl footprint (DPIRD, 2020). If more than one basket of vulnerable habitat per nautical mile trawled is found in a shot when undertaking exploratory fishing of non-traditional trawl grounds then a move-on rule is triggered. Fishing is ceased and coordinates for the area trawled during the shot are reported to the Department such that a notice can be distributed to all active vessels to avoid area (Figure 13). Fishers return to the cumulative trawl footprint until additional habitat assessments have been conducted.

The 2020 ERA indicates a risk ranking for coral reef in the AIMWTMF as negligible **SG60, SG80 and SG100 are achieved.**

Fisheries potentially overlapping the AIMWTMF are indicated in Table 21. None of these fisheries currently identify VMEs in their assessments. The Australian Western Rock Lobster Fishery is currently MSC certified under FCR v1.3 which did not include consideration of VMEs. Initial harmonisation discussions have been held to discuss potential VMEs in the management area for both fisheries (via email and telephone on 13 July 2021). The need for further discussion will be assessed during the reassessment of the lobster fishery.

References

DPIRD (2020). Saucer Scallop Resource of the Abrolhos Islands Harvest Strategy 2020 – 2025, Version 1.1. June 2020. Department of Fisheries, WA. Available at: http://www.fish.wa.gov.au/Documents/management_papers/fmp299.pdf.

DPIRD-ERA (2020). Western Australian Marine Stewardship Council Report Series No. 15: Ecological Risk Assessment of the Abrolhos Islands and Mid-West Trawl Managed Fishery. DPIRD, Western Australia. https://www.fish.wa.gov.au/Documents/wamsc_reports/wamsc_report_no_15.pdf.

Draft scoring range and information gap indicator added at Announcement Comment Draft Report

Draft scoring range	**≥80**
Information gap indicator	

Overall Performance Indicator scores added from Client and Peer Review Draft Report

Overall Performance Indicator score	**90**
Condition number (if relevant)	

PI 2.4.3 – Habitats information

PI 2.4.3		Information is adequate to determine the risk posed to the habitat by the UoA and the effectiveness of the strategy to manage impacts on the habitat		
Scoring Issue		SG 60	SG 80	SG 100
a	Information quality			
	Guide post	The types and distribution of the main habitats are **broadly understood**. **OR** **If CSA is used to score PI 2.4.1 for the UoA:** Qualitative information is adequate to estimate the types and distribution of the main habitats.	The nature, distribution and **vulnerability** of the main habitats in the UoA area are known at a level of detail relevant to the scale and intensity of the UoA. **OR** **If CSA is used to score PI 2.4.1 for the UoA:** Some quantitative information is available and is adequate to estimate the types and distribution of the main habitats.	The distribution of all habitats is known over their range, with particular attention to the occurrence of vulnerable habitats.
	Met?	**Yes**	**Yes**	**No**
Rationale				

DPIRD (DoF 2020) has provided mapping of the AIMWTMF and habitat association based on used hydroacoustic mapping techniques (Radford et al., 2008, cited in DPIRD-ERA 2020; DoF 2016) and from satellite remote sensing (Evans et al. 2012). Overlaying the 2010-19 AIMWTMF effort data shows that the fishery predominantly occurs on sand (57.9%), with mixed reef and sand (38.1%) and reef habitat (3.3%) (Figure 12).

ERA includes a habitat component. The latest ERA found that all habitat types were at low or negligible risk from the AIMWTMF (DPIRD-ERA, 2020).

The nature, distribution and vulnerability of the main habitats is known at a level detail relevant to the scale and intensity of the UoA. **SG60 and SG80 are met.** The available information does not indicate that the distribution of all habitats is known to a level to meet SG100.

b	Information adequacy for assessment of impacts			
	Guide post	Information is adequate to broadly understand the nature of the main impacts of gear use on the main habitats, including spatial overlap of habitat with fishing gear. OR **If CSA is used to score PI 2.4.1 for the UoA:** Qualitative information is adequate to estimate the consequence and spatial	Information is adequate to allow for identification of the main impacts of the UoA on the main habitats, and there is reliable information on the spatial extent of interaction and on the timing and location of use of the fishing gear. OR **If CSA is used to score PI 2.4.1 for the UoA:** Some quantitative information is available and	The physical impacts of the gear on all habitats have been quantified fully.

		attributes of the main habitats.	is adequate to estimate the consequence and spatial attributes of the main habitats.	
	Met?	**Yes**	**Yes**	**No**

Rationale

Footprint data has been used to assess the main impacts of the UoA on the main habitats (DoF 2020). There is ongoing monitoring of the footprint data to evaluate the spatial extent of interaction and on the timing and location of use of the fishing gear. It is a requirement of the AIMWTMF Harvest Strategy (DPIRD, 2020) that the information continues to be collected and assessed, with defined management responses in place based on this information (DPIRD, 2020). **SG60 and SG80 are met**.

The physical impacts of the gear on all habitats have not been quantified fully. **SG100 is not met.**

	Monitoring			
c	Guide Post		Adequate information continues to be collected to detect any increase in risk to the main habitats.	Changes in all habitat distributions over time are measured.
	Met?		**Yes**	**No**

Rationale

VMS data continues to be collected and stored in the DPIRD's database to increase footprint estimate accuracy. ERAs are periodically undertaken to assess the ecological risk of the fishery. These data sources are adequate to detect any increase in risk to the main habitats, **SG80 requirements are met**. However, changes in all habitat distributions over time do not appear to be monitored, hence SG100 is not met.

References

DoF (2016). Midwest Aquaculture Development Zone Public Environmental Review. Fisheries Occasional Paper No. 130. Department of Fisheries, Western Australia. http://www.fish.wa.gov.au/Documents/occasional_publications/fop130.pdf.

DoF (2020). Spatial extent of fishing effort in the AIMWTMF. Document supplied by DPIRD, Western Australia, December 2020.

DPIRD (2020). Saucer Scallop Resource of the Abrolhos Islands Harvest Strategy 2020 – 2025, Version 1.1. June 2020. DPIRD, WA. Available at: http://www.fish.wa.gov.au/Documents/management_papers/fmp299.pdf.

DPIRD-ERA (2020). Western Australian Marine Stewardship Council Report Series No. 15: Ecological Risk Assessment of the Abrolhos Islands and Mid-West Trawl Managed Fishery. DPIRD, Western Australia. https://www.fish.wa.gov.au/Documents/wamsc_reports/wamsc_report_no_15.pdf.

Evans, S., Bellchambers, L., & Murray, K. (2012). Mapping shallow water habitats of the Wallabi Group, Houtman Abrolhos Islands, using remote sensing techniques. Fisheries Research Report No. 237. Department of Fisheries, Western Australia. http://www.fish.wa.gov.au/Documents/research_reports/frr237.pdf.

Radford, B., Van Niel, K.P. and Holmes, K. (2008). WA Marine Futures. Benthic Modelling and Mapping Final Report. The University of Western Australia, June 2008.

Draft scoring range and information gap indicator added at Announcement Comment Draft Report

Draft scoring range	**≥80**
Information gap indicator	

Overall Performance Indicator scores added from Client and Peer Review Draft Report

Overall Performance Indicator score	**80**
Condition number (if relevant)	

PI 2.5.1 – Ecosystem outcome

PI 2.5.1		The UoA does not cause serious or irreversible harm to the key elements of ecosystem structure and function		
Scoring Issue		SG 60	SG 80	SG 100
a	Ecosystem status			
	Guide post	The UoA is **unlikely** to disrupt the key elements underlying ecosystem structure and function to a point where there would be a serious or irreversible harm.	The UoA is **highly unlikely** to disrupt the key elements underlying ecosystem structure and function to a point where there would be a serious or irreversible harm.	There is **evidence** that the UoA is highly unlikely to disrupt the key elements underlying ecosystem structure and function to a point where there would be a serious or irreversible harm.
	Met?	**Yes**	**Yes**	**Partial**

Rationale

No specific quantitative analysis on the wider ecosystem impacts of the AIMWTMF appears to have been undertaken. The ecosystem impacts of Western Australia's scallop fisheries are considered to be low risk, with the total biomass taken by these operations being relatively small. Most ecosystem impacts from fishing activities in the AIMWTMF are likely to be due to the removal of the target species The high natural recruitment variability, and therefore scallop stock abundance variability, and short life span (up to 3 years) also means that few predators will have become highly dependent on the species. Recovery of scallop stocks following marine heatwave events also indicates capacity to recover. The recent ERA for the fishery found a negligible level of risk in relation to trophic interactions and translocation to be negligible. Only a small proportion of the total allowable area of the fishery is fished. The weight of evidence suggests that the UoA is highly unlikely to disrupt the key elements underlying ecosystem structure and function to a point where there would be a serious or irreversible harm. **SG60 and SG80 are met**. In the absence of a quantitative analysis of the UoA impacts, the assessors conclude SG100 requirements are partially met.

References

DPIRD-ERA (2020). Western Australian Marine Stewardship Council Report Series No. 15: Ecological Risk Assessment of the Abrolhos Islands and Mid-West Trawl Managed Fishery. DPIRD, Western Australia. https://www.fish.wa.gov.au/Documents/wamsc_reports/wamsc_report_no_15.pdf.

Gaughan, D.J. and Santoro, K. (eds). 2020. Status Reports of the Fisheries and Aquatic Resources of Western Australia 2018/19: The State of the Fisheries. Department of Primary Industries and Regional Development, Western Australia. https://www.fish.wa.gov.au/Documents/sofar/status_reports_of_the_fisheries_and_aquatic_resources_2018-19.pdf.

Draft scoring range and information gap indicator added at Announcement Comment Draft Report

Draft scoring range	**≥80**
Information gap indicator	

Overall Performance Indicator scores added from Client and Peer Review Draft Report

Overall Performance Indicator score	**90**
Condition number (if relevant)	

PI 2.5.2 – Ecosystem management strategy

PI 2.5.2		There are measures in place to ensure the UoA does not pose a risk of serious or irreversible harm to ecosystem structure and function		
Scoring Issue		SG 60	SG 80	SG 100
a	Management strategy in place			
	Guide post	There are **measures** in place, if necessary which take into account the **potential impacts** of the UoA on key elements of the ecosystem.	There is a **partial strategy** in place, if necessary, which takes into account **available information and is expected to restrain impacts** of the UoA on the ecosystem so as to achieve the Ecosystem Outcome 80 level of performance.	There is a **strategy** that consists of a **plan**, in place which contains measures to **address all main impacts of the UoA** on the ecosystem, and at least some of these measures are in place.
	Met?	**Yes**	**Yes**	**Yes**
Rationale				

The AIMWTMF Harvest Strategy 2020-2025 contains an ecosystem management objective to ensure the effects of fishing do not result in serious or irreversible harm to ecological processes. In the strategy, measures are in place for each component: target, retained species/primary, bycatch/secondary, ETPs, habitats and the ecosystem (DPIRD, 2020). The plan includes management objectives, performance indicators, reference levels and control rules. Control rules are in place in the strategy to provide a management response if fishery impacts are considered to generate an undesirable level of risk to the ecosystem. The harvest strategy contains measures to address all main impacts of the UoA on the ecosystem, with the measures in the harvest strategy in place. **SG60, SG80 and SG100 are met**.

b	Management strategy evaluation			
	Guide post	The **measures** are considered likely to work, based on plausible argument (e.g., general experience, theory or comparison with similar UoAs/ ecosystems).	There is **some objective basis for confidence** that the measures/ partial strategy will work, based on some information directly about the UoA and/or the ecosystem involved.	**Testing** supports **high confidence** that the partial strategy/ strategy will work, based on information directly about the UoA and/or ecosystem involved.
	Met?	**Yes**	**Yes**	**No**
Rationale				

There is some objective basis for confidence that the strategy will work, based on the history of the fishery and measures adopted, as well as ongoing monitoring and research undertaken. There is some information directly about the UoA and/or the ecosystem involved. **SG60 and SG80 are met.** The strategy has not been analytically tested and there is no testing that supports high confidence (80% probability) that the strategy will work. **SG100 is not met.**

c	Management strategy implementation			
	Guide post		There is **some evidence** that the measures/partial strategy is being **implemented successfully**.	There is **clear evidence** that the partial strategy/strategy is being **implemented successfully and is achieving its objective as set out in scoring issue (a).**
	Met?		**Yes**	**Yes**

Rationale
There is evidence for effective implementation in the form of lowering of overall bycatch, increased reporting, VMS monitoring of temporal and spatial closures, estimation of the trawl footprint and monitoring whether it is increasing. There is periodic ERA of the fishery to assess whether risk is increasing. These represent clear evidence that the strategy is being implemented successfully and is achieving its objective as set out in scoring issue (a). **SG80 and SG100 are met.**

References
DPIRD (2020). Saucer Scallop Resource of the Abrolhos Islands Harvest Strategy 2020 – 2025, Version 1.1. June 2020. DPIRD, WA. Available at: http://www.fish.wa.gov.au/Documents/management_papers/fmp299.pdf. DPIRD-ERA (2020). Western Australian Marine Stewardship Council Report Series No. 15: Ecological Risk Assessment of the Abrolhos Islands and Mid-West Trawl Managed Fishery. DPIRD, Western Australia. https://www.fish.wa.gov.au/Documents/wamsc_reports/wamsc_report_no_15.pdf.

Draft scoring range and information gap indicator added at Announcement Comment Draft Report

Draft scoring range	**≥80**
Information gap indicator	

Overall Performance Indicator scores added from Client and Peer Review Draft Report

Overall Performance Indicator score	**95**
Condition number (if relevant)	

PI 2.5.3 – Ecosystem information

PI 2.5.3		There is adequate knowledge of the impacts of the UoA on the ecosystem		
Scoring Issue		SG 60	SG 80	SG 100
a	Information quality			
	Guide post	Information is adequate to **identify** the key elements of the ecosystem.	Information is adequate to **broadly understand** the key elements of the ecosystem.	
	Met?	**Yes**	**Yes**	

Rationale

Data collected in the operation of fishery monitoring, research and surveillance provides information on direct interactions of the fishery with the ecosystem. The AIMWTMF operates within the Abrolhos Islands ecosystem, located in the northern section of the West Coast Bioregion around the Houtman Abrolhos Islands. The Abrolhos Islands have been relatively well studied and are noted for their high species diversity, which is attributed to the relatively equal mix of temperate and tropical species. Baseline species assemblage information has been collected along the WA coastline using towed video surveys as part of a WA Marine Futures project in 2007 (Radford et al., 2008, cited in DPIRD-ERA 2020). The AIMWTMF surveys also collect information on environmental variables (water temperature, wind and sea level) which are used in analyses of correlations with biological parameters of species to allow for the examination of long-term trends (Kangas et al., 2019).

The effects of climate change on the coastal ecosystems of Western Australia have become clear after an extreme marine heat wave in 2011, with significant loss of seagrass and declines in some commercial invertebrate stocks. The series of years with low scallop recruitment meant that the spawning stock was reduced to historic low levels during 2012–2014 in the Abrolhos Islands, leading to a delayed the recovery of this stock (Caputi et al., 2019). Surveys of the Abrolhos Islands stock, for example, achieved an average catch rate of 0.4 scallops per nautical mile of trawling in 2012 and 2013 compared to 1000's of scallops per nautical mile before the heatwave. The effects of climate change and factors influencing the recovery of marine invertebrate stocks, including target and primary species, have been the focus of research since. A number of peer reviewed journal articles have been published on this subject. A summary of this research is presented in Caputi et al. (2019).

Available information is likely to be sufficient to broadly understand the key elements of the ecosystem, **meeting SG60 and SG80 requirements**.

b	Investigation of UoA impacts			
	Guide post	Main impacts of the UoA on these key ecosystem elements can be inferred from existing information, but **have not been investigated** in detail.	Main impacts of the UoA on these key ecosystem elements can be inferred from existing information, and **some have been investigated in detail**.	Main interactions between the UoA and these ecosystem elements can be inferred from existing information, and **have been investigated in detail**.
	Met?	**Yes**	**Yes**	**Yes**

Rationale

When investigating main interactions between the UoA and the ecosystem elements, the MSC guidance recommends that at SG 100 focus should be on the "main interactions between the UoA and the ecosystem elements" and

- the UoAs should be capable of adapting management to environmental changes as well as managing the effect of the UoA on the ecosystem.
- monitoring the effects of environmental change on the natural productivity of the UoAs should be considered best practice and should include recognition of the increasing importance of climate change.

Caputi et al. (2016) illustrates that fisheries management under extreme temperature events requires an early identification of temperature hotspots, early detection of abundance changes (preferably using pre-recruit surveys), and flexible harvest strategies which allow a quick response to minimize the effect of heavy fishing on poor recruitment to enable protection of the spawning stock. This has required researchers, managers, and industry to adapt to fish stocks affected by extreme environmental events that may become more frequent due to climate change. Caputi's methodology has been adopted and is used for early detection of low recruitment and decision making in the management of invertebrate stocks. This suggests that the UoA should be capable of adapting management to environmental changes as well as managing the effect of the UoA on the ecosystem, e.g.stop fishing to allow stock to recover. Through ongoing surveys, the effect of the environmental change on natural productivity of the UoA is monitored and the increasing importance of climate change is well recognised. **SG60, SG80 and SG100 are achieved.**

c	Understanding of component functions			
	Guide post		The main functions of the components (i.e., P1 target species, primary, secondary and ETP species and Habitats) in the ecosystem are **known**.	The impacts of the UoA on P1 target species, primary, secondary and ETP species and Habitats are identified and the main functions of these components in the ecosystem are **understood**.
	Met?		**Yes**	**Yes**
Rationale				

The impacts of the fishery on target species, primary, secondary, ETP species and habitats have been assessed via ERAs. These ERAs are periodically updated. Stock assessment of the target species is regularly undertaken. These measures provide sufficient information to conclude that the main functions of these components in the ecosystem are understood. **SG80 and SG100 are met.**

d	Information relevance			
	Guide post		Adequate information is available on the impacts of the UoA on these components to allow some of the main consequences for the ecosystem to be inferred.	Adequate information is available on the impacts of the UoA on the components **and elements** to allow the main consequences for the ecosystem to be inferred.
	Met?		**Yes**	**Yes**
Rationale				

Overall, the information on the impacts of the UoA on the components and elements is available and adequate (see issues a and b) to allow the main consequences for the ecosystem to be inferred.

All identified potential hazards to ecosystem elements and to ecosystem overall are periodically assessed at ERAs. The most recent ERA stakeholder workshop has been completed in 2019 (DPIRD-ERA, 2020). **SG80 and 100 are likely to be met.**

e	Monitoring			
	Guide post		Adequate data continue to be collected to detect any increase in risk level.	Information is adequate to support the development of strategies to manage ecosystem impacts.
	Met?		**Yes**	**Yes**
Rationale				

Sufficient information is collected and stored in DPIRD databases and analysed to support the development of strategies to manage all fisheries impacts on the ecosystem supporting the AIMWTMF (e.g. Gaughan and Santoro, 2020). **SG60, SG80 and SG100 are likely to be met.**

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Draft scoring range and information gap indicator added at Announcement Comment Draft Report

Draft scoring range	**≥80**
Information gap indicator	

Overall Performance Indicator scores added from Client and Peer Review Draft Report

Overall Performance Indicator score	**100**
Condition number (if relevant)	

7.4 Principle 3

7.4.1 Legal and customary framework (P 3.1.1)

The Offshore Constitutional Settlement provides for the Australian states and the Northern Territory to manage fisheries out to 3 nautical miles from the coast, and for the Australian Government to manage fisheries from three to 200 nautical miles. The settlement is not set out in one single document but is found in the legislation that implements it, including WA fisheries legislation. However, these default arrangements are frequently varied through instruments known as offshore constitutional settlement arrangements.

Australia is a signatory to a number of international agreements and conventions (which it applied within its EEZ), such as:

- *United Nations Convention on the Law of the Sea* (regulation of ocean space);
- *Convention on Biological Diversity and Agenda 21* (sustainable development and ecosystem based fisheries management);
- *Convention on International Trade in Endangered Species of Wild Fauna and Flora* (CITES; protection of threatened, endangered and protected species);
- *Code of Conduct for Responsible Fisheries* (standards of behaviour for responsible practices regarding sustainable development);
- *United Nations Fish Stocks Agreement*; and
- State Member of the *International Union for Conservation of Nature* (marine protected areas).

The EPBC Act 1999 is the Australian Government's central piece of environmental legislation falling under the management of the DAWE. The EPBC Act is administered by the DAWE and provides a legal framework to protect and manage nationally and internationally important flora, fauna, ecological communities and heritage places — defined in the EPBC Act as Matters of National Environmental Significance (MNES). The DAWE is responsible for acting on international obligations on a national level, by enacting policy and / or legislation to implement strategies to address those obligations.

The DAWE, through the Commonwealth Minister, has a legislative responsibility to ensure that all managed fisheries undergo strategic environmental impact assessment before new management arrangements are brought into effect; and all fisheries in Australia from which product is exported undergo assessment to determine the extent to which management arrangements will ensure the fishery is managed in an ecologically sustainable way in the long term.

WA fisheries legislation and policy conforms to overarching Commonwealth Government fisheries and environmental law, including the EPBC Act. WA's commercial export fisheries have been assessed using the Australian National ESD Framework for Fisheries, in particular, the *Guidelines for the Ecologically Sustainable Management of Fisheries* (the Guidelines; CoA 2007).

There are three different statutory entities responsible for the control and management of fisheries off the coast of WA:

- the WA State Government;
- the WA Fisheries Joint Authority; and
- the Commonwealth Australian Fisheries Management Authority (AFMA).

The WA State Government and Fisheries Joint Authority-managed fish resources that fall under the jurisdiction of the FRMA are described in a formal agreement between the Commonwealth and State Governments known as the *Offshore Constitutional Settlement 1995* (OCS 1995). Commonwealth fisheries are managed by AFMA under the Commonwealth *Fisheries Management Act 1991.*

The OCS 1995 sets out that the State will manage all trawling on the landward side of the 200 m isobath in WA, and the Commonwealth will manage all deep-water trawling. The AIMWTMF is managed by the

State of WA pursuant to the OCS 1995, as its western boundary is the 200 m isobath. There are no migratory or straddling stock management requirements associated with this fishery.

The Government of WA operates under the Westminster system, and an important tenant of this system is that the responsible Minister makes executive decisions. Insofar as the administration of fisheries in WA is concerned, the relevant executive decision maker is the Minister for Fisheries.

The role of DPIRD is established and governed under the *State Public Sector Management Act 1994* (PSM Act) which is administered by the Western Australian Public Sector Commission under the Department of Premier and Cabinet. Departmental staff must act in accordance with the PSM Act and any allegations of official corruption by Departmental staff are handled by the WA Corruption and Crime Commission. The Department is required to report on its performance annually via its Annual Report to State Parliament (Annual Report).

DPIRD is principally responsible for assisting the Minister for Fisheries in administering the following Acts and Regulations that apply to the aquatic resources (excluding pearling) located in WA:

- *Fisheries Resources Management Act (FRMA) 1994;*
- *Fish Resources Management Regulations (FRMR) 1995;*
- Fisheries Adjustment Schemes Act 1987; and
- Fishing and Related Industries Compensation (Marine Reserves) Act 1997.

The FRMA adheres to arrangements established under relevant Australian laws with reference to international agreements as set out in sections 3 and 4A —

Section 3 of the FRMA:

"The objects of this Act are
(a) to develop and manage fisheries and aquaculture in a sustainable way; and

(b) to share and conserve the State's fish and other aquatic resources and their habitats for the benefit of present and future generations."

Section 4A of the FRMA precautionary principle, effect of, states —

"In the performance or exercise of a function or power under this Act, lack of full scientific certainty must not be used as a reason for postponing cost-effective measures to ensure the sustainability of fish stocks or the aquatic environment."

The FRMA deals with broad principles, the provision of head powers and high-level overarching matters; the FRMA and other subsidiary legislation, such as commercial fishery management plans, deal with the details needed to put these matters into practice.

In many cases, the FRMA will specifically require some matters to be dealt with by subsidiary legislation. Subsidiary legislation cannot be inconsistent with the provisions of the FRMA, under which it was made, and must be permitted to be made by a head of power in the empowering Act.

In 2010, the (then) Minister for Fisheries directed DPIRD to investigate and scope the requirements for a new Western Australian Act of Parliament to ensure the sustainable development and conservation of the State's aquatic biological resources into the future.

This review recognised the need for the establishment of a clear statutory basis for commercial and recreational fishing access rights as a component in improving the overall robustness of sustainable fisheries management and improving security of resource access for all fisheries sectors.

The *Aquatic Resources Management Act* (ARMA) was drafted in 2014 to replace the FRMA but is not yet implemented. This aims to ensure the ESD of Western Australia's living aquatic biological resources and ecosystems and to preserve the *status quo* for marine reserves planning and management of marine

mammal, reptile and bird populations under the *Biodiversity Conservation Act 2016,* and the *CALM Act 1984.*

Importantly the ARMA's proposed framework (Government of Western Australia, 2016[1]) is to include provision for a rights-based management approach for all fishing sectors in the context of aquatic resource management strategies and sectoral harvest strategy plans.

ARMA's objectives of sustainable fisheries and aquatic management policy are as follows:

- the ecologically sustainable development and management of the State's aquatic resources;
- the development of strategies and plans for the conservation of aquatic resources and the protection of aquatic ecosystems;
- the development and management of aquaculture that is compatible with the protection of aquatic ecosystems; and
- the management of aquatic biosecurity.

The guiding principles for the proposed ARMA are that it:

- Provides an integrated aquatic resource management framework which incorporates ESD and biodiversity conservation goals;
- Incorporates the precautionary principle more explicitly;
- Broadens the base of the Act to include aquatic ecosystem issues in the management prescriptions;
- Provides a basis for simplifying subsidiary legislation where possible;
- Provides for greater devolution of decision making and delegation where suitable;
- Provides flexibility for more cost-effective management based on more explicit risk assessment;
- Provides explicit head powers to achieve biological and allocation outcomes across all harvest sectors as required; and
- Provides improved security of access for all resource users.

The timeframe for passage of the amendment will be dependent on Parliamentary priorities after the 2021 State Government election.

There are well established mechanisms for administrative and legal appeals of decisions taken in respect of fisheries, which are prescribed in Part 14 of the FRMA. Most decisions made by the Chief Executive Officer of DPIRD and disputes regarding the implementation and administration of fisheries legislation can be taken to the Western Australian State Administrative Tribunal (SAT) for review or the WA (and Commonwealth) Court System.

These mechanisms have been used and tested across several fisheries. The decisions of the SAT and the Courts are binding on DPIRD (for details of decisions see http://decisions.justice.wa.gov.au/SAT/SATdcsn.nsf). All SAT decisions must be carried out by the Department (section 29(5) of the *State Administrative Tribunal Act 2004*).

Criminal offences against the FRMA are dealt with by the Magistrates Courts and a commercial operator or recreational fisher is either found guilty or not guilty.

All changes to, or new, fisheries legislation, including subsidiary legislation such as management plans and orders, are potentially subject to review through the disallowance process of State Parliament.

All subsidiary legislation is also reviewed by the Joint Standing Committee on Delegated Legislation who may seek further advice on the reasons for the legislation, and potentially, move to disallow. In this way, there is Parliamentary and public scrutiny of fisheries legislation. Fisheries legislation is "passed and enacted" when it is gazetted.

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[1] https://www.legislation.wa.gov.au/legislation/prod/filestore.nsf/FileURL/mrdoc_40749.pdf/$FILE/Aquatic%20Resources%20Management%20Act%202016%20-%20%5B00-c0-00%5D.pdf?OpenElement

This framework applies to the AIMWTMF. It should be noted that the consultative, educative and partnership approach to management, which is inclusive of all stakeholders, provides informal but effective mechanisms to minimise opportunities for disputes.

Statutory Aboriginal native title rights are managed under the Commonwealth *Native Title Act 1993* (NTA). A registered native title claim is an application where a decision about native title is yet to be made. A determination of native title is a decision that native title does or does not exist in a particular area of land and / or waters (the determination area). The National Native Title Tribunal facilitates the negotiation of indigenous land use agreements following a claim or determination and is required to keep registers of approved native title determination and native title claims.

There are no Registered Aboriginal heritage sites or Other Heritage Places for Abrolhos Islands[2].

A key aspect of the legislation is that proposed developments or activities (including fisheries where a registered claim or determination extends into State waters) that may affect native title are classed as 'future acts'. This requirement has been in place since 1993. However, there is no registered Aboriginal heritage sites or other heritage places for Abrolhos Islands

The Australian High Court decision (Owen John Karpany & Anor V Peter John Dietman) relates to the application of State fisheries law to native title holders fishing for abalone in their local area in South Australia[3]*. The decision concluded that the State fisheries legislation did not extinguish native title rights to fish and that the defence under section 211 of the NTA was applicable. It is therefore unlikely that fisheries legislation in WA has the effect of extinguishing native title rights to fish and that the defence provided by section 211 of the NTA will apply to most cases where the right being exercised is for a traditional, non-commercial purpose and where the person is in fact, an Aboriginal person.*

Section 6 of the FRMA acknowledges the rights of Aboriginal persons fishing for a customary fishing purpose —

"Aboriginal persons, application of Act to An Aboriginal person is not required to hold a recreational fishing licence to the extent that the person takes fish from any waters in accordance with continuing Aboriginal tradition if the fish are taken for the purposes of the person or his or her family and not for a commercial purpose."

The FRMA defines customary fishing as:

"fishing by an Aboriginal person that —

(a) is in accordance with the Aboriginal customary law and tradition of the area being fished; and

(b) is for the purpose of satisfying personal, domestic, ceremonial, educational or non-commercial communal needs."

The FRMA also provides the power to make regulations to manage customary fishing.

These provisions are also included on the ARMA.

As standard practise department of Fisheries consults with relevant Native Title representative bodies regarding new legislation including in the development of new Management Plans, however, there is no legislative requirement to do so.

DPIRD released a policy position statement in 2009 relating to customary fishing in WA (DoF 2009), which states that customary fishing applies, within a sustainable fisheries management framework, to persons of Aboriginal descent who are fishing in accordance with the traditional law and custom of the area being fished and fishing for the purpose of satisfying personal, domestic, ceremonial, educational or non-commercial communal needs. Further details regarding social aspects of customary fishing in WA can be found in Franklyn QC (2003).

[2] A search of the Department of Planning, Lands and Heritage Aboriginal Heritage Inquiry System (Sarah Brown, pes. Comm.DPIRD, November, 2021)
[3] http://www.hcourt.gov.au/assets/publications/judgment-summaries/2013/hca47-2013-11-06.pdf

To date, the only survey designed to document the Indigenous catch was the National Recreational and Indigenous Fishing Survey carried out in 2000/01 (Henry and Lyle 2003). While this survey did not present data separately for regional WA, what is clear from this report is that the vast majority of the Indigenous catch is from inland and coastal waterways. Under the proposed ARMA, a quantity of a specified aquatic resource will be reserved for conservation and reproductive purposes, then setting a sustainable allowable harvest level for use by the fishing sectors. The quantity "reserved" also includes an allowance for Customary fishing and public benefit purposes, such as scientific research. This means that a specific share does not have to be allocated to the Customary sector, as that share is set aside prior to setting an allowable harvest level for the resource, and Customary fishing can continue in accordance with existing Customary fishing arrangements.

Integrated Fisheries Management (IFM) is a Government initiative adopted in 2004 aimed at making sure that WA's fish resources continue to be managed in a sustainable way in the future. IFM recognises the rights of customary fishers of Aboriginal descent who are fishing for cultural needs. Given there is no evidence of Indigenous (or recreational) fishing for scallops in he Abrolhos Islands, there is no requirement to implement IFM. However, the customary fishing framework still applies.

7.4.2 Consultation, Roles and Responsibilities (P 3.1.2)

Roles and responsibilities

The role and responsibilities of the State of WA in fisheries management is explicitly outlined in the *Western Australian Government Fisheries Policy Statement March 2012* and in the OCS 1995 arrangements, particularly in relation to the management of trawl fisheries.

The members of DPIRD's Corporate Executive and an organisational chart are published in the Department's *Annual Report 2019*. With respect to the AIMWTMF, key personnel to whom the responsibility of ensuring management, research and compliance outcomes, including proper prioritization of Departmental funding, include:

- Director (Aquatic Resource Management (ARM));
- Principal Fisheries Management Officer - Offshore (ARM);
- Senior Supervising Scientist – Offshore (Aquatic Science and Assessment (ASA));
- Principal Research Scientist – Invertebrates (ASA);
- Midwest Regional Compliance Manager (Operations and Compliance Directorate (OCD)); and
- Supervising Fisheries and Marine Officer – Carnarvon District (OCD).

Planning and prioritisation is done in conjunction with the Chief Executive Officers of the peak sector bodies for the commercial and recreational sectors (where relevant) in WA:

- the Chief Executive Officer of the Western Australia Fishing Industry Council (WAFIC); and
- the Chief Executive Officer of Recfishwest.

The Department or Minister is responsible for advising licencees and WAFIC of Ministerial / Department decisions which are the subject of a consultation process. Responsibilities of the Department in formal consultation arrangements with WAFIC include that it

- Provides annual funding to WAFIC equivalent to 0.5 % of WA commercial fishing gross value of product (based on a three-year average), plus a pro-rata amount equivalent to 10 % of water access fees paid by aquaculture and pearling operators. Payments to WAFIC are made by six monthly instalments each year.
- Works with WAFIC in a manner consistent with WAFIC's role as the peak body representing commercial fishing interests in WA; and
- Engages with WAFIC, sector bodies and commercial fishing interests according to WAFIC Operational Principles contained in Table 15.

Table 15. WAFIC's Commercial Fisheries Consultation Operational Principles

Principle	Responsible Body	Example
On generic policy issues which could affect, as a whole, the commercial fishing, aquaculture, and pearling industries	WAFIC	Bioregional marine planning; safety, education and training; research and development policy and biosecurity
On policy issues which currently primarily affect one sector but which could have implications for the broader industry	WAFIC will nominate the relevant sector body and WAFIC and that body will jointly represent industry.	WAFIC would represent industry on marina and port access issues which may primarily initially impact on the fishing industry in regard to certain locations but have precedents for the rest of the industry for other locations; and on animal welfare.
On issues which affect only one specific industry group.	The relevant sector association would represent itself but WAFIC would be kept informed and may have a statutory consultation role.	Regulation of gear design or compliance (WAFIC and specific industry associations).

The Department or Minister is also responsible for ensuring that the recreational fishing sector, through Recfishwest, is formally consulted on proposed changes to recreational fisheries management and is advised of Ministerial / Department decisions which are the subject of a consultation process. The Minister is responsible for providing Recfishwest with a proportion of the income generated from annual recreational fishing licence fees to undertake its role as the peak body representing recreational fishing interests in WA.

The Department or Minister may seek and provide advice directly through peak bodies (WAFIC and Recfishwest) and / or sector associations. For example, WAFIC and Recfishwest, have direct input into the annual planning and priority setting process used to determine management, compliance, research and other priorities.

The WA Government formally recognises WAFIC and Recfishwest as the key sources of coordinated industry advice for the commercial and recreational sectors, respectively.

WAFIC is an incorporated association and is the peak industry body representing professional fishing, pearling and aquaculture enterprises, as well as processors and exporters in WA. It was created by the industry more than forty years ago to work in partnership with Government to set the directions for the management of commercial fisheries in WA.

WAFIC aims to secure a sustainable industry that is confident:

- of resource sustainability and security of access to a fair share of the resource;
- of cost-effective fisheries management;
- that its businesses can be operated in a safe, environmentally responsible and profitable way; and
- that investment in industry research and development is valued and promoted.

WAFIC provides a monthly newsletter to subscribers and publishes annual reports and financial information. WAFIC's responsibilities include coordinating Government funding for industry representation and taking on a leadership role for matters which involve or impact on or across a number of fisheries, or are of an industry-wide or generic nature. WAFIC also represents those commercial fishing sectors that do not have capability of self-representation.

WAFIC's responsibilities can be summarised as:

- Providing effective professional representation of commercial fishing interests and the commercial fishing sector to Government, industry, other relevant organisations and the community;
- Providing professional advice to the Government and industry members on issues affecting commercial fishing;
- Engaging, facilitating and consulting as necessary in order to deliver the above;
- Providing representation of commercial fishing interests on fisheries management and Ministerial committees, as required;
- Documenting priority issues for commercial fishing interests by 30 March each year to the Department;
- Providing feedback to the Department on proposed deliverables and budget priorities for expenditure of the Fisheries Research and Development Account;
- Engaging with Recfishwest and other appropriate parties with a view to identifying joint priorities and solutions to issues of shared concern;
- Engaging in promotion, education and awareness of key sustainability messages consistent with best practice fisheries management and objects of the FRMA; and
- Conducting agreed activities that are consistent with the FRMA as it relates to the provision of assistance to, or promotion of, the fishing industry.

In carrying out the consultation functions on matters referred to it by the Minister or Department, WAFIC must:

- Distribute proposed changes to management arrangements including the Minister's / Department's reasoning for the proposal(s) and the information on which the proposal(s) is based to all licence holders in the relevant fishery;
- Describe the method by which licence holders may put their views;
- Ensure that licence holders have a reasonable period in which to consider their position and respond; and
- Ensure that the decision maker is fully aware of the views being put forward, so the decision maker gives proper and genuine consideration to the views being put forward.

DPIRD is the governing authority for the State waters surrounding the Abrolhos Islands from the high water mark, including the FHPA and the Class A Reserve 20253. The Abrolhos Islands Class A Reserve 20253 (the Reserve) only includes occupied terrestrial land on the Islands and intertidal areas of all islands for the purposes of conservation of flora and fauna, tourism and purposes related to the fishing and aquaculture industries.

The DBCA is the governing authority of the Abrolhos Islands National Park (DBCA managed land) established in July 2019 and is currently developing a management plan. The Abrolhos National Park management plan for public consultation only relates to land/islands.

Consultation

Government's commitment to consultation with stakeholders is set out in the Western Australian Government's Fisheries Policy Statement of 2012. The broad consultation framework was developed

following the outcome of a 2009 review (Paust *et al*. 2009) of consultation arrangements between the fishing sector and Government that incorporated the following objectives:

1. Enhanced efficiency, cost effectiveness and flexibility;
2. Clarification with respect to
    a. fishing sector representation;
    b. expertise based advice to DPIRD; and
    c. the DPIRD as the primary source of management advice to the Minister for Fisheries; and
3. Enhancement of DPIRD's engagement with industry, stakeholders and the public.

The review process resulted in:

- The replacement of Management Advisory Committees (MACs) with two key sources of advice: DPIRD as the key source of Government advice on fisheries management and WAFIC and Recfishwest as the key sources of coordinated industry advice for the commercial and recreational sectors, respectively.
- Recognition of WAFIC as the peak body representing the commercial fishing sector (including pearling and aquaculture), with funding provided by Government to support WAFIC in this role.
- Recognition of Recfishwest as the peak body representing the recreational fishing sector, with funding provided by Government to support Recfishwest in this role.
- Establishment of an Aquatic Advisory Committee (AAC) to provide independent advice to the Minister or the Department on high-level strategic matters.
- The establishment by the Minister (or Department) of tasked working groups to provide advice on specific fisheries or operational matters. Tasked working groups differ to MACs in that they are expertise based and operate on the basis of a written referral on a specific matter. Tasked working groups have been established in the past to provide advice on matters such as water access (lease) fees, strengthening of access rights in the fisheries legislation, development of a Government fisheries policy statement, and determining catch shares among sectors.
- Capacity for peak bodies to perform consultation functions on behalf of the Minister. In this regard, the Department has entered into a Service Level Agreement (SLA) with WAFIC for the provision of specified consultation services with the commercial sector (Paust *et al*. 2009).

An *Aquatic Advisory Committee* consists of members who have strong backgrounds in governance and policy (not necessarily fisheries) and provides independent advice to the Minister or the Department on high-level strategic matters.

Tasked working groups and panels can be established by the Director General or the Minister for Fisheries to provide independent, expert advice relating to a range fisheries management matters. They are highly flexible and are usually provided with a specified task, such as addressing resource access (e.g. closures and compensation) and allocation (e.g. IFM) or reviewing research, management or Government policy. The working groups work to a specific terms of reference within a particular timeframe.

Fishery Annual Management Meetings

The Department has a general practice of holding regular (often annual) 'management meetings' with fishery licencees to discuss fishery research, management, compliance and specific issues affecting the fishery (e.g. marine park planning). These management meetings underpin the decision-making process at a fishery-specific level.

WAFIC coordinates the commercial fishery annual management meetings under the SLA. The location and timing (including priority) of the annual management meetings are determined by the WAFIC Industry Consultation Unit (ICU) in liaison with relevant Department managers.

These meetings are attended by Department officers, WAFIC and licence holders and can occur at any time during the year but are usually held either before the start of a licensing year or at the end of a fishing season, in accordance with the schedule as agreed by WAFIC and DPIRD. The annual management meetings can also be open to other stakeholder groups (e.g. Recfishwest, processors, universities, other government departments, the conservation sector and the general public) following consultation with industry.

The annual management meetings are widely recognised by the commercial licence holders as a mechanism for receiving the most up-to-date scientific advice on the status of the fishery, facilitating information exchange and for discussing new and ongoing management issues. The invaluable local information licencees provide to DPIRD at these forums is considered when making research, management and compliance decisions, such as amendments to Management Plans, if changes are being considered for the next season (noting that such amendments are subject to statutory consultation under the FRMA). Formal management meetings AIMWTMF vessel owners Far West Scallops and McBoats are held annually (Sarah Brown, Pers comm. November 2020).

General stakeholder engagement is undertaken in accordance with the Guideline for Stakeholder Engagement on Aquatic Resource Management-related Processes (DoF 2016). Before making a decision around aquatic resource policy, the Minister for Fisheries must demonstrate that they have asked for, and taken into account, interested and affected parties' submissions on policy proposals. Evidence that the management system demonstrates consideration of the information and explains how it is used, is available from various letters written to WAFIC and others.

DPIRD may also hold meetings, workshops or consult in writing with the operator in the AIMWTMF and other identified stakeholders on an "as needs" basis on a range of fisheries management matters including:

- Updates on the implementation of the ARMA;
- Ministerial decisions regarding the AIMWTMF or wider commercial fisheries' policy and management;
- ERA workshops;
- ESD accreditation, including conditions and reassessments;
- Intra and inter-sectoral access, allocation and conflict issues;
- Impacts of other State Department policies (e.g. marine park planning or mining activities);
- Implementation of new initiatives (e.g. MSC accreditation, new mobile applications);
- Expert review workshops;
- FRDC project steering committee representation;
- Published research results;
- Release of discussion papers that seek stakeholder input; and
- The implementation of IFM (where relevant).

The release of Fisheries Management Papers (discussion papers) for public comment are the most common way DPIRD undertakes wider consultation and invites stakeholder engagement on fisheries management proposals. Importantly, published Fisheries Management Papers detail the recommended management approach arising out of an expert review process and seek public comment on those recommendations, which must be taken into account before a decision is made in respect to future management.

The scallop resources targeted by AIMWTMF are not taken by recreational or customary fishers. Other interested stakeholders are recognised on the basis that the AIMWTMF:

- has the potential to impact on ecosystem components, including ETP species and habitat;
- targets a species susceptible to changes in environmental conditions;
- has the potential to interact with other marine users in the Abrolhos Islands;
- may be impacted upon by mining activities; and
- provides an iconic seafood product to retailers and consumers both locally and overseas.

The following stakeholders were invited to be involved in the 2019 AIMWTMF ERA, (revised every five years), and to comment on the harvest strategy during its development:

- Department of Primary Industries and Regional Development (DPIRD)
- Department of Biodiversity, Conservation and Attractions (DBCA)
- Western Australian Fishing Industry Council (WAFIC)
- Western Australian Museum
- Conservation Council
- Conservation Commission
- University of Western Australia (UWA)
- Curtin University
- Murdoch University
- Edith Cowan University (ECU)
- Western Australian Marine Science Institution (WAMSI)
- Australian Institute of Marine Sciences
- Greenpeace
- World Wildlife Fund for Nature
- Wilderness Society
- Pew Charitable Trusts
- Yamatji Marlpa Aboriginal Corporation
- Recfishwest
- Aquaculture Council of Western Australia
- Marine science consulting firms
- local Shire representatives
- Abrolhos Islands fishing industry companies, licencees and fishermen.
- CSIRO

The Department also provides the facility for stakeholder comment in regard to any proposed management recommendations and publicises the release of Fisheries Management Papers. To do this, DPIRD uses a variety of processes including:

- Direct consultation in writing;
- Press releases;
- Newspaper, radio and television interviews;
- Information posted on DPIRD's website information;
- Inviting stakeholders to sit on tasked working groups, scientific reviews / workshops, risk assessments and management reviews.

The peak sector bodies are also responsible for seeking advice from their sector during consultation periods and providing consolidated advice to DPIRD. These processes ensure that stakeholders and the community more generally have an increased awareness and access to relevant information. Making information available and providing for a discussion and exchange of ideas encourages input from stakeholders and the community in the management process.

The opportunity for non-fisher stakeholders to participate or engage in relevant meetings exists

A Public Consultation Plan was put in in place in 2016. The Plan highlighted a number of activities to be completed:

- Review CCP feedback across numerous WA fisheries with regard to Performance Indicator 3.1.2.
- Identify fishery specific interested and affected parties:
    - Who are they;
    - Level of interest;
    - Areas of interest relevant to the fishery;
    - Potential representatives.
- Outline current fishery specific consultation arrangements.
- Review agency wide consultation protocols (i.e. SLA) to identify aspects of current engagement that are already and that could be extended to non-fishers.
- Investigate existing forum structure held by governing bodies of Marine Park & World Heritage areas to evaluate opportunities for offering attendance and/or briefings.
- Develop protocols that outline opportunities for communication and information sharing and information to be shared.
- Outline strategies and opportunities to incorporate into fishery specific consultation processes that provide opportunity to non-fisher groups (interested and affected parties).
- Develop communication package modifiable to suit the needs of specific groups.
- Implement revised consultation arrangements.

The DPIRD developed and implemented a *Stakeholder Engagement Guideline* (SEG) that reflects best practice public policy and meets the MSC standard and the future needs under the proposed ARMA (Figure 14).

The guideline suggested levels of stakeholder engagement for each stakeholder group and for each of a number of key processes associated with the management of the State's fisheries and aquatic resources.

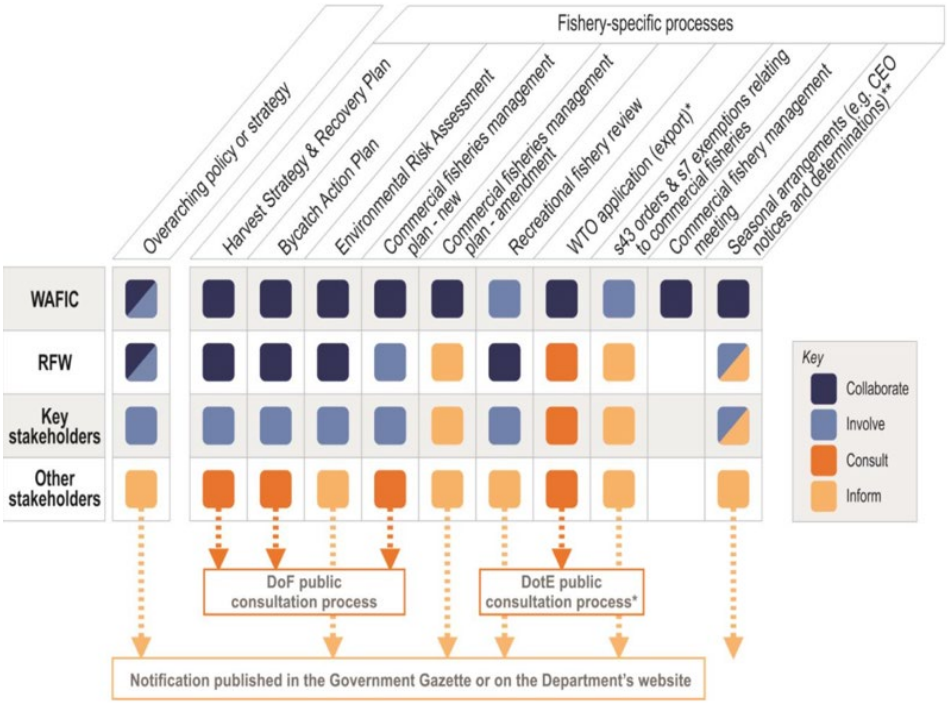

Figure 14. Stakeholder Engagement Guideline suggesting levels of stakeholder engagement for each stakeholder group

To broaden stakeholder participation on key fisheries policy matters and initiatives, DPIRD has created a public comment space on its website. This allows all interested and affected parties to view information

and make submissions on draft documents released for public comment for specified periods of time. Key stakeholders are invited directly to provide comment through this forum.

The public consultation space can be accessed at the following web address, showing all of the documents currently open for public comment.:

http://www.fish.wa.gov.au/About-Us/Public-Comment/Pages/default.aspx,

Further to the above, DPIRD initiated the establishment of an Annual Management Meeting between the Department, WAFIC and industry.

DPIRD has established the key contacts within these stakeholder groups to develop processes for opportunity to be involved in or informed of management decisions where relevant. Fishery-specific stakeholder lists are available, listing the 'area of interest' and 'level of interest'. Apart from DPIRD and WAFIC, these include the DBCA, the Conservation Coucil for WA, the Conservation Commission, Recfishwest, Australian Museum, the Universities, the Western Autralian Marine Science Institute, the Australian Institute of Marine Sciences, Yamatji Marlpa Aboriginal Corporation, various NGOs and the Shires. These organisations participated in the ERA Workshop held in 2019, as referred to above.

Consultation and communication between the DBCA and DPIRD is ongoing and undertaken as required in the development of the various Abrolhos Islands management plans.

Statutory Consultation

Most management changes and seasonal fishing arrangements in the AIMWTMF are facilitated through amendments to the Management Plan and by notices determined by the Director General; however, other arrangements can be implemented via section 43 orders, MFL conditions and section 7 exemptions, as required.

In the case of amendments to the *Abrolhos Islands and Mid West Trawl Management Plan* (Government of Western Australia 1993, last updated in 2018), these cannot be undertaken without addressing statutory consultation requirements pursuant to clause 9(2) of the Management Plan, which explicitly identifies all licence holders entitled to fish in the Fishery.

The Minister for Fisheries is the final decision maker in determining or amending legislation including the Management Plan, and the Department has a series of formal decision-making delegations for licensing decisions and exemptions from legislation. Ministerial decisions are not reviewable by the State Administrative Tribunal, but most Departmental decisions are subject to review.

Section 65 of the FRMA sets out the legislative consultation requirements the Minister must adhere to when amending an existing management plan. Section 65 has 'natural justice' origins, in that a person whose rights may be about to be affected should have an opportunity to be heard before any adverse action / impact is given effect. Given the commercial aspects of fishing access rights and the potential for amendments to management arrangements to adversely affect these interests, it is fundamental that the holders of these interests:

- are consulted;
- have the opportunity to respond to any proposed amendments by the Minister/Department; and
- have these responses genuinely considered by the decision maker prior to the final decision.

These principles lead to the requirement for the Minister to consult before determining or amending a Management Plan. The Minister has DPIRD undertake the work of consultation on his behalf. The statutory consultation function is presently conducted by WAFIC on behalf of the Department under the SLA.

National consultation

DAWE provided the opportunity for stakeholder consultation on key nonspecific Commonwealth fishery policy areas such as harvest strategy development and bycatch management plans. Bodies consulted included the commercial fishing industry, environmental nongovernment organisations, the recreational fishing industry, state fisheries departments, scientific research organisations and government organisations. Throughout the consultation process, information about the review and how to make a

submission was available online and in hardcopy on request. The review was advertised in several mediums including the Fisheries Research and Development Corporation's Fish Magazine and the AFMA website. The public consultation period was open for six weeks to give stakeholders the opportunity to consider their submissions and provide input. DAWE consulted government, the commercial fishing industry, environmental nongovernment organisations, the recreational fishing industry, state fisheries departments, scientific research organisations and government organisations. The department also developed a discussion paper for public consultation, as part of the review process. The discussion paper was released in November 2012 for a 6-week public consultation period.

A final report on the review outcomes is available on:
http://www.agriculture.gov.au/SiteCollectionDocuments/fisheries/environment/bycatch/reportharveststrategy.pdf

An Independent Review of the EPBC Act commenced in 2019. Provision is made for all interested parties to provide feedback via a survey (https://epbcactreview.environment.gov.au/resources/interim-report/review-and-how-have-your-say).

The DAWE fisheries assessments, completed as an EPBC requirement, are also available for public comment. See https://www.environment.gov.au/marine/fisheries/open-for-public-comment

7.4.3 Long-term Objectives (P 3.1.3)

The WA Government has set a long-term overarching objective that is underpinned by the principle of social and environmental responsibility *to ensure that economic activity associated with aquatic resources is managed in a socially and environmentally responsible manner for the long-term benefit of the State*. This objective is explicit in both fisheries legislation and management policy, as described below.

Overarching long-term objectives for managing aquatic resources are set out in WA fisheries legislation. Sections 3 and 4 of the FRMA set out the current overarching long-term sustainability strategy, including a precautionary approach, for fisheries and the aquatic environment in WA. The broad scope of the legislation ensures that it:

- Manages all factors associated with fishing (ESD and ecosystem-based fisheries management);
- Provides a clear basis for management of a whole biological resource (as opposed to just one sector);

Gives effect to IFM by:

- Creating head powers that can establish management strategies with clear biological outcomes for all sectors as required;
- Establishing formal harvest allocations where these have been made; or
- Describes the basis of informal allocations where these operate; and
- Clearly distinguishes between managed aquatic resources and fisheries with biological targets and socially-regulated fisheries.

Section 3(2)(e) of the FRMA states that one of the objectives is to achieve *the optimum economic, social and other benefits from the use of fish resources*.

- Performance against social and economic objectives is measured regularly. Commercial fisheries' gross value of production and rates of employment are reported annually in the *Status Reports of the Fisheries and Aquatic Resources of WA: the State of the Fisheries* (e.g. Fletcher & Santoro 2013). Other indicators of acceptable performance for social and economic objectives include maximising the opportunity for commercial fisheries to operate viably within a sustainable framework, high levels of licensee satisfaction, low levels of inter-sectoral conflict, appropriate areas put aside for aquatic conservation and appreciation, stakeholder satisfaction surveys, initiatives to benefit recreational fishers and the availability of fresh, locally sourced fish to the retail sector and community.

Government's desired outcome for DPIRD is the conservation and sustainable development of the State's fish resources. The Department has developed effectiveness and efficiency indicators to show the extent to which the Department achieved its goal of conserving and sustainably developing the State's aquatic resources. Performance against these indicators is reported annually in the Department's *Annual Report*.

The Internal Audit Committee maintains and manages the Department's internal audit function on behalf of the Director General. The committee assists the Director General to identify and quantify risks that have the potential to impede the Department in achieving its goals and guide the development and implementation of risk-mitigation strategies.

The Department's *Strategic Plan 2018 -*[4]*2021* sets out clear and explicit strategic activities. These include Sustainability - Sustainable fisheries management — to optimise social, economic and sustainable outcomes; and Natural Resource Management planning and assessment — natural resources sustainably used and managed using sound risk based planning and assessment approach.

The Government's fisheries and aquatic resource policy is set out in broad terms in *Western Australian Government Fisheries Policy Statement March 2012* (DoF 2012a). The Policy Statement focuses on the Government's approach to sustainable resource management, fisheries and aquaculture development and growth, and appropriate structures and processes to ensure good governance is achieved in:

- aquatic resource management;
- aquatic resource access and allocation;
- aquatic environmental management
- marine planning;
- development and growth; and
- structures and processes (e.g. administration).

The FRMA was amended in 2011 to incorporate some short-term changes to existing legislation and administrative practice, which provided some immediate improvements to the trading aspects of fishing rights created under Part 6 (Management Plans) of the FRMA. Specifically, the amendments improved the transferability, security and duration characteristics of fishing access rights created under FRMA within the existing rights management approach.

The costs of managing the aquatic resources, including conducting research, are met from a variety of sources. In particular, significant contributions can come from:

- Commercial fishing licence fees;
- State Government Consolidated Revenue;
- the Fisheries Research and Development Corporation;
- the Recreational Fishing Account (from recreational fishing licence fees);
- the National Heritage Trust;
- the Western Australian Marine Science Institution;
- Australian Research Council linkage grants;
- the Natural Resource Management Rangelands Catchment Coordinating Group;
- the Commonwealth Scientific and Industrial Research Organisation; and
- Commonwealth World Heritage Funding.

Key Resource Management Policies for Meeting Long-Term Objectives include:

1. Ecologically Sustainable Development (ESD)
2. Ecosystem-Based Fisheries Management
3. Harvest Strategy Policy
4. Aquatic Biodiversity Policy

The Western Australian Government is committed to the concept of ESD, which seeks to integrate short- and long-term economic, social and environmental effects in to all decision-making. The key principles of

[4] http://www.fish.wa.gov.au/Documents/corporate_publications/strategic_plan_2009-2018_phase3.pdf

ESD are implicitly contained in the objectives of the FRMA, and the Department's ESD Policy (Fletcher, 2002).

For the purposes of the wildlife trade provisions of Part 13A of the EPBC Act (i.e. to be exempt from export controls for native species harvested in a fishery), management agencies must demonstrate that fisheries management regimes comply with the objectives of ESD. The DAWE, has prepared publicly-available guidelines (CoA 2007), on which management agencies are required to base their submissions for export approval. The submissions are released for public comment, which ensures rigorous and transparent assessments are conducted with input from Commonwealth and State fisheries agencies, the fishing industry and the wider community. All documents pertaining to the submissions and assessments, including the Commonwealth Minister's decisions and any conditions that are set on the fishery, are publicly available on the DAWE website.

WA fisheries assessments are conducted against the Commonwealth Guidelines which outline specific principles and objectives designed to ensure a strategic and transparent way of evaluating the ecological sustainability of fishery management arrangements. Adequate performance of fishing in relation to the Commonwealth Guidelines will see that the management arrangements demonstrate a precautionary approach, particularly in the absence of information. A precautionary approach is used in all stages of fishery management, from planning through to assessment, enforcement and then re-evaluation. A precautionary approach requires managers to utilise the best scientific evidence available when designing a management regime. It also requires that a minimum level of information be available before a fishery is established. Thus, information collection and ongoing research is of significant importance and may be inversely proportional to the level of precaution that is taken in setting management measures for a fishery. Sources of uncertainty within the data should be identified and where possible, quantified. Until research on the specific stock provides information, a precautionary approach requires the setting of conservative limits to account for the unknown level of uncertainty. A review of management arrangements as part of the fishery AIMWTMF Harvest Strategy (DPIRD, 2020) is triggered if annual (or in-season) evaluation against the operational (short-term) objectives indicates the potential need (i.e. when the threshold level is breached) for a management response. This means that a precautionary approach is taken and potential issues are recognised and addressed in a timely manner prior to the following fishing season or during the current season, to meet operational and long-term management objectives (DPIRD, 2018)[5].

To satisfy the Commonwealth Government requirements for a demonstrably ecologically sustainable fishery, the fishery (or fisheries if a species is caught in more than one fishery), must operate under a management regime that meets Principles 1 and 2 of the Commonwealth Guidelines. The management regime must take into account arrangements in other jurisdictions and adhere to arrangements established under Australian laws and international agreements.

Under the Commonwealth Guidelines, the management regime does not have to be a formal statutory fishery management plan as such and may include non-statutory management arrangements or management policies and programs. The management regime should:

- be documented, publicly available and transparent;
- be developed through a consultative process providing opportunity to all interested and affected parties, including the general public;
- ensure that a range of expertise and community interests are involved in individual fishery management committees and during the stock assessment process;
- be strategic, containing objectives and performance criteria by which the effectiveness of the management arrangements are measured;
- be capable of controlling the level of harvest in the fishery using input and/or output controls;
- contain the means of enforcing critical aspects of the management arrangements;
- provide for the periodic review of the performance of the fishery management arrangements and the management strategies, objectives and criteria;
- be capable of assessing, monitoring and avoiding, remedying or mitigating any adverse impacts on the wider marine ecosystem in which the target species lives and the fishery operates; and

[5] https://www.fish.wa.gov.au/Documents/management_papers/fmp265.pdf

- require compliance with relevant threat abatement plans, recovery plans, the National Policy on Fisheries Bycatch, and bycatch action strategies developed under that policy.

The steps to apply this 'ecosystem type of approach' to individual fisheries are based on the adoption of international standards for risk management (Australian Standards/New Zealand Standards 4360 2009)[6], reflecting that fisheries management is a specific form of risk management. These steps have also now been routinely applied elsewhere in Australia and internationally.

The *Australian National ESD Framework for Fisheries* includes an ESD reporting framework for fisheries outlined within a series of reports, making the completion of ESD reports as efficient and effective as possible. There are four main processes needed to complete an ESD report: identifying issues; determining the importance of each of these issues using risk assessment; completing suitably detailed reports; and compiling sufficient background material to put these reports into context.

Following the success of the ESD framework for individual fisheries, a practical, risk-based framework for use with regional-level management of marine resources was developed by the Department to enable cross / multiple fishery management at the bioregional level to fully implement EBFM. This was designed to replace the previous, disjointed fishery-level, planning systems, with a single, coordinated risk-based system to generate efficiencies for the use of Departmental (government) resources. The simple set of steps developed has enabled adoption of a fully regional, 'ecosystem-based' approach in WA without material increases in funding.

Resource Program Briefs assist the Department in achieving its desired Agency Level Outcome by providing a planned and structured approach to management of capture fishery resources (assets), including review of management arrangements for fish stocks, assessment and monitoring of fish stocks and compliance planning. This process provides the Department with a basis or framework for allocating resources to individual capture fishery assets and to provide greater certainty to peak bodies and industry participants on the timelines for management review (DPIRD, Northern Invertebrates Aquatic Resource Program Summary 2018/19).

The Harvest Strategy Policy articulates all performance levels and the management actions designed to achieve agreed objectives. These objectives articulate what is to be achieved, and why, both for the resource and the relevant fisheries. This policy is aimed at ensuring target species' sustainability in the long term. Where a harvest strategy is required, the core elements are:

1. Articulation, at an operational level, of what is to be achieved, and why, both for the resource and the relevant fisheries (operational objectives);

2. Determination of performance indicators to be used to measure performance against operational objectives;

3. Based on achieving acceptable risk levels, establishment of appropriate reference points/levels for each performance indicator;

4. The selection of:
a. the most appropriate Harvesting Approach (e.g. constant harvest/exploitation, constant escapement/stock size, constant catch);

b. the associated Harvest Control Rules which articulate pre-defined, specific management actions based on current status designed to maintain target levels and avoid breaching thresholds or limits; and

c. the Acceptable Catch/Effort Tolerance which is used to evaluate the effectiveness of the management actions in delivering the specific catch/effort as determined by the Harvest Control Rules and IFM allocation decisions;

[6] http://www.standards.org.au/Pages/default.aspx

5. Monitoring and assessment procedures for the collection and analysis of all the data needed to underpin the harvest strategy and determine stock status and fishery performance against operational objectives; and

6. The timetable and frequency for review of the harvest strategy elements.

The AIMWTMF is subject to an industry-agreed and published harvest strategy (DPIRD, 2020) under this framework.

7.4.4 Fisheries Specific Objectives (P 3.2.1)

Long and short-term specific objectives are documented in the *AIMWTMF Harvest Strategy 2020 – 2025* (DPIRD, 2020). These are supported by defined performance indicators, management reference levels and control rules, as applied to the target species and ecological sustainability.

The AIMWTMF has a long-term management objective, which is demonstrably consistent with achieving outcomes expressed by MSC Principle 1, *to protect the residual biomass of Saucer scallops to allow stock to recover to above the threshold level within 5 years, to ensure the ecological objective is met*.

The annual (short term) performance of the fishery is measured by the primary performance indicator, derived from an annual survey undertaken in November, which provides an index of scallop spawning stock abundance. These data have informed the current reference points for each component of the resource, including a limit below which recruitment may be impaired and thus the fishery will not open for the upcoming fishing season. Given the highly dynamic and variable nature of the saucer scallop resource, the target level is considered as the range of index values above a threshold level, below which the season opening will be delayed to maximise the opportunity for scallops to spawn before fishing commences. This ensures that potential issues are recognised and addressed prior to the following fishing season and that the long-term management objective relevant to MSC Principle 1 continues to be met.

A supplementary survey undertaken regularly since 2016, is used in conjunction with the information available from the November survey to review the appropriateness of the season opening. As data from this second survey also provides an indication of abundance of residual (1+) and early recruiting (0+) scallops resulting from the previous spawning season, any areas abundant with juvenile scallops will also be protected. Although used only as secondary performance indicators for monitoring scallop levels throughout the fishing season, fishery-dependent catch rates and size information provided to the Department by active fishing vessels is used to inform any further voluntary spatial closures to protect juvenile scallops, and when to cease fishing at the end of the season.

The performance of the AIMWTMF against the saucer scallop spawning stock mean catch rate reference level is evaluated at the end of the fishing season. If the threshold level is breached, a review of the season arrangements and monitoring system is triggered which ensures that potential issues are recognised and addressed prior to the following fishing season to ensure the long-term management objective relevant to MSC Principle 1 continues to be met.

Although a wide range of management measures may be used to achieve the management responses outlined by the HCRs, examples for the Abrolhos Islands scallop resource include:

- delaying opening of the scallop fishing season to 1 May to maximise the opportunity for scallops to spawn;
- reducing the spatial extent of fishing to protect areas dominated by juvenile scallops; and/or
- increasing the commercial catch rate threshold to cease fishing earlier in the season where scallop recruitment is low to maximise their contribution to next year's catch and the spawning stock.

The long-term management objectives for the AIMWTMF, which are demonstrably consistent with achieving the outcomes expressed by MSC Principles 1 and 2, are:

- *To maintain spawning stock biomass of each retained species at a level where the main factor affecting recruitment is the environment;*

- *To ensure fishery impacts do not result in serious or irreversible harm to bycatch species populations;*
- *To ensure fishery impacts do not result in serious or irreversible harm to ETP species populations;*
- *To ensure the effects of fishing do not result in serious or irreversible harm to habitat structure and function; and*
- *To ensure the effects of fishing do not result in serious or irreversible harm to ecosystem processes.*

There is good evidence to suggest that each of the long-term management objectives listed above are being met. The performance of the Fishery against the management objective for (non-ETP) species populations is currently being assessed, though not expected to be high risk against the findings of early bycatch trawls and the compliance with BRD requirements. Information exists for both retained or bycatch species. This information is to be re-evaluated in a further bycatch survey due in 2021.

No explicit limits have been set for bycatch. The *AIMWTMF Harvest Strategy (DPIRD, 2020) provides* for a commitment to review bycatch thresholds if there is a material change in risk levels, or where fishing impacts are considered to generate an undesirable level of risk to any retained or bycatch species.

The Performance Indicators in the AIMWTMF Harvest Strategy provision for bycatch, ETP, habitat and ERAs; annual management arrangements, extend of the use of BRDs and extent of area trawled annually. The fishery has been consistently maintained at the target reference levels – 100% BRD application, Fishery impacts expected to generate an acceptable risk level (i.e. moderate risk or lower), and low trawl footprint.

Impact of the fishery on ETP species populations is low (DPIRD-ERA 2020) because of the use of BRDs. Syngnathids are typically associated with seagrass and macroalgal habitats, with large components of the nearshore waters to the east of the Abrolhos Islands closed to scallop trawling.

The performance of the Fishery against the management objective for maintaining habitat structure and function is measured against the annual area trawled. The fishery has been consistently maintained at the target reference ≤20% of the of the entire AIMWTM.

The performance of the fishery against the management objective for ecosystem processes is measured against the reference levels for all ecosystem components (target species, retained non-target species, bycatch, ETP species and habitat structure and function). The risk to ecosystem processes from the removal of species and discarding bycatch by the fishery was ranked as low (2020 ERA), as the amount of discards that result from the fishery is not considered significant.

Management outcomes are also provided in the Annual Report (DPIRD, 2019) and reports on recommendations in the Strategic Assessment report to DAWE, 2015.

7.4.5 Decision making processes (P 3.2.2)

There are established decision-making processes in the AIMWTMF management system that are fully understood by all stakeholders and underpinned by explicit and transparent consultation. The fishery specific decision-making processes for the AIMWTMF consist of three components:

1. Annual and in-season consultation and decision-making that may result in measures to meet short-term (operational) objectives (driven by the control rules contained in the current Harvest Strategy);
2. In-season consultation and decision-making that is designed to meet the economic objective to provide the fishery with the opportunity to optimise economic returns (cooperative framework); and
3. Longer-term consultation and decision-making that results in new measures and strategies to achieve the long-term fishery-specific management objectives (i.e. changes to the management framework).

The Harvest Strategy control rules guide the management response in the event that the operational objective (i.e. to maintain the performance indicator above the threshold reference level) is not met. In these cases, the decision-making processes may result in measures to achieve fishery-specific objectives in response to research, monitoring evaluation and consultation.

An overview of the annual and in-season consultation and decision-making processes to achieve short-term operational objectives under the current management framework are described below.

The annual decision-making processes include:

- *Pre-season Briefing to the Licensee / Post-season Report.*

The Department's research staff usually undertake a pre-season briefing in Fremantle in February. The industry pre-season consultation has more recently been conducted remotely/online, as required.

Post-season evaluation of the fishing season outcomes and develop a written report for the licensee[7]. This report, together with a summary presentation, is provided to the licensee each year between November and March. Discussions might include preliminary investigation of reasons why target reference levels were not met (if this was the case). If sustainability is considered to be at risk, changes to fishing arrangements are discussed with the licensee and are implemented for the following fishing season (e.g. a delay to the commencement of fishing to reduce effort). Consultation between the Department and the licensee also occurs at this stage to decide on the statutory season opening date (usually 1 March) and closing date and the in-season survey schedule.

- *Annual Advice to Management and the Director General regarding the Opening / Closing of the Fishing Season*

Following consultation with the licensee, a written briefing is provided to the Director General recommending the statutory opening and closing dates for the coming fishing season. The Director General (as the Chief Executive Officer[8]) determines the opening and closing dates for the fishery by signing a notice pursuant to clause 12 of the Management Plan, a copy of which is provided to the licensee in writing. The notice is then made publicly available on the State Law Publisher's website[9]. Clause 11 and 12 of the Management Plan provides the power for the Director General to statutorily set the annual fishing season without the need for an amendment to the Management Plan. The Director General also approves the boundaries of the management areas in the notice.

- *Pre-season Skippers Briefing*

The Department's research staff develop an information package[10] and provide a briefing to the fleet skippers for the coming season. Skippers are also provided with a presentation of the outcomes of the previous fishing season. The skippers' briefing provides a feedback loop to the Department on the proposed seasonal arrangements for the coming season.

In-Season decision-making processes operates as follows:

- The key in-season decision-making process is undertaken pursuant to the control rules designed to achieve the in-season operational objectives in the Harvest Strategy (i.e. to achieve above the threshold reference levels). Consultation is undertaken by the Department's Research staff directly with the licensee around the timing and extent of fishing in the management areas throughout the season. This decision-making process is informed by a combination of the recruitment and spawning stock survey regime (catch rates and scallop size composition), knowledge of scallop biology (spawning and movement patterns of Saucer scallops) and daily monitoring of commercial

[7] DPIRD, Abrolhos Islands and Mid-West Trawl Managed Fishery 2019 Season Report, 11 June 2020

[8] Note that annual notices made pursuant to clause 10 of the Management Plan are signed by the Director General as 'Chief Executive Officer' transitioned from the 'Executive Director' pursuant to section 242 of the *Machinery of Government (Miscellaneous Amendments) Act 200*6

[9]http://www.slp.wa.gov.au/statutes/subsiduary.nsf/0/D36C2D29CE34209248257CF30025401B/$file/10.06.14.+egp+notice+no+2+2014.pdf

[10] DoF, Skippers Briefing Package, 2-14 Exmouth Gulf Prawn Managed Fishery: Guide to Management Areas, All positions relating to GDA 94

catch rates. The resulting decisions are communicated to skippers, as well as to the Department's management and compliance (including VMS) staff. The annual in-season fishing arrangements designed to achieve the in-season operational objectives in the Harvest Strategy are implemented on a non-statutory basis. If it is identified that an area of the fishery may need to be closed statutorily, this can be achieved quickly (within 24 hours) via a notice pursuant to clause 10 of the Management Plan.

Cooperative management processes include the following:

- Once requirements have been addressed in line with the Harvest Strategy, an in-season cooperative consultation and decision-making process is used to provide the licensee with the opportunity to optimise economic returns from the target prawn species within the sustainable fishing framework. Decisions around optimising economic returns are informed by prawn size composition information arising from both Department and industry surveys and real-time monitoring of daily commercial catch data. The consultation and decision-making process is undertaken in person between the Department's Research staff and the licensee and is communicated to fleet skippers, compliance and VMS staff (Cavalli pers. comm., November, 2020). The fishing arrangements (i.e. timing and extent of fishing) resulting from the cooperative framework are non-statutory because they are not in place for stock sustainability reasons; however, they are monitored by VMS staff.

There is an established fishery-specific management system decision-making process in place that results in measures and strategies to ensure the management objectives continue to be met in the longer term.

This decision-making process is triggered primarily as a result of analysing longer-term patterns or trends in the annual monitoring of the success of the existing management regime. Variations in the operating environment caused by other factors (e.g. environmental conditions, market conditions, fishing behaviour, conflicts with other marine users, determination of native title, marine planning, etc.) can also trigger investigation and discussion that may lead to a change to the management system.

Changes to the management system as a result of implementing new measures and strategies tend to be more permanent (i.e. lasting for more than one season) and are often implemented in legislation. Depending on the issue and stakeholders affected, consultation can occur through the following mechanisms:

- directly in writing;
- at licensee meetings and skipper's briefings;
- establishment of a tasked working group;
- external / expert workshops (e.g. ecological risk assessments); and / or
- internal workshops (e.g. harvest strategy development, ecological and compliance risk assessments).

These forums are used to work through options for addressing emerging issues, consider both key and other interested stakeholder advice and take into account the broader implications of those options. Following the consultation process, any new proposed management measures and strategies that require changes to legislation or publication must be provided to the statutory decision maker (usually the Director General or the Minister for Fisheries). The Department must set out evidence of consultation and the results of the decision-making process during this process (Cavalli, pes comm. November 2020).

Recent examples of the fishery-specific management system decision-making process that resulted in new strategies include the development of the current Harvest Strategy for the AIMWTMF, both of which were developed following multiple internal workshops and face-to-face consultation with the licensee.

Figure 15 shows the consultation and decision-making process as it relates to the AIMWTMF management system.

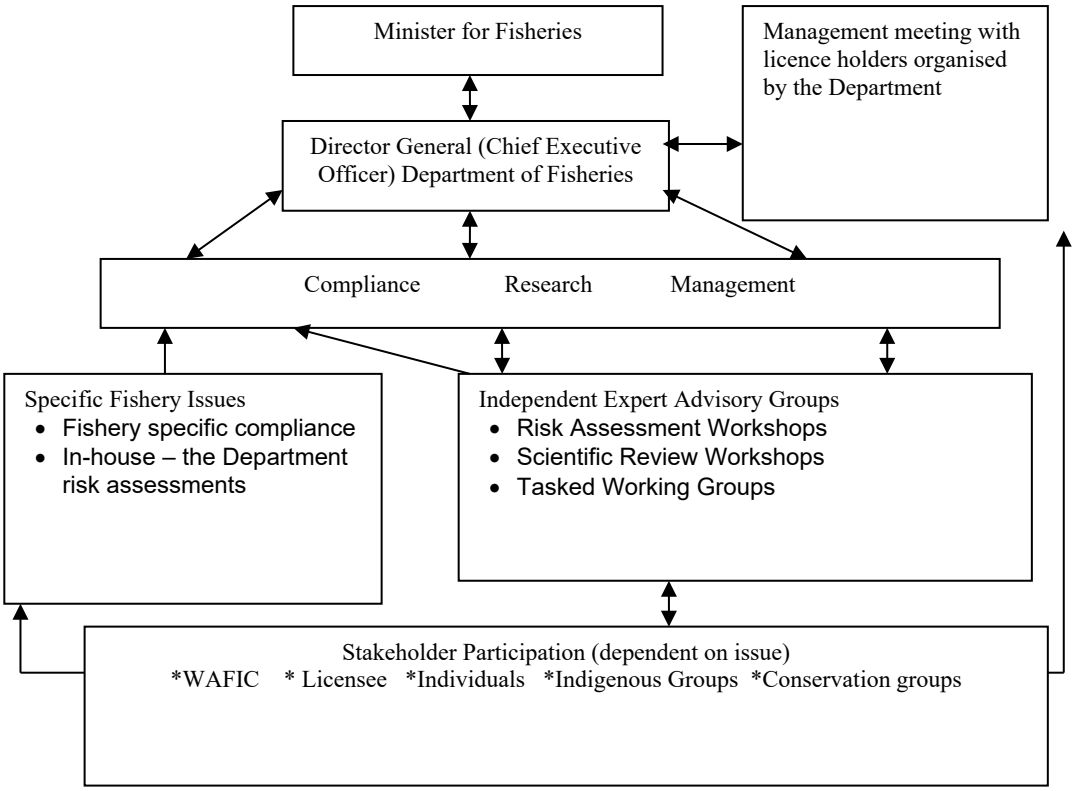

Figure 15. Fishery-specific consultation and decision-making framework for the AIMWTMF management system

The decision-making processes described above allows for a response process in instances where management changes need to be applied to alleviate unacceptable risks to stocks. The timing of provision of scientific advice on the status of prawn stocks is immediate given the real-time monitoring regime.

The annual and in-season control rules contained in the current Harvest Strategy are applied consistently and are informed by both real-time monitoring of fishery-independent and fishery-dependent catch rates (for decisions implemented in-season) and annual evaluation (for decisions implemented in the following fishing season).

The urgency of consultation and decision-making processes relevant to more permanent changes to the management system is based on risk. This can be a quick and streamlined process, given there are only two licencees in the AIMWTMF. Once approved, such management actions tend to be implemented by way of changes to legislative instruments. For example, actions to close areas of the fishery (or the entire fishery), reduce fishing days / hours (temporal effort management) or change management area boundaries (spatial effort management) can be implemented almost immediately by the Director General pursuant to clause 12 of the Management Plan.

Changes to other existing arrangements (such as headrope limits and gear specifications) can also be applied very quickly (within days or weeks), depending on urgency. Once a decision is made, the approval and implementation of such changes is undertaken by amendment to the relevant legislative instrument in a transparent and accountable way and in line with statutory requirements where necessary.

For example, the Minister for Fisheries must consult with the licensee before approving an amendment to the Management Plan (section 65 of the FRMA). While the Director General can impose, delete or vary a MFL condition, his decision is subject to a formal appeals process (section 147 of the FRMA). There are no statutory provisions as to the consultation requirements relating to section 7 instruments of exemption or section 43 orders (noting that section 43 orders can be disallowed in State Parliament); however, in the absence of any statute specifying consultative procedures, the Department has regard for common law principles to afford natural justice to the licensee. As such, the Department will formally consult with the licensee when making changes to management arrangements via an instrument of exemption or an order.

The outcomes of the decision-making process and implementation of statutory arrangements is always formally communicated to the licensee in writing and available publicly on the State Law Publisher's website.

Examples of the responsiveness of the decision-making process to implement longer-term management changes include:

- As from 2003, all otter trawl nets, except for try nets, are fitted with a BRD when in use; and
- The removal of the headrope unitisation scheme in favour of a standardised net headrope allocation where each Managed Fishery Licence (MFL) has an equal allocation of net headrope length.

The decision-making process also allows for the consideration of the wider implications of decisions, particularly where proposed longer-term management actions may result in adverse unintended consequences to other management components. It is important to note that all ecological objectives must be met prior to considering responses to achieve economic objectives. For example, the move to a quad-rigged net configuration improved fishing efficiency for commercial purposes; however, a a standardised net headrope allocation for the fishery was imposed for sustainability purposes.

The AIMWTMF is managed based on a constant escapement harvesting approach. The management activities related to this approach have been developed over time based on a comprehensive understanding of the biology of Saucer scallops in the AIMWTMF, together with a long-term annual and in-season monitoring and assessment regime. Based on this information, the decision-making processes have led to the implementation of a sustainable management framework over time. Furthermore, the reference levels are considered appropriate, as they are demonstrably achieving the fishery-specific management objectives.

The control rules incorporate a precautionary approach to the decision-making process by requiring a review when the target reference level is not met. This ensures that any warning signs are recognised and investigated / addressed in their early stages. The frequency of evaluation (both annually and in-season) and review means that management action to investigate and, where required, alleviate adverse impacts on stocks is always taken before the performance indicators reach the limit reference level.

Sources of uncertainty within the data and data gaps have been identified, particularly where they relate to obtaining a more quantified and up-to-date assessment of the risk posed by the fishery to bycatch and ETP species' populations. The application of the EBFM provides a good tool to assess the relative risks to bycatch, ETP species and habitats, which if required, will identify precautionary actions to deal with at risk species and assemblages. An example on where the precautionary approach was applied to the P2 component in this fishery includes the introduction of the BRDs from 2003 onwards. Management actions within the Harvest Strategy can be changed should the existing management system prove to be posing an unacceptable risk.

Formal and regular reporting to key stakeholders relating to information on fishery performance and management actions, and how the management system responded to findings and relevant recommendations emerging from research, monitoring, evaluation and review activity, is primarily provided at the annual meeting between the Department and the licensee. This reporting consists of presentations and the provision of the annual season report for the fishery.

Key stakeholders are also formally briefed on the outcomes of research prior to publication. Such meetings and briefings are also used as a forum to discuss relevant recommendations and proposed management actions. Recommendations and final decisions that result in new measures or strategies are often published by the Department as fisheries management papers, research reports or in the State of the Fisheries report. For example, the current Harvest Strategy for the AIMWTMF was developed directly in consultation with the licensee. These strategies are published and available on the Department's website.

Formal / direct reporting to other interested stakeholders to provide information on the performance and management of the AIMWTMF, how the management system responded to findings and relevant recommendations emerging from research, monitoring, evaluation and review activity is undertaken on a case-by-case basis. For example, formal / direct reporting is provided to other interested stakeholders that

are involved in consultation and decision-making processes, such as tasked working groups, external risk assessments or external reviews of the AIMWTMF management system.

Notwithstanding this, comprehensive information on fishery performance and management actions, and how the management system responded to findings and relevant recommendations emerging from research, monitoring, evaluation and review activity, is compiled on a regular basis and is publicly available in documents published on the Department's website including:

- *The Annual Status Report of the Fisheries and Aquatic Resources of Western Australia: the State of the Fisheries* (2018/19)[11];
- The AIMWTMF Management Plan[12] (available on the State Law Publisher's website via a link from the Department's website);
- CEO notices regarding opening and closing the fishery[13];
- The AIMWTMF *Harvest Strategy 2020 – 2025* (DPIRD, 2020);
- The Research, Monitoring, Assessment and Development Plan 2015 – 2020[14], which provides information on all completed and proposed research relating to the AIMWTMF and the associated ecosystem;
- Outcomes of management decisions, research and studies (e.g. Fisheries Management Papers, Fisheries Research Reports and Occasional Papers).

Other mediums for communication with other interested stakeholders can include media releases[15].

The AIMWTMF consultation and decision-making processes proactively avoid legal disputes through the inclusion of stakeholders during consultation on key management matters. This allows for all impacts of proposed management actions to be considered, conflicts to be addressed and negotiation and compromise to be reached. In addition, the close collaboration and regular communication between the Department, the licensee and skippers has resulted in a mutual and in-depth understanding of industry operations and the fishery management system. Given this, there have been no actual legal disputes or requirement to implement judicial decisions in the AIMWTMF.

However, there are well-established mechanisms for administrative and legal appeals of decisions, which are prescribed in Part 14 of the FRMA. Should they arise, disputes regarding statutory validity are dealt with by the Courts. These decisions are publicly available. Examples of these cases include:

- Shine Fisheries Pty Ltd vs Minister for Fisheries (2002) at

  http://decisions.justice.wa.gov.au/supreme/supdcsn.nsf/judgment.xsp?documentId=89CBEA251EC082BB48256B5A000C1635&action=openDocument.
  This judgement has been put into effect in practice, by allowing the nominated operator of a vessel to be changed.
- Edgemere Pty Ltd vs Minister for Fisheries & Anor (1997) at

  http://decisions.justice.wa.gov.au/supreme/supdcsn.nsf/judgment.xsp?documentId=E2B71DECD36F4C1B48256497004CD3F9&action=openDocument.

The decisions of the SAT and the Courts are binding on the Department (for details of decisions see http://decisions.justice.wa.gov.au/SAT/SATdcsn.nsf). All SAT decisions must be carried out by the Department (section 29(5), page 20 of the *State Administrative Tribunal Act 2004*[16]).

7.4.6 Compliance and enforcement PI (P 3.2.3)

In order to optimally utilise compliance resources, enforcement effort is designed to maximise the potential for fishers to voluntarily comply with fishery rules, while at the same time provide a reasonable threat of

[11] https://www.fish.wa.gov.au/Documents/sofar/status_reports_of_the_fisheries_and_aquatic_resources_2018-19.pdf
[12] http://www.slp.wa.gov.au/statutes/subsiduary.nsf/FisheriesT?openpage
[13] http://www.slp.wa.gov.au/statutes/subsiduary.nsf/Fisheriesexec?openpage
[14] https://www.fish.wa.gov.au/Documents/occasional_publications/fop122.pdf
[15] http://www.fish.wa.gov.au/About-Us/Media-releases/Pages/Prawn-fisheries-seek-sustainability-certification.aspx
[16] http://www.slp.wa.gov.au/legislation/statutes.nsf/main_mrtitle_918_homepage.html

detection, successful prosecution and significant penalties for those who do not comply. This is achieved through a range of strategies, including effective monitoring and surveillance, appropriately trained staff, suitable deterrents in the forms of fines and administrative penalties and targeted educative campaigns.

The DPIRD's Operations and Compliance Division (OCD) delivers the Department's compliance and educational services, with the support of the Communications and Education Branch, and the OCD also provides licensing facilities at the regional offices, as well as online renewal and payment. There are approximately 170 OCD staff across the State, spread throughout regional and district offices. Regional operational areas are supported by the Regional Services Branch's Perth-based Central Support Services and Strategic Policy sections.

Key compliance programs in place throughout the State include:

- Recreational fishing;
- Commercial fishing;
- Biosecurity;
- Pearling and Aquaculture;
- Marine parks (State and Commonwealth);
- Fish Habitat Protection Areas (FHPAs);
- Marine Safety; and
- Organised, unlicensed fisheries crime.

Compliance and community education services in the Gascoyne Coast Bioregion (GCB), which includes the Abrolhos Islands and Mid-West, are delivered by Fisheries and Marine Officers (FMOs), Community Education Officers and associated management and administrative support staff based at the District Offices in Geraldton, Denham, Carnarvon and Exmouth. Most Fisheries Officers are permanently located in the main population centres with access to appropriate platforms to allow them to undertake patrols up and down the entire WA coastline. A small number of Officers are also specifically employed to undertake mobile patrols to conduct 'surprise' inspections, an activity that is particularly important in smaller towns where fishers can quite easily learn the movement patterns of local Officers.

FMOs undertake regular land, air and sea patrols using a compliance delivery model supported by a risk assessment process and associated operational planning framework. Throughout the bioregion, they employ specially equipped four-wheel-drive vehicles, quad bikes and small towable vessels. They also make use of sophisticated surveillance, mapping and GPS equipment to assist in evidence gathering. This includes high-powered telescopes and photographic mapping technology. A high-visibility Recreational Fishing Mobile Patrol has been added to the Gascoyne pool of resources. This dedicated education and enforcement unit patrols the coast from Onslow through to Kalbarri.

FMOs at Geraldton use a large Patrol Vessel (PV) to carry out at sea compliance activities. The Department also has a 12 m jet boat at the Abrolhos Islands. Both vessels are used to conduct at-sea inspections in the Abrolhos Islands and Mid-West. FMOs spend approximately 90 days a year at sea on patrol duties. Historically, large patrol vessels (greater than 20 m in length) have assisted FMOs at various times of the year for offshore patrols. FMOs conduct patrols the length of the GCB and target offenders in all of the recreational and commercial fisheries based on intelligence gathered, as well as conduct aerial surveillance, at-sea and on-land licence, gear and marine safety inspections and attend community events and school education programs.

Monitoring, Control and Surveillance Systems

Monitoring, control and surveillance (MCS) mechanisms ensure a fishery's management measures are enforced and complied with. There is a comprehensive MCS system implemented in the AIMWTMF that has demonstrated a consistent ability to enforce relevant management measures, strategies and / or rules. The MCS system is administered by the Department's OCD through a fishery-specific Operational Compliance Plan (DPIRD, OCP 2019/2020).

A fishery's OCP provides clear and unambiguous direction and guidance to FMOs for the yearly delivery of compliance-related activities in the fishery. The development of fishery-specific OCPs and compliance

strategies continues to provide the most effective and efficient method for a planned and measurable approach to compliance delivery.

Compliance Risk Assessments and Operational Compliance Plan

Fishers and other stakeholder groups may be directly involved in setting compliance priorities through compliance risk assessments. The Department conducts compliance risk assessments every 1 – 2 years in major fisheries (including the AIMWTMF) or those perceived to be at high risk and every 3 – 5 years in minor fisheries. The last risk assessment was carried out in February 2020 (DPIRD, OCP 2019/20). The risk assessment process can also be triggered by the introduction of new supporting legislation[17] in a fishery / resource or the identification of any new major issues that would require OCD managers to assess their compliance program including (but not limited to):

- A sectoral complaint;
- Ministerial or Parliamentary enquiry;
- Management framework issues;
- Public complaint or sustained media interest;
- Intelligence; or an
- Upward trend in non-compliance.

The risk assessment process involves the participation of managers, field-based FMOs, researchers, commercial and recreational fishers, fish processors and representatives from other interested stakeholder groups, where relevant. There are two tiers in the risk assessment process — the first tier is the formal transparent process involving industry and other stakeholders, and the second tier is internal, utilising researchers, fishery managers and compliance personnel. The second process feeds into the fishery's OCP[18], which provides the formal framework for the delivery of specific compliance services that remove or mitigate the identified risks.

The compliance risk assessment process identifies modes of offending, compliance countermeasures and risks and relies on a weight-of-evidence approach, considering information available from specialist units, trends and issues identified by local staff and Departmental priorities set by the Aquatic Management Division through the Aquatic Resource Program Summary.

An OCP provides a formal and transparent process for staff to carry out defined compliance activities in order to monitor, inspect and regulate the compliance risks to each specific high-risk activity in a fishery, and in turn confirm they are at an acceptable and manageable level. This is supported by measurable reporting methods defined under the OCP to demonstrate compliance activities being undertaken are having a direct and significant impact on reducing identified risks.

The development of an OCP consists of identifying and applying tailored compliance strategies for each identified risk. In the case of AIMWTMF, this includes strategies that may deal with higher identified risks related to seasonal considerations, spatial considerations, environmental considerations and identified persons or groups of interest.

OCPs have been operating for several years now in the AIMWTMF and other major commercial fisheries in the GCB. Each OCP is reviewed following a compliance risk assessment. Additionally, by regularly reviewing the OCPs for all fisheries in a particular location, rational, accountable decisions can be made about deploying compliance resources and ensuring that resources are available to mitigate risks to an acceptable level.

Following a formal review of a fishery's OCP and associated compliance strategies, compliance activities are prioritized in accordance with risk, budget and resourcing considerations. All existing OCPs were reviewed and updated during the 2019/20 year using this model.

[17] 'Supporting legislation' refers to any legislation that would allow non-compliance with the management framework to be detected and prosecuted with a reasonable chance of securing a conviction.
[18] By their nature, OCPs contain sensitive information and are only made available to authorised compliance personnel.

Annual planning meetings are held for OCPs, with regular specific planning of day-to-day targeted and non-targeted patrols linked to the OCP based on resources and competing priorities.

Compliance Operations

Gascoyne regional staff co-ordinate the allocation and prioritisation of existing resources across all programs in the region based on the risk assessments and related OCPs. Compliance planning meetings are held regularly to ensure staffing requirements are adequate for scheduled compliance activities.

Available compliance resources are allocated based on the risk assessment outcomes and the contacts and compliance statistics which are captured, reported on and reviewed at the end of each year. The allocated resources and compliance strategies (i.e. monitoring, surveillance and education activities) are outlined in the OCP, which specifies planned hours and staff allocated to key compliance tasks and duties. This planning and delivery process allows for more-targeted, effective and relevant compliance service in terms of both cost and activities.

There is also flexibility within the region to allocate additional resources to respond to changes, such as the need for a planned tactical operation in response to fresh intelligence. This may be achieved by redirecting existing resources or seeking additional resources from other areas or units. Similarly, changing priorities and resourcing on a local level can involve reducing planned delivery of compliance services to ensure resources are directed to where they are most needed.

The Regional Office of the Department relevant to the AIMWTMF is located Carnarvon and supported by district offices located at Exmouth and Denham. Staff located at these offices provide on-ground compliance and educative delivery for these fisheries. Key compliance and enforcement personnel located in the region and their responsibilities include:

1. Compliance Managers
    - Overall responsibility for OCPs and compliance strategies, including their development, review and ensuring outcomes are delivered;
    - Responsible for providing sufficient and appropriate resources to achieve compliance outcomes;
    - Ensuring FMO safety is considered at all times and the Region's occupational health and safety requirements are met;
    - Monitoring the progress of the OCPs and strategies during their execution;
    - Consulting with all key stakeholders when reviewing the OCPs and strategies; and
    - Reporting outcomes.
2. Supervising Fisheries and Marine Officers
    - Field responsibility for OCPs and strategies, including reporting any deficiencies and reporting the outcomes as they are delivered or achieved;
    - Supervision of staff performance;
    - Ensuring officer safety is considered at all times and the district's occupational health and safety requirements are met;
    - Provide briefings and de-briefings as required;
    - Ensuring all equipment required to execute the OCPs and strategies is serviced, operational and available; and
    - Liaising with staff from other agencies operating in a joint servicing arrangement.
3. Fisheries and Marine Officers (FMOs):
    - Day-to-day responsibility for the execution of the OCPs and strategies in their interaction with users of the Fishery;

- Ensuring FMO safety is considered at all times and individual occupational health and safety requirements are met;
- Reporting any deficiencies and outcomes in a timely and accurate manner; and
- Complying with the *Standard Operating Procedures*, *Prosecution Guidelines*[19], the Department's *Code of Conduct* and promoting the vision and mission statement of the Department and its joint-servicing partners.

FMOs are formally appointed pursuant to the FRMA, which clearly sets out their powers to enforce fisheries legislation, enter and search premises, obtain information and inspect catches. FMOs are highly trained; they must have a thorough knowledge of the legislation they are responsible for enforcing and follow a strict protocol for undertaking their duties in accordance with FRMA and in recording information relating to the number and type of contacts, offences detected and sanctions applied.

In addition to regional compliance staff there are a number of units within the Department that support the delivery of compliance outcomes, including:

1. Patrol Boat Business Unit
    - Provides large oceangoing patrol vessels for Statewide offshore compliance operations and education activities.
2. Vessel Monitoring System Unit
    - Operates the Department's vessel monitoring system (VMS) to help manage the State's commercial fisheries.
3. Serious Offences Unit
    - Undertakes covert operations and deals with connections to organised crime;
    - Conducts major investigations and initiates proactive intelligence-driven operations;
    - Targets any serious and organised criminal activity within the fishing sector;
    - Provides specialist investigative training; and
    - Provides technical assistance in relation to covert surveillance.
4. Fisheries Intelligence Unit
    - Responsible for providing intelligence reports to support strategic, operational and tactical needs of compliance programs; and
    - Collects and analyses compliance data.
5. Compliance Statistics Unit
    - Develop monitoring and sampling programmes to support compliance delivery;
    - Collects and analyses compliance data to identify trends; and
    - Provides compliance statistics to help target enforcement activities.
6. Prosecutions Unit
    - Manage the electronic system used to issue infringement notices or commence prosecution processes when offences are detected; and
    - Custodians of information relating to detected offences which can be used for official reporting purposes.

[19] The *Prosecution Guidelines* is a confidential guide used by FMOs that provide a tiered framework for dealing with fishery offences, thus it is not a publically-available document.

7. Strategic Policy Section of the Regional Services Branch
    - Develops and implements strategic compliance policy and standards;
    - Provides compliance risk assessments for fisheries;
    - Provides review and implementation of fisheries management and compliance legislation;
    - Oversees collection and analysis of compliance data;
    - Oversees compliance research projects;
    - Develops occupational health and safety standards for FMOs; and
    - Provides recruitment and training of new and existing FMOs.

MCS Systems

Compliance staff utilise a number of formal monitoring and surveillance activities and control mechanisms in the AIMWTMF.

VMS is a mandatory requirement for real-time monitoring to ensure fishers are operating within the legislated permitted fishing areas. All vessels operating in the AIMWTM have installed an Automatic Location Communicator[20] (ALC) pursuant to the fishery's Management Plan. The ALC tracks the location of the boat and transmits information such as the geographical position, course and speed of the boat via a satellite link to a VMS database at the Department's Marine Operations Centre in Fremantle, with authorised Departmental officers able to access VMS data in real-time. This monitoring reduces incentives to break the law due to a high level of certainty that an offence would be detected.

The licensee and / or the master of every licensed fishing boat is required (under regulation 64 of the FRMR) to submit accurate and complete catch and effort returns on forms approved by the Department. Daily[21] Trawl Logbook Sheets (see Appendices in the associated MSC Assessment Document) have been completed by all skippers in the fisheries since 1962/63 and have been compulsory since 2008. On each logbook sheet, fishers are required to report the starting position (longitude and latitude), start time, duration, mean depth and catches of each retained species for each trawl shot, as well as daily records of all ETP species interactions and environmental data (i.e. water temperature and moon phase).

These fisheries operate using a constant escapement approach, with catch and effort monitored by the research branch and used to inform in-season control rules related to the rolling opening/closure of management areas throughout the Fishery. As part of the control rules, once the catch rates in an area fall below the limit reference levels, the area is closed to fishing activity (for a specified period of time or for the remainder of the season depending on the area). Thus, there is an incentive for fishers not to under-report catches, as this will generate a lower catch rate and thus, the potential closure of an area to fishing activity.

Control Mechanisms

Fisheries legislation forms the main component of the control system for commercial fisheries in WA, along with conditions applied on an MFL. The AIMWTM is subject to controls under:

- The EPBC Act (export exemptions);
- The FRMA;
- The FRMR;
- The *AIMWTMF Management Plan 2018*; and
- MFL conditions;

[20] Statutory approved directions are gazetted and readily-available to regulate the installation, use, servicing and testing of approved ALCs.
[21] Shot-by-shot information provided since 1998

A description of the control measures in place are provided in Table 16.

Table 16. Description of the control measures and instruments of implementation in the AIMWTMF.

Measure	Description	Instrument
Limited Entry	A limited number of Managed Fishery Licenses (10) are permitted to operate in the AIMWTM.	AIMWTM Management Plan
Effort Restrictions	The fishery currently operates under a maximum headrope capacity restriction of 256.1 m metres.	AIMWTM Management Plan FRMA (Section 7 exemptions)
Gear Controls	Include controls on mesh size (≤ 100 mm) of nets, boat length, size of the ground chain (≤ 10 mm diameter) and the dimensions of the otter boards, including metal shoes.	AIMWTM Management Plan AIMWTM Management Plan
Bycatch Reduction Devices (BRDs)	The fleet is required to have BRDs in the form of grids in all standard nets.	AIMWTMF Management Plan
Annual Closed Season & Cap on Fishing Days	The fishery is closed to fishing between November and March each year.	AIMWTM Management Plan
Spatial Closures	Parts of the fishery are permanently closed to trawling activities. Areas are also periodically closed to protect aggregations of juvenile and spawning scallops. There are also two port area closures in place within three nautical miles of Geraldton and Port Gregory. The Reef Observation Areas within the Fish Habitat Protection Area are permanently closed to trawling.	AIMWTMF Management Plan and Voluntary agreement Section 115 Order — Abrolhos Islands Fish Habitat Protection Area Order 1999
Reporting	Fishers are required to report all retained species catches, effort, ETP species interactions and fishing location in statutory daily logbooks.	FRMR (regulation 64)
	Fishing activities are also monitored via the satellite VMS.	AIMWTMF Management Plan

Surveillance Activities

FMOs deliver compliance activities directed at commercial fisheries through pre-season briefings with the masters of the licensed fishing boats and pre-season inspections, as well as at-sea inspections and investigations resulting from suspected breaches detected via the VMS and intelligence-led operations.

FMOs follow a variety of established Standard Operating Procedures (SOPs) when undertaking patrol and inspection work. This procedure ensures that inspections are carried out safely, efficiently, correctly and with due regard to relevant policies. SOPs also ensure consistency in the delivery of compliance services and the ability to quickly familiarise new staff to the specifics of important compliance elements in a fishery.

The majority of surveillance activities in the AIMWTMF are undertaken by FMOs during field-based patrols. Compliance activities undertaken during patrols are recorded and reported by FMOs using a daily patrol

contact (DPC) form. The purpose of these forms is to record and classify contacts and time spent in the field for each FMO. These forms provide managers with information about:

- The number of field contacts made, which provides a context for the number of offences detected. This includes random contacts and offences from random inspections;
- The number of targeted[22] contacts made, which provides information on the effectiveness of the intelligence gathering capacity at identifying 'targets';
- The number of face-to-face contacts outside of a compliance context (referred to as 'A/L/E' contacts) made, which provides information on the educative effort of FMOs in a fishery; and
- Other routine information that can be used to help managers' report on where and on which fisheries FMOs have undertaken patrols. This information is also used in patrol planning and risk assessments and ensures accountability of the compliance program.

A 'contact' occurs when an FMO has a chance of detecting illegal activity being undertaken by a fisher and includes personal contact (face-to-face), covert activities (e.g. deliberate, intensive surveillance), unattended gear checks (e.g. checking BRDs on a trawl net) and A/L/E contacts. VMS vessel days are also considered commercial compliance contacts. VMS vessel days are a proxy for fleet size and compliance coverage, representing each day that a vessel has an ALC operational (whether fishing or not) and therefore, a day that FMOs can assess whether it is complying with statutory spatial closures. In addition, VMS allows for a more targeted and cost effective on-ground compliance delivery.

The DPC form also includes a section to record details of individual commercial vessel inspections / checks. These inspections may involve:

- Inspection of all nets, BRD's, otter boards, VMS and other gear;
- Inspection of all authorizations; and
- Inspection of freezers and fish on board the boat.

Compliance field activity undertaken by FMOs operating from large (> 20 m) patrol vessels are reported and captured in the patrol vessel database (PVDB), which is available for use by compliance managers and other patrol vessels as needed.

The Department has also implemented an initiative called Fishwatch[23], whereby the community can report instances of suspected illegal fishing. The Fishwatch phone line provides a confidential quick and easy way to report any suspicious activity to Departmental compliance staff.

Informal MCS Systems

There are a number of other informal factors that deter illegal activity including self-monitoring by the Company and skippers in the fishery, the homogeneity of the fishery in the AIMWTMF (all licences owned by one company) and market factors related to the demand / preference for different size prawns.

In order to assess compliance with voluntary area closures in place throughout the fishing season, vessel movements are monitored onshore by the licence holder using the Automatic Identification System[24]. Additional to the licence holder, skippers are able to monitor plotting lines on-board their boat and generally self-report any accidental incursions into closed areas. Additionally, as all skippers can see the activities of other boats, all skippers know when another vessel crosses a boundary and may also notify the skipper in question when a boundary is breached.

Although compliance with the rolling opening / closing of various areas throughout the fishery is voluntary, the Department's VMS compliance team also monitor and report on VMS incursions annually. Information

[22] A targeted contact is one that is initiated because available information indicates that an offence may have been committed or may be more likely to have been committed.
[23] http://www.fish.wa.gov.au/About-Us/Contact-Us/Pages/Fish-watch.aspx
[24] The Automatic Identification System (AIS) is an automatic tracking system used on ships and by vessel traffic services (VTS) for identifying and locating vessels by electronically exchanging data with other nearby ships,

from these reports is used to assess general compliance levels in the fishery and inform the OCP and associated compliance activities for the following seasons.

Sanctions

There is an explicit and statutory sanction framework that is applied should a person contravene legislation relevant to the AIMWTMF. Sanctions applicable to the FRMA or FRMR are generally specific to each section or regulation. For example, section 74 of the FMRA sets out the sanctions applied when a clause of the AIMWTMF *Management Plan* is contravened[25], while section 77 sets out the sanctions applied should a condition of the MFL (e.g. the requirement to install prescribed bycatch reduction devices) be contravened.

Breaches in fishery rules may occur for a variety of reasons, and FMOs undertake every opportunity to provide education, awareness and advice to fishers; however, all offences detected in the fishery are considered to be of significant concern and are addressed by FMOs via the prosecution process outlined in the Department's *Prosecution Guidelines* and rules set out in the FRMA and FRMR. When an FMO detects a breach of the FRMA, the officer determines if the matter is prosecutable (according to the Department's *Prosecution Guidelines*) and where it is, a prosecution brief is prepared by the FMO and submitted to their supervisor. Based on the *Prosecution Guidelines*, there are four tiers of enforcement measures applied by FMOs when an offence is detected in the fishery including:

- Infringement warnings: These are written warnings issued for minor fisher offences. They do not incur a fine, but are a written record of a minor offence that may be referred to by Fishery Officers in the future. A certain number of infringement warnings for similar offences in a designated period may result in an infringement notice;
- Infringement notices: These are written notifications to pay a monetary penalty for an observed offence. Fishers issued infringement notices may choose to defend the matter in court; however, most fishers simply choose to pay the fine. The Department may initiate a prosecution brief for those fishers who appear to be habitual offenders;
- Letters of warning: A letter of warning (LOW) is an available sanction that achieves a formal record of a commercial offence where a prosecution may be unduly harsh under the circumstances. A LOW may be issued where an offence may have been committed but detected outside of the 45-day period where an infringement can be issued. There may not be a public interest in prosecution, but this still formally records the detected offence. A LOW formally advises the offender of their actions and seeks future 'voluntary' compliance.; and
- Prosecutions: These are offences of serious nature (prescribed in the FRMA) that immediately proceed to formal, legal prosecution. Such matters often incur hefty fines or can even result in incarceration, and matters brought before the court are often vigorously defended (especially by commercial fishers).

FMOs have the autonomy to issue an infringement warning after detecting some 'minor' offences that have resulted from a lack of understanding of the rules or an error of judgment, while infringement notices are used to apply a modified penalty and are usually used in cases where the offence does not warrant prosecution action that is likely to end up in court. Modified penalties are prescribed in Schedule 12 of the FRMR and can only be applied to particular sections of the FRMA (including contravening a provision of a Management Plan) and the FRMR[26]. A copy of the infringement notice is provided in Schedule 14 of the FRMR. If an infringement notice is disputed, the offender can request the matter be heard in court.

More serious offences against the legislation will require the Department to seek to prosecute. The Department's Prosecution Advisory Panel (PAP) reviews recommendations made by the OCD in respect to alleged offending against the FRMA (or Pearling Act) and considers whether such decisions are in the 'public interest'. This process ensures fairness, consistency and equity in the prosecution decision-making

[25] Note that clause 19A of the Management Plan (offences and major provisions) is redundant as section 75 of the FRMA was revoked and replaced with section 74, which applies across all Fishery Management Plans
[26] http://www.slp.wa.gov.au/legislation/statutes.nsf/main_mrtitle_1458_homepage.html

process. The PAP consists of three panel members (representing legal and executive services and the compliance and aquatic management branches) who meet on a monthly basis or as necessary. The PAP operates on a majority basis, with the prosecution process continuing where the majority of the PAP agrees with the recommendation to prosecute. If the majority of the PAP disagrees with the recommendation to prosecute, the matter is referred to the Chief Executive Officer (CEO) of the Department, who will then make a determination on the matter. Should prosecution action be undertaken, the outcomes are generally released to the public via media releases and recorded on the Department's website[27]. Penalties for illegal activity in WA fisheries are commensurate with the value of the illegal fish involved and the type of illegal activity. This can sometimes result in large monetary penalties for certain types of activities, with large penalties considered necessary in order to create a deterrent effect for high-value species, such as Western Rock lobster or abalone. Additional penalty provisions that apply should there be a prosecution are provided in the FRMA under sections 222 (mandatory additional penalties based on value of fish), 223 (court ordered cancellations or suspensions of authorisations), 225 (prohibition on offender activities) and 218 (forfeiture of catch, gear, etc.).

A successful prosecution for a serious offence in a commercial fishery may result in a 'black mark' against the fisher or the commercial licence (as per section 224 of the FRMA). If an authorisation holder or a person action on behalf of the holder accumulates three black marks within a 10-year period, the authorisation is suspended for one year. Additionally, under section 143, the CEO has the administrative power to cancel, suspend or not renew an authorisation in certain circumstances, which can be used even if cancellations through the court are unsuccessful. These powers have been regularly used to deal with serious offending in other fisheries.

All fisheries offences in WA are recorded in a dedicated Departmental offences system, which also manages the workflow associated with infringements and prosecutions. In order to link this information with patrol data, FMOs include information about the fishery, DPC area, type of patrol and whether the offence resulted from a targeted inspection in all offence paperwork.

Despite a continuing level of MCS in accordance with the OCP, there have been few offences in the last six years (Table 17). Note the data provided here indicate offences that resulted in an outcome in-line with the enforcement measures described above.

Table 17. Summary of offences in the AIMWTMF from 2014/15 – 2019/20

Year	Infringement Warnings	Infringement Notices	Letters of Warning	Prosecution
2014/15	0	0	0	0
2015/16	0	0	0	0
2016/17	0	0	0	0
2017/18	0	3	0	1
2018/19	0	0	0	0
2019/20	0	0	0	0

The offences that occurred included 1 breach to fishing inside the closed area (AIWMT Compliance Report 2015-2019). This offence type has not been repeated by any vessel since 2017/2018. Other issues, that have not resulted in prosecutions after investigation included ALC related issues (*powered down without authorisation, ceasing to report in port or at sea and powering down due to battery issues*) (AIWMT, 2019).

[27] Example of media release: http://www.fish.wa.gov.au/About-Us/Media-releases/Pages/Court-fines-hit-hard-for-out-of-season-lobster-fishing.aspx

In evaluating compliance in a specific fishery, the Department uses a weight-of-evidence approach, which considers:

- Ongoing evidence of a sustainable fishery, i.e. whether ecological objectives continue to be met;
- Assessment of the risk posed by the fishery to target species and ecosystem components under the current management regime;
- Annual outputs arising from formal MCS systems —
    - Adequacy of commercial compliance coverage (patrol hours) including VMS;
    - Number of offences and successful prosecutions (dependent on whether compliance is undertaken in a random or targeted manner); and
    - Average non-targeted compliance rate;
- Number of reports of illegal activity logged by Fishwatch and from intelligence gathered by FMOs;
- General level of industry support / buy-in around fishing rules; and
- Level of compliance education and communications during key stakeholder engagement (at least annually).

Using this weight-of-evidence approach, there is a high degree of confidence that fishers in the AIMWTMF comply with the management system in place, including providing information of importance to the effective management of the fishery based on the following:

- There is ongoing evidence that the fishery is operating sustainably, as the performance indicators for each component (i.e. target species, retained non-target species, bycatch, ETP species, habitat and ecosystem processes) of the fishery has been maintained above threshold reference levels (see *"Fishery-Specific Objectives [P 3.2.1]"* in associated MSC Assessment document).
- In the most recent ecological risk assessment (2020) for the AIMWTMF, the highest risk indicated to any component was 'moderate' (i.e. the maximum acceptable level of impact). Where this was the case (i.e. Saucer scallops), appropriate management actions have been implemented to mitigate this risk. The *Status Report of the Fisheries and Aquatic Resources of Western Australia* report on the evaluation of performance of the fishery annually.
- There has been four offences recorded (based on formal compliance systems) in the AIMWTMF within the last six years, and one prosecution;
- Additionally, apart from statutory requirements around submitting catch returns, the licencees actively participate in providing extra information for the effective management of the fishery, particularly through the provision of industry boats for Department surveys and the collection of additional data via industry surveys, which are delivered under a Service Level Agreement (SLA) with the Department.

The Department also measures compliance outcomes by estimating compliance and non-compliance rates. These terms refer to the proportion of fishers in a defined group (i.e. the AIMWTMF) that, on the basis of random inspections, were found observing fishing rules or not, respectively. Thus, the estimated average annual compliance rate is obtained by comparing the number of non-targeted contacts with fishers in the AIMWTMF against the number of detected offences. The annual average compliance rate for the AIMWTMF between 2014/15 and 2019/20 was greater than 98%. Based on the weight-of-evidence approach detailed above and the long-term compliance rate, there is no evidence of systematic non-compliance by the licencees and skippers in the AIMWTMF, nor is there evidence that the (negligible) level of non-compliance in the past five years is a risk to target prawn stocks or ecosystem components.

7.4.7 Performance Review (P 3.2.4)

The AIMWTMF has in place mechanisms to evaluate all parts of the management system. Should any data arising from regular monitoring and evaluation indicate that the AIMWTMF is having an unacceptable impact, review processes are triggered and decision-making processes are implemented.

- General management

As part of the DPIRD's risk-based planning cycle, the current risk assessment for the AIMWTMF management system is reviewed annually. The risk assessment reviews any changes to the management system, including the Aquatic Resource Program, the AIMWTMF research plan and compliance requirements. The review also takes into account the level of resourcing across the management, research and compliance for the AIMWTMF, which will be modified if a change to the level of risk has altered the level of management, compliance, monitoring or assessment required in the future. The risk assessment and management review involve extensive consultation with the key stakeholders.

A public sector performance report[28] is required annually by legislation in the form of the DPIRD's Annual Report which includes key performance indicators (KPIs) around the management and sustainability of the State's fish resources (Administration/Management) and the State of the Fisheries (Research, Compliance and Management) report to Parliament. Our performance against KPIs is reviewed annually by independent Office of the Auditor General.

- Fisheries specific management and harvest strategy evaluation

The statutory management framework is reviewed when there is evidence to support statutory changes to the longer-term management measures or to implement new longer-term measures. There is no need to regularly amend the Management Plan; but the AIMWTMF Management Plan was updated in 2018 to include a specified overall limit of the headrope length.

Annual evaluation of the performance of the fishery against the reference levels contained in the harvest strategy is the main mechanism used to evaluate the fishery-specific management system. An internal review of one or more parts of the management system is triggered if annual (or in-season) performance evaluation against the operational (short-term) objectives indicates the potential need for a management response (i.e. when below the target level). Potential issues are recognised and addressed in a timely manner prior to the following fishing season or during the current season, to meet both operational and long-term management objectives.

The outcomes of annual monitoring and evaluation are reported annually in the *Status Report of the Fisheries and Aquatic Resources of Western Australia: The State of the Fisheries*.

The AIMWTMF harvest strategy was subject to extensive internal review, followed by review process in consultation with the licensee, which resulted in the current harvest strategy (2020 – 2025; DPIRD, 2020). The review includes an assessment of the appropriateness of the current performance indicators, reference levels and control rules may be refined and updated during this time in consultation with the licensee as further relevant information becomes available (e.g. new research, risk assessments and expert advice).

Research and Research Plan

The status and progress of activities required under the Scallop fisheries research plan are closely monitored by Research staff to ensure that actions are being undertaken within the designated timeframes. Any issues around milestones, monitoring, reporting, resourcing, etc., relevant to the research plan are discussed with Management staff as they arise. In addition, the Research Division's Supervising Scientists have fortnightly meetings to raise any issues, which could include risks around the timing of delivery of research programmes / information. This group develops actions to address slippages, and any significant issues can be included as standing items.

[28] DPIRD, Annual Report 2019, https://www.dpird.wa.gov.au/annual-report

The regular monitoring framework applied to the research plan may identify a need to undertake interim external or internal review of the research plan outside of the normal five-year review cycle.

Any results arising from the research plan are generally externally peer reviewed, and always internally peer reviewed prior to publishing. The Supervising Scientists manages the peer review process of all fisheries, including with external reviewers.

The Aquatic Resource Program and the higher level DPIRD Research Strategic Plan is reviewed annually. The stock assessment and research framework for WA prawn and scallop fisheries was externally reviewed by Malcolm Haddon (Marine Research Laboratory Tasmanian Aquaculture and Fisheries Institute, University of Tasmania) during a two day workshop undertaken in November 2012. An external science review was conducted by Malcolm Haddon[29] in April 2019 for the Shark Bay prawn and scallop fisheries. The findings of this review had some relevance to the AIMWTMF in terms of feedback regarding prawn survey programs (Mervi Kangas, DPIRD, pers. comm. November. 2020.).

An internal review of the WA ESD risk assessment process was completed in 2015[30], and an ERA for the AIMWTMF completed in 2020.

Monitoring and evaluation against ESD performance measures is undertaken annually and reported in *Status Report of the Fisheries and Aquatic Resources of Western Australia: The State of the Fisheries*.

The AIMWTMF's export accreditation (and therefore its entire fishery specific management system) is externally reviewed (re-assessed) every five years by the Commonwealth DAWE[31]. The AIMWTMF fishery-specific management system was most recently reviewed by the DAWE in 2015 and succeeded in achieving export accreditation the fishery for a period of ten years.

MCS System

Regular internal review of the AIMWTMF's MCS system is undertaken every 12 – 18 months by means of a compliance risk assessment. The AIMWTMF OCP is reviewed following the compliance risk assessment.

An external Auditor General's Public Sector Performance Report (pp 16-27) [32] on compliance in WA's commercial and recreational fisheries, including those of the West and South Coast Bioregions, was submitted to Parliament in June 2009. Following the Auditor General's Report, in November 2009, the Department's compliance program was evaluated with the aim of recommending optimisation in commercial and recreational fisheries in WA, the results of which were published in Green and McKinlay (2009).

As a result of these reviews, the Department has greatly improved its compliance program by:

- Developing regional and state-wide compliance risk assessments as a basis for its compliance program;
- Determining the level of compliance activity that is required to achieve effective compliance outcomes for individual fisheries; and
- Identifying and collecting the key information required for compliance reporting and management purposes.

As part of a commitment to reviewing the framework of WA's Compliance system, the Department also participated in a national study in measuring fisheries compliance outcomes (Price, et al, FRDC 2014). This includes a review of methodologies to assess effectiveness of compliance programs and measure compliance outcomes; a survey on aspects relating to output and outcome indicators collected by a limited

[29] Haddon, M, Shark Bay Trawl Fisheries Science Review, September 2019

[30] Fletcher, W.A. Review and refinement of an existing qualitative risk assessment method for application within an ecosystem-based management framework, *CES Journal of Marine Science*, Volume 72, Issue 3, March/April 2015, Pages 1043–1056, https://doi.org/10.1093/icesjms/fsu142

[31] Australian Government, D0SEWPF, Assessment of the Western Australian Exmouth Gulf Prawn Managed Fishery, https://www.environment.gov.au/marine/fisheries/wa/abrolhos-island

[32] https://audit.wa.gov.au/wp-content/uploads/2013/05/report2009_07.pdf

sample of fisheries compliance agencies; and a workshop process. Workshop participants included AFMA, Fisheries (Victoria), Primary Industries (South Australia), the University of Maryland and DPIRD (WA).

7.4.8 Principle 3 Performance Indicator scores and rationales

PI 3.1.1 – Legal and/or customary framework

PI 3.1.1		The management system exists within an appropriate legal and/or customary framework which ensures that it: - Is capable of delivering sustainability in the UoA(s); - Observes the legal rights created explicitly or established by custom of people dependent on fishing for food or livelihood; and - Incorporates an appropriate dispute resolution framework		
Scoring Issue		SG 60	SG 80	SG 100
a	Compatibility of laws or standards with effective management			
	Guide Post	There is an effective national legal system **and a framework for cooperation** with other parties, where necessary, to deliver management outcomes consistent with MSC Principles 1 and 2	There is an effective national legal system and **organised and effective cooperation** with other parties, where necessary, to deliver management outcomes consistent with MSC Principles 1 and 2.	There is an effective national legal system and **binding procedures governing cooperation with other parties** which delivers management outcomes consistent with MSC Principles 1 and 2.
	Met?	**Yes**	**Yes**	**Yes**
Rationale				

Australia is a signatory to a number of international agreements and conventions (which it applied within its EEZ). These include: United Nations Convention on the Law of the Sea (regulation of ocean space); Convention on Biological Diversity and Agenda 21 (sustainable development and ecosystem based fisheries management); Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES; protection of threatened, endangered and protected species); Code of Conduct for Responsible Fisheries (standards of behavior for responsible practices regarding sustainable development); United Nations Fish Stocks Agreement; and State Member of the International Union for Conservation of Nature (marine protected areas).

The Offshore Constitutional Settlement provides for the demarcation of fisheries management responsibility between the States and Australian Commonwealth. The State of Western Australia has responsibility for management outside to manage fisheries inside 3 nautical miles.

WA fisheries legislation and policy conforms to overarching Commonwealth Government fisheries and environmental law, including the EPBC Act. The EPBC Act provides a legal framework to protect and manage nationally and internationally important flora, fauna, ecological communities and heritage places — defined in the EPBC Act as matters of national environmental significance.

The *Fisheries Resources Management Act, 1994* sets out the legal requirements for managing WA fisheries and in consistent with MSC Principles1 and 2. The Director General of the Department of Fisheries (Chief Executive Officer) is appointed under Part 3 of the *Public Sector Management Act, 1994* for five years. The executive structure of the Department brings all key aspects of fisheries management, such as research, policy, compliance & enforcement under a single dedicated department umbrella. It is relatively unusual for all fisheries management functions to fall under a single department and for that department to be focused solely on fisheries.

Binding procedures are explicit within these acts. Therefore, the national legal system and governing binding governance cooperation meets SG 60, SG 80 and SG 100.

b	Resolution of disputes

	Guide post	The management system incorporates or is subject by law to a **mechanism** for the resolution of legal disputes arising within the system.	The management system incorporates or is subject by law to a **transparent mechanism** for the resolution of legal disputes which is **considered to be effective** in dealing with most issues and that is appropriate to the context of the UoA.	The management system incorporates or is subject by law to a **transparent mechanism** for the resolution of legal disputes that is appropriate to the context of the fishery and has been **tested and proven to be effective**.
	Met?	**Yes**	**Yes**	**Yes**
Rationale				

There are well established mechanisms for administrative and legal appeals of decisions taken in respect of fisheries, which are prescribed in Part 14 of the FRMA. Most decisions made by the Chief Executive Officer of the Department and disputes regarding the implementation and administration of fisheries legislation can be taken to the Western Australian State Administrative Tribunal (SAT)[33] for review or the WA (and Commonwealth) Court System[34]. These mechanisms have been used and tested across several fisheries. The decisions of the State Administration Tribunal (SAT) and the Courts are binding on the Department (for details of decisions see http://decisions.justice.wa.gov.au/SAT/SATdcsn.nsf). All SAT decisions must be carried out by the Department (section 29(5) of the State Administrative Tribunal Act 2004[35]).

The consultative, educative and partnership approach to management adopted by DPIRD, is inclusive of all stakeholders, but usually working with key 'peak' consultation bodies ('WAFIC' and 'Recfishwest'), provides informal but effective mechanisms to minimise opportunities for disputes. Therefore, the national legal system provides for a transparent mechanism for the resolution of legal disputes and meets SG 60, SG 80 and SG 100.

	Respect for rights			
c	Guide post	The management system has a mechanism to **generally respect** the legal rights created explicitly or established by custom of people dependent on fishing for food or livelihood in a manner consistent with the objectives of MSC Principles 1 and 2.	The management system has a mechanism to **observe** the legal rights created explicitly or established by custom of people dependent on fishing for food or livelihood in a manner consistent with the objectives of MSC Principles 1 and 2.	The management system has a mechanism to **formally commit** to the legal rights created explicitly or established by custom of people dependent on fishing for food and livelihood in a manner consistent with the objectives of MSC Principles 1 and 2.
	Met?	**Yes**	**Yes**	**Yes**
Rationale				

Western Australian inshore coastal fishing requires consideration of the degree to which indigenous Aboriginal people are recognised in the management system. Indigenous rights are formally committed to in WA by the *Aboriginal Heritage Act 1972*, which recognizes Aboriginal peoples' strong relationships to the land and provides automatic protection for all places and objects in Western Australia.

DPIRD also has a customary fishing policy. This applies to those of Aboriginal descent, fishing in a traditional manner, for non-commercial needs. This requires fisheries policy and management to provide specific and

[33] http://www.sat.justice.wa.gov.au
[34] http://www.courts.dotag.wa.gov.au/C/courts_history.aspx
[35] http://www.slp.wa.gov.au/legislation/statutes.nsf/main_mrtitle_918_homepage.html

appropriate consideration of management practices in customary fisheries. Reference to custodial rights is explicitly set out in the FRMA as are the specific protection of Aboriginal rights.

The *Aboriginal Land Act 1978* (NT) 12(1) empowers the Administrator to close the seas adjoining and within 2km of Aboriginal land to others who are not Aborigines entitled by tradition to enter and use the seas in accordance with that tradition. The AIMWTMF, is a specialist offshore commercial fishery and no Native Title claims have been made, nor are any Aboriginal heritage sites registered.

Therefore, the management system has a mechanism to formally commit to the legal rights created explicitly or established by custom of people dependent on fishing for food and livelihood in a manner consistent with the objectives of MSC Principles 1 and 2 and meets SG 60, SG 80 and SG 100.

References

The Offshore constitutional settlement. Available at https://www.ag.gov.au/Internationalrelations/InternationalLaw/Pages/TheOffshoreConstitutionalSettlement.asp

The EPBC Act (file:///C:/Users/richa_000/Desktop/Dropbox/WA%20MSC%20Exmouth/P3.1/Legislation/ENVIRONMENT%20PROTECTION%20AND%20BIODIVERSITY%20CONSERVATION%20ACT%201999.html)

Fisheries Resources Management Act, 1994

Public Sector Management Act, 1994

Aboriginal Heritage Act of 1972

The Aboriginal Land Act 1978

Franklyn QC (2003).

Draft scoring range and information gap indicator added at Announcement Comment Draft Report

Draft scoring range	**≥80**
Information gap indicator	**Information sufficient to score PI**

Overall Performance Indicator scores added from Client and Peer Review Draft Report

Overall Performance Indicator score	**100**
Condition number (if relevant)	

PI 3.1.2 – Consultation, roles and responsibilities

PI 3.1.2		The management system has effective consultation processes that are open to interested and affected parties The roles and responsibilities of organisations and individuals who are involved in the management process are clear and understood by all relevant parties		
Scoring Issue		SG 60	SG 80	SG 100
a	Roles and responsibilities			
	Guide Post	Organisations and individuals involved in the management process have been identified. Functions, roles and responsibilities are **generally understood**.	Organisations and individuals involved in the management process have been identified. Functions, roles and responsibilities are **explicitly defined and well understood for key areas** of responsibility and interaction.	Organisations and individuals involved in the management process have been identified. Functions, roles and responsibilities are **explicitly defined and well understood for all areas** of responsibility and interaction.
	Met?	**Yes**	**Yes**	**Yes**
Rationale				

There is explicit definition of the role of the Federal (AFMA) and State level of fisheries management. Critically, this includes clearly stating where overall responsibility for fisheries is divided between state and Commonwealth according to the Offshore Constitutional Settlement.

Within DPIRD WA, there is explicit definition and understanding of the roles of research, enforcement and management policy teams. The executive structure of the department brings all key aspects of fisheries management, such as research, policy, compliance & enforcement under a single dedicated department umbrella. This increases clarification of roles and responsibilities. The roles of other departments such as DAWE are also explicitly defined and it is understood how these relate to each other.

The functions, roles and responsibilities are explicitly defined and well understood for all areas of responsibility and interaction and meet SG 60, SG 80 and SG 100.

b	Consultation processes			
	Guide Post	The management system includes consultation processes that **obtain relevant information** from the main affected parties, including local knowledge, to inform the management system.	The management system includes consultation processes that **regularly seek and accept** relevant information, including local knowledge. The management system demonstrates consideration of the information obtained.	The management system includes consultation processes that **regularly seek and accept** relevant information, including local knowledge. The management system demonstrates consideration of the information and **explains how it is used or not used**.
	Met?	**Yes**	**Yes**	**Yes**
Rationale				

Section 65 of the FRMA sets out the legislative consultation requirements the Minister must adhere to when amending an existing management plan. Section 65 has 'natural justice' origins, in that a person whose rights may be about to be affected should have an opportunity to be heard before any adverse action / impact is given effect.

The statutory consultation function is presently conducted by WAFIC on behalf of the Department under the SLA, and when required, delegated to the relevant associations. This process of consultation via the two peak agencies appears Any update of evidence to have been regular and effective at engagement with stakeholders in the commercial and recreational sectors, but not in the ENGO sector.

Consultation with industry is enshrined in the AIMWTMF Management Plan, as an obligation to consult with license holders (Clause 9 (2) GoWA 2018). Annual pre-season meetings are held between DPIRD and the vessel owners, and the pre-season briefings with skippers provides the opportunity for DPIRD to incorporate relevant information, including local knowledge.

The Guideline for Stakeholder Engagement on Aquatic Resource Management-related Processes (DoF 2016). Before making a decision around aquatic resource policy, the Minister for Fisheries must demonstrate that they have asked for, and taken into account, interested and affected parties' submissions on policy proposals. Evidence that the management system demonstrates consideration of the information and explains how it is used, is available from various letters written to WAFIC and others.

DPIRD have also strengthened consultation to include participation on key fisheries policy matters and initiatives. DPIRD has created a public comment space on its website. This allows all interested and affected parties to view information and make submissions on draft documents released for public comment for specified periods of time. Key stakeholders are invited directly to provide comment through this forum.

The public consultation space can be accessed at the following web address: http://www.fish.wa.gov.au/About-Us/Public-Comment/Pages/default.aspx, This shows all of the documents currently open for public comment.

At national level, DAWE provided the opportunity for stakeholder consultation on key nonspecific Commonwealth fishery policy areas such as harvest strategy development and bycatch management plans (DAWE, 2013). Bodies consulted included the commercial fishing industry, environmental nongovernment organisations, the recreational fishing industry, state fisheries departments, scientific research organisations and government organisations. Throughout the consultation process, information about the review and how to make a submission was available online and in hardcopy on request. The review was advertised in several mediums including the Fisheries Research and Development Corporation's Fish Magazine and the AFMA website. The public consultation period was open for six weeks to give stakeholders the opportunity to consider their submissions and provide input. DAWE consulted government, the commercial fishing industry, environmental nongovernment organisations, the recreational fishing industry, state fisheries departments, scientific research organisations and government organisations. The department also developed a discussion paper for public consultation, as part of the review process. The discussion paper was released in November 2012 for a 6-week public consultation period.

An Independent Review of the EPBC Act commenced in 2019. Provision is made for all interested parties to provide feedback via a survey (https://epbcactreview.environment.gov.au/resources/interim-report/review-and-how-have-your-say).

The DAWE fisheries assessments, completed as an EPBC requirement, are also available for public

comment. https://www.environment.gov.au/marine/fisheries/open-for-public-comment

There is a process that allows other organisations to provide submissions, and engage directly. This includes access to information provided by the DPIRD on the website, as well as access to information provided through

Evidence does show consideration of the information obtained from stakeholders that respond. Therefore, the consultation process meets the SG 60, SG 80 and SG 100 requirements.

	Participation			
c	Guide Post		The consultation process **provides opportunity** for all interested and affected parties to be involved.	The consultation process provides **opportunity and encouragement** for all interested and affected parties to be involved, and **facilitates** their effective engagement.
	Met?		**Yes**	**Yes**
Rationale				

The existing system for consultation includes both statutory and non-statutory opportunities for interested stakeholders to be involved in the management system. Opportunities for stakeholder input are provided through calls for submissions on Fisheries Management Papers (see above reference to the public consultation space), and through expert reference groups which are open to stakeholders. To ensure coverage and engagement during the consultation period with stakeholders and the wider community, the Department uses a variety of processes including: Management meetings, Direct consultation in writing; Press releases; newspaper, radio and television interviews; information posted on the Department's website information; inviting stakeholders to sit on tasked working groups, scientific reviews / workshops, risk assessments and management reviews.

Specific to the AIMWTMF fishery, an engagement process is in place to facilitate non-fisher stakeholder consultation processes. These include an Annual Management Meeting between the Department, WAFIC and industry.

The Department has established the key contacts within these stakeholder groups to develop processes for opportunity to be involved in or informed of management decisions where relevant. Fishery-specific stakeholder lists are available, listing the 'area of interest' and 'level of interest'. Apart from DPIRD and WAFIC, these include the DBCA, the Conservation Coucil for WA, the the Conservation Commission, Recfishwest, Australian Museum, the Universities, the Western Autralian Marine Science Institute, the Australian Institute of Marine Sciences, Yamatji Marlpa Aboriginal Corporation, various NGOs and the Shires. These organisations participated in the ERA Workshop held in 2019.

References

Western Australian Fishing Industry Council Inc., http://www.wafic.org.au/ Recfishwest, http://www.recfishwest.org.au/

DoF, 2016i, Guideline for stakeholder engagement on aquatic resource management- related processes (Fisheries Occasional Publication No. 131) (the Guideline) in September 2016.

GoWA (2018) Abrolhos Islands and Mid-West Trawl Limited Entry Fishery Notice 1993
DPIRD, 2019,

DPIRD (2020) AIMWTMF Summary of Consultation 2019/20.

DAWE (2013), Review of the Harvest Strategy Policy and Guidelines. Available at https://www.agriculture.gov.au/fisheries/domestic/harvest_strategy_policy/review

DAWE (2020) An Independent Review of the EPBC Act commenced in 2019. Provision is made for all interested parties to provide feedback via a survey (https://epbcactreview.environment.gov.au/resources/interim-report/review-and-how-have-your-say).

The DAWE fisheries assessments, See https://www.environment.gov.au/marine/fisheries/open-for-public-comment.

Draft scoring range and information gap indicator added at Announcement Comment Draft Report

Draft scoring range	**≥80**
Information gap indicator	**Information sufficient to score PI**

Overall Performance Indicator scores added from Client and Peer Review Draft Report

Overall Performance Indicator score	**100**
Condition number (if relevant)	

PI 3.1.3 – Long term objectives

PI 3.1.3		The management policy has clear long-term objectives to guide decision-making that are consistent with MSC Fisheries Standard, and incorporates the precautionary approach		
Scoring Issue		SG 60	SG 80	SG 100
a	Objectives			
	Guide Post	Long-term objectives to guide decision-making, consistent with the MSC Fisheries Standard and the precautionary approach, are **implicit** within management policy.	**Clear** long-term objectives that guide decision-making, consistent with MSC Fisheries Standard and the precautionary approach are **explicit** within management policy.	**Clear** long-term objectives that guide decision-making, consistent with MSC Fisheries Standard and the precautionary approach, are **explicit** within **and required by** management policy.
	Met?	**Yes**	**Yes**	**Yes**
Rationale				

The WA Government has set a long-term overarching objective that is underpinned by the principle of social and environmental responsibility *to ensure that economic activity associated with aquatic resources is managed in a socially and environmentally responsible manner for the long-term benefit of the State*. This objective is explicit in both fisheries legislation and management policy.

The stated objectives of the WA FRMA are to develop and manage fisheries and aquaculture in a sustainable way; and to share and conserve the State's fish and other aquatic resources and their habitats for the benefit of present and future generations. The Act also incorporates the precautionary approach.

Objectives are also explicitly stated in the DPIRD Strategic Plan 2018 – 2021. These objectives are listed as: Sustainable fisheries management - WA benefits from sustainable fisheries that support and optimise social, economic and environmental outcomes; and Natural resource management planning and assessment - WA's natural resources are sustainably used and managed using a sound risk-based planning and assessment approach, incorporating partnerships with traditional landowners and custodians.

The Western Australian Government is committed to the concept of ESD, which seeks to integrate short- and long-term economic, social and environmental effects in to all decision-making. The key principles of ESD are implicitly contained in the objectives of the FRMA, and the Department's ESD Policy (Fletcher 2002). Prescribed and implemented actions by DoF include identifying issues; determining the importance of each of these issues using risk assessment; completing suitably detailed reports; and compiling sufficient background material to put these reports into context.

In addition, the management of the fisheries by DPIRD is bound by higher level objectives set out in both national (Commonwealth) and International Legislation, most specifically the precautionary approach and the ecosystem approach to fisheries management.

Evidence that the formulation and implementation of long- term objectives are explicit and required by management policy are exhibited in various performance assessments including: effectiveness and efficiency indicators to show the extent to which the Department achieved its goal of conserving and sustainably developing the State's aquatic resources (the Department's *Annual Report*.) The *Strategic Plan 2018 - 2021* sets out the strategies and key deliverables and Divisions of the Department that are responsible for delivery. Each of WA's main commercial fisheries has been assessed using the *Australian National ESD Framework for Fisheries*, and it is now an integral part of the stock sustainability assessment process for all fisheries in WA. For the purposes of the wildlife trade provisions of Part 13A of the EPBC Act (i.e. to be exempt from export controls for native species harvested in a fishery), management agencies must demonstrate that fisheries management regimes comply with the objectives of ESD. Performance against social and economic objectives is measured regularly. Commercial fisheries' gross value of production and rates of employment are reported annually in the *Status Reports of the Fisheries and Aquatic Resources of WA: the State of the Fisheries*.

WA fisheries assessments are conducted against the Commonwealth Guidelines which outline specific principles and objectives designed to ensure a strategic and transparent way of evaluating the ecological sustainability of fishery management arrangements. Management arrangements demonstrate a precautionary approach, particularly in the absence of information. Evidence of the application of the precautionary approach to fisheries management is provided in management responses as and when the stock falls below the Target Reference Point, restricting the trawl footprint and the implementation of BRDs, despite low risk to bycatch species. A practical, risk-based framework for use with regional-level management of marine resources has been developed by the Department to enable cross / multiple fishery management at the bioregional level to fully implement EBFM (Fletcher, 2014).

The evidence provided demonstrates that there are clear long-term objectives that guide decision-making, consistent with MSC Principles and Criteria and the precautionary approach, are explicit within and required by management policy. Therefore the SG 60, SG 80 and SG 100 requirements are met.

References

WA Fisheries Resources Management Act (1994)

DPIRD Strategic Plan 2018 – 2021 (https://dpird.wa.gov.au/sites/default/files/Strategic_intent_trifold_FINAL_web.pdf)

State of the Fisheries report (https://dpird.wa.gov.au/sites/default/files/Strategic_intent_trifold_FINAL_web.pdf)

DPIRD, AIMWTMF Fisheries Management Plan 2020-2025

DPIRD, Annual report (https://dpird.wa.gov.au/sites/default/files/2019-10/DPIRD%20Annual%20Report%202019%20-%20PDF.pdf)

Fletcher, W.J. (2014), Review and refinement of an existing qualitative risk assessment method for application within an ecosystem-based management framework, ICES Journal of Marine Science, doi: 10.1093/icesjms/fsu 142

Draft scoring range	**≥80**
Information gap indicator	**Information sufficient to score PI**

Overall Performance Indicator scores added from Client and Peer Review Draft Report

Overall Performance Indicator score	**100**
Condition number (if relevant)	

PI 3.2.1 – Fishery-specific objectives

PI 3.2.1		The fishery-specific management system has clear, specific objectives designed to achieve the outcomes expressed by MSC's Principles 1 and 2		
Scoring Issue		SG 60	SG 80	SG 100
a	Objectives			
	Guide Post	**Objectives**, which are broadly consistent with achieving the outcomes expressed by MSC's Principles 1 and 2, are **implicit** within the fishery-specific management system.	**Short and long-term objectives**, which are consistent with achieving the outcomes expressed by MSC's Principles 1 and 2, are **explicit** within the fishery-specific management system.	**Well defined and measurable short and long-term objectives**, which are demonstrably consistent with achieving the outcomes expressed by MSC's Principles 1 and 2, are **explicit** within the fishery-specific management system.
	Met?	**Yes**	**Yes**	**Yes**

Rationale

Long and short-term specific objectives are documented in the AIMWTMF *Harvest Strategy 2020 – 2025* (DPIRD, 2020. The AIMWTMF has a long-term management objective, which is demonstrably consistent with achieving outcomes expressed by MSC Principle 1, *to protect the residual biomass of Saucer scallops to allow stock to recover to above the threshold level within 5 years, to ensure the ecological objective is met.* The harvest strategy contains a range of strategies that are monitored to ensure the short-term objectives are being met consistently. These are supported by defined and measurable performance indicators, management reference levels and control rules for the target species as well as retained, bycatch and ETP species, habitats and ecosystems. The standard of available information has been strengthened for bycatch, ETP and habitats. These support the monitoring of performance indicators.

The long-term management objectives which are demonstrably consistent with achieving the outcomes expressed by MSC Principle 2, are defined in the Harvest Strategy: To maintain spawning stock biomass of each retained species at a level where the main factor affecting recruitment is the environment; to ensure fishery impacts do not result in serious or irreversible harm to bycatch species populations; to ensure fishery impacts do not result in serious or irreversible harm to ETP species populations; to ensure the effects of fishing do not result in serious or irreversible harm to habitat structure and function; and to ensure the effects of fishing do not result in serious or irreversible harm to ecosystem processes. These are supported by defined and measurable performance indicators, management reference levels, control rules and proposed additional activities.

Management outcomes are also provided in the Annual Report (DPIRD, 2019) and reports on recommendations in the Strategic Assessment report to DAWE, 2015.

SG 60, and SG 80 and SG 100 requirements are met.

References

DPIRD, Annual report , 2019, Available at https://www.dpird.wa.gov.au/sites/default/files/2019-10/DPIRD%20Annual%20Report%202019%20-%20PDF.pdf.

DPIRD 2020. Saucer Scallop Resource of the Abrolhos Islands Harvest Strategy 2020-2025.

DAWE, Assessment of the Western Australian Abrolhos Island Gulf Prawn Managed Fishery, February 2015, Available at https://www.environment.gov.au/marine/fisheries/wa/abrolhos-island.

Draft scoring range	**≥80**

Information gap indicator	**Information sufficient to score PI**

Overall Performance Indicator scores added from Client and Peer Review Draft Report

Overall Performance Indicator score	**100**
Condition number (if relevant)	

PI 3.2.2 – Decision-making processes

PI 3.2.2		The fishery-specific management system includes effective decision-making processes that result in measures and strategies to achieve the objectives, and has an appropriate approach to actual disputes in the fishery		
Scoring Issue		SG 60	SG 80	SG 100
a	Decision-making processes			
	Guide Post	There are **some** decision-making processes in place that result in measures and strategies to achieve the fishery-specific objectives.	There are **established** decision-making processes that result in measures and strategies to achieve the fishery-specific objectives.	
	Met?	**Yes**	**Yes**	
Rationale				

There is an established decision making process in place comprising annual and in-season consultation and decision-making that may result in measures to meet short-term (operational) objectives (driven by the control rules contained in the current Harvest Strategy); in-season consultation and decision-making that is designed to meet the economic objective to provide the fishery with the opportunity to optimise economic returns (cooperative framework); and longer-term consultation and decision-making that results in new measures and strategies to achieve the long term fishery-specific management objectives (i.e. changes to the management framework). Therefore, both SG 60 and SG 80 have been met.

b	Responsiveness of decision-making processes			
	Guide Post	Decision-making processes respond to **serious issues** identified in relevant research, monitoring, evaluation and consultation, in a transparent, timely and adaptive manner and take some account of the wider implications of decisions.	Decision-making processes respond to **serious and other important issues** identified in relevant research, monitoring, evaluation and consultation, in a transparent, timely and adaptive manner and take account of the wider implications of decisions.	Decision-making processes respond to **all issues** identified in relevant research, monitoring, evaluation and consultation, in a transparent, timely and adaptive manner and take account of the wider implications of decisions.
	Met?	**Yes**	**Yes**	**Yes**
Rationale				

The decision making process for the AIMWTMF is consistent with those for the broader management system and responds to the defined harvest and bycatch management strategies, which respond to research, outcome evaluations and monitoring programmes. Annual actions are reviewed by DPIRD in the Annual Program Summary Report.

Specific and relevant issues may be evaluated through a number of mechanisms that take account of the wider implications of decisions, including establishment of a tasked working group; external / expert workshops (e.g. ERAs); and / or internal workshops (e.g. harvest strategy development, ecological and compliance risk assessments). Therefore, SG 60, SG 80 and SG 100 have been met.

c	Use of precautionary approach

	Guide post		Decision-making processes use the precautionary approach and are based on best available information.	
	Met?		**Yes**	
Rationale				

The control rules incorporate a precautionary approach to the decision-making process by requiring a review when the target reference level is not met. This ensures that any warning signs are recognised and investigated / addressed in their early stages. The frequency of evaluation (both annually and in-season) and review means that management action to investigate and, where required, alleviate adverse impacts on stocks is always taken before the performance indicators reach the limit reference level.

The application of the EBFM provides a good tool to assess the relative risks to bycatch, ETP species and habitats, initiating, if appropriate, actions to deal with at risk species and assemblages. Examples of precautionary actions include the implementation of BRDs, irrespective of the low risks shown to teleost and invertebrate species. Since there is strong evidence of precautionary actions covering both P1 and P2 management issues, the SG of 80 has been met.

	Accountability and transparency of management system and decision-making process			
d	Guide post	Some information on the fishery's performance and management action is generally available on request to stakeholders.	**Information on the fishery's performance and management action is available on request**, and explanations are provided for any actions or lack of action associated with findings and relevant recommendations emerging from research, monitoring, evaluation and review activity.	Formal reporting to all interested stakeholders **provides comprehensive information on the fishery's performance and management actions** and describes how the management system responded to findings and relevant recommendations emerging from research, monitoring, evaluation and review activity.
	Met?	**Yes**	**Yes**	**Yes**
Rationale				

DPIRD provides a comprehensive range of formal reports which confirm fishery performance and how management has responded to findings from recommendations emerging from research, monitoring, evaluation and review activity. These include: *The Annual Status Report of the Fisheries and Aquatic Resources of Western Australia: the State of the Fisheries*; The AIMWTMF Management Plan (available on the State Law Publisher's website via a link from the Department's website); CEO notices regarding opening and closing the fishery. The *Annual Status Report of the Fisheries Aquatic* Resources includes reference to responsiveness to fisheries management decisions and broad descriptions on compliance, if considered to be an issue of concern. The *AIMWTMF Management Plan* contains details on allocation and the required management measures.The AIMWTMF *Harvest Strategy 2020 – 2025* (DPIRD, 2020), provides information on the required target species and management tools in place and all completed and proposed research relating to the AIMWTMF and the associated ecosystem; and outcomes of management decisions, research and studies (e.g. Fisheries Management Papers, Fisheries Research Reports and Occasional Papers). All reports are publicly available. Therefore, both SG 80 and SG 100 have been met.

	Approach to disputes			
e	Guide post	Although the management authority or fishery may be subject to continuing court challenges, it is not	The management system or fishery is attempting to comply in a timely fashion with judicial decisions	The management system or fishery acts proactively to avoid legal disputes or rapidly implements judicial

		indicating a disrespect or defiance of the law by repeatedly violating the same law or regulation necessary for the sustainability for the fishery.	arising from any legal challenges.	decisions arising from legal challenges.
	Met?	**Yes**	**Yes**	**Yes**

Rationale

The comprehensive decision making and consultation processes in place proactively avoid legal disputes. Extensive consultation brings key stakeholders into the process, leading to participatory decision making that minimizes the likelihood of legal action.

Whilst there have been no legal disputes applicable to the AIMWTMF, other fishery specific disputes demonstrate that the decisions of the SAT and the Courts are binding on the Department and must be implemented. Therefore, SG 60, SG 80 and SG 100 have been met.

References

DPIRD (2020). Abrolhos Islands and Mid-West Trawl Managed Fishery, 2019 Season report.

DPIRD, AIMWTMF Management Plan, 1995, as amended in 2018

DPIRD (2020), Saucer Scallop Resource of the Abrolhos Islands Harvest Strategy 2020- 2025

DPIRD Annual Program Summary, 2019/20

CEO notices regarding opening and closing the fishery.

Draft scoring range	**≥80**
Information gap indicator	**Information sufficient to score PI**

Overall Performance Indicator scores added from Client and Peer Review Draft Report

Overall Performance Indicator score	**100**
Condition number (if relevant)	

PI 3.2.3 – Compliance and enforcement

PI 3.2.3		Monitoring, control and surveillance mechanisms ensure the management measures in the fishery are enforced and complied with		
Scoring Issue		SG 60	SG 80	SG 100
a	MCS implementation			
	Guide post	Monitoring, control and surveillance **mechanisms** exist, and are implemented in the fishery and there is a reasonable expectation that they are effective.	A monitoring, control and surveillance **system** has been implemented in the fishery and has demonstrated an ability to enforce relevant management measures, strategies and/or rules.	A **comprehensive** monitoring, control and surveillance system has been implemented in the fishery and has demonstrated a consistent ability to enforce relevant management measures, strategies and/or rules.
	Met?	**Yes**	**Yes**	**Yes**
Rationale				

Relevant management measures include a limited entry licensing system, effort restrictions, gear controls, including bycatch reduction devices, closed seasons and fishing day caps, spatial and temporal closures and reporting systems.

The Department's Operations and Compliance Division (OCD) delivers the departments compliance services for commercial fisheries. The Monitoring actions are supported by Fisheries and Marine Officers based in Exmouth, mobile patrols to implement surprise inspections as well as regular land, air and sea inspections.

All vessels are fitted with Automatic Location Receivers which allows for VMS position tracking. All licensed fishing vessels are required to submit complete catch returns which are cross checked and validated against processing records.

The control system is supported by an Operational Compliance Plan and Risk Assessment. Monitoring of the effectiveness of the compliance system incorporates 'the weight of evidence' evaluation approach which demonstrates a high degree of effectiveness of the system applied.

The compliance system is further supported by an educational program conducted by OCD, but also in cooperation with the DBAC. OCD also operates a Fishwatch system.

Self-monitoring by industry whilst at sea, or through parent company VMS tracking further underlines the comprehensiveness of the enforcement system in place.

Regulatory and self regulatory actions, along with comprehensive resourcing of assets demonstrate that an effective compliance system is in place. Therefore, SG 60, SG 80 and SG 100 have been met.

b	Sanctions			
	Guide post	Sanctions to deal with non-compliance exist and there is some evidence that they are applied.	Sanctions to deal with non-compliance exist, **are consistently applied** and thought to provide effective deterrence.	Sanctions to deal with non-compliance exist, are consistently applied and **demonstrably** provide effective deterrence.
	Met?	**Yes**	**Yes**	**Yes**
Rationale				

There is an explicit and statutory sanction system in place, which includes application of a range of enforcement measures commensurate with the offences identified. These include warnings, prosecutions and cumulative 'black

marks' leading to licence suspension. There is also a procedure in place for dealing with serious offences using the Department's Prosecution Advisory Panel to determine whether recommendations are appropriate and within the public interest.

The penalties applied are commensurate with the value of the illegal fish caught and the type of illegal activity identified.

The industry itself applies a bonus system to compliant skippers.

Evidence suggests that the sanctions to deal with non-compliance exist, are consistently applied when required and demonstrably provide effective deterrence. Therefore, the guideposts for SG 60, SG 80 and SG 100 have been met.

	Compliance			
c	Guide post	Fishers are **generally thought** to comply with the management system for the fishery under assessment, including, when required, providing information of importance to the effective management of the fishery.	**Some evidence exists** to demonstrate fishers comply with the management system under assessment, including, when required, providing information of importance to the effective management of the fishery.	There is a **high degree of confidence** that fishers comply with the management system under assessment, including, providing information of importance to the effective management of the fishery.
	Met?	**Yes**	**Yes**	**Yes**

Rationale

The Department measures compliance outcomes by estimating compliance and non-compliance rates. The average compliance rate for the AIMWTMF between 2014/2015 and 2019/20 was estimated at 98% (DPIRD OCD, 2020), with one prosecution recorded on the AIMWTMF in the last 5 years.

The industry provides daily catch data to research and compliance, which is supported by data on unloads to processing plants.

There is very strong evidence that fishers systematically comply with the regulatory system and continually provide relevant information. Therefore SG 60, SG 80 and SG 100 have been met.

	Systematic non-compliance			
d	Guide post		There is no evidence of systematic non-compliance.	
	Met?		**Yes**	

Rationale

Based on the weight-of-evidence approach detailed above and the long-term compliance rate, there is no evidence of systematic non-compliance by the licencees and skippers in the AIMWTMF, nor is there evidence that the existing (negligible) level of non-compliance in the past five years is a risk to target prawn stocks or ecosystem components. SG 80 has been met.

References

Travaille, K, Schofield, N Green, T and Brand-Gardner, S (2014) Compliance Programmes, DoF, October, 2014

DPIRD (2019/2020), Vessel Monitoring System VMS Report 2015-2019

DPIRD (2014c) Risk Assessment (Internal document).

Draft scoring range	**≥80**
Information gap indicator	**Information sufficient to score PI**

Overall Performance Indicator scores added from Client and Peer Review Draft Report

Overall Performance Indicator score	**100**
Condition number (if relevant)	

PI 3.2.4 – Monitoring and management performance evaluation

PI 3.2.4		There is a system of monitoring and evaluating the performance of the fishery-specific management system against its objectives There is effective and timely review of the fishery-specific management system		
Scoring Issue		SG 60	SG 80	SG 100
a	Evaluation coverage			
	Guide post	There are mechanisms in place to evaluate **some** parts of the fishery-specific management system.	There are mechanisms in place to evaluate **key** parts of the fishery-specific management system.	There are mechanisms in place to evaluate **all** parts of the fishery-specific management system.
	Met?	**Yes**	**Yes**	**Yes**

Rationale

As part of the Department's risk-based planning cycle, the current the AIMWTMF management systems are reviewed annually in the Program Summary by the Aquatic Resource Management Division. This process identifies any potential risks which are reviewed and addressed.

The statutory management framework is reviewed when there is evidence to support statutory changes to the longer-term management measures or to implement new longer-term measures.

Regular reviews through the Annual Program Summary and the higher level Research Strategic Plan, also reviewed annually, may trigger an immediate review of the AIMWTMF research priorities at any time. The five-year cycle review and risk assessment may also trigger a review of the research plan.

The AIMWTMF Harvest Strategy is subject to regular internal review, and the cyclical 5 year plans are followed by consultation with the licensee and other stakeholders.

Annual evaluation of the performance of the fishery against the reference levels contained in the harvest strategy is the main mechanism used to evaluate the fishery-specific management system. An internal review of one or more parts of the management system is triggered if annual (or in-season) performance evaluation against the operational (short-term) objectives indicates the potential need for a management response (i.e. when below the target level).

Any results arising from the research plan are generally externally peer reviewed, and always internally peer reviewed prior to publishing.

The Supervising Scientists group manages the peer review process of all fisheries, including with external reviewers.

An internal review of the external ESD risk assessment for Western Australian Fisheries was completed in 2015 (Fletcher, 2015).

Monitoring and evaluation against ESD performance measures is undertaken annually and reported in *Status Report of the Fisheries and Aquatic Resources of Western Australia: the State of the Fisheries.*

The evidence suggests that the fishery has in place mechanisms to evaluate all parts of the management system. Therefore the scoring guidance for SG 60, SG 80 and SG 100 has been met.

b	**Internal and/or external review**			
	Guide post	The fishery-specific management system is subject to **occasional internal** review.	The fishery-specific management system is subject to **regular internal** and **occasional external** review.	The fishery-specific management system is subject to **regular internal and external** review.
	Met?	**Yes**	**Yes**	**No**

Rationale
The stock assessment and research framework for the WA prawn and scallop fisheries, including the AIMWTMF was externally reviewed by Malcolm Haddon (Marine Research Laboratory Tasmanian Aquaculture and Fisheries Institute, University of Tasmania) during a two day workshop undertaken in November 2012. As a result of the workshop, the annual survey methodology for the AIMWTMF was reviewed and amended. An external science review was conducted by Malcolm Haddon[36] in April 2019 for the Shark Bay prawn and scallop fisheries. The findings of this review had some relevance to the AIMWTMF in terms of feedback regarding scallop survey programs (Mervi Kangas, DPIRD, pers. comm. November 2020.). The AIMWTMF's export accreditation (and therefore its entire fishery specific management system) including target species and bycatch management is externally reviewed (re-assessed) every five years by the DAWE. Compliance systems have been externally reviewed by the Western Australian Auditor General's, and response actions determined (Green et al. 2009). As part of a commitment to reviewing the framework of WA's Compliance system, the Department also participated in a national study in measuring fisheries compliance outcomes (Price, et al, FRDC 2014). This includes a review of methodologies to assess effectiveness of compliance programs and measure compliance outcomes; a survey on aspects relating to output and outcome indicators collected by a limited sample of fisheries compliance agencies; and a workshop process. Workshop participants included AFMA, Fisheries (Victoria), Primary Industries (South Australia), the University of Maryland and DPIRD (WA). The outcomes of this report were used to strengthen the application of DPIRD's compliance policy actions. The comprehensive range of internal performance reviews and occasional external reviews, not least the overarching export accreditation 5 year review of the fishery by DAWE. These demonstrate that SG 60 and SG 80 are met. However, SG 100 is not met because some external reviews of key parts of the management system (Harvest strategy, the management plans and compliance) have not been subject to recent external reviews.

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Australian Government, D0SEWPF, Assessment of the Western Australian Abrolhos Island and Mid-West Trawl Managed Fishery, https://www.environment.gov.au/marine/fisheries/wa/abrolhos-island

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Fletcher, W.A. Review and refinement of an existing qualitative risk assessment method for application within an ecosystem-based management framework, *CES Journal of Marine Science*, Volume 72, Issue 3, March/April 2015, Pages 1043–1056, https://doi.org/10.1093/icesjms/fsu142

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Draft scoring range	**≥80**
Information gap indicator	**Information sufficient to score PI**

Overall Performance Indicator scores added from Client and Peer Review Draft Report

Overall Performance Indicator score	90
Condition number (if relevant)	

[36] Haddon, M, Shark Bay Trawl Fisheries Science Review, September 2019

Recommendation	**#3**

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Chandrapavan A, Kangas M, Caputi N. (2020). Understanding recruitment variation (including the collapse) of Ballot's saucer scallop stocks in Western Australia and assessing the feasibility of assisted recovery measures for improved management in a changing environment. Fisheries Research Report No. 308 Department of Primary Industries and Regional Development, Western Australia. 76pp. http://www.fish.wa.gov.au/Documents/research_reports/frr308.pdf.

Cragg S.M. (2006) Chapter 2: Development, physiology, behaviour and ecology of scallop larvae. Developments in Aquaculture and Fisheries Science, Volume 35: 45-122

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9 Appendices

9.1 Assessment information

This is the first MSC Assessment of the Abrolhos Islands Scallop Trawl fishery

9.2 Evaluation processes and techniques

9.2.1 Site visits

The September 2020 MSC Covid-19 Pandemic Derogation allowed CABs to submit a variation request to conduct an initial assessment remotely when "national or local travel restrictions that impact the assessment team or certificate holder" are in place. On 22 January 2021 MRAG submitted a variation request to conduct the site visit remotely based on the following https://www.wa.gov.au/organisation/department-of-the-premier-and-cabinet/covid-19-coronavirus-travel-wa. The request was approved by the MSC on 01 February 2021.

The site visit was held on 22 April 2021. The meeting was held remotely due to travel restrictions that are in place as a result of the COVID-19 pandemic.

Those present included:

Hamish Chung, Far West Scallops
Guy Leyland, WAFIC
Sarah Brown, DPIRD
Patrick Cavalli, DPIRD
Mervi Kangas, DPIRD
Scott Evans, DPIRD
Mathew Hourston, DPIRD
Sharon Wilkin, DPIRD

Richard Banks, MRAG Americas
Cameron Dixon, MRAG Americas
Kevin McLoughlin, MRAG Americas

9.2.2 Stakeholder participation

Sixty days prior to the audit site visit, all stakeholders were informed of the site visit and the opportunity to provide information to the auditors in advance of, or during, the site visit. Apart from DPIRD, WAFIC and the fishery clients, no other stakeholders made meeting requests or submissions.

The following stakeholders were contacted for this assessment:

Stakeholder Category	Organisation
State Government Department	Department of Biodiversity, Conservation and Attractions (DBCA)
Commonwealth Department	Department of Agriculture, Water, and the Environment (DAWE)
Commonwealth Department	Australian Fisheries Management Authority (AFMA)
Peak Industry Body (Commercial Fishers)	WAFIC
Peak Industry Body (Recreational Fishers)	Recfish West
Conservation Sector NGOs	Conservation Council of Western Australia
Conservation Sector NGOs	Australian Marine Conservation Society
Conservation Sector NGOs	WWF
Conservation Sector NGOs	Wilderness Society
Regional Aboriginal Corporation	Yamatji Marlpa Aboriginal Corporation
Regional Development Commission	Midwest Development Commission

Local Government	City of Geraldton
Tertiary Institutions	Curtin University
Tertiary Institutions	Murdoch University
Research Institutions	Australian Institute of Marine Science
Licensee	Elmwood Holdings/McBoats
Licensee	FarWest Scallops
DPIRD Regional Services	DPIRD (Geraldton office)
DPIRD Bioregion Manager	DPIRD (Perth HO)
DPIRD Fisheries Managers	DPIRD (Perth HO)
DPIRD Research Division	DPIRD (Hillarys)
DPIRD MSC team	DPIRD (HO and Hillarys)
MSC	MSC (WA, PRC)
Media	Undercurrent News

9.2.3 Evaluation techniques

In the Fishery Standard v2.01 default assessment tree used for this assessment, the MSC has 28 'performance indicators', six in Principle 1, 15 in Principle 2, and seven in Principle 3. The performance indicators are grouped in each principle by 'component.' Principle 1 has two components, Principle 2 has five, and Principle 3 has two. Each performance indicator consists of one or more 'scoring issues;' a scoring issue is a specific topic for evaluation. 'Scoring Guideposts' define the requirements for meeting each scoring issue at the 60 (conditional pass), 80 (full pass), and 100 (state of the art) levels.

Note that some scoring issue may not have a scoring guidepost at each of the 60, 80, and 100 levels. The scoring issues and scoring guideposts are cumulative; this means that a performance indicator is scored first at the SG60 levels. If not all of the SG scoring issues meet the 60 requirements, the fishery fails and no further scoring occurs. If all of the SG60 scoring issues are met, the fishery meets the 60 level, and the scoring moves to SG80 scoring issues. If no scoring issues meet the requirements at the SG80 level, the fishery receives a score of 60. As the fishery meets increasing numbers of SG80 scoring issues, the score increases above 60 in proportion to the number of scoring issues met; performance indicator scoring occurs at 5-point intervals. If the fishery meets half the scoring issues at the 80 level, the performance indicator would score 70; if it meets a quarter, then it would score 65; and it would score 75 by meeting three-quarters of the scoring issues. If the fishery meets all of the SG80 scoring issues, the scoring moves to the SG100 level. Scoring at the SG100 level follows the same pattern as for SG80.

Principle scores result from averaging the scores within each component, and then from averaging the component scores within each Principle. If a Principle averages less than 80, the fishery fails.

Scoring for this fishery followed a consensus process in which the assessment team discussed the information available for evaluating performance indicators to develop a broad opinion of performance of the fishery against each performance indicator. Review of the background and scoring sections by all team members assured that the assessment team was aware of the issues for each performance indicator. Subsequently, the assessment team member responsible for each principle filled in the scoring table and provided a provisional score. The assessment team members reviewed the rationales and scores, and recommended modifications as necessary, including possible changes in scores.

9.3 Peer Review reports

Peer Review A: General comments

Fishery	Assess-ment Start Year	Peer Reviewer (A/B/C)	Question	Yes/No	**Peer Reviewer Justification (as given at initial Peer Review stage).** Peer Reviewers should provide brief explanations for their 'Yes' or 'No' answers in this table, summarising the detailed comments made in the PI and RBF tables.	**CAB Response to Peer Reviewer's comments (as included in the Public Comment Draft Report - PCDR)**
Abrolhos Island and Mid-West scallop trawl fishery	2021	PR A	Is the scoring of the fishery consistent with the MSC standard, and clearly based on the evidence presented in the assessment report?	Yes	The scoring of P1 is pretty conservative - in a couple of places I thought SG100 could be met. But that is not a fundamental problem for the assessment in any way. The only other comment I had on scoring relates to coral reefs which need to be a VME. Overall, the rationales are well-argued and clear.	See PI comments re addition of material on VMEs.
Abrolhos Island and Mid-West scallop trawl fishery	2021	PR A	Are the condition(s) raised appropriately written to achieve the SG80 outcome within the specified timeframe? [Reference: FCP v2.2, 7.18.1 and sub-clauses]	NA	No conditions	No response required.
Abrolhos Island and Mid-West scallop trawl fishery	2021	PR A	Is the client action plan clear and sufficient to close the conditions raised? [Reference FCR v2.0, 7.11.2-7.11.3 and sub-clauses]		~~Note: Include this row for assessments completed against FCR v1.3 and v2.0, but not for FCP v2.1/v2.2 (in which the client action plan is only prepared at the same time as the peer review). Delete this text from the cell for FCR v1.3/v2.0 reviews or delete the whole row if FCP v2.1/v2.2.~~	No response required
Abrolhos Island and Mid-West scallop trawl fishery	2021	PR A	Enhanced fisheries only: Does the report clearly evaluate any additional impacts that might arise from	NA	No enhancement	No response required

			enhancement activities?			
Abrolhos Island and Mid-West scallop trawl fishery	2021	PR A	Optional: General Comments on the Peer Review Draft Report (including comments on the adequacy of the background information if necessary). Add extra rows if needed below, including the codes in Columns A-C.	NA	I really enjoyed reading the P1 background section; the management of this stock is a thing of beauty and it is very well explained. Overall this report is well above the usual standard.	No response required

Abrolhos Island and Mid-West scallop trawl fishery	2021	PR A		Minor comments: bottom p14 'trawling takes place at night' vs top p16 'trawling is undertaken during both day and night' 7.2.1 If the scallops are distributed across the tropics (i.e. across the north coast??) then how can Shark Bay be the northern-most part of the distribution? It would be handy to have a map of the management units, and some justification that these are appropriate definitions of a 'stock', as far as that is known. Table 8 - could you explain what CAES is? catch and effort something or other ... surveys ...? Table 9 - Maybe explain FHPA in the legend? Possibly I missed it above but it's tedious to keep scrolling back and forth to the glossary. 7.2.11 - empty heading 7.3.5 p.58 - In the discussion of the fishery footprint from 2010-19, you might remind the reader than during that period there were only five years of fishing, rather than 10 as it superficially appears. Table 14 - ETP species are not divided into main vs minor - I suggest put NA in that box; ditto ecosystem. Coral reefs should be designated VME habitats not minor habitats (see comment on 2.4.1 and 2.4.2). 7.4.7 The heading has two numbers and PI 3.2.5 does not exist anymore. Further down there is a repeat discussion of MCS, despite a more extensive one further up. Something is a bit strange with the headings in the P3 background section - there seem to be several different varieties.	Report has been amended to address comments

Peer Reviewer A: PI Comments (Standard)

Fishery	Year	UoA stock	UoA gear	PR (A/B/C)	PI	PI Information	PI Scoring	PI Condition	Peer Reviewer Justification (as given at initial Peer Review stage)	CAB Response to Peer Reviewer's comments (as included in the Public Comment Draft Report - PCDR)	CAB Res-ponse Code
Abrolhos Island and Mid-West scallop trawl fishery	2021	Saucer scallop	Twin demersal otter trawl	PR A	1.1.1	Yes	Yes	NA	I agree with the logic behind selecting the reference points used to score SIa and SIb - this is a nice example of an empirical harvest strategy that can still meet MSC requirements even though on the face of it they appear to require an analytical stock assessment. After all, the PRI and Bmsy are attempts to get at the underlying stock dynamics - the SR relationship and stock productivity. This is measuring those parameters more directly than could be achieved by a stock assessment model. You could probably make an argument for 1.1.1b SG100 to be met ('OR has been above this level over recent years') but it makes no difference.		NA (No response needed)
Abrolhos Island and Mid-West	2021	Saucer scallop	Twin demersal otter trawl	PR A	1.1.2	Yes	NA (PI not scored)	NA			NA (No response needed)

scallop trawl fishery											
Abrolhos Island and Mid-West scallop trawl fishery	2021	Saucer scallop	Twin demersal otter trawl	PR A	1.2.1	Yes	Yes	NA	I fully accept the analysis in SIf.		NA (No response needed)
Abrolhos Island and Mid-West scallop trawl fishery	2021	Saucer scallop	Twin demersal otter trawl	PR A	1.2.2	Yes	Yes	NA			NA (No response needed)
Abrolhos Island and Mid-West scallop trawl fishery	2021	Saucer scallop	Twin demersal otter trawl	PR A	1.2.3	Yes	Yes	NA			NA (No response needed)

Abrolhos Island and Mid-West scallop trawl fishery	2021	Saucer scallop	Twin demersal otter trawl	PR A	1.2.4	Yes	Yes	NA	SIa. I actually think that SIa SG100 should be met, but I haven't scored Column I as disagreeing with your scoring, because it is a matter of opinion, plus it makes no difference to the outcome. The November survey is trying to get to a direct measure of stock abundance (albeit with some uncertainties which are explained nicely in the background section). Arguably this is a better metric on which to based your harvest strategy than a stock assessment, with all the inherent uncertainties associated with that (h, M, conflicting datasets blah blah blah), and since it is measuring stock abundance directly rather than indirectly, it is better at taking the biology of the species and the nature of the fishery into account (e.g. the survey site selection focusing on areas used by the fishery). But anyway, if you decide not to	SG80 is appropriate and will keep it at that.	Not accepted (no change)

									change it I won't be upset - it's up to you.		
Abrolhos Island and Mid-West scallop trawl fishery	2021	Saucer scallop	Twin demersal otter trawl	PR A	1.2.4	Yes	Yes	NA	SIe. In contrast to the rest of P1 where it is done beautifully, there is no 'SG80 is met SG100 is not met' sentence here, and while SG100 is scored not met, the rationale suggests that Prof. Haddon's review might meet the requirements? I suspect there might be a paragraph missing at the end.	Added the scoring clarification as suggested by the score remains SG80.	Accepted (no score change, change to rationale)
Abrolhos Island and Mid-West scallop trawl fishery	2021	Saucer scallop	Twin demersal otter trawl	PR A	2.1.1	Yes	Yes	NA	I think that the SGs should be scored Yes rather than NA, procedurally speaking? But I could be wrong. Perhaps the CAB could double-check.	Agreed. There appears to be inconsistency whether a score of NA is given in this situation, however, the assessors agree it should be scored as Yes.	Accepted (no score change, change to rationale)

Abrolhos Island and Mid-West scallop trawl fishery	2021	Saucer scallop	Twin demersal otter trawl	PR A	2.1.2	Yes	Yes	NA	Same comment as above for SIb and in a few other places in P2.	Agreed, as above.	Accepted (no score change, change to rationale)
Abrolhos Island and Mid-West scallop trawl fishery	2021	Saucer scallop	Twin demersal otter trawl	PR A	2.1.3	Yes	Yes	NA			NA (No response needed)
Abrolhos Island and Mid-West scallop trawl fishery	2021	Saucer scallop	Twin demersal otter trawl	PR A	2.2.1	Yes	Yes	NA			NA (No response needed)
Abrolhos Island and Mid-West scallop trawl fishery	2021	Saucer scallop	Twin demersal otter trawl	PR A	2.2.2	Yes	Yes	NA			NA (No response needed)
Abrolhos Island and Mid-West scallop trawl fishery	2021	Saucer scallop	Twin demersal otter trawl	PR A	2.2.3	Yes	Yes	NA			NA (No response needed)

Abrolhos Island and Mid-West scallop trawl fishery	2021	Saucer scallop	Twin demersal otter trawl	PR A	2.3.1	Yes	Yes	NA	SIb. I don't disagree with the scoring at all, but it's a bit odd, here and in the background section, that turtles, sygnathids and snakes are each accorded a paragraph but then sealions etc. are mentioned later as an afterthought and without any analysis. I don't think for a minute that there is a secret problem with sealion bycatch - I'm just wondering why the different treatment.	Additional rationale has been included.	Accepted (no score change, change to rationale)
Abrolhos Island and Mid-West scallop trawl fishery	2021	Saucer scallop	Twin demersal otter trawl	PR A	2.3.2	Yes	Yes	NA			Accepted (no score change, change to rationale)
Abrolhos Island and Mid-West scallop trawl fishery	2021	Saucer scallop	Twin demersal otter trawl	PR A	2.3.3	Yes	Yes	NA			Accepted (no score change, change to rationale)
Abrolhos Island and Mid-West scallop trawl fishery	2021	Saucer scallop	Twin demersal otter trawl	PR A	2.4.1	No (scoring implications unknown)	No (scoring implications unknown)	NA	The background section mentions coral reefs - according to the background paragraph right above Figure 11, the fishery takes place on mixed reef and sand (38%) and reef (3.3%). So	Agreed. Discussion and scoring of VMEs has been incorporated.	Accepted (no score change, additional evidence presented)

									coral reef needs to be scored as a VME, even if you think impacts are minor.		
Abrolhos Island and Mid-West scallop trawl fishery	2021	Saucer scallop	Twin demersal otter trawl	PR A	2.4.2	No (scoring implications unknown)	No (scoring implications unknown)	NA	If coral reefs are scored as a VME, the scoring of this PI probably also needs review to make sure that VMEs are explicitly dealt with by the management system.	Agreed. Discussion and scoring of VMEs has been incorporated.	Accepted (no score change, additional evidence presented)
Abrolhos Island and Mid-West scallop trawl fishery	2021	Saucer scallop	Twin demersal otter trawl	PR A	2.4.3	Yes	Yes	NA	SIc. SG100 box is ticked as met but the rationale says it is not met.	Agreed and amended.	Accepted (non-material score reduction)
Abrolhos Island and Mid-West scallop trawl fishery	2021	Saucer scallop	Twin demersal otter trawl	PR A	2.5.1	Yes	Yes	NA	Ditto the rationale for SIa. I think you could make an argument for at least some evidence - maybe a partial score of 90?	Agreed. The rationale has been amended to support a partial score.	Accepted (score increased)
Abrolhos Island and Mid-West scallop trawl fishery	2021	Saucer scallop	Twin demersal otter trawl	PR A	2.5.2	Yes	Yes	NA			Accepted (no score change, change to rationale)
Abrolhos Island and Mid-West	2021	Saucer scallop	Twin demersal otter trawl	PR A	2.5.3	Yes	Yes	NA	SIb. I'm fine with the scoring but the rationale is focusing on the management of	It is appropriate that the UoA is the focus here given the scoring issue requirements.	Not accepted (no change)

scallop trawl fishery									the target stock rather than the wider ecosystem.		
Abrolhos Island and Mid-West scallop trawl fishery	2021	Saucer scallop	Twin demersal otter trawl	PR A	3.1.1	Yes	Yes	NA	Wow! Perfect score for P3. I wonder if this is a first?		NA (No response needed)
Abrolhos Island and Mid-West scallop trawl fishery	2021	Saucer scallop	Twin demersal otter trawl	PR A	3.1.2	Yes	Yes	NA			NA (No response needed)
Abrolhos Island and Mid-West scallop trawl fishery	2021	Saucer scallop	Twin demersal otter trawl	PR A	3.1.3	Yes	Yes	NA			NA (No response needed)
Abrolhos Island and Mid-West scallop trawl fishery	2021	Saucer scallop	Twin demersal otter trawl	PR A	3.2.1	Yes	Yes	NA			NA (No response needed)
Abrolhos Island and Mid-West scallop trawl fishery	2021	Saucer scallop	Twin demersal otter trawl	PR A	3.2.2	Yes	Yes	NA			NA (No response needed)

Abrolhos Island and Mid-West scallop trawl fishery	2021	Saucer scallop	Twin demersal otter trawl	PR A	3.2.3	Yes	Yes	NA			NA (No response needed)
Abrolhos Island and Mid-West scallop trawl fishery	2021	Saucer scallop	Twin demersal otter trawl	PR A	3.2.4	Yes	Yes	NA			NA (No response needed)

Peer Review B: General comments

Fishery	Assess-ment Start Year	Peer Reviewer (A/B/C)	Question	Yes/No	Peer Reviewer Justification (as given at initial Peer Review stage). Peer Reviewers should provide brief explanations for their 'Yes' or 'No' answers in this table, summarising the detailed comments made in the PI and RBF tables.	CAB Response to Peer Reviewer's comments (as included in the Public Comment Draft Report - PCDR)
Abrolhos Island and Mid-West scallop trawl fishery	2021	PR B	Is the scoring of the fishery consistent with the MSC standard, and clearly based on the evidence presented in the assessment report?	Yes	Generally, the report is very detailed and clearly written and the summary information provided for each PI and SI are well written, succinct and based on the evidence presented in the report. However, as detailed below there are two concerns that I have raised in relation to the scoring, the first is related to Principle 1 and explanation of how the survey index is calculated and whether it takes into account spatial variance of scallop densities and whether it takes account of spatially isolated discrete high density patches (which can be common in aggregating species like scallops). These factors are important to understand especially as this is the main index used in P1 for assessing stock status. For Principle 1 the other factor that the report has correctly identified as affecting the attainment of SG100 in many PI is that the HCS and HCRs are relatively new and simply require more time before they can be evaluated fully and shown to be robust. The second is the use of bycatch data to support a lot of the PIs in Principle 2 that is not recent (2014- 2017) and which was collected during a period of depleted scallop biomass following a marine heatwave event and therefore may not be indicative of standard species diversity and densities during good stock status periods. In addition the bycatch data was collected with a different type of gear than that used in the commercial fishery. It is hard to be confident in this context that the bycatch data is reflective of normal trends within the fishery and this data set should be urgently updated to better reflect the current fishery and fishing gear.	Thank you for the comments. The comments specific to Pis are addressed in the PI comments tab.

					Principle 3 was very detailed and contained a lot of information relating to the legal framework, management procedures, decision making and enforcement aspects of the fishery.	
Abrolhos Island and Mid-West scallop trawl fishery	2021	PR B	Are the condition(s) raised appropriately written to achieve the SG80 outcome within the specified timeframe?	NA	No conditions were raised.	No response required.

			[Reference: FCP v2.2, 7.18.1 and sub-clauses]			
Abrolhos Island and Mid-West scallop trawl fishery	2021	PR B	Is the client action plan clear and sufficient to close the conditions raised? [Reference FCR v2.0, 7.11.2-7.11.3 and sub-clauses]	NA	No conditions were raised.	No response required.
Abrolhos Island and Mid-West scallop trawl fishery	2021	PR B	Enhanced fisheries only: Does the report clearly evaluate any additional impacts that might arise from enhancement activities?	NA	Not an enhanced fishery	No response required.
Abrolhos Island and Mid-West scallop trawl fishery	2021	PR B	Optional: General Comments on the Peer Review Draft Report (including comments on the adequacy of the background information if necessary). Add extra rows if needed below, including the codes in Columns A-C.	NA	On pg 14 it says 'Trawling takes place at night' and that 'each tow can last in duration from 30 minutes to up to one hour' and 'tow speed is around 2.5 to 3.5 knots' then on page 16 it says 'scallop trawling is undertaken during both day and night' and that trawl shots typically vary from 30 minutes up to 3 hours' and tow speed is around '3 knots'? - Contradictory information. Also the Pg 16 text is repeated on pg 24 so earlier text appears to be the inconsistency.	Text has been amended.

Abrolhos Island and Mid-West scallop trawl fishery	2021	PR B	Optional: General Comments on the Peer Review Draft Report (including comments on the adequacy of the background information if necessary). Add extra rows if needed below, including the codes in Columns A-C.	NA	There is a typo of 'iin' in the text that accompanies PI 2.1.3. "It was reported at the site visit that the total catch of these species has been less than 100 kg annually iin recent years"	Text has been amended.
Abrolhos Island and Mid-West scallop trawl fishery	2021	PR B	Optional: General Comments on the Peer Review Draft Report (including comments on the adequacy of the background information if necessary). Add extra rows if needed below, including the codes in Columns A-C.	NA	There appears to be no spatial account taken of the survey data which seems like a potentially important omission in a spatially aggregating species like scallops.	Comment address in specific PI comments.
Abrolhos Island and Mid-West scallop trawl fishery	2021	PR B	Optional: General Comments on the Peer Review Draft Report (including comments on the adequacy of the background information if necessary). Add extra rows if needed below, including the	NA	It is not 100% clear from the report but it seems the arithmetic mean is used for calculation of the mean survey index that is the key indicator for this fishery and a proxy for reference points. A geometric mean, or another method, might give better consideration where there are a few small regionally distinct but high density survey sites that might skew the over all index.	Comment address in specific PI comments.

			codes in Columns A-C.			
Abrolhos Island and Mid-West scallop trawl fishery	2021	PR B	Optional: General Comments on the Peer Review Draft Report (including comments on the adequacy of the background information if necessary). Add extra rows if needed below, including the codes in Columns A-C.	NA	The bycatch data needs to be collected in a recent period when the fishery is not depleted. The current data set mainly occurs when the fishery was depleted following a marine heatwave event and may not accurately reflect the typical species composition in the area (did the MHWE affect the presence or density of other species in the area). In addition, as noted in the report the bycatch data should be collected using the same gear used commercially within the fishery to provide more acurate data.	Comment address in specific PI comments.

Peer Reviewer B: Principle comments (Standard)

Fishery	Year	UoA stock	UoA gear	PR (A/B/C)	PI	PI Information	PI Scoring	PI Condition	Peer Reviewer Justification (as given at initial Peer Review stage)	CAB Response to Peer Reviewer's comments (as included in the Public Comment Draft Report - PCDR)	CAB Res-ponse Code
Abrolhos Island and Mid-West scallop trawl fishery	2021	Saucer Scallop in Abrolhos Island and Mid-West	Twin demersal otter trawl	PR B	1.1.1	No (scoring implications unknown)	No (scoring implications unknown)	NA	SI A: Recruitment is strongly linked to environmental conditions for most scallop species. Water temperature conditions in 2019 were indicated to be favourable for scallop recruitment. The report indicates that the 2019 November survey index was 3,339 scallops per nautical mile which is above the target reference point (750 scallops per nautical mile) and around 14 times the limit reference point (250 scallops per nautical mile). On this basis, the stock has been assessed as having a high degree of certainty that it is above a point of recruit impairment I agree that according to the data and metrics provided	We acknowledge the reviewers comments and we think this issue is regularly raised in MSC discussions about species with highly variable environmentally driven recruitment.	NA (No response needed)

									within the report the stock itself is above the point where recruitment would be impaired (especially since very low stock levels i.e 29 scallops per nautical mile, can produce above average recruitment levels) - i.e. fishing is not at the level where recruitment is impaired. However, the ecological objective of the harvest strategy is simply to maintain spawning stock biomass at a level where the main factor affecting recruitment is the environment. As water temperature seems to have such a strong impact on recruitment, at any spawning stock density, then I wonder how useful it is for a species like scallops to assess whether the stock is above a point of recruitment impairment in isolation from environmental effects.		

Abrolhos Island and Mid-West scallop trawl fishery	2021	Saucer Scallop in Abrolhos Island and Mid-West	Twin demersal otter trawl	PR B	1.1.1	No (scoring implications unknown)	No (scoring implications unknown)	NA	SI A: It would be interesting to see the most up to date data from the 2020 survey if there was a survey conducted. It would also be of interest to know how the survey index is calculated and whether it accounts for high densities at individual stations that could skew the overall index, as can happen in aggregating species with recruitment patterns that vary spatially (& temporally).From the report it seems like the arithmetic mean is used as an average across all survey sites. It would be interesting to know whether spatial variation in scallop densities is accounted for in the survey index and if not what the justification for that is.	We agree with the reviewer and have improved several sections of the text based on these observations. We have added an improved description on how the final November survey index is calculated, and discussed that missing sites of low abundance can result in underestimation relative to other years. As a result of this we have added a recommendation (see later).	Accepted (no score change, additional evidence presented)

Abrolhos Island and Mid-West scallop trawl fishery	2021	Saucer Scallop in Abrolhos Island and Mid-West	Twin demersal otter trawl	PR B	1.1.1	No (scoring implications unknown)	Yes	NA	SI B: Scoring agreed. The report indicates that the stock is currently in a healthy position and is fluctuating around a level consistent with the proxy value used for MSY. However the stock has only recently recovered from historically low levels following a marine heatwave event and so there is not sufficient time to judge with a high degree of certainty that the stock has been fluctuating around or above this level over recent years (so I agree that SG 100 not met) I did not find it clear in the report what the value used as a proxy for MSY was. In the table below the scoring issue it is defined MSY of >750 but it could be highlighted explicitly in the main report text that the TRP is used as MSY.	Have made minor changes to the text to clarify	Accepted (no score change, additional evidence presented)

Abrolhos Island and Mid-West scallop trawl fishery	2021	Saucer Scallop in Abrolhos Island and Mid-West	Twin demersal otter trawl	PR B	1.1.2	NA (PI not scored)	NA (PI not scored)	NA	The saucer scallop stock was not considered depleted so this performance indicator was not scored.		NA (No response needed)
Abrolhos Island and Mid-West scallop trawl fishery	2021	Saucer Scallop in Abrolhos Island and Mid-West	Twin demersal otter trawl	PR B	1.2.1	Yes	Yes	NA	SI A: Scoring agreed. As stated in the report the harvest strategy is new and further progress towards evaluation and improvement is required to meet SG 100.		NA (No response needed)
Abrolhos Island and Mid-West scallop trawl fishery	2021	Saucer Scallop in Abrolhos Island and Mid-West	Twin demersal otter trawl	PR B	1.2.1	Yes	Yes	NA	SI B: Scoring agreed. As stated in the report the harvest control strategy has yet to be fully tested and evaluated over a longer time period, which is required to meet SG 100, as the fishery has only recently recovered from a marine heatwave event.		NA (No response needed)
Abrolhos Island and Mid-West scallop trawl fishery	2021	Saucer Scallop in Abrolhos Island and Mid-West	Twin demersal otter trawl	PR B	1.2.1	Yes	Yes	NA	SI C, D: Scoring agreed.		NA (No response needed)

Abrolhos Island and Mid-West scallop trawl fishery	2021	Saucer Scallop in Abrolhos Island and Mid-West	Twin demersal otter trawl	PR B	1.2.1	NA (PI not scored)	NA (PI not scored)	NA	SI E: Principle not scored as the target species are not sharks.		NA (No response needed)
Abrolhos Island and Mid-West scallop trawl fishery	2021	Saucer Scallop in Abrolhos Island and Mid-West	Twin demersal otter trawl	PR B	1.2.1	No (scoring implications unknown)	No (scoring implications unknown)	NA	SI F: The management system aims to actively avoid capture of juvenile scallops. As part of the comanagement process there are voluntary closures instigated for juveniles where over 50% of the catch is under 60 mm SH. Tag-recapture studies of scallops undertaken in the similar Shark Bay trawl fishery (Kangas et al 2011) concluded that scallop survival was high during winter despite this time being post-spawning when scallops aren't in their greatest condition. The report considers that unwanted catch of scallops is negligible and there is no need to assess review of alternative measures for the target species.	While we do agree that those data would be useful and improve the understanding, here we have argued based on the combination of management practices and scallop survivorship that mortality is negligible and this measure is not needed to be assessed. Other reviewers agreed with this position.	Not accepted (no change)

									However, the fishery does not actually seem to collect data on the proportion of juvenile scallops in the catch. It would be of interest to know proportions of juveniles in the catch to know that this SI is not applicable. For example areas with 40% undersized scallops as proportion of catch are still permitted to be fished under the harvest strategy approach that is currently in place which could be a large number of juveniles caught. So alternative measures to minimise mortality of unwanted catch of the target stock may need exploring, or data collected to show that catch of undersized scallops is neglible.		
Abrolhos Island and Mid-West scallop trawl fishery	2021	Saucer Scallop in Abrolhos Island and Mid-West	Twin demersal otter trawl	PR B	1.2.2	Yes	Yes	NA	SI A: Scoring agreed. A thorough set of HCR in place that are designed to keep the stock fluctuating around MSY. However the HCRs are new and have not yet been thoroughly		NA (No response needed)

									tested to ensure that the stock would be maintained at these levels consistently so as detailed in the report SG100 is not met.		
Abrolhos Island and Mid-West scallop trawl fishery	2021	Saucer Scallop in Abrolhos Island and Mid-West	Twin demersal otter trawl	PR B	1.2.2	No (scoring implications unknown)	No (scoring implications unknown)	NA	SI B: I am unclear from the report whether the arithmetic mean (with no variance indicated) has been used to calculate the survey index. Given that the survey occurs over a range of spatially distinct fishing grounds where scallop densities may vary significantly (as scallop species tend to be aggregating and these high density aggregations can occur at small spatial scales), if the arithmetic mean is used then the index could potentially be skewed by 1 or 2 high density survey sites when the remaining sites have very low densities and may not be commercially viable. It is important to have some analysis that explores the spatial variation	We have added a map of the survey locations. We have added an improved description on how the final November survey index is calculated, and discussed that missing sites of low abundance can result in underestimation relative to other years. We have added a recommendation that states “Spawning stock-recruitment-environment analyses suggest that the November spawning index is a good predicter of future recruitment, along with water temperature. This result was achieved despite acknowledged uncertainty in the estimate of November spawning density caused by an inconsistent number of sites conducted in each year. It is recommended to conduct a review of the November survey and its subsequent biomass measure to reduce uncertainty and to assess the appropriateness of the	Accepted (no score change, additional evidence presented)

									among survey grounds in the survey index, even if it is just to show that the data isn't significantly skewed by 1 or 2 high density survey sites. This would help in understanding the uncertainty within this key value (which is the primary data used for assessment of the stock). More detail in the report on this would be helpful to assess whether the uncertainty in spatial variance has been addressed. As such, given the potential role that spatial variability in spawning and recruitment densities may play in interannual variability of scallop catch it might be reasonable to consider spatial variability in scallop density as a 'main' uncertainty. It is not clear within the report whether spatial variability of this aggregating species has been taken into account and therefore it is not clear whether the HCR are robust to this uncertainty within	measure for data specific to the fishery”. Re-iterated that the SRR relationship demonstrates that the November survey index is a good measure of relative spawning biomass, despite these uncertainties. Strengthened the argument that reference points have been established at highly conservative levels that appropriately account for the acknowledged uncertainties in the biomass measure.	

									the stock assessment.		
Abrolhos Island and Mid-West scallop trawl fishery	2021	Saucer Scallop in Abrolhos Island and Mid-West	Twin demersal otter trawl	PR B	1.2.2	Yes	Yes	NA	SI C: Scoring agreed. As stated in the report the HCRs are relatively new and several more years data are required before SG 100 is met.		NA (No response needed)
Abrolhos Island and Mid-West scallop trawl fishery	2021	Saucer Scallop in Abrolhos Island and Mid-West	Twin demersal otter trawl	PR B	1.2.3	Yes	Yes	NA	SI A: Scoring agreed. There is a wide range of information available for this species and stock (including fisheries dependent, independent and environmental data) however direct information on stock biomass and fishing mortality are missing and so as detailed in the report SG 100 is not considered to be met.		NA (No response needed)
Abrolhos Island and Mid-West scallop trawl fishery	2021	Saucer Scallop in Abrolhos Island and Mid-West	Twin demersal otter trawl	PR B	1.2.3	Yes	Yes	NA	SI B: Scoring agreed. As detailed in the report, additional years data are required to understand the uncertainties in the data and assess the HCS over the longer term.		NA (No response needed)

Abrolhos Island and Mid-West scallop trawl fishery	2021	Saucer Scallop in Abrolhos Island and Mid-West	Twin demersal otter trawl	PR B	1.2.3	Yes	Yes	NA	SI C: Scoring agreed.		NA (No response needed)
Abrolhos Island and Mid-West scallop trawl fishery	2021	Saucer Scallop in Abrolhos Island and Mid-West	Twin demersal otter trawl	PR B	1.2.4	No (scoring implications unknown)	Yes	NA	SI A: Scoring agreed. The stock assessment approach is similar to that of the MSC certified Shark Bay Prawn Fishery and both fishery stock assessments have been independently reviewed by an expert in the field. The assessment model is not a fully integrated population model and does not take into account the biology of the species or the spatial variation that may occur in the biology or recruitment of the species within the UoA (i.e. variation in d growth rates). Same comment applies as for PI 1.2.2 SI B, with the potential use of the arithmetic mean and details on whether spatial variance in scallop density has been accounted for in	We have added a map of the survey locations. We have added an improved description on how the final November survey index is calculated, and discussed that missing sites of low abundance can result in underestimation relative to other years. We have added a recommendation that states “Spawning stock-recruitment-environment analyses suggest that the November spawning index is a good predicter of future recruitment, along with water temperature. This result was achieved despite acknowledged uncertainty in the estimate of November spawning density caused by an inconsistent number of sites conducted in each year. It is recommended to conduct a review of the November survey and its subsequent biomass measure to reduce uncertainty and to assess the appropriateness of the measure for data specific	Accepted (no score change, additional evidence presented)

									the survey index calculation.	to the fishery”. Re-iterated that the SRR relationship demonstrates that the November survey index is a good measure of relative spawning biomass, despite these uncertainties. Strengthened the argument that reference points have been established at highly conservative levels that appropriately account for the acknowledged uncertainties in the biomass measure.	

Abrolhos Island and Mid-West scallop trawl fishery	2021	Saucer Scallop in Abrolhos Island and Mid-West	Twin demersal otter trawl	PR B	1.2.4	No (scoring implications unknown)	Yes	NA	SI B: Scoring agreed. Reference points may be suitable for the stock but note comment in PI 1.2.2 SI B regarding integrating the spatial structure of the stock into the mean calculation for the survey index.	We have added an improved description on how the final November survey index is calculated, and discussed that missing sites of low abundance can result in underestimation relative to other years. We have added a recommendation that states “Spawning stock-recruitment-environment analyses suggest that the November spawning index is a good predicter of future recruitment, along with water temperature. This result was achieved despite acknowledged uncertainty in the estimate of November spawning density caused by an inconsistent number of sites conducted in each year. It is recommended to conduct a review of the November survey and its subsequent biomass measure to reduce uncertainty and to assess the appropriateness of the measure for data specific to the fishery”. Re-iterated that the SRR relationship demonstrates that the November survey index is a good measure of relative spawning biomass, despite these uncertainties. Strengthened the argument that reference points have	Accepted (no score change, additional evidence presented)

										been established at highly conservative levels that appropriately account for the acknowledged uncertainties in the biomass measure.	

Abrolhos Island and Mid-West scallop trawl fishery	2021	Saucer Scallop in Abrolhos Island and Mid-West	Twin demersal otter trawl	PR B	1.2.4	No (scoring implications unknown)	No (scoring implications unknown)	NA	SI C: The mean index value for the November survey does not appear to account for spatial variation in the stock structure as noted in previous comments in PI 1.2.2 SI B. One or two high density survey points where the stock is aggregated at a small spatial scale in very high densities could skew this index and therefore some note of the uncertainty in this value when expressed as the arithmetic mean might need to be noted.	The recommendation is made for 1.2.4(c) although it is relevant for other P1 components. It states "Spawning stock-recruitment-environment analyses suggest that the November spawning index is a good predicter of future recruitment, along with water temperature. This result was achieved despite acknowledged uncertainty in the estimate of November spawning density caused by an inconsistent number of sites conducted in each year. It is recommended to conduct a review of the November survey and its subsequent biomass measure to reduce uncertainty and to assess the appropriateness of the measure for data specific to the fishery". Re-iterated that the SRR relationship demonstrates that the November survey index is a good measure of relative spawning biomass, despite these uncertainties. Strengthened the argument that reference points have been established at highly conservative levels that appropriately account for the acknowledged uncertainties in the biomass measure.	Accepted (no score change, additional evidence presented)

Abrolhos Island and Mid-West scallop trawl fishery	2021	Saucer Scallop in Abrolhos Island and Mid-West	Twin demersal otter trawl	PR B	1.2.4	Yes	Yes	NA	SI D and E: Scoring Agreed.		NA (No response needed)
Abrolhos Island and Mid-West scallop trawl fishery	2021	Saucer Scallop in Abrolhos Island and Mid-West	Twin demersal otter trawl	PR B	2.1.1	No (scoring implications unknown)	No (scoring implications unknown)	NA	SI A: There are no main primary species and so this scoring issue is not applicable. However, the use of bycatch data from a period when the fishery was depleted means that the bycatch data may not reflect normal fishing years (i.e. species composition may have changed also as a result of the marine heatwave event). It is noted that a new bycatch survey is planned for 2021 and that this will provide data from a year when the fishery is commercially fished and it should be a priority to start using this more relevant data over the current analysis. It would also be useful to have data from commercial gear rather than survey gear if the two differ,	Although the bycatch data were collected following the marine heatwave, the assessors believe that these data, in combination with the logbook data, are sufficient for scoring this PI. This position was supported by DPIRD fisheries scientists at the site visit. As reported in Kangas et al. (2021), negligible byproduct was reported as retained. The rationale has been amended to further support this position. In addition, the recommendation made re PI 2.2.2 has been extended to include this PI.The recommendation supports that surveys with the commercial gear should be undertaken for comparison.	Accepted (no score change, change to rationale)

									though it is noted in the report that the survey gear is likely to overestimate bycatch species as the mesh is smaller.		
Abrolhos Island and Mid-West scallop trawl fishery	2021	Saucer Scallop in Abrolhos Island and Mid-West	Twin demersal otter trawl	PR B	2.1.1	NA (PI not scored)	NA (PI not scored)	NA	SI B: There are no minor primary species and so this scoring issue is not applicable. However, same comment as for PI 2.1.1 SI A.	See response above.	NA (No response needed)
Abrolhos Island and Mid-West scallop trawl fishery	2021	Saucer Scallop in Abrolhos Island and Mid-West	Twin demersal otter trawl	PR B	2.1.2	Yes	Yes	NA	SI A: Scoring Agreed.		NA (No response needed)
Abrolhos Island and Mid-West scallop trawl fishery	2021	Saucer Scallop in Abrolhos Island and Mid-West	Twin demersal otter trawl	PR B	2.1.2	Yes	Yes	NA	SI B: Scoring Agreed. Agreed, SG100 is not met as although there is a management strategy in place for P2 species the data used for analysis requires updating to allow for surveys in a commercially viable period of the fishery and using commercial gear in order to support high confidence that the		NA (No response needed)

									data shows the strategy is working.		
Abrolhos Island and Mid-West scallop trawl fishery	2021	Saucer Scallop in Abrolhos Island and Mid-West	Twin demersal otter trawl	PR B	2.1.2	Yes	Yes	NA	SI C: Scoring Agreed.		NA (No response needed)
Abrolhos Island and Mid-West scallop trawl fishery	2021	Saucer Scallop in Abrolhos Island and Mid-West	Twin demersal otter trawl	PR B	2.1.2	NA (PI not scored)	NA (PI not scored)	NA	SI D & E: Not assessed. For D, no shark species are managed with the UoA and thus this SI is not applicable. For E, no species are identified as primary and so this SI is not applicable.		NA (No response needed)

Abrolhos Island and Mid-West scallop trawl fishery	2021	Saucer Scallop in Abrolhos Island and Mid-West	Twin demersal otter trawl	PR B	2.1.3	No (scoring implications unknown)	Yes	NA	SI A: Scoring Agreed. Same comment as for PI 2.1.1 SI A - it would be good to start collecting data during more recent commercially viable fishing years and with commercially similar gear. However, the survey gear is smaller mesh size and so are likely to over sample species rather than undersample and so the data should be valid to indicate no Primary species in catch. However, more recent data is a priority to collect for this fishery to ensure that bycatch composition is similar in commercially viable years as per the years when the fishery was closed (2012 to 2016) which is the period that the majority of the current sampling data is from.	Agreed. See response for PI 2.1.1 above.	NA (No response needed)
Abrolhos Island and Mid-West scallop trawl fishery	2021	Saucer Scallop in Abrolhos Island and Mid-West	Twin demersal otter trawl	PR B	2.1.3	Yes	Yes	NA	SI B: Scoring Agreed		NA (No response needed)

Abrolhos Island and Mid-West scallop trawl fishery	2021	Saucer Scallop in Abrolhos Island and Mid-West	Twin demersal otter trawl	PR B	2.1.3	Yes	Yes	NA	SI C: Scoring Agreed		NA (No response needed)
Abrolhos Island and Mid-West scallop trawl fishery	2021	Saucer Scallop in Abrolhos Island and Mid-West	Twin demersal otter trawl	PR B	2.2.1	NA (PI not scored)	NA (PI not scored)	NA	SI A: Not applicable No main secondary species identified. Same comment as for PI 2.1.1 SI A.	Agreed. See response for PI 2.1.1 above.	NA (No response needed)
Abrolhos Island and Mid-West scallop trawl fishery	2021	Saucer Scallop in Abrolhos Island and Mid-West	Twin demersal otter trawl	PR B	2.2.1	Yes	Yes	NA	SI B: Scoring Agreed Available information does not permit assessment of minor secondary species and so as detailed in the report a default score of 80 is given.		NA (No response needed)
Abrolhos Island and Mid-West scallop trawl fishery	2021	Saucer Scallop in Abrolhos Island and Mid-West	Twin demersal otter trawl	PR B	2.2.2	No (scoring implications unknown)	Yes	NA	SI A: Scoring Agreed No main secondary species identified and so no management strategy required for SG60 and SG80. At present there is no specific management strategy in place in the UoA for P2 species and so SG100 is not met. Same comment as for PI 2.1.1 SI A.	Agreed. See response for PI 2.1.1 above.	NA (No response needed)

Abrolhos Island and Mid-West scallop trawl fishery	2021	Saucer Scallop in Abrolhos Island and Mid-West	Twin demersal otter trawl	PR B	2.2.2	No (scoring implications unknown)	Yes	NA	SI B: Scoring Agreed No main secondary species identified. ERAs conducted regularly that consider bycatch to be at a negligible or low risk providing an objective basis for some confidence that the measures or partial management strategy are working Same comment as for PI 2.1.1 SI A.	Agreed. See response for PI 2.1.1 above.	NA (No response needed)
Abrolhos Island and Mid-West scallop trawl fishery	2021	Saucer Scallop in Abrolhos Island and Mid-West	Twin demersal otter trawl	PR B	2.2.2	Yes	Yes	NA	SI C: Scoring Agreed		NA (No response needed)
Abrolhos Island and Mid-West scallop trawl fishery	2021	Saucer Scallop in Abrolhos Island and Mid-West	Twin demersal otter trawl	PR B	2.2.2	NA (PI not scored)	NA (PI not scored)	NA	SI D: Not applicable No shark species identified in bycatch.		NA (No response needed)

Abrolhos Island and Mid-West scallop trawl fishery	2021	Saucer Scallop in Abrolhos Island and Mid-West	Twin demersal otter trawl	PR B	2.2.2	No (scoring implications unknown)	Yes	NA	SI E: Scoring agreed. No main secondary species identified in bycatch. Same comment as for PI 2.1.1 SI A. Recommendation for improvement of bycatch surveys is sensible and should be implemented ASAP. This will provide relevant information on bycatch from scallop gear. It will also provide data from commercially viable years rather than during the closed period when catch composition may have varied.	Agreed. See response for PI 2.1.1 above.	NA (No response needed)
Abrolhos Island and Mid-West scallop trawl fishery	2021	Saucer Scallop in Abrolhos Island and Mid-West	Twin demersal otter trawl	PR B	2.2.3	Yes	Yes	NA	SI A: Scoring agreed		
Abrolhos Island and Mid-West scallop trawl fishery	2021	Saucer Scallop in Abrolhos Island and Mid-West	Twin demersal otter trawl	PR B	2.2.3	Yes	Yes	NA	SI B: Scoring agreed Some quantitative information on minor secondary species is available but improved bycatch data ,which is more up to date and		NA (No response needed)

									collected using scallop gear is required.		
Abrolhos Island and Mid-West scallop trawl fishery	2021	Saucer Scallop in Abrolhos Island and Mid-West	Twin demersal otter trawl	PR B	2.2.3	No (scoring implications unknown)	Yes	NA	SI C: Scoring agreed No main secondary species so SG60 and SG80 are met. Some quantitative information on minor secondary species is available but same comment as for PI 2.1.1 SI A. i.e. improved bycatch data ,which is more up to date and collected using scallop gear is required (SG 100 not met).	Agreed. See response for PI 2.1.1 above.	NA (No response needed)
Abrolhos Island and Mid-West scallop trawl fishery	2021	Saucer Scallop in Abrolhos Island and Mid-West	Twin demersal otter trawl	PR B	2.3.1	NA (PI not scored)	NA (PI not scored)	NA	SI A: Not applicable There are no national or international requirements relevant to the AIMWTMF that set limits on ETP species		NA (No response needed)
Abrolhos Island and Mid-West scallop trawl fishery	2021	Saucer Scallop in Abrolhos Island and Mid-West	Twin demersal otter trawl	PR B	2.3.1	Yes	Yes	NA	SI B: Scoring Agreed		NA (No response needed)

Abrolhos Island and Mid-West scallop trawl fishery	2021	Saucer Scallop in Abrolhos Island and Mid-West	Twin demersal otter trawl	PR B	2.3.1	Yes	Yes	NA	SI C: Scoring agreed. Indirect effects have been considered for the UoA and are highly unlikely to create unacceptable impacts. No observer coverage which could provide high level of confidence for SG 100.		NA (No response needed)
Abrolhos Island and Mid-West scallop trawl fishery	2021	Saucer Scallop in Abrolhos Island and Mid-West	Twin demersal otter trawl	PR B	2.3.2	NA (PI not scored)	NA (PI not scored)	NA	SI A: Not applicable There are no national or international requirements relevant to the AIMWTMF that set limits on ETP species		NA (No response needed)
Abrolhos Island and Mid-West scallop trawl fishery	2021	Saucer Scallop in Abrolhos Island and Mid-West	Twin demersal otter trawl	PR B	2.3.2	Yes	Yes	NA	SI B: Scoring Agreed The measures in place comprise a strategy that is expected to ensure the UoA does not hinder the recovery of ETP species. As detailed in the report observer coverage or alternative data could provide high level of confidence but this data does not exist at present and so SG 100 is not met.		NA (No response needed)

Abrolhos Island and Mid-West scallop trawl fishery	2021	Saucer Scallop in Abrolhos Island and Mid-West	Twin demersal otter trawl	PR B	2.3.2	Yes	Yes	NA	SI C: Scoring Agreed		NA (No response needed)
Abrolhos Island and Mid-West scallop trawl fishery	2021	Saucer Scallop in Abrolhos Island and Mid-West	Twin demersal otter trawl	PR B	2.3.2	Yes	Yes	NA	SI D: Scoring Agreed		NA (No response needed)
Abrolhos Island and Mid-West scallop trawl fishery	2021	Saucer Scallop in Abrolhos Island and Mid-West	Twin demersal otter trawl	PR B	2.3.2	NA (PI not scored)	NA (PI not scored)	NA	SI E: Not Applicable The low level of ETP interaction, the ongoing use of ERAs and assessed negligible level of risk support an argument that this is not applicable.		NA (No response needed)
Abrolhos Island and Mid-West scallop trawl fishery	2021	Saucer Scallop in Abrolhos Island and Mid-West	Twin demersal otter trawl	PR B	2.3.3	No (scoring implications unknown)	Yes	NA	SI A and B: Scoring agreed It seems for a lot of these PI and SI that observer data from commercial vessel trips and up to date survey data for bycatch using scallop gear could assist with data quality and confidence of the data collected for all bycatch species including ETPs.	Agreed. See response for PI 2.1.1 above.	NA (No response needed)

Abrolhos Island and Mid-West scallop trawl fishery	2021	Saucer Scallop in Abrolhos Island and Mid-West	Twin demersal otter trawl	PR B	2.4.1	Yes	Yes	NA	SI A: Scoring agreed.		NA (No response needed)
Abrolhos Island and Mid-West scallop trawl fishery	2021	Saucer Scallop in Abrolhos Island and Mid-West	Twin demersal otter trawl	PR B	2.4.1	NA (PI not scored)	NA (PI not scored)	NA	SI B: Not applicable No VMEs identified within the UoA.	Note that discussion in relation to VMEs has been added in response to PR A.	NA (No response needed)
Abrolhos Island and Mid-West scallop trawl fishery	2021	Saucer Scallop in Abrolhos Island and Mid-West	Twin demersal otter trawl	PR B	2.4.1	Yes	Yes	NA	SI C: Scoring agreed.		NA (No response needed)
Abrolhos Island and Mid-West scallop trawl fishery	2021	Saucer Scallop in Abrolhos Island and Mid-West	Twin demersal otter trawl	PR B	2.4.2	Yes	Yes	NA	SI A & B & C: Scoring agreed		NA (No response needed)
Abrolhos Island and Mid-West scallop trawl fishery	2021	Saucer Scallop in Abrolhos Island and Mid-West	Twin demersal otter trawl	PR B	2.4.2	NA (PI not scored)	NA (PI not scored)	NA	SI D: Not applicable		NA (No response needed)

Abrolhos Island and Mid-West scallop trawl fishery	2021	Saucer Scallop in Abrolhos Island and Mid-West	Twin demersal otter trawl	PR B	2.4.3	Yes	Yes	NA	SI A, B and C: Scoring agreed Relative benthic status which can be ascertained if you know the habitat type, fishing intensity and gear penetration may be a useful future metric for assessing the habitat impacts of this fishery.		NA (No response needed)
Abrolhos Island and Mid-West scallop trawl fishery	2021	Saucer Scallop in Abrolhos Island and Mid-West	Twin demersal otter trawl	PR B	2.5.1	Yes	Yes	NA	SI A: Scoring agreed		NA (No response needed)
Abrolhos Island and Mid-West scallop trawl fishery	2021	Saucer Scallop in Abrolhos Island and Mid-West	Twin demersal otter trawl	PR B	2.5.2	Yes	Yes	NA	SI A, B and C: Scoring Agreed.		NA (No response needed)
Abrolhos Island and Mid-West scallop trawl fishery	2021	Saucer Scallop in Abrolhos Island and Mid-West	Twin demersal otter trawl	PR B	2.5.3	Yes	Yes	NA	Scoring agreed.		NA (No response needed)
Abrolhos Island and Mid-West scallop trawl fishery	2021	Saucer Scallop in Abrolhos Island and Mid-West	Twin demersal otter trawl	PR B	3.1.1	Yes	Yes	NA	Scoring agreed.		NA (No response needed)

Abrolhos Island and Mid-West scallop trawl fishery	2021	Saucer Scallop in Abrolhos Island and Mid-West	Twin demersal otter trawl	PR B	3.1.2	Yes	Yes	NA	Scoring agreed.		NA (No response needed)
Abrolhos Island and Mid-West scallop trawl fishery	2021	Saucer Scallop in Abrolhos Island and Mid-West	Twin demersal otter trawl	PR B	3.1.3	Yes	Yes	NA	Scoring agreed.		NA (No response needed)
Abrolhos Island and Mid-West scallop trawl fishery	2021	Saucer Scallop in Abrolhos Island and Mid-West	Twin demersal otter trawl	PR B	3.2.1	Yes	Yes	NA	Scoring agreed.		NA (No response needed)
Abrolhos Island and Mid-West scallop trawl fishery	2021	Saucer Scallop in Abrolhos Island and Mid-West	Twin demersal otter trawl	PR B	3.2.2	Yes	Yes	NA	Scoring agreed.		NA (No response needed)
Abrolhos Island and Mid-West scallop trawl fishery	2021	Saucer Scallop in Abrolhos Island and Mid-West	Twin demersal otter trawl	PR B	3.2.3	Yes	Yes	NA	Scoring agreed.		NA (No response needed)
Abrolhos Island and Mid-West scallop	2021	Saucer Scallop in Abrolhos Island	Twin demersal otter trawl	PR B	3.2.4	Yes	Yes	NA	Scoring agreed		NA (No response needed)

trawl fishery		and Mid-West									

Peer Reviewer C: General Comments

Fishery	Assess-ment Start Year	Peer Reviewer (A/B/C)	Question	Yes/No	Peer Reviewer Justification (as given at initial Peer Review stage). Peer Reviewers should provide brief explanations for their 'Yes' or 'No' answers in this table, summarising the detailed comments made in the PI and RBF tables.	CAB Response to Peer Reviewer's comments (as included in the Public Comment Draft Report - PCDR)
Abrolhos Island and Mid-West scallop trawl fishery	2021	PR C	Is the scoring of the fishery consistent with the MSC standard, and clearly based on the evidence presented in the assessment report?	No	Scoring is partially consistent with the MSC standard but hard evidence is not always provided in the report, particularly in P1 and P2. Key information required to evaluate scoring of PI 1.1.1 and PI 1.2.4 is missing, or only included as quotes or citations from two main sources (Kangas et al. 2020 and Chandrapavan et al. 2020). The requisite information on how the biomass proxy is derived, survey design, spatial overlap with the fishery, number of trawls undertaken per year and area, and some measure of variability needs to be extracted from the sources and shown in the report - so that there is an evidentiary basis for evaluating the given scores. As it stands, there remains high uncertainty in the biomass proxy, as acknowledged, but this is not adequately addressed in section 7.2.6. In P2, scoring of most components refer to the ERA, which is cited as DPIRD-ERA (2020). The ERA framework, objectives and performance indicators (as a whole) are however not clearly described in the report (as a flowchart, or table, or as stand-alone section in 7.3). This is basic information required to integrate the use of parts of the ERA in the respective P2 components. Scoring was inconsistent with the MSC standards in 1.2.1, 1.2.4(d), 2.4.3(c), 2.5.1(a), 3.2.4(b)	Comments are addressed at specific PI comments.

Abrolhos Island and Mid-West scallop trawl fishery	2021	PR C	Are the condition(s) raised appropriately written to achieve the SG80 outcome within the specified timeframe? [Reference: FCP v2.2, 7.18.1 and sub-clauses]	NA	No conditions raised	No response required.
Abrolhos Island and Mid-West scallop trawl fishery	2021	PR C	Optional: General Comments on the Peer Review Draft Report (including comments on the adequacy of the background information if necessary). Add extra rows if needed below, including the codes in Columns A-C.	NA	The report lacked key information required for evaluating the given scores. The report contained several oversights and scoring was in some cases not consistent with the MSC standards.	Comments are addressed at specific PI comments.

Peer Reviewer C: PI comments (standard)

Fishery	Year	UoA stock	UoA gear	PR (A/B/C)	PI	PI Information	PI Scoring	PI Condition	Peer Reviewer Justification (as given at initial Peer Review stage)	CAB Response to Peer Reviewer's comments (as included in the Public Comment Draft Report - PCDR)	CAB Res-ponse Code
Abrolhos Island and Mid-West scallop trawl fishery	2021	Scallop/ Abrolhos & Midwest	Otter trawl	PR C	1.1.1	No (scoring implications unknown)		NA	Not enough information is given in the report or rationale, therefore scoring cannot be fully evaluated. A biomass proxy (November survey) is used as an indicator of stock status relative to recruitment impairment and MSY, and it is clear from the text that much uncertainty remains around the robustness of the proxy and its variability within and between years. Nevertheless, scoring is based on a single survey point (3339 scallops/nautical mile in November 2019; Ltar = 750; Llim = 250) without providing key information on survey design, spatial overlap with the fishery, number of trawls per year and some measure of variability (both within a year and between years). If empirical information is used, as is the case here, basic statistics and trends	We disagree that there is too much uncertainty in the November survey measure. It is shown through the stock recruitment relationship that the November survey index is a good measure despite known uncertainties. However, We acknowledge it can be improved and as a result of these and other similar comments there is now a recommendation to improve this measure, which should also lead to an improved SRR analysis. Current status is meant to be assessed against the latest datapoint so we do not understand this argument. Given the stock is currently orders of magnitude greater than the levels from which it has recovered we believe the scoring is appropriate and other reviewers agree. Regarding trends and quality of the data etc, this is addressed explicitly in other parts of P1, not in P1.1.1. The way uncertainty is addressed here is purely through the SG60, SG80 and SG100 benchmarks,	Accepted (no score change, additional evidence presented)

									need to be shown to demonstrate the relevance and quality of the data, and hence the suitability of the proxy. If the information is available in Kangas et al 2020 and Chandrapavan et al 2020, it needs to be extracted and clearly summarized in the report, as tables or figures, as evidence on which scoring can be based.	which again I believe I have done appropriately.	
Abrolhos Island and Mid-West scallop trawl fishery	2021	Scallop/ Abrolhos & Midwest	Otter trawl	PR C	1.1.1		No (non-material score reduction expected)	NA	The very high variability in the survey index between years (Fig. 7) combined with the absence of key survey information from the report as noted above does not allow for scoring 1.1.1 (a) or (b) with high confidence. There remains high uncertainty in the assessment itself; it is uncertain that the index accurately reflects the average stock abundance; and it is	The very high variability in November survey index is a result of the natural variations in recruitment and therefore abundance of scallops more than uncertainty in the measure. This is clearly demonstrated through a strong SRR relationship. However I agree the report lacked detail on the survey design and November survey index calculation, and I have identified uncertainty in the November survey index as a weakness of the system,	Accepted (no score change, additional evidence presented)

									noted that uncertainty is not considered in the November survey index.	and included a recommendation to address this (see 1.2.4c below).	
Abrolhos Island and Mid-West scallop trawl fishery	2021	Scallop/ Abrolhos & Midwest	Otter trawl	PR C	1.1.2	NA (PI not scored)	NA (PI not scored)	NA	Scoring agreed. Stock rebuilding took place in < 5 years		NA (No response needed)
Abrolhos Island and Mid-West scallop trawl fishery	2021	Scallop/ Abrolhos & Midwest	Otter trawl	PR C	1.2.1	Yes	No (non-material score reduction expected)	NA	In 1.2.1 (d) no harvest strategy review has yet been undertaken, and therefore SG100 is not met.	The harvest strategy was literally completed in the last 12 months. Review of the harvest strategy components is ongoing and it is stated that the HS can change within the formal five year review period that is mandated as necessary.	Not accepted (no change)
Abrolhos Island and Mid-West scallop trawl fishery	2021	Scallop/ Abrolhos & Midwest	Otter trawl	PR C	1.2.2	Yes	Yes	NA	Scoring agreed		NA (No response needed)
Abrolhos Island and Mid-West scallop	2021	Scallop/ Abrolhos & Midwest	Otter trawl	PR C	1.2.3	Yes	Yes	NA	Scoring agreed		NA (No response needed)

trawl fishery											
Abrolhos Island and Mid-West scallop trawl fishery	2021	Scallop/ Abrolhos & Midwest	Otter trawl	PR C	1.2.4	No (non-material score reduction expected)		NA	1.2.4(c) There remains several sources of uncertainty which are not accounted for. The very first of these is the high variability in the survey data, for which no information is provided in this report (see comment in PI 1.1.1). It is thus unclear whether the variability is as a result of real changes in the abundance of scallops, or are simply a result of sampling effects. Furthermore, there remains major uncertainty in the stock-recruitment-environment relationship, rooted in a lack of understanding of the smaller-scale processes that drive recruitment. Temperature alone is a very blunt instrument when used in isolation to infer changes in recruitment. These uncertainties may have been acknowledged, but how are they actually taken into account, if at all?	Firstly, we do appreciate the reviewers repeated comments here. In response: I have added a map of the survey locations. We have added an improved description on how the final November survey index is calculated, and discussed that missing sites of low abundance can result in underestimation relative to other years. We have added a recommendation that states "Spawning stock-recruitment-environment analyses suggest that the November spawning index is a good predicter of future recruitment, along with water temperature. This result was achieved despite acknowledged uncertainty in the estimate of November spawning density caused by an inconsistent number of sites conducted in each year. It is recommended to conduct a review of the November survey and its subsequent biomass measure to reduce uncertainty and to assess the appropriateness of the measure for data specific to the fishery".	Accepted (no score change, additional evidence presented)

										Re-iterated that the SRR relationship demonstrates that the November survey index is a good measure of relative spawning biomass, despite these uncertainties. Strengthened the argument that reference points have been established at highly conservative levels that appropriately account for the acknowledged uncertainties in the biomass measure.	
Abrolhos Island and Mid-West scallop trawl fishery	2021	Scallop/ Abrolhos & Midwest	Otter trawl	PR C	1.2.4		No (non-material score reduction expected)	NA	1.2.4 (d) I disagree with the scoring. The fact that the MSC certified Shark Bay trawl fishery assessment has been independently reviewed does not mean that the present assessment of the scallop trawl fishery at Abrolhos has been tested and shown to be robust. SG100 not met.	We acknowledge the argument was weak and have strengthened it but believe SG100 is an appropriate score here.	Accepted (no score change, additional evidence presented)

Abrolhos Island and Mid-West scallop trawl fishery	2021	Scallop/ Abrolhos & Midwest	Otter trawl	PR C	2.1.1	No (change to rationale expected, not to scoring)	Yes	NA	Scoring agreed, but not enough relevant information provided in the report. What are the ERA objectives for P2 components and what are the performance indicators for each one? This is basic information which has not been provided, and applies to all of the P2 components. Just giving the ERA 2020 reference is not enough - a section on the ERA with explanatory tables and figures is required in the report as reference information.	A text box providing and overview of the ERA process had been added.	Accepted (no score change, additional evidence presented)
Abrolhos Island and Mid-West scallop trawl fishery	2021	Scallop/ Abrolhos & Midwest	Otter trawl	PR C	2.1.2	Yes	Yes	NA	Scoring agreed. See comment in 2.1.1	See response at 2.1.1.	NA (No response needed)
Abrolhos Island and Mid-West scallop trawl fishery	2021	Scallop/ Abrolhos & Midwest	Otter trawl	PR C	2.1.3	Yes	Yes	NA	Scoring agreed. See comment in 2.1.1	See response at 2.1.1.	NA (No response needed)
Abrolhos Island and Mid-West scallop trawl fishery	2021	Scallop/ Abrolhos & Midwest	Otter trawl	PR C	2.2.1	Yes	Yes	NA	Scoring agreed. See comment in 2.1.1	See response at 2.1.1.	NA (No response needed)

Abrolhos Island and Mid-West scallop trawl fishery	2021	Scallop/ Abrolhos & Midwest	Otter trawl	PR C	2.2.2	Yes	Yes	NA	Scoring agreed. See comment in 2.1.1	See response at 2.1.1.	NA (No response needed)
Abrolhos Island and Mid-West scallop trawl fishery	2021	Scallop/ Abrolhos & Midwest	Otter trawl	PR C	2.2.3	Yes	Yes	NA	Scoring agreed. See comment in 2.1.1	See response at 2.1.1.	NA (No response needed)
Abrolhos Island and Mid-West scallop trawl fishery	2021	Scallop/ Abrolhos & Midwest	Otter trawl	PR C	2.3.1	Yes	Yes	NA	Scoring agreed. See comment in 2.1.1	See response at 2.1.1.	NA (No response needed)
Abrolhos Island and Mid-West scallop trawl fishery	2021	Scallop/ Abrolhos & Midwest	Otter trawl	PR C	2.3.2	Yes	Yes	NA	Scoring agreed. See comment in 2.1.1.	See response at 2.1.1.	NA (No response needed)

Abrolhos Island and Mid-West scallop trawl fishery	2021	Scallop/ Abrolhos & Midwest	Otter trawl	PR C	2.3.3	No (change to rationale expected, not to scoring)	Yes	NA	Scoring agreed. See comment in 2.1.1. The absence of observer coverage is a concern. Without observer coverage, verification of logbook records of interactions with ETP species cannot be done. On this point, I am surprised that there is no mention of trawl interactions with seabirds - the Abrolhos Islands are one of the most important breeding sites for tropical seabirds in Australia and have been identified by BirdLife International as an Important Bird Area (IBA), including many tern species and at least 2 endemics. Are seabirds not attracted when trawls are hauled onto the vessels - do they not congregate to prey on debris from the trawl hauls? If so, then bird-strikes and mortalities on trawl warps become an issue which cannot be evaluated without independent observer coverage. Clarification on this is needed.	A recommendation has been made to improve the collection of data from the fishery. Information on seabirds has been added.	Accepted (no score change, change to rationale)

Abrolhos Island and Mid-West scallop trawl fishery	2021	Scallop/ Abrolhos & Midwest	Otter trawl	PR C	2.4.1	Yes	Yes	NA	Scoring agreed. See comment in 2.1.1	See response at 2.1.1.	NA (No response needed)
Abrolhos Island and Mid-West scallop trawl fishery	2021	Scallop/ Abrolhos & Midwest	Otter trawl	PR C	2.4.2	Yes	Yes	NA	Scoring agreed. See comment in 2.1.1	See response at 2.1.1.	NA (No response needed)
Abrolhos Island and Mid-West scallop trawl fishery	2021	Scallop/ Abrolhos & Midwest	Otter trawl	PR C	2.4.3	Yes	No (non-material score reduction expected)	NA	In 2.4.3 (c) SG100 is not met, based on the given rationale which states: "However, changes in all habitat distributions over time do not appear to be monitored". See P91	Agreed and amended.	Accepted (non-material score reduction)
Abrolhos Island and Mid-West scallop trawl fishery	2021	Scallop/ Abrolhos & Midwest	Otter trawl	PR C	2.5.1	Yes	No (non-material score reduction expected)	NA	In 2.5.1 (a) SG100 is not met, based on the given rationale which states: "There is insufficient evidence to conclude SG100 is met". See P93	Agreed. The assessors have concluded SG100 is only partially met. A partial score of 90 is given.	Accepted (non-material score reduction)
Abrolhos Island and Mid-West scallop trawl fishery	2021	Scallop/ Abrolhos & Midwest	Otter trawl	PR C	2.5.2	Yes	Yes	NA	Scoring agreed. See comment in 2.1.1	See response at 2.1.1.	NA (No response needed)
Abrolhos Island and Mid-West	2021	Scallop/ Abrolhos & Midwest	Otter trawl	PR C	2.5.3	Yes	Yes	NA	Scoring agreed. See comment in 2.1.1	See response at 2.1.1.	NA (No response needed)

scallop trawl fishery											
Abrolhos Island and Mid-West scallop trawl fishery	2021	Scallop/ Abrolhos & Midwest	Otter trawl	PR C	3.1.1	Yes	Yes	NA	Scoring agreed.		NA (No response needed)
Abrolhos Island and Mid-West scallop trawl fishery	2021	Scallop/ Abrolhos & Midwest	Otter trawl	PR C	3.1.2	Yes	Yes	NA	Scoring agreed.		NA (No response needed)
Abrolhos Island and Mid-West scallop trawl fishery	2021	Scallop/ Abrolhos & Midwest	Otter trawl	PR C	3.1.3	Yes	Yes	NA	Scoring agreed.		NA (No response needed)
Abrolhos Island and Mid-West scallop trawl fishery	2021	Scallop/ Abrolhos & Midwest	Otter trawl	PR C	3.2.1	Yes	Yes	NA	Scoring agreed.		NA (No response needed)
Abrolhos Island and Mid-West scallop trawl fishery	2021	Scallop/ Abrolhos & Midwest	Otter trawl	PR C	3.2.2	Yes	Yes	NA	Scoring agreed.		NA (No response needed)

Abrolhos Island and Mid-West scallop trawl fishery	2021	Scallop/ Abrolhos & Midwest	Otter trawl	PR C	3.2.3	Yes	Yes	NA	Scoring agreed.		NA (No response needed)
Abrolhos Island and Mid-West scallop trawl fishery	2021	Scallop/ Abrolhos & Midwest	Otter trawl	PR C	3.2.4	Yes	No (non-material score reduction expected)	NA	Internal reviews of all aspects of the fishery-specific management system take place regularly. Nevertheless, the last external review of the stock assessment and research framework that included AIMWTMF was done in 2012. The review undertaken in 2019 was for the Shark Bay prawn and scallop fisheries, and although it may have had some relevance to the AIMW fishery, it does not constitute an external review of the fishery under assessment. Compliance systems were last externally reviewed in 2009, with a study measuring fisheries compliance outcomes taking place in 2014. Given that these external reviews are aged >5 years by now, they should not be considered as 'regular' and do not meet SG100	We have strengthened the commentary to emphasise that DAWE undertakes a 5 year overarching review of Management actions which includes target and bycatch management policies which constitutes an regular external review process, but We accept that other key parts of the management system, including harvest strategy, fisheries specific management and compliance would benefit from a more regular review structure. We have downgraded the 3.2.4b score to SG 80 and added a recommendation to apply a more regular external review process to key parts of the management system. A recommendation has been added	Accepted (non-material score reduction)

9.4 Stakeholder input

Comments were received from MSC Technical Oversight on the Public Comment Draft Report. The comments and team's responses are below.

SubID	PageReference	Grade	RequirementVersion	OversightDescription	Pi	CABComment
31079	17	Guidance	FCP-7.8.1.1 v2.2	As per FCP Guidance 7.8.1.1 and MSC Reporting Template Section 6.1, if the fishery's eligibility date is set before the certification date, the CAB shall justify selection of this date and include consideration of whether the traceability and segregation systems in the fishery are appropriately implemented before the eligibility date, to prevent any traceability risks e.g. the risk of non-UoC product incorrectly identified as an eligible under-assessment product.		Clarification has been added to this section. We have confirmed that all necessary traceability and segregation systems in the fishery are appropriately implemented. There is no realistic opportunity for non-certified products to mix with the certified scallops.
31080	18	Guidance	FCP-7.9.1.3 v2.2	As per FCP 7.9.1.3 and MSC Reporting Template Section 6.2, the CAB shall document any traceability risk factors. For each risk factor, there shall be a description of how risk is managed and mitigated. Table 6 row 3 identified non-UoC retained bycatch species as a traceability risk but it is not captured in Table 6 what the traceability risk mitigation are to ensure non-UoC species are segregated and not mixed with certified catch, especially since processing take place on the vessels.		There is no risk because the species handled are distinctly different and are separated on sorting. We have added this clarification to the table.

A comment was also received from the City of Geraldton, however it did not qualify because the City had not previously been involved in the assessment as a stakeholder (per FCP 7.20.8.1). We will consider the City's comments at a later stage.

9.5 Conditions

There are no conditions

9.6 Client Action Plan

There is no requirement for a Client Action Plan.

9.7 Surveillance

Table 18 – Fishery surveillance program

Surveillance level	Year 1	Year 2	Year 3	Year 4
Level 1	Offsite surveillance audit	Offsite surveillance audit	Offsite surveillance audit	On site surveillance audit

Table 19 – Timing of surveillance audit

Year	Anniversary date of certificate	Proposed date of surveillance audit	Rationale
1	October 2022	Around the first anniversary of the certification	

Table 20 – Surveillance level rationale

Year	Surveillance activity	Number of auditors	Rationale
Year 1	Offsite, Review of information	2	No Conditions and information can easily be obtained remotely.

9.8 Harmonised fishery assessments

To be completed at Public Certification Report stage

Table 21 – Overlapping fisheries

Fishery name	Certification status and date	Performance Indicators to harmonise
Peel Harvey Estuarine fishery: Recreational and Commercial blue swimmer crab and Commercial sea mullet	Jun 2016 – Jun 2021	3.1.1, 3.1.2, 3.1.3
Western Australia Octopus Fishery	Oct 2019- Oct 2024	2.4.1, 3.1.1, 3.1.2, 3.1.3
Western Rock lobster	May 2017-May 2022	2.4.1, 3.1.1, 3.1.2, 3.1.3
Western Australia Abalone Fishery	April 2017-April 2022	3.1.1, 3.1.2, 3.1.3
Exmouth Gulf Prawn Trawl	December 2020-December 2025	3.1.1, 3.1.2, 3.1.3
Shark Bay Prawn Trawl	December 2020-December 2025	3.1.1, 3.1.2, 3.1.3
Australia Silver-lipped Pearl oyster	6 Sept 2017 - 25 Sept 2022	3.1.1, 3.1.2, 3.1.3 (WA only)

Table 22 – Overlapping fisheries

Supporting information	
- Describe any background or supporting information relevant to the harmonisation activities, processes and outcomes.	
The Australian Western Rock Lobster Fishery is currently MSC certified under FCR v1.3 which did not include consideration of VMEs. Initial harmonisation discussions have been held to discuss potential VMEs in the management area for both fisheries (via email and telephone on 13 July 2021). The need for further discussion will be assessed during the reassessment of the lobster fishery and adjustments made, if required, in the first annual audit report.	
Was either FCP v2.2 Annex PB1.3.3.4 or PB1.3.4.5 applied when harmonising?	**No**
Date of harmonisation meeting	**13 July 2021 and via email**
If applicable, describe the meeting outcome	
- e.g. Agreement found among teams or lowest score adopted.	
The need for further discussion will be assessed during the reassessment of the lobster fishery and adjustments made, if required, in the first annual audit report.	

Table 23 – Scoring differences

Performance Indicators (PIs)	Fishery name	Fishery name	Fishery name	Fishery name
PI	**Score**	**Score**	**Score**	**Score**
PI	**Score**	**Score**	**Score**	**Score**
PI	**Score**	**Score**	**Score**	**Score**

Table 24 – Rationale for scoring differences

If applicable, explain and justify any difference in scoring and rationale for the relevant Performance Indicators (FCP v2.2 Annex PB1.3.6)
If exceptional circumstances apply, outline the situation and whether there is agreement between or among teams on this determination

9.9 Objection Procedure

No objections were received.

FAR WEST SCALLOPS
INDUSTRIES PTY LTD

MRAG Americas, Inc
1201 2nd Avenue, Suite 950
Seattle, WA 98101

6th October 2021

Dear MRAG Americas,

Far West Scallops Industries Pty Ltd, as one of the two licence holders/clients for the Abrolhos Islands and Mid-West Trawl Managed Fishery, accepts the Public Certification Report for this Fishery and the associated certification determination.

Far West appreciates the efforts of MRAG Americas and its assessment team to produce these final certification reports for the Fishery.

Yours sincerely,

Hamish Ch'ng
Managing Director
Far West Scallops Industries Pty Ltd

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McBOATS

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mcboats@bigpond.com
mcboats.net

MRAG Americas, Inc.
1201 2nd Ave., Suite 950
Seattle WA 98101

8th October 2021

Dear MRAG Americas,

Elmwood Holdings Pty Ltd trading as McBoats, as one of the two licence holders for the Abrolhos Islands and Mid-West Trawl Managed Fishery, accepts the Public Certification Report for this Fishery and the associated certification determination.

McBoats appreciated the efforts of MRAG Americas and the assessment team to produce these final certification reports for the Fishery, thank you.

Sincerely,

Peter McGowan
Director
McBoats

Geoff McGowan
Director
McBoats