HEARD ISLAND AND MCDONALD ISLANDS (HIMI) TOOTHFISH FISHERY MSC FULL-ASSESSMENT REPORT

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Glossary of Acronyms

AAD	Australian Antarctic Division
ABARES	Australian Bureau of Agriculture and Resource Economics and Sciences
ACBP	Australian Customs and Border Protection
ACE – CRC	Antarctic Climate & Ecosystems Cooperative Research Centre
AFMA	Australian Fisheries Management Authority
AFZ	Australian Fishing Zone
ARC	Australian Research Council
B_{MSY}	Biomass Maximum Sustainable Yield
CASAL	C++ Algorithmic Stock Assessment Laboratory
CCAMLR	Commission on the Conservation of Antarctic Marine Living Resources
CDS	Catch Documentation Scheme
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
CM	Conservation Measure
CRIS	Cost Recovery Impact Statement
CSIRO	Commonwealth Scientific and Industrial Research Organisation
CV	Coefficient of variation
eDCD	electronic Dissostichus Document
DoEE	Department of Environment and Energy
EEZ	Exclusive Economic Zone
EPBC	Environment Protection and Biodiversity Conservation Act 1999
ERA	Ecological Risk Assessment
ETP	Endangered, Threatened or Protected species
FAO	Food and Agriculture Organization of the United Nations
FCM	Fisheries Certification Methodology
FMA	Fisheries Management Act 1991
GYM	Generalised Yield Model
HCR	Harvest Control Rules
HIMI	Heard Island and McDonald Islands
HIMITF	Heard Island and McDonald Islands Toothfish Fishery
HIPPIES	Heard Island Predator Prey Integrated Ecosystem Study
HS	Harvest Strategy
IFQ	Individual Fishing Quota
ITQ	Individual Transferable Quota
IUU	Illegal, Unregulated or Unreported
Kg	kilogram
Lb.	Pound, equivalent to roughly 2.2 kg
LOA	Length Over-All
LRP	Limit Reference Point
M	Million (lbs.)
MAC	Management Advisory Committee
MCMC	Markov Chain Monte Carlo
MNHN	Museum National d'Histoire Naturelle

MPD	Maximum Posterior Density
MSC	Marine Stewardship Council
MSE	Management Strategy Evaluation
nm	nautical mile
OFL	Over-Fishing Level
PCDR	Public Comment Draft Report
PCR	Public Certification Report
PI	Performance Indicator
PISG	Performance Indicator Scoring Guidelines
RAG	Resource Assessment Group
RBF	Risk Based Framework
RSTS	Random Stratified Trawl Survey
SARAG	Sub-Antarctic Resource Assessment Group
SARPC	Syndicat des Armements Reunionnais de Palagriers-Congelateurs
SC	Scientific Committee
SCS	SCS Global Services
SFRs	Statutory Fishing Rights
SG	Scoring Guidepost
SSB	Spawning Stock Biomass
RSTS	Random Stratified Trawl Survey
t and mt	metric ton
TAAF	Terres Australes et Antarctiques Francaises
TAC	Total Allowable Catch
TOB	Total On Board
UoA	Unit of Assessment
UoC	Unit of Certification
VMS	Vessel Monitoring System
WCPFC	Western and Central Pacific Fisheries Commission
WGEMM	Working Group on Ecosystem Monitoring and Management
WGFSA	Working Group on Fish Stock Assessment
WGIMAF	Working Group on Incidental Mortality Associated with Fishing
WWF	World Wildlife Fund
YCS	Year Class Strength

1. Executive Summary

SCS Global Services (SCS) is an independent third-party certification body that has undertaken the MSC re-assessment of the Heard Island and McDonald Islands (HIMI) Toothfish Fishery in accordance with the MSC Principles and Criteria for sustainable fishing. This fishery was first certified in March 2012, and this is the 1st re-assessment. The re-assessment complies with the DAT of MSC Certification Requirements v1.3 (January 2013) and the guidance to the Certification Requirements v1.3 (January 2013) but applies CR v2.0 for process.

The team selected to undertake the re-assessment includes three team members that collectively meet the requirements for MSC assessment teams. These are:

- Dr. Sabine Daume Team Leader, P2 Expert
- Mr. Alexander Morison, P1 Expert
- Ms. Sascha Brand-Gardner, P3 Expert

The team met with fishery representatives, scientists and stakeholders in Hobart, Tasmania on 9-10th August, 2016. Documents were presented by fishery representatives and fisheries scientists. Client representatives were thorough in their approach and provided the assessment team with supporting documents. Where necessary, additional information was requested. The assessment covers two Units of Certification (UoC): Patagonian toothfish (*Dissostichus eleginoides*) caught by demersal trawl and demersal longline. The Unit of Assessment (UoA) does not extend to any other fisheries or fishing vessels.

The key strengths of the fishery include that it has already been certified as meeting the MSC Principle and Criteria for a sustainable fishery, and during this re-assessment no new condition was identified. Principle 1 achieved very high scores with an average of 96/100 due to the good stock status, well-developed and conservative harvest strategy, supported by a strong information and monitoring system. The comprehensive compliance and surveillance program together with robust cooperative arrangements with France ensures a high level of compliance and demonstrates a commitment to combat IUU fishing with a high score of 97/100.

In this re-assessment report, we provide the detailed rationales for scores assigned by the audit team for each of the Performance Indicators (PIs) under Principle 1 (Stock Status and Harvest Strategy), Principle 2 (Ecosystem Impact) and Principles 3 (Governance, Policy and Management System) of the MSC Standard. No PIs failed to reach the minimum scoring level of 60, and the average scores for each Principle were above 80 for both UoCs (for more details see Section 6.2). These findings support the conclusion reached by the assessment team that all Units of Certification are recommended for recertification according to the MSC Principles and Criteria for Sustainable Fisheries. In addition, no PIs scored below 80 and therefore no conditions were placed on the fishery at the re-assessment. Only one recommendation was made.

Specific emphasis has been placed on harmonization with the overlapping SARPC fishery but also all other CCMLAR and AFMA managed fisheries were considered under Principle 3. Section 4.1 provides the details.

2. Authorship and Peer Reviewers

The assessment team included one team leader (Dr. Sabine Daume) and two independent fisheries experts (Mr. Alexander Morison and Ms. Sascha Brand-Gardner). As outlined below, the assessment team meets the requirements of the MSC Certification Requirements v 1.3 (2013).

Audit Team

Dr. Sabine Daume, SCS Global Services (SCS), Regional Director Australia and New Zealand

Dr. Daume is the Regional Director for the SCS Sustainable Seafood Program in Australia and New Zealand, which covers MSC, ASC and Fisheries Improvement programs. Since 2009, Dr. Daume has led numerous MSC evaluation audits on behalf of SCS, including several large and controversial assessments, and many in Australia. Dr. Daume is a marine biologist with special expertise in the biology and ecology of exploited marine resources with a particular emphasis on invertebrates. Dr. Daume has over 13 years' experience working closely with the fishing and aquaculture industry in Australia. She holds a PhD in marine biology from La Trobe University in Victoria, Australia and an MSc in Marine Biology and Marine Chemistry from Kiel University in Germany. Prior to joining SCS, Dr. Daume worked as a Senior Research Scientist at the Research Division of the Department of Fisheries in Western Australia. She has extensive experience working with diverse groups, often in remote marine environments. She has worked with industry personnel at all levels (divers, technicians, managers, executive officers), as well as policy makers and managers in government departments. Dr. Daume led the WA rock lobster and Heard Island and McDonald Islands (HIMI) icefish annual surveillance and re-assessment, the HIMI toothfish assessment in 2011 and Macquarie Island toothfish assessment in 2011, as well as numerous audits in USA, Canada, Mexico and Japan. Dr. Daume has been trained by the MSC to use the Risk Based Framework (RBF) and the most recent MSC Certification Requirements (v2.0 Oct. 2014). She is a certified lead auditor under the ISO 9001:2008 standard.

Alexander (Sandy) Morison, Morison Aquatic Sciences

Mr. Morison is a consultant specializing in fisheries and aquatic sciences. He has over 30 years' experience in fisheries science and assessment at state, national and international levels and has held senior research positions for state and national organizations in Australia. These include being chair of a range of fishery assessment groups including the Victorian Southern Rock Lobster Assessment Group. Mr. Morison has participated as part of a team undertaking MSC pre-assessments for several fisheries and has been the Principle 1 expert for the MSC certification assessments or surveillance audits of assessments of the Heard Island and McDonald Islands (HIMI) Icefish Fishery, the HIMI Toothfish Fishery, the Macquarie Island Toothfish Fishery, the Kyoto Danish Seine Fishery, the Western Australian Rock Lobster Fishery, the Lakes and Coorong Fishery, the Partner's to the Nauru Agreement (PNA) Purse

Seine Skipjack Tuna Fishery, and the expedited Principle 1 assessment of the PNA Purse Seine Yellowfin Tuna Fishery. He was also the Principle 2 expert on the assessment of the Eastern Pacific Ocean Yellowfin and Skipjack Tuna Purse Seine Fishery. Mr Morison is also trained as a lead auditor for MSC assessments including the use of the Risk Based Framework and was lead auditor (and Principle 1 and Principle 2 expert) for the assessment of the American Samoan Yellowfin and Skipjack Tuna Fishery. In other recent project work Mr Morison was engaged by the WA Fisheries Department to review an overview report on the biology and stock status of indicator species in the Gascoyne Coast Bioregion. He has undertaken work for the Australian Department of Environment (and its predecessors) including an assessment of risks posed by fishing methods to the conservation values of proposed marine parks, refinement of the issues paper and recovery plan for freshwater sawfish, and facilitation of an Oceania regional workshop on countries' requirements for CITES listed sharks and rays. Mr Morison has also worked on an assessment of the ecological risks from Queensland's East Coast Trawl Fishery that looked at the full range of ecological components as well as a separate assessment of this fishery's vulnerability to climate change. He has particular expertise with fish age and growth and has been involved in the development and implementation of harvest strategies for several fisheries. He has over 20 publications in peer-reviewed scientific journals (8 as senior author), 8 book chapters, and over 100 project reports, technical reports, client reports and papers in workshop and conference proceedings. The above positions encompass experience with the assessment of invertebrate, chondrichthyan and 7 teleost fisheries including commercial and recreational fisheries in freshwater, estuarine and marine habitats and fisheries operating in tropical, temperate and polar environments.

Ms. Sascha Brand-Gardner, Department of Fisheries Western Australia

Ms. Brand-Gardner is a fishery manager at the Department of Fisheries in Western Australia (WA). She holds an Honours degree in Marine Zoology from the University of Queensland and has 15 years of experience in fisheries policy, project management and liaison with the fishing and aquaculture industries in Australia. Prior to this, Sascha worked on several marine research projects related to endangered, threatened and protected species, fishery habitats and aquaculture. Sascha was part of the Western Rock Lobster Fishery management team which was the first fishery in the world to gain MSC sustainability certification and has extensive management experience in multi species fisheries including the marine aquarium, coral and specimen shell managed fisheries. Ms Brand-Gardner completed MSC fishery assessment training in Perth and was the Principle 3 expert for the MSC certification assessment of the Australian Blue Grenadier Fishery in 2013. She is currently part of WA's Fisheries Certification Project team that has completed MSC pre-assessments of 50 commercial fisheries and certification of two prawn trawl fisheries and two crab fisheries.

Peer Reviewers

Indrani Lutchman – Consultant

Indrani Lutchman is a marine biologist and fisheries scientist with 25 years experience of designing, leading and delivering projects relating to marine and fisheries conservation in the Europe, Caribbean, Antarctica, and UK Overseas Territories including Bermuda, Falklands Islands and Gibraltar. She has a long track record of working with stakeholders and policy markers high level negotiations of multi-lateral agreements at the United Nations, Food and Agriculture Organisation of the United Nations (FAO) and Regional Fisheries Management Organisations (RFMOs). She has well-established reputation with international and national NGOs and fishers and has successfully led multi-national policy research projects and interdisciplinary teams. Her expertise covers diverse aspects of fisheries and maritime policies and includes both desk-based research as well as the provision of strategic and political advice.

Dr. Neil Klaer - Fisheries consultant

Dr. Klaer has worked on fisheries policy advice to the Australian Federal Government and fisheries stock assessment for the past 25 years with the Australian Bureau of Rural Sciences to 1993 and CSIRO from 1993 to 2014. He has a BSc majoring in zoology from the University of Queensland and an MSc and PhD in applied ecology from the University of Canberra. Between 1988 and 2004 he provided stock projections to the international Commission for the Conservation of Southern Bluefin Tuna, and managed the scientific team responsible for management strategy evaluation and stock assessment for the Southern Bluefin Tuna fishery. Since 2004 he has assisted with the implementation of a formal harvest strategy framework for the Australian demersal Southern and Eastern Scalefish and Shark Fishery, developed automated systems to facilitate the assessment of more than 30 quota species or groups in the fishery, and provided stock assessments for various quota species mostly using either stock synthesis or data-poor assessment methods. He has developed or assisted in the development of ecosystem models (Ecosim and Atlantis) for the SE Australian shelf region, and the Southern Australian Small Pelagic Fishery. Since 2007 he has undertaken 18 independent reviews of US national fisheries stock assessments for the Center for Independent Experts, reviewed the Inter-Benchmark Protocol for stock assessment of sea bass in the Irish Sea, Celtic Sea, English Channel, and southern North Sea for the International Council for the Exploration of the Sea, participated as an invited expert by the Chilean Government in the development of stock biological reference points for all Chilean national fisheries and provided peer review of MSC certification for the NZ Hoki fishery, PNA Yellowfin fishery, and Unassociated Purse Seine Fishery for Skipjack and Yellowfin Tuna from Western and Central Pacific Ocean. He has 19 peer-reviewed scientific papers (as reported by Scopus, 8 as senior author) and more than 100 unpublished reports that have concentrated on seabird bycatch from longline fisheries, multispecies aspects of trawl fisheries, fisheries stock assessment and management strategy evaluation of harvest strategies including those for data-poor fisheries. He has been a private consultant since 2014.

3. Description of the Fishery

3.1 Unit(s) of Certification and scope of certification sought

The Heard Island and McDonald Islands Toothfish Fishery (as described in the Unit of Certification in Table 1) is within scope of the MSC certification sought. In compliance with section 27.4 in Part C of CR V2.0 October 2014, SCS confirms that the Heard Island and McDonald Islands Toothfish Fishery conforms to the scope elements defining eligibility for full assessment against the MSC standard.

This fishery has been found to meet scope requirements (FCR v2.0 7.4) for MSC fishery assessments as it

- Does not operate under a controversial unilateral exemption to an international agreement, use destructive fishing practices, does not target amphibians, birds, reptiles or mammals and is not overwhelmed by dispute. (FCR 7.4.1.1, 7.4.1.2, 7.4.1.3, 7.4.2)
- The fishery does not engage in shark finning, has mechanisms for resolving disputes (FCR 7.4.2.1), and has not previously failed assessment or had a certificate withdrawn.
- Is not an enhanced fishery, is not based on an introduced species, and does not represent an inseparable or practically inseparable species (FCR 7.4.3, 7.4.4, 7.4.13-15)
- Does not overlap with another MSC certified or applicant fishery (7.4.16),
- And does not include an entity successfully prosecuted for violating forced labor laws (7.4.1.4)
- The Unit of Assessment, the Unit of Certification, and eligible fishers have been clearly defined, traceability risks characterized, and the client has provided a clear indication of their position relative to certificate sharing (7.4.6-7.4.12).

The Unit of Assessment includes the Patagonian toothfish (*Dissostichus eleginoides*) stocks caught by the up to 7 vessels that are SFR holders, using demersal trawl or demersal longline, fishing in the vicinity of Heard Island and McDonald Islands, Southern Ocean, within the Australian EEZ (Table 1).

Table 1: Unit of Assessment (UoA) and Unit of Certification (UoC).

Units of Assessment: Defined as the species, location and gear assessed	
UoA: Species:	Patagonian toothfish (*Dissostichus eleginoides*)
UoA: Geographical Area	Southern Ocean, FAO 58.
UoA: Gear Type	Demersal trawl and demersal longline
Further information: Stock	Vicinity of Heard Island and McDonald Islands, Southern Ocean, Australian EEZ
Further information: Management System	**Input controls:** limited entry, gear restrictions. **Output controls:** TAC on main species and catch limits on bycatch species
Unit of Certification: Defined as the vessels allowed to use the MSC ecolabel for catch from the Unit of Assessment (defined as the species, location and gear assessed against the MSC standard).	
Client Group	Austral Fisheries Pty Ltd *and* Australian Longline Pty Ltd.
Fishers in the UoC for the chosen stock	Whole fleet. Currently 5 vessels: *Atlas Cove, Corinthian Bay, Isla Eden, Antarctic Chieftain, Antarctic Discovery,* previously up to 6 vessels.

Other Eligible Fishers that may join the certificate for the chosen stock	No other eligible fishers. There is currently another toothfish fishery *(Dissostichus eleginoides*) in the area but it is managed by the French government. The other fishery, known as the Kerguelen Islands Toothfish fishery, is a bottom set longline fishery and is also MSC certified. Because the HIMI Toothfish Fishery and the Kerguelen Islands Toothfish Fishery are managed by different entities and have different client groups, they are not able to share the certificate based on differences in management schemes.

3.2 Overview of the fishery

The Heard Island and McDonald Islands (HIMI) Toothfish Fishery was first certified in March 2012 and this is the first re-assessment of this fishery.

This fishery targets the Patagonian toothfish (*Dissostichus eleginoides*), and operates in the vicinity of Heard Island and the McDonald Islands in the Southern Ocean. The fishery extends from 13 nautical miles offshore to the edge of the 200 nautical mile Australian Exclusive Economic Zone (EEZ) around the islands. The islands and 12 nautical mile territorial sea is listed on the World Heritage List and forms part of the Heard Island and McDonald Islands Marine Reserve.

The HIMI Toothfish Fishery is a Commonwealth-managed fishery. Due to its location, it is under the jurisdiction of the Commission on the Conservation of Antarctic Marine Living Resources (CCAMLR), Australian Fisheries Management Authority (AFMA) and the Australian Antarctic Division (AAD) in accordance with the *Antarctic Marine Resources Conservation Act 1981*.

Statutory Fishing Rights (SFRs) govern access to the fishery. The fishing season is year-round for trawl (from 1 December to 30 November each year), and seasonal for longline (core season of 1 May to 14 September with season extension periods available from 1 April to 30 November). A Total Allowable Catch (TAC) is in place for toothfish, and there are also catch limits on the major bycatch species.

3.3 Principle One: Target Species Background

SPECIES

Taxonomic classification

Class: Actinopterigii
Order: Perciformes
Family: Nototheniidae
Genus: *Dissostichus*
Species: *eleginoides*

Biology

Distribution and stock structure

The species is widely distributed from the slope waters off Chile and Argentina south of 30–35°S to the islands and shelf areas in sub-Antarctic waters of the Atlantic, Indian and Pacific Ocean sectors of the Southern Ocean (Appleyard et al. 2002). It occurs throughout the Kerguelen Plateau (in both the Australian and French EEZs), from shallow depths near the islands to at least 2500 m depth around the periphery of the plateau.

Considerable mitochondrial DNA heterogeneity has been found among populations of Patagonian toothfish from three southern ocean locations, Macquarie Island, HIMI and Shag Rocks/South Georgia suggesting they are genetically distinct even though there were no significant differences among these populations when comparing seven nuclear microsatellite loci (Appleyard et al. 2002). A further study of populations from the Indian Ocean sector of the Southern Ocean (Crozet Is., Prince Edward and Marion Is. and Kerguelen Is.) did not detect genetic differentiation among these populations or between any of these and the HIMI population (Appleyard, 2004). This, combined with results from tagging data which show movement of some fish from Heard Island to Kerguelen and Crozet Islands, suggests that a metapopulation of Patagonian toothfish may exist in the Indian Ocean sector (Williams et al. 2002, 2003: Welsford et al. 2007).

Migration and movement

Ongoing tag and recapture work has found that the vast majority of Patagonian toothfish disperse only a very short distance, no greater than 15 nautical miles in most cases. This implies that juveniles and adults tend to be locally resident in the depth range of the HIMI fishing grounds. Since 2001, 257 fish (representing 4.6% of those recaptured after being tagged at HIMI) have also been recaptured by French longliners, mostly over the Kerguelen Plateau but also at the Crozet Islands (Welsford et al. 2015, WG-FSA-15/55), a distance of greater than 1000 nm across oceanic troughs over 4000 m deep and 390 nm wide. Numbers of tags recaptured in the French EEZ have been relatively stable at 23-32 tags per season since 2009, representing 6-12% of all tag recaptures observed (Welsford et al. 2015). Smaller numbers of fish that were tagged by the French fishery have been recaptured in HIMI waters (Table 1).

Table 1. Number of tag released and recaptured by France and Australia using all gears. Commercial and surveys recaptures are included. * Fishing season up to 31/07/2015 for Australia (from Welsford et al. 2015).

	Australian EEZ-HIMI			French EEZ - Kerguelen		
Year	No. releases	No. AUS recaptures	No. FR recaptures	No. releases	No. FR recaptures	No. AUS recaptures
1998	1067	98	-	-	-	-
1999	795	108	-	-	-	-
2000	1705	192	-	-	-	-
2001	1512	301	3	-	-	-
2002	1441	394	2	-	-	-
2003	2090	414	7	-	-	-
2004	820	380	5	-	-	-
2005	1621	426	7	-	-	-
2006	2253	314	17	484	1	-
2007	1589	330	17	2373	39	-
2008	1734	230	18	2693	103	-
2009	2315	229	23	4322	244	1
2010	1680	208	27	5305	357	2
2011	2319	278	32	5423	495	3
2012	2865	351	24	5027	658	1
2013	1963	335	27	5450	792	3
2014	2073	307	25	5423	813	4
2015*	3092	206	13	1623	315	0
Total	32934	5101	247	38123	3817	14

Modelling by Peron et al. (2016) of the average size of toothfish caught showed that, after accounting for gear and seasonal effects, it increases with increasing depth of the fishery (Figure 1). It is believed they move to deeper waters once sexual maturity is reached and that juveniles move into the fishery from shallower coastal waters. Peron et al. (2016) also modelled the spatial variation in predicted sex ratio and showed a strong pattern of sexual segregation with of the sex ratio favouring females in the Australian EEZ and favouring males in the north-west of the French EEZ (Figure 2). However it was noted that, similarly to the predictions for total length, model predictions were extrapolated outside of sampled locations in some areas, particularly on the southern and south-western parts of the Plateau.

Younger fish (less than about 600 mm TL) predominate on the plateau in depths less than 500 m, but no areas of local abundance have been discovered. As fish grow, they move to deeper waters, and are recruited to the trawl fishery on the plateau slopes in depths of 450 to 800 m. Here there are several areas of local abundance that constitute the main trawling grounds where the majority of fish caught are between 500 and 750 mm TL. Very few fish greater than 850 mm are caught by the trawl fishery. Trawlers generally catch toothfish that are 3 to 6 years old and around 2 to 3 kilograms in weight. Larger fish are seldom caught in the trawl fishery, and it is assumed that they move into deeper water (>1000

m depth) and canyons which are less accessible to trawl gear but where they are caught by the longline fishery. Longlines generally catch toothfish that are 7 to 15 years old fish and 5 to 7 kilograms in weight. This fishery mostly operates between 1000 and 2000 m depth but few fish caught are >1000 mm TL, even though the maximum size is more than twice this length.

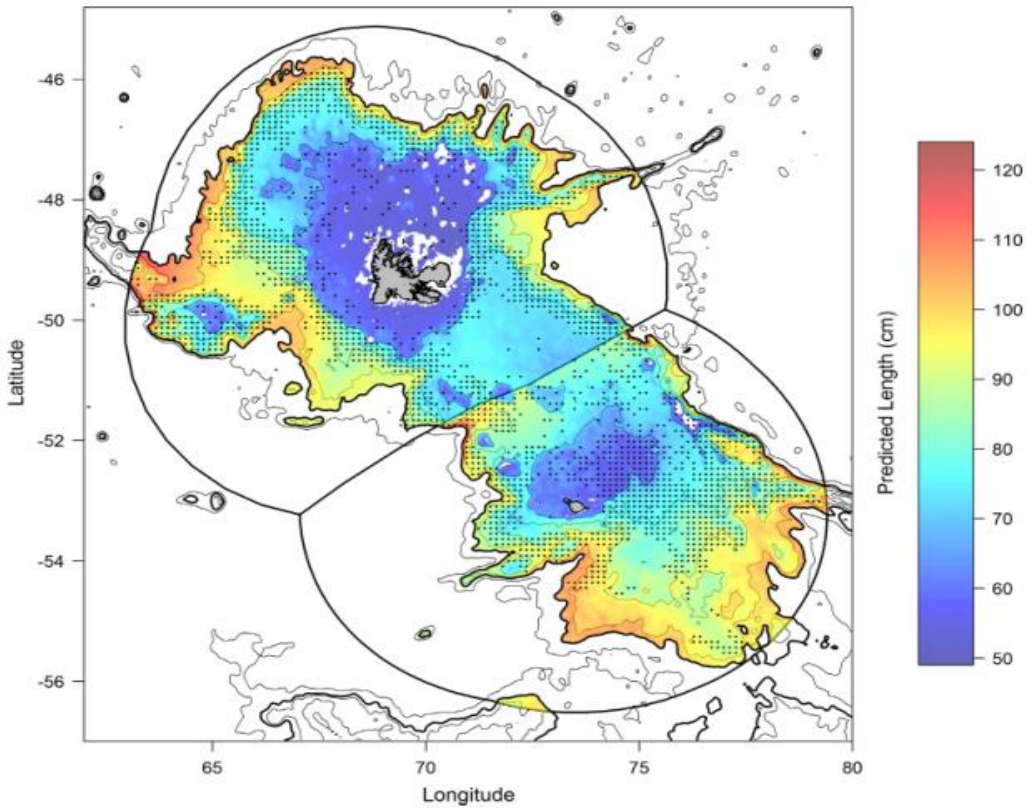

Figure 1. Prediction map of female Patagonian toothfish median total length when caught with commercial longlines by the French fishery in the French EEZ (top of the map) and Australian fishery in the Australian EEZ (bottom of the map). Bathymetry contours (400 m, 1000 m, 2000 m and 3000 m) are displayed in black. The 2300 m isobath corresponding with the lower limit of the fishing depth is highlighted in bold. Dots correspond to cells where fishing occurred (from Peron et al. 2016).

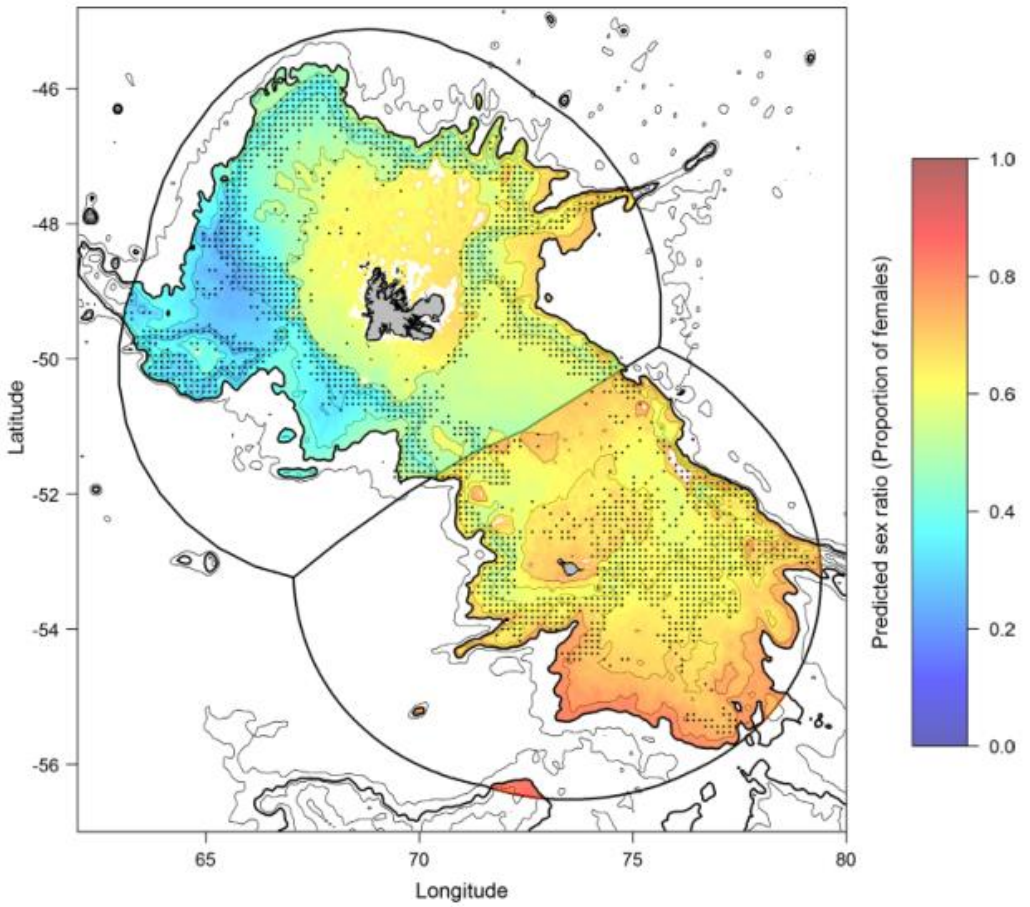

Figure 2. Prediction map of Patagonian toothfish sex ratio (proportion of females) from the generalised additive model. Bathymetry contours (400 m, 1000 m, 2000 m and 3000 m) are displayed in black. The 2300 m isobath corresponding with the limit of the fishing depth is highlighted in bold. Dots correspond to cells where fishing occurred (from Peron et al. 2016).

Reproduction and Recruitment

Welsford et al. (2012) have summarised the available information as indicating that the large and yolky eggs of Patagonian toothfish are pelagic, floating up into the top 700 m of the water column after fertilisation, and are mostly encountered over deep (>2200 m) oceanic waters (Evseenko et al., 1995; Kellermann, 1989). Eggs hatch several months after spawning and the pelagic larval phase is thought to be up to 8 months and limited to the upper 200 m of the water column at the early stages, while larger larvae tend to be found closer inshore (Evseenko et al., 1995; Koubbi et al., 1990; North, 2002). This long period between spawning and settlement to a demersal juvenile stage provides a long period for potential dispersal of larvae.

Welsford et al. (2012) found toothfish at HIMI increase gonad size and spawn throughout the late autumn/ winter months (May-August), and appear to concentrate spawning activity on slopes to the northwest, west and south of HIMI at 1700 - 1900m depth. Strong biases in sex ratios of the catch at length were found, with size classes above 1000 mm dominated by females. They also reported that a large number of females of all size classes had low gonad weights as a proportion of body weight and low macroscopic stages even during the spawning season, suggesting that a substantial proportion of the mature female population did not spawn every year. Welsford et al. (2012) also identified that

several areas on the deep slope to the west and south of HIMI supported spawning activity, and concluded that these data, as well as the fact that large areas of apparently suitable habitat remain to be sampled, indicated that it was likely that spawning within the Australian EEZ made an important contribution to the overall spawning output of the populations on the Kerguelen Plateau.

Around the Kerguelen Islands spawning occurs between late April/May and mid-July for females but begins later for males (end of May), and is still occurring at the beginning of August (Lord et al. 2006). The proportion of larger and more mature fish increased from east to west (Lord et al. 2006) suggesting that spawning takes place in the western areas. There are some indications that in South Georgia, Patagonian toothfish release their eggs near the slope at depths of 800 – 1000m (Agnew *et al.*, 1999). Larvae and postlarvae are encountered in pelagic layers around South Georgia (North, 2002) and over the southern part of the Patagonian Shelf (Ciechomski & Weiss, 1976).

The reported sizes at which 50% of fish become sexually mature varies by region and males have been found to mature at significantly smaller sizes than females. For HIMI toothfish, 50% of females were mature at 1000 mm and 50% of males were mature at 915 mm (Welsford et al. 2012). Most fish captured by longlines are therefore immature. Around the Kerguelen Islands, however, the size at which 50% of fish were mature was estimated as being 63 cm for males and 85 cm for females (Lord et al. 2006). At South Georgia, however, these sizes were 78.5cm +/- 0.5cm total length for male and 98.2 cm +/- 1cm for female fish and there was also evidence that a significant proportion of sexually mature fish (25 to 43 %) do not come into spawning condition each year (Everson and Murray 1999). These sizes correspond to an age of 7-10 years for males and 10-12 years for females (Horn 2002). Welsford et al. (2012) considered that, although it is possible that there are genuine differences in size-at-maturity between these populations, a more likely explanation for these reported differences, is inter-annual variability in the portion of the population that participate in spawning in any one year.

Growth and Natural Mortality

Patagonian toothfish grow to over 2.2 m long and live to a maximum of at least 51 years of age (Welsford et al. 2015 – WG-FSA 15/55). The longevity of Patagonian toothfish, and hence the estimates of growth obtained from otoliths, has been validated using the bomb radiocarbon chronometer and through tag and recapture studies.

As elsewhere, Patagonian toothfish females grow faster and reach larger maximum sizes than males at HIMI (Welsford et al. 2011).

The natural mortality of Patagonian toothfish around HIMI has been estimated by Candy et al. (2011) to be 0.155 using catch-at-age and aged mark-recapture data from the main trawl ground.

Diet

Patagonian toothfish is an opportunistic carnivore whose feeding habits vary with age and depend on the local availability of food items. In the southwest Atlantic Garcia de la Rosa *et al.* (1997) reported Patagonian toothfish to be a mixed-species carnivore, feeding primarily on fish and secondarily on

crustaceans and cephalopods. The diet changes with fish size and with depth as fish grow and move to deeper water, with juveniles feeding pelagically principally on krill in coastal waters, and fish making up a larger proportion of the diet as they migrate to deeper waters. Adults are mainly benthic feeders but capable of undertaking feeding migrations to pelagic waters. Around Macquarie Island toothfish have been found to prey on a broad range of species, including demersal fish and crustaceans and mesopelagic fish and cephalopods, suggesting that they are opportunistic predators (Goldsworthy *et al.* 2002), but here dietary composition was not related to fishing depth or fish size. While information is collected by observers on stomach contents and feed of toothfish, there have been no specific research programs investigating the diets of toothfish in the HIMI area and it is assumed that here, as elsewhere, they are also general carnivores feeding in benthic and mesopelagic habitats.

Predators

Patagonian toothfish are not a key low trophic species.

Killer whales (*Orcinus orca*) and sperm whales (*Physeter macrocephalus*) have been observed to remove Patagonian toothfish from commercial fishery long lines around South Georgia Island. Feeding by killer whales around South Georgia has been estimated to depress longline CPUE by up to 50% for individual hauls and the overall additional tonnage taken by whales was estimated to be about 3.6% per year (Clark and Agnew 2010). It is unlikely that Patagonian toothfish also form part of the natural diet of these cetaceans. Killer whales are unable to dive to the lower depths at which long lines are set and at which adult Patagonian toothfish occur and are only capable of stripping long lines as they are harvested closer to the surface. There have been no incidences of killer whale interactions in the HIMI toothfish region since the fishery began in 1996, however sperm whales have recently begun to take toothfish from lines, at low levels. The presence of sperm whales is not associated with reduced catch rates to the same extent, although they are thought to gather in areas of high toothfish concentrations in other parts of the world.

The HIMI fishery

Commercial fishing by Australian operators was first permitted by AFMA in 1995, but did not commence until March 1997. Until recently fishing in the HIMI region had been limited to a maximum of three Australian boats at any one time and is subject to stringent management arrangements. The fishery now only limits the number of trawlers in the fishery to three. Statutory Fishing Rights (SFRs) for quota govern access to the fishery.

The fishery extends from 13 nautical miles offshore to the edge of the 200 nautical mile Australian Exclusive Economic Zone (EEZ) around the Islands. The fishery lies in Statistical Division 58.5.2 of CCAMLR which has a strong influence over the management of the fishery. The area within 13 nautical miles of the islands is protected from fishing. The islands and 12 nautical mile territorial sea is listed on the World Heritage List and forms part of the Heard Island and McDonald Islands Marine Reserve. In addition, the islands are on the Register of the National Estate as the only unmodified example of a Sub-Antarctic Island ecosystem. AFMA Direction No. HIMIFD 11 closes waters between 12 and 13 nautical miles to fishing providing an additional 1nm buffer. One of the largest Marine Protected Areas in the

world also exists in the HIMI region and is closed to fishing. The Marine Reserve incorporates over 39% of all waters shallower than 1,000 metres in the HIMI EEZ.

The permitted fishing methods are demersal longlining, demersal trawling and traps, however trapping has only taken place on a trial basis, and has not been assessed for the purpose of MSC certification at this point in time.

Annual catches in the regulated fishery have generally exceeded 2000 t and were over 3500 t from 1997/98 to 1999/2000 (Table 2). The estimated IUU catches were large between 1996/97 and 2002/03 and exceeded those of the regulated fishery in some of those early years but have been zero since 2006/07. The fishery began as a trawl fishery but in recent seasons longline catches have become predominant and pots have also been trialled. The longline fishery was active from April to November in 2015.

Table 2. Catch history for Patagonian toothfish in Division 58.5.2. (CCAMLR 2015a – Fishery report)

Season	Catch limit (t)	Reported catch (t)				Estimated IUU (t)
		Longline	Pot	Trawl	Total	
1997	3800	0	0	1927	1927	7117
1998	3700	0	0	3765	3765	4150
1999	3690	0	0	3547	3547	427
2000	3585	0	0	3566	3566	1154
2001	2995	0	0	2980	2980	2004
2002	2815	0	0	2756	2756	3489
2003	2879	270	0	2574	2844	1274
2004	2873	567	0	2296	2864	531
2005	2787	621	0	2122	2744	265
2006	2584	659	68	1801	2528	74
2007	2427	601	0	1787	2387	0
2008	2500	835	0	1445	2280	0
2009	2500	1168	10	1287	2464	0
2010	2550	1213	30	1215	2459	0
2011	2550	1383	34	1148	2564	*
2012	2730	1356	0	1361	2717	*
2013	2730	2074	40	563	2677	*
2014	2730	2642	0	108	2750	*
2015**	4410	2530	0	145	2675	*

* - IUU catch not estimated since 2010 but AFMA consider it to be in the range of 0-50 t for the last 5 years.
** season not complete, active from April to November in 2015

Stock assessment

The assessment of the HIMI fishery is an integrated assessment model that is implemented in CASAL (C++ Algorithmic Stock Assessment Laboratory; Bull et al. 2012) and provides estimates of model parameters, based on abundance estimates from a random stratified trawl survey (RSTS), longline tag-release data from 2012-2014 and longline tag-recapture data from 2013-2015, and auxiliary commercial composition data to aid with the estimation of year class strength and selectivity functions of the trawl, longline and trap sub-fisheries. The most recent assessment (Ziegler and Welsford 2015) incorporated (a) new fishery observations up to 2015 including new ageing data from the 2014-2015 RSTS and commercial fishery from 2009-2014, (b) tag-releases from 2014 and tag-recaptures from 2014 (complete) and 2015 (partial), (c) an updated growth model, (d) changes in priors for survey catchability q, unfished spawning biomass B 0 and year class strength, and (e) a split of the trawl sub-fishery into two periods.

The 2015 assessment model estimated a smaller estimate of the virgin spawning stock biomass B_0 than that obtained in 2014, with an Markov Chain Monte Carlo (MCMC) estimate of 87 077 tonnes (95% CI: 78 500-97 547 tonnes). Estimated Spawning Stock Biomass (SSB) status in 2015 was 0.64 of unfished levels (95% CI: 0.59-0.69). Using the base case model, a catch limit of 3,405 tonnes was calculated as satisfying the CCAMLR decision rules (see below). Similar to the 2014 assessment, the stock was projected to remain above the target level for the entire projection period (Figure 3). The estimates of year-class strength provided by the assessment show substantial inter-annual variability but are trendless, with both high and low levels of recruitment in recent years but overall no indication that recruitment has been impaired (Figure 4). The posterior distributions from MCMC results (Figure 5) indicate that there is a high degree of certainty that the stock has always been above target levels.

The assessment is reviewed by AFMA's Sub-Antarctic Resource Assessment Group (SARAG) prior to being submitted to CCAMLR's Working Group on Fish Stock Assessment (WG-FSA). Comments from both groups are taken into account before final results are submitted as catch recommendations to AFMA.

Sensitivity analyses that have been undertaken produced similar or higher levels of SSB relative to unfished status (Table 2). There are, however, other sources of uncertainty that are also potentially important. These include the effect of the differential distributions of males and females around the whole Kerguelen/HIMI Plateau, the impact of assessing only the HIMI stock, the effect of an unknown proportion of females not spawning each year, and the potential for there to have been a significant IUU catch prior to 1997.

Table 2. MPD results of Model 6 and sensitivity analyses, with estimates of unfished spawning stock biomass B 0 in tonnes, SSB status in 2015, and R 0 (mean recruitment in millions that gives rise to B 0), the number of estimated parameters (N Para), and the components of the total objective function. * Objective function cannot be compared to that of the other models (from Ziegler and Welsford 2015).

Sensitivity run	B_0	*SSB* status	R_0	*N* Para	Objective Function					
					Survey	Catch-at	Tag	meanYCS	Other	Total
Reference: Model 6	88 020	0.64	6.59	47	1012	2004	76	2	10	3104
Survey index and survey proportions-at-length & age	87 360	0.70	6.54	47	506*	2002	48	1	14	2572*
Natural mortality $M = 0.13$	126 518	0.67	5.20	47	1033	1980	68	39	98	3218
Steepness $h = 0.5$	91 227	0.64	6.82	47	1015	2004	78	2	10	3110
Steepness $h = 0.9$	86 952	0.64	6.51	47	1011	2003	76	2	11	3103

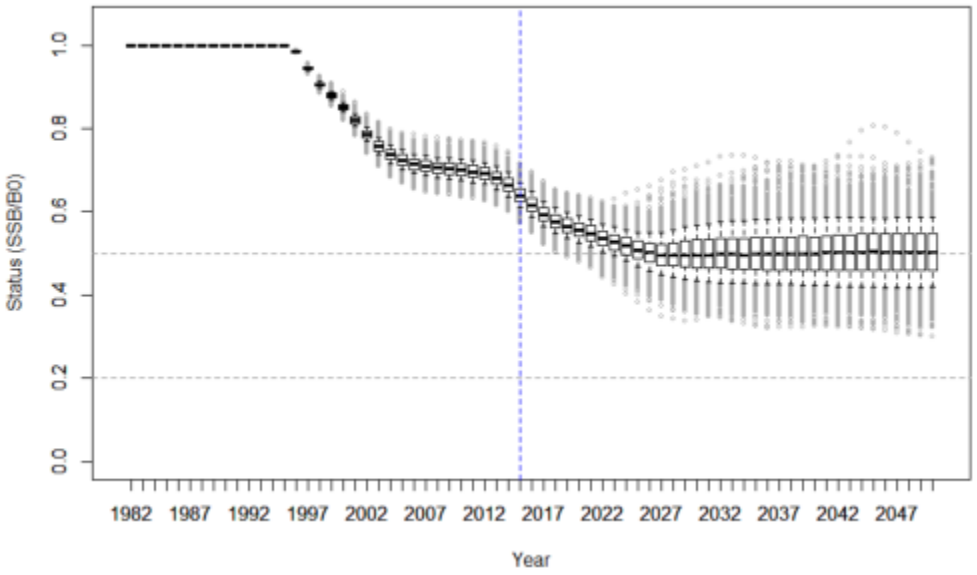

Figure 3. Projected SSB status relative to B_0 for the assessment base case using MCMC samples and future random lognormal recruitment from 2011-2050 with annual constant catches. Boxplots represent the distribution of the estimates across 1000 projection trials. Dotted lines show the 50% and 20% status levels used in the CCAMLR decision rules (from Ziegler and Welsford 2015).

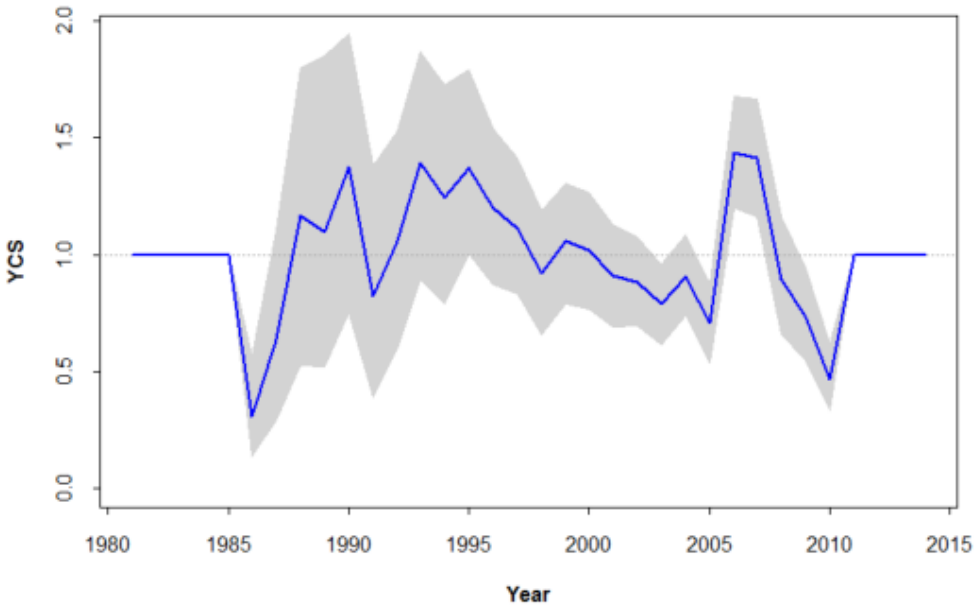

Figure 4. Estimated YCS for the base case assessment showing 95% confidence bounds obtained from the MCMC sample (from Ziegler et al. 2015).

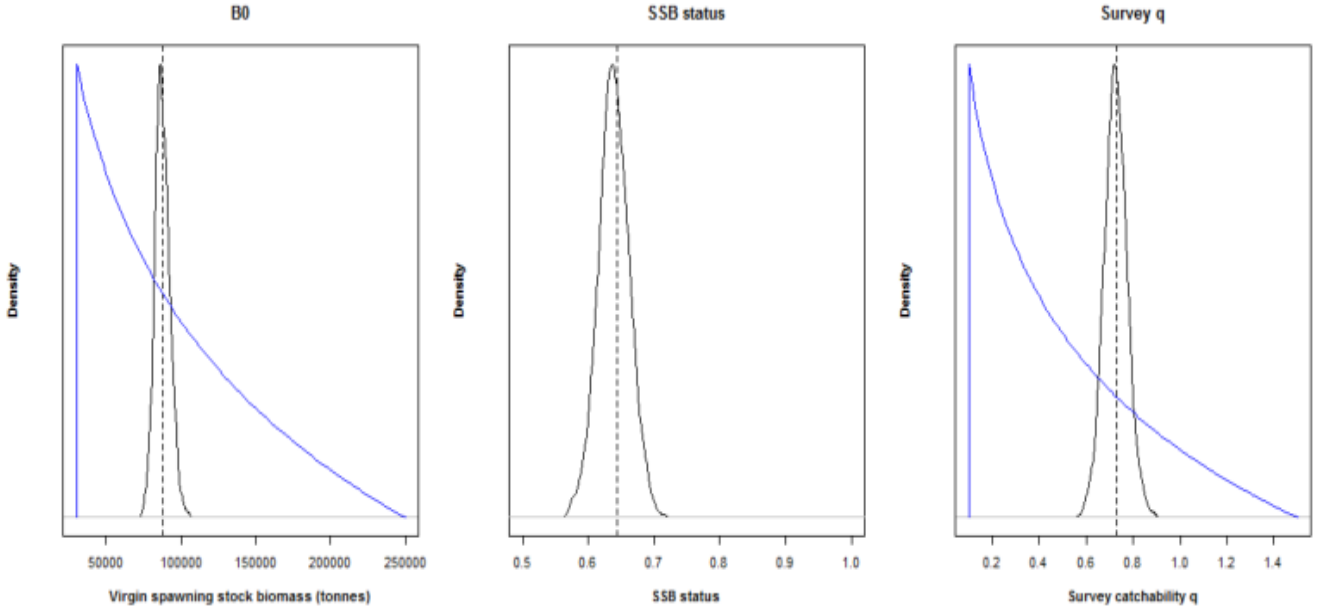

Figure 5. MCMC posterior distribution of B_0 , SSB status in 2015, and survey catchability q (black), and prior distributions (blue) for the base case. Vertical dashed lines indicate the MPD estimates (from Peron et al. 2016).

Harvest Strategy

The elements of a harvest strategy, as defined by the MSC, are monitoring, stock assessment, harvest control rules and management actions, which may include an explicit or implicit management procedure and be tested by Management Strategy Evaluation (CR 1.3).

The monitoring in place is described below in the section on Information. The stock assessment is described above and includes estimates of the current biomass based on the survey data and projections to estimate catch levels that would comply with the harvest control rules.

The harvest control rules used for Patagonian toothfish are those prescribed by CCAMLR. As described in Ziegler and Welsford (2015), once the assessment is agreed catch projection trials were then undertaken that account for uncertainty surrounding parameter estimates of the model as well as future recruitment variability. In order to integrate across uncertainty in the model parameters, Monte Carlo Markov Chain (MCMC) samples were used for CASAL's projection procedure to obtain 1000 random time series samples of estimated numbers of age-1 recruits for the period from 1982-2010, corresponding to Year-Class Strength (YCS) estimates from 1981-2009. The median of the square root of the variance of the yearly numbers of these age-1 recruits from 1992-2010 provided a robust estimate of the σ R for recruitment required for the lognormal random recruitment generation.

The estimated coefficients of variation (CVs) were used to generate the random recruitment from 2011 until the end of the 35-year projection period. Based on this sample of projections for spawning stock biomass, long-term catch limits were calculated following the CCAMLR decision rules:
Choose a yield γ 1, so that the probability of the spawning biomass dropping below 20% of its median pre-exploitation level over a 35-year harvesting period is 10% (depletion probability).
Choose a yield γ 2, so that the median escapement of the spawning biomass at the end of a 35-year period is 50% of the median pre-exploitation level.
Select the lower of γ 1 and γ 2 as the yield.
Although they are not identified as such the first reference point is essentially a limit reference point and the second a target reference point.

The management action that follows from the assessment is that the CCAMLR Scientific Committee recommends a TAC to the CCAMLR Commission that meets these harvest control rules, the Commission adopts this recommendation, and AFMA implements this recommendation through its normal regulatory processes.

These reference points have been specifically constructed to meet the objectives of CCAMLR. Although based on reference points originally designed for krill they have been specifically adapted to be appropriate for Patagonian toothfish as a large predator that is unlikely to constitute much of the diet of whales, seals and birds, by reducing the target biomass from the 75% of unfished levels to 50% (Constable et al. 2000). The choice of a 35 year reference period as the basis for projections is reasonable for a species with a maximum age in excess of 50 years.

Precaution is built in to this harvest strategy in three ways. Firstly, the choice of the target of 50% of un-fished levels is conservative, being above the 40% level generally recognized as the best default estimate of the biomass at maximum sustainable yield (B_{MSY}) and the default level that is set in Australia's Commonwealth Harvest Strategy Policy (DAFF 2007). Secondly, the use of constant catch projections in

both reference points will produce more conservative catches than projections that allow updating of catches to reflect any forecast changes in biomass over the projection period. Thirdly, the choice of a long projection period for evaluating catches that will only apply for two years is precautionary because the range of projections will progressively widen and this uncertainty in turn requires a lower constant catch to meet the limit reference point in particular.

Information and monitoring

The range of information collected to support the assessment and harvest strategy includes the annual fishery-independent trawl surveys across the area of the fishery which is used to provide an index of abundance, monitoring the size and age composition of the surveyed population, monitoring of the retained catch and fishing effort which is used to calculate standardised CPUE series, an ongoing tagging program and monitoring of tag recaptures, a vessel monitoring system, and 100% observer coverage. The use of these data in the stock assessment is described in Ziegler and Welsford (2015).

The French fishery

The following information on the French fishery for Patagonian toothfish is provided because of the shared nature of the stock.

Patagonian toothfish occurs throughout the Kerguelen Islands shelf, from shallow waters (<10 m) to at least 2 000 m depth. As fish grow, they move to deeper waters and (in the Australia EEZ)are recruited first to the trawl fishery on the slopes of the shelf and subsequently to the longline fishery in deeper waters. A general east–west deep-sea movement of adult fish occurs and spawning is restricted to the westerly zone early in winter each year (Lord et al., 2006).

The declared catches of that species represent about 5,000 tons per year since 1993/1994 but an IUU fishery was particularly significant from 1997 to 2004 (Table). Today, the commercial fishery is restricted to bottom long-line fishing. Six French fishing companies consisting of 7 vessels have obtained the licenses to fish the Patagonian toothfish in the EEZ. The IUU fishery is currently considered to be minimal. Catch limits were introduced in 2005 but annual catches have exceeded these limits in eight of ten years and in total by 2.4% over this period.

This fishery has also been MSC certified (MacAlister Elliott and Partners Ltd, 2013) and has been subject to surveillance audits in 2014 (MacAlister Elliott and Partners Ltd, 2014) and 2015 (ME Certification Ltd, 2015). More detail about this fishery can be found within these assessment reports.

Table 3. Catch history for Patagonian toothfish around Kerguelen Island (Division 58.5.1). (CCAMLR 2015b – Fishery report)

Season	Reported catch (t)			Catch limit (t)	Estimated IUU (t)
	Longline	Trawl	Total		
1988	0	892	892		
1989	0	1311	1311		0
1990	0	1243	1243		0
1991	26	2982	3008		0
1992	679	7079	7758		0
1993	243	3354	3597		0
1994	749	4632	5381		0
1995	1467	4129	5596		0
1996	1233	3478	4710		833
1997	1048	4012	5059		6094
1998	1747	2967	4714		7156
1999	2062	2669	4730		1237
2000	3046	3093	6139		2600
2001	2593	2153	4747		4550
2002	3976	178	4154		6300
2003	5291	0	5291		5518
2004	5171	0	5171		536
2005	5073	0	5073	4832	268
2006	4911	245	5156	4882	144
2007	5201	0	5201	5000	451
2008	4850	0	4850	5000	720
2009	5238	0	5238	5100	0
2010	4915	235	5151	5100	22
2011	5235	0	5235	5100	*
2012	4903	0	4903	5100	*
2013	5377	0	5377	5100	*
2014	5326	0	5326	5100	*
2015**	2884	0	2884	5100	*

* - IUU catch not estimated.

** - Data up to the end of July 2015.

3.4 Principle Two: Ecosystem Background

All species that are affected by the fishery and are not part of the Unit of Certification are considered under Principle 2. This includes species that are retained for sale or personal use (assessed under Performance Indicator 2.1), bycatch species that are discarded (Performance Indicator 2.2), and species that are considered endangered, threatened or protected by the government in question or are listed by the Convention of International Trade of Endangered Species (CITES) (Performance Indicator 2.3). This section contains an evaluation of the total impact of the fishery on all components in P2 and includes both observed and unobserved fishing mortality. Unobserved mortality may occur from illegal, unregulated or unreported (IUU) fishing, biota that are injured and subsequently die as a result of coming in contact with fishing gear, ghost fishing, waste, or biota that are stressed and die as a result of attempting to avoid being caught by fishing gear. This section also considers impacts on marine habitats (Performance Indicator 2.4) and the ecosystem more broadly (Performance Indicator 2.5).

Ecosystem

The Circumpolar Current flows across the Antarctic continental shelf, the deep ocean and subantarctic islands, resulting in one of the most highly productive regions for polar plants and animals, and valuable toothfish, icefish and krill fisheries.

The Southern Ocean has unique and distinct ecosystems. Phytoplankton biomass is generally low, despite high concentrations of macronutrients; this is at least partly due to the lack of the micronutrient iron (Rintoul et al, 2010). The Southern Ocean food web is characterized by Antarctic krill (*Euphausia superba*), a keystone species which supports large populations of higher predators, including pinnipeds, cetaceans, penguins, fish and marine birds.

The Kerguelen Plateau is an elevated region of sea floor in the southern Indian Ocean approximately equidistant from Africa and Australia. The plateau extends for more than 2,200 km in a northwest-southeast direction, with depths from 1 to 4 km. The Kerguelen Islands are isolated land masses lying on the Kerguelen Plateau, located along the Antarctic Convergence Zone, where the icy waters of the Southern Ocean meet the warmer waters of the Indian Ocean.

The location of the islands is therefore a significant factor in their role as a breeding site for birds and seals in this sector of the southern Indian Ocean, with penguins, petrels and seals representing significant components of the islands' ecosystem and surrounding waters.

An international collaborative research voyage, the Kerguelen Axis or 'K-Axis' voyage, has recently been completed to study the physical, biological and chemical conditions across the Kerguelen Plateau (2016). The Australian vessel *Aurora Australis* coordinate with three other research vessels conducting additional or complementary research in the region – the French ship *Marion Dufresne*, the

Japanese *Umitaka Maru* and Australia's new national research vessel *Investigator.* There was also some oceanographic input from the US vessel *Roger Revelle*.

The voyage primarily focused on:

1. the distribution of Antarctic krill and determine the species' northern limits.
2. examine the relationships between planktonic species, including phytoplankton, zooplankton and krill, with different habitat characteristics and
3. assess phytoplankton productivity and food web structure in three habitat areas of the K-Axis

Researchers at the Antarctic Climate and Ecosystem Cooperative Research Centre (ACE) – CRC are working with national and international collaborators to develop a model for quantifying and assessing Southern Ocean habitats, species and foodwebs. The geographical focus of the ACE - CRC's work is on the Indian and West Pacific Sectors of the Southern Ocean, where scientists are providing international leadership in the development of ecosystem models to simulate future changes to food webs, and help determine the major drivers of change. The project will provide governments and management agencies with the best available forecasts when evaluating conservation and resource management strategies.

The Heard Island and McDonald Islands (HIMI) toothfish fishery operates on the Kerguelen plateau, and is active in a relatively small portion of the ecosystem. As noted above, the area within 13 nm of the HIMI is protected from fishing, and out to 12 nm the area is World Heritage listed and forms part of the Heard Island and McDonald Islands Marine Reserve.

The Reserve has been assigned, under the EPBC Act, to the IUCN Category 'strict nature reserve' and is managed by the Australian Antarctic Division of the Department of the Environment and Energy. An additional buffer zone of 1nm (prohibits fishing between 12 and 13nm) is provided by AFMA Direction HIMIFD 11.

One of the largest Marine Protected Areas in the world also exists in the HIMI region, preventing fishing. The Marine Reserve incorporates over 39% of all waters shallower than 1000 metres in the HIMI EEZ, and the area has now been increased to cover 71,000 km^2 (AAD 2014).

Overview of Non-target Catch
Bycatch: Retained and Discard Species

Bycatch consists of the incidental catch of non-target species that may or may not be landed. Under MSC Guidelines (CR v. 1.3, GCB 3.8.2), the discarded species are designated "bycatch" (PI 2.2.1 - 2.2.3) while the species that are retained for sale or are required to be kept due to management arrangements are considered "retained" (PI 2.1.1 - 2.1.3). Species that are caught or affected by the fishery that are considered endangered, threatened or protected (ETP) are considered separately (PI 2.3.1 - 2.3.3). Seabirds and marine mammals are covered under those PIs.

The Scoring Guidepost (SG) 60 and SG 80 in the Default Assessment Tree refer to "main" species in the retained species and "main" species in the bycatch. Main species are those that comprise 5% or more of the total catch by weight or if they are classified as vulnerable. The SG 100 considers all species, regardless of the percent of the total catch. Prior to scoring Principle 2, the Assessment Team decided whether a species would be considered a "main" retained species or "main" bycatch species following MSC guidance (CR v1.3, GCB 3.5.2).

Only Grey rock cod (*Lepidonotothen squamifrons*) and Grenadiers species (*Macrourus* spp.) were considered "main" for the purpose of this assessment under retained (PI 2.1.1-2.1.3) for longline and trawl respectively (Table 4, grey shaded cells).

Table 4. Total catch (t) and percentage of total catch of main retained species taken from trawl and longline in the HIMI toothfish fishery from 2010-2015. Shaded cells indicate main* species following MSC guidance (CR v1.3, GCB 3.5.2).

		Percentage (%) of total catch in weight							
Trawl									
Season	**Total catch all species (t)**	**Grenadiers spp.**	**Grey rockcod**	***Antimora rostrata***	**Mackerel Icefish**	**Unicorn Icefish**	**Sleeper shark**	**Jellyfish**	**Starfish**
2014/15	205.74	2.26	1.16	0.00	0.02	0.62	0.00	0.03	0.10
2013/14	79.84	0.00	2.53	0.00	0.02	0.20	0.00	0.00	0.00
2012/13	552.89	0.00	8.02	0.00	0.00	1.33	0.00	0.05	0.01
2011/12	1362.52	0.12	2.62	0.00	0.00	2.91	0.00	0.00	0.03
2010/11	1146.70	0.02	2.33	0.00	0.00	2.04	0.00	0.00	0.00
2009/10	1246.55	0.16	3.82	0.00	0.00	2.29	0.00	0.00	0.00
Longline									
2014/15	4072.59	7.45	0.00	0.42	0.00	0.00	0.00	0.00	0.28
2013/14	2637.71	6.68	0.00	0.19	0.00	0.00	0.00	0.00	0.29
2012/13	2116.18	7.38	0.00	0.07	0.00	0.00	0.00	0.00	0.21
2011/12	1355.87	6.57	0.00	0.27	0.00	0.00	0.00	0.00	0.19
2010/11	1316.73	11.26	0.00	0.31	0.00	0.00	0.00	0.00	0.45
2009/10	1216.45	8.19	0.00	0.11	0.00	0.00	0.00	0.00	0.19

*main species are classified by MSC as those species of which the catch is ≥5% of the total catch by weight, or ≥2% of the total catch by weight for 'less resilient' species or species considered at risk (CR v 1.3).

The Commonwealth Bycatch Policy was reviewed in 2012 (Welsford *et al.* 2012). It reported that fish bycatch has generally remained low and steady (although an increase in unicorn icefish and grey rock cod has been observed in the HIMI trawl fisheries around 2012/13 but has since been dropped likely due to a shift in effort to longlining. By-catch levels continue to be monitored by observers (2 observers on

100% of vessels) and reported to CCAMLR. No by-catch species was caught in quantities approaching the catch limit

All species caught in the fishery were the subject of an ecological risk assessment (ERA) and ecological risk management (ERM) process (AFMA 2009a, b). This process addressed the benthic trawl for icefish and toothfish. After completion of the risk assessment and risk management steps, a residual risk assessment was conducted which identified sleeper sharks and skates in the demersal subfishery as potential risks (AFMA 2009 a, b). None of these species were judged to be urgent issues, as there are extensive measures in place to ensure there is sufficient protection. The ecological risk assessment (ERA) considered 17 bycatch species for the longline sector (Bulman et al. 2007). In the ERA, together with the residual risk assessment, one skate species was identified as being at high risk in the demersal longline fishery which was not confirmed with the level 3 SAFE assessment in the longline sector. These skate species are widely distributed across the Plateau and no depletion of these species is evident (Nowara et al. 2009, 2016). The ERA review for the fishery commenced in 2016, and expected to be finalized in early 2017.

Bait

Squid (*Nototodarus sloanii* or *Illex argentinus*), jack mackerel (*Trachurus symmetricus*) and in some years sardine are used as bait in the longline fishery. Squid is either imported from New Zealand (*Nototodarus sloanii*) or from Argentinean waters (*Illex argentines*). The team considered squid a main bait species (> 90% of total bait used). The total amount of bait use in the longline toothfish fishery at HIMI is approximately 300-500 tonnes per year. In addition, mackerel and sardines are used in much smaller amounts of around 20-23 tonnes each (M. Exel and M. McNeill pers.com).

In most years squid was sourced from an Argentinian squid fishery, most likely Argentine shortfin squid (*Illex argentines*). This fishery has shown large (up to a factor of 5) interannual variations over the last decade and was thought to have had a temporary collapse around 2009, but has recovered since 2011. Catches range between 200,000 and 1,000,000 t, so the use of <500 t product in one year from this fishery will not have a detrimental effect on the source populations.

The New Zealand squid fishery is managed under quota which was around 160,000 t in 2016 of which 62,452 t was caught. Based on the biology of squid and the long-term sustainability of the New Zealand squid fishery, the use of <500 t product from this fishery annually will not have a detrimental effect on the source populations.

Bycatch (Discarded Catch)

Large sharks, starfish, sponges, crabs, coral and algae are the discarded components of the bycatch and form a negligible part of the overall catch. A total bycatch limit of 50 t on any one species applies to all teleost species, crabs and sharks. These limits have not been breached in any year. The CCAMLR

Conservation Measure 33-02 (2015) requires vessels to move at least 5 miles away from a site for at least 5 days if a vessel catches equal to, or greater than, 5 t for Unicorn icefish *Channichthys rhinoceratus*, 3 t for all Grenadier species (*Macrourus* spp.) combined, or 2 t for Grey rockcod (*Lepidonotothen squamifrons*), or 2 t of *Somniosus* spp., or 2 t of skates and rays.

None of the bycatch of any one species is >5% of the total catch by weight or has value to the fisher. Generally, the discarded bycatch of any particular species or species group caught by either trawl or longline is less than <1.5% (Table 4). Southern Sleeper Shark, *Somniosus antarcticus*, which is an extremely large dogshark, *Bthyraja eatonii* (Eaton's Skate) and *Bathyraja irrasa* (Kerguelen Sandpaper Skate) that gets caught by longline methods. These large sharks and skates are released if captured, but the survival rate once they are released is uncertain. Therefore, these species have been considered as a main bycatch species following MSC guidance (CR v1.3, GCB 3.5.2) due to their vulnerability. Many of the corals, starfish, sponges and algae form a very minor component of the bycatch but they are not identified to species level.

Table 5: Percentage of total catch of main discarded species taken from trawl and longline in the HIMI toothfish fishery from 2010-2016. These species are considered main following MSC guidance (CR v1.3, GCB 3.5.2) due to their vulnerability.

	Trawl		
Season	**Eaton's Skate (*Bathyraja eatonii*)**	**Kerguelen Sandpaper Skate (*Bathyraja irrasa*)**	**Sleeper shark (*Somniosus antarcticus*)**
2015/16	2.86	0.09	0.00
2014/15	0.14	0.04	0.00
2013/14	0.35	0.11	0.00
2012/13	0.57	0.12	0.00
2011/12	0.37	0.06	0.00
2010/11	0.33	0.06	0.00
2009/10	0.48	0.09	0.00
	Longline		
2015/16	0.47	1.42	0.16
2014/15	0.03	0.40	0.18
2013/14	0.12	0.96	0.11
2012/13	0.19	1.06	0.22
2011/12	0.06	0.82	0.10
2010/11	0.09	1.04	0.00
2009/10	0.01	0.80	0.19

Endangered, Threatened and Protected (ETP) Species

The fishery does interact with some ETP species. In particular, they have interacted with seabirds (Cape petrels, giant petrels and a rockhopper penguin), and seals (Antarctic fur seal - *Arctocephalus gazelle* and Elephant seal - *Mirounga leonine*).

Table 6. Number of seabird and marine mammal mortalities from trawl and longline in the HIMI toothfish fishery from 2009/10-2014/15.

	Seabirds		Marine Mammals	
Season	Trawl (no)	LL (no)	Trawl (no)	LL (no)
2014/15	0	1	0	6
2013/14	0	1	0	3
2012/13	1	0	0	8
2011/12	0	2	0	2
2010/11	0	1	0	0
2009/10	0	2	0	0

Seabird bycatch in the fishery remains low; no seabird mortalities have been reported in the trawl fishery since 2012/13 and between 0 and 2 seabirds per year in the longline sector (Table 6). There has been no observed marine mammal interaction in the trawl since 2010 while fur seal mortalities have been observed in the longline sector of the fishery particularly in recent years when efforts shifted to longlining (Table 4).

Sperm whale depredation

Incidents of depredation (direct impacts), involving sperm whales (*Physeter microcephalus*) have been reported in several Patagonian toothfish (*Dissostichus eleginoides*) longline fisheries in the Southern Ocean, however at Heard Island, this has only been seen from 2011, and incidents have been observed in every season thereafter (Welsford and Arangio, 2015). This recent study found that strong seasonal pattern to sperm whale presence, with depredation events confined to early in the season (April-July). Further work is planned to monitor depredation behaviour across the Kerguelen Plateau and explore options for long term mitigation. This Australian Research Council (ARC) funded collaborative study will also investigate the trophic effects of depredation on ecosystems.

Management measures for non-target species

AFMA requires that all species in the HIMI fishery that cannot be returned to the water alive be retained (AFMA 2009c). Discarding of dead animals is prohibited. Sharks and ray species caught in the fishery which are in adequate condition are returned alive to the water. Sharks and ray species that are not likely to survive, other species like Grenadiers (*Macrourus* sp.) and unicorn icefish (*Channichthys rhinoceratus*), and benthic invertebrates like starfish are ground into offal. Offal is discarded outside the fishing zone so as not to attract seabirds to the fishing operation.

All species caught in the fishery have TACs of 50 t, unless otherwise specified. This limit is based on CCAMLR advice, and taken to be a precautionary limit (Phillips and Ansell 2008). Unicorn icefish, grey rock cod, skates and rays, and grenadiers have a specific upper catch limit. The limits for unicorn icefish and grey rock cod is based on a stock assessment done in the late 1990s (Constable *et al.* 1998), however the stock assessment for unicorn icefish (Maschette and Dell 2015) and grey rock cod (Maschette et al. 2015) has been recently updated and no updates to limits were required.

A strategy for mitigating all bycatch in the fishery is in place, which includes a requirement for vessels to move at least 5 nm away from a site for at least 5 days, if a vessel catches ≥5 tonnes for *Channichthys rhinoceratus*, ≥3 t for all *Macrourus* spp. combined, or ≥2 t for *Lepidonotothen squamifrons*, or ≥2 t of *Somniosus* spp., or ≥2 tonnes of skates and rays (CCAMLR Conservation Measure 33-02 (2015). There is also an extensive Marine Reserve set up to protect non-target species. There is also a domestic Bycatch and Discard Workplan which was reviewed (Welsford *et al.* 2012) as part of a broader review of the Commonwealth Bycatch Policy in 2012.

CCAMLR has developed conservation measures (Conservation Measure 25-03) for seabirds and marine mammals which provide guidance on mitigation measures for reducing interaction rates, along with a resolution (resolution 22/XXV) outlining its international standards in this respect for seabirds. The HIMI fishery is required to comply with these measures by the management agency (AFMA), with no reported compliance issues reported thus far. A new voluntary industry move on provisions for sperm whales has also been enacted in the longline fishery, which ensures the next line shot is 50 miles away, if sperm whale depredation is detected. A new study will be looking at the whale behaviour across the whole Kerguelen Plateau with the overall aim to develop strategies for long term mitigation (Welsford and Arangio, 2015).

Habitat Impacts

A comprehensive study conducted by Welsford *et al.* (2014) included an assessment of the current status of benthic habitats by combining data on the fishing footprint with estimates of taxa-specific vulnerability to different gear types and modelled distributions of habitats and taxa. A risk categorisation framework was then applied that allowed the seascape around HIMI to be categorised and the level of protection afforded by the Marine Reserve to be quantified.

The researchers concluded that the great majority of vulnerable organisms live on the seafloor in depths less than 1200 m. This range overlaps with the depths targeted by the trawl fishery, however due to the fact that the majority of trawling has focussed on a few relatively small fishing grounds, less than 1.5% of all the biomass in waters less than 1200 m were estimated to have been damaged or destroyed.

Furthermore, the HIMI Marine Reserve, established in 2003, is estimated to contain over 40% of the biomass of the groups of benthic organisms considered as most vulnerable to demersal fishing at HIMI.

Overall, an estimated 0.7% of the seafloor area within the EEZ at HIMI has had some level of interaction with demersal fishing gear) between 1997 and 2013.

The study also identified a small area as of Category II risk to the east of Heard Island near the boundary of the EEZ. The study recommended that 6200 square kilometres of the Conservation Zone be added to the Reserve on the basis that its waters were of high conservation value. The boundaries of the Reserve were expanded on 28 March 2014, and the Reserve's area increased to 71,000 square kilometres (AAD 2014).

Ecological Risk Assessment (ERA)

The ERA for the HIMI Fishery followed an Ecological Risk Management (ERM framework developed by AFMA. The methodology applied is a set of screening or prioritization steps that work towards a fully quantitative ecological risk assessment (Hobday *et al.* 2007, Smith *et al.* 2007). Each step of the methodology, or Level, potentially screens out issues that are of low concern. The Scoping stage screens out activities that do not occur in the fishery. Level 1 screens out activities that are judged to have low impact, and potentially screens out whole ecological components as well. Level 2 is a screening or prioritization process for individual species at risk from direct impacts of fishing. The Level 2 methods combine information on productivity and exposure to fishing to assess potential risk. Due to the precautionary approach to uncertainty, there will be more false positives than false negatives at Level 2, and the list of high risk species should not be interpreted as all being at high risk from fishing. Level 2 is a screening process to identify species that require further investigation by using Level 3 methods, a modeling process, which does assess absolute levels of risk.

After completion of the risk assessment and risk management steps, a residual risk assessment was conducted which identified three skate species (*Bathyraja irrasa*, *B. murrayi*, and *B. eatonii*) in the HIMI demersal trawl subfishery as potential risks (AFMA 2009a, AFMA 2009f). It is also noted in the report that fishing mortality (F) may be overestimated using the Sustainability Assessment for Fishing Effects (SAFE) Level 3 method (Zhou *et al.* 2009). These skate species are widely distributed across the Plateau and no depletion of these species is evident (Nowara *et al.* 2009). In addition, none of these species were judged to be at risk of overfishing at the current fishing level and there are extensive measures in place to ensure there is no major impact on them (Zhou *et al.* 2009).

3.5 Principle Three: Management System Background

Area of Operation and Relevant Jurisdictions

The Heard Island and McDonald Islands (HIMI) are an external territory of Australia and are located on the Kerguelen Plateau in the southern Indian Ocean about 4,000 kilometres south-west of Perth. The HIMI Toothfish Fishery extends from 13 nautical miles (nm) offshore to the edge of the 200 nm Australian Exclusive Economic Zone (EEZ) around the Islands. The fishery lies in Statistical Division 58.5.2 of the Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR) which has a strong influence over the management of the fishery. CCAMLR is made up of 25 participating member countries, including Australia.

The HIMI Toothfish Fishery is a Commonwealth managed fishery, managed by the Australian Fisheries Management Authority (AFMA) in close cooperation with the Australian Antarctic Division (ADD) in accordance with CCAMLR Conservation Measures, the *Antarctic Marine Resources Conservation Act 1981* and the *Fisheries Management Act 1991* (FMA).

Out to 12 nm the area is listed on the World Heritage List and forms part of the Heard Island and McDonald Islands Marine Reserve which is managed by the Commonwealth Department of the Environment and Energy. A new management plan for the Reserve, the Heard Island and McDonald Islands Marine Reserve Management Plan 2014 -2024 was approved by the Minister for the Environment in 2014. The plan was made under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). AFMA Direction No. HIMIFD 11 closes waters between 12 and 13 nm to fishing providing an additional 1 nm buffer zone to the Marine Reserve.

The HIMI Toothfish Fishery could be considered to be a “shared stock” as there may be some level of interaction by fish across the boundary, where they may also be fished by French vessels operating in the French EEZ around Kerguelen Island.

Recognised Interest Groups

Group recognized as having an interest in the HIMI toothfish fishery are:

- AFMA (including members of the SouthMAC and SARAG)
- The Department of the Environment and Energy, in particular the Australian Antarctic Division of the Department.
- The Department of Agriculture and Water Resources
- Scientists from the Commonwealth Scientific and Industrial Research Organisation (CSIRO)
- CCAMLR, its Scientific Committee and associated working groups
- Terres Australes et Antarctiques Francaises (TAAF) (Responsible for sovereignty in the French sub-Antarctic islands)
- Museum National d’Histoire Naturelle (MNHN) (French stock assessment and management)
- Fishers with access rights to the fishery

Consultations leading to the Formulation of the Management Plan

The HIMI toothfish fishery is managed under the *Heard Island and McDonald Islands Fishery Management Plan 2002* (the HIMI Management Plan) and was developed in accordance with the requirements of sections 17 and 17A of the FMA which specifies the consultation that must be conducted in development of a statutory management plan for Commonwealth managed fisheries.

The FMA requires that AFMA make public through a notice in the Commonwealth of Australia Gazette and in newspapers, its intention to determine a management plan, make a copy available for public comment and invite comment on the plan. AFMA is also required to maintain a register of persons or organisations, complied by way of public invitation to register, who are to be notified when AFMA publishes a notice advising that it intends to determine a management plan. The draft management plan was developed in consultation with the SouthMAC which includes members from AFMA, AAD, the fishing industry and a conservation organization. The draft was then provided for public comment in accordance with the above procedures.

The same requirements apply to any subsequent amendment of the management plan. For example, the HIMI Management Plan was last amended in 2012. The proposed Plan amendment was considered and recommended by the SouthMAC and SARAG. Following approval from the AFMA Commission, the draft amendment was released for public comment for a period of one month. To inform the community, AFMA placed notices in The Australian newspaper, in the Gazette and in AFMA's fortnightly newsletter, AFMA Update. AFMA also wrote to all those on a register of persons concerned about plans of management under section 17A of the FMA.

On-going Consultations with Interest Groups

As part of AFMA's partnership approach to fisheries management, it has established Management Advisory Committees (MACs) for each major fishery that it manages. MACs are AFMA's main point of contact with client groups in each fishery and play an important role in helping AFMA to fulfil its legislative functions and pursue its objectives. The Committees provide advice to the AFMA Commission on a variety of issues, including on-going measures required to manage the fishery, the development of management plans and research priorities and projects for the fishery.

The MACs are intended to complement the work of fishery managers by providing a broader perspective on management options and a wide range of expertise. MACs provide a forum where issues relating to a fishery are discussed, problems identified and possible solutions developed. The outcomes of these deliberations determine the recommendations that the MAC will make to the Commission.

AFMA's legislation limits the number of members on a MAC to seven, in addition to the Chairperson and an AFMA officer. Increasingly, and where appropriate, AFMA has included a broader range of interest groups in this consultative process. The Commission decides on a fishery-by-fishery basis the range of

wider community interests that should be reflected on the MAC. As a general rule, revised membership arrangements are considered upon expiry of terms of appointment of existing members.

The MAC that covers the management of the HIMITF, along with other Antarctic and subAntarctic fisheries under Australian jurisdiction, is SouthMAC. The seven statutory members of SouthMAC comprise two from industry, one from the conservation community (currently from the Tasmanian Conservation Trust), a research member, and one from AAD (policy branch). In addition, the MAC membership includes the AFMA manager responsible for the fishery, an Executive Officer and an independent Chair. Observers may also attend meetings of the MAC.

Resource Assessment Groups (RAGs) have been established by AFMA to provide independent advice on fishery and stock status and to achieve transparency in the collection and analysis of data for fisheries management purposes. The HIMITF stock assessment process is reviewed by SARAG which provides advice to SouthMAC and the AFMA Commission. SARAG is currently composed of an independent Chair and an executive officer and seven members including four government scientists (two from AAD and two from CSIRO), the AFMA manager and two industry members. Observers may also attend these meetings.

The operation, roles and responsibilities of MACs and RAGs are specified by AFMA in Fisheries Management Paper No. 1 (AFMA 2015) and Fisheries Administration Paper No. 12 (AFMA 2014) respectively. Both papers have been amended recently to provide clarity around declarations of interests and interpretation of conflicts of interest.

SARAG meets several times a year and SouthMAC meets twice a year, including immediately after the annual meeting of CCAMLR, to consider any Conservation Measures (CMs) agreed by CCAMLR. The most recent SouthMAC meeting was held in February 2016 and the SARAG meeting in September 2016.

A CCAMLR Fisheries Review meeting is held regularly and is primarily concerned with monitoring the operation and implementation of the Research Plan for the HIMI fisheries. Its role in relation to the HIMITF relates predominantly to over-sight of the research program, as well as monitoring bycatch and the random stratified trawl surveys (RSTS). The meeting involves industry, AAD, AFMA and the Department of Agriculture and Water Resources. Conservation groups have a standing invitation to attend, and groups such as WWF have participated actively in the work of the meeting.

In addition to the MAC and Resource Assessment Group (RAG), the CCAMLR Consultative Forum, including government agencies, industry and non-government conservation agencies meets three times each year. These meetings are formally recorded and records distributed to participants. Some of the information discussed is considered confidential, and these meeting records are not made more publicly available.

An annual workshop prior to a SARAG meeting is held for scientists, managers, policy makers, scientific observers and industry participants, including skippers, to prove a forum for informal exchange of information. Members of the CCAMLR Consultative Forum are invited to the workshops.

A joint workshop between Australia and France was held in 2010 when all current research was presented. AAD and the French Museum have organised another Australian/France Kerguelen Plateau Symposium for November 2017.

Planned Education and Training for Interest Groups

There are no specific education and training programs planned for interest groups. However, the extensive range of consultation mechanisms used in the fishery provide opportunities for interest groups, including fishers and conservation groups, to engage in and form a better understanding of the management and conduct of the fishery.

Non-fishery Uses or Activities and Arrangements for Liaison and Coordination

An Australian, MSC-certified fishery for Mackerel Icefish also operates in the waters around HIMI. However, the fishing grounds for toothfish are different than those for mackerel icefish. Toothfish is now increasingly taken by longline while mackerel icefish is only taken by demersal and midwater trawl. Both the mackerel icefish and toothfish fisheries are managed by AFMA under the same management plan and have the same consultative arrangements.

Similarly, a French MSC certified fishery for Patagonian toothfish operates on the Kerguelen Plateau in the French EEZ. There are compliance and research collaborative arrangements between the two countries as well as an MSC harmonization process that has been completed.

The islands lie within one of the most biologically pristine area in the world and provide crucial breeding habitat for a range of birds and marine mammals, thus attracting tourism. Tour ships must obtain permits and must remain within specified visitor zones. However, given the remoteness of the Islands they are only occasionally visited by tour ships (AAD 2015).

Formulation of the Management Plan

AFMA, AAD and CCAMLR are the key decision-making bodies for the HIMITF. The fishery is managed by AFMA in accordance with the FMA. In addition, AAD, a division of the Commonwealth Department of the Environment and Energy, manages the fishery in accordance with the requirements of other domestic legislation, in particular the EPBC Act, and also in conjunction with the requirements of the *Antarctic Marine Living Resources Conservation Act 1981*, which implements Australia's obligations under CCAMLR. All aspects of the fishery management system including the research, surveys, stock assessments, harvest strategies, and management controls are controlled by AFMA and AAD. The Commonwealth Department of Agriculture and Water Resources provides overarching policy guidance to AFMA.

Commission for the Conservation of Antarctic Marine Living Resources

The CCAMLR process requires interested and responsible nations to come together in an annual multilateral forum to debate various scientific, fishing and conservation interests and issues and negotiate agreements on management measures that are enforceable and acceptable to all parties. Like all such international negotiations, specific issues may be used as bargaining chips to secure preferred outcomes for national delegations. However, crucially, CCAMLR operates by consensus and this decision-making framework has worked well for CCAMLR over a long period of time. The scientific and conservation requirements of ecosystem-based resource conservation and management are considered to be paramount by CCAMLR, and CCAMLR has a notable record of agreeing to key measures, such as binding and sustainable catch limits, in line with the advice to the Commission from its Scientific Committee (SC).

The CCAMLR SC is supported by several constituent working groups that focus on specific areas of science (in particular the Working Group for Fish Stock Assessments (WGFSA), Working Group on Ecosystem Monitoring and Management (WGEMM) and Working Group on Statistics, Assessment and Monitoring (WGSAM). This hierarchical approach (management advice flows up from the working groups to the SC to the Commission) means that technical advice is fed into the system at a level where national agendas are potentially less influential. Other than a focus on a specific geographic area and/or fish stock, such as HIMI in the case of Australia, the working group participants are not constrained in their scientific activities and the techniques they use by their country of origin. In addition, the content of the working groups' reports, which are a matter of public record, are a product solely of the participants at the meeting. There is no subsequent vetting or editing of the content by non-participants, or higher level bodies such as the Commission, that is not subject to the approval of the convener/chair (in the case of editorial changes) or the participants (in the case of any substantive changes reflecting matters of accuracy).

CCAMLR sets CMs that are applied by AFMA in managing the HIMITF (see Figure 6). CCAMLR also establishes an annual TAC for toothfish in the HIMI fishery. This is set taking into account stock

assessments conducted by Australia and the outcomes of peer review of those assessments in CCAMLR's WGFSA and SC.

Decision Making Processes

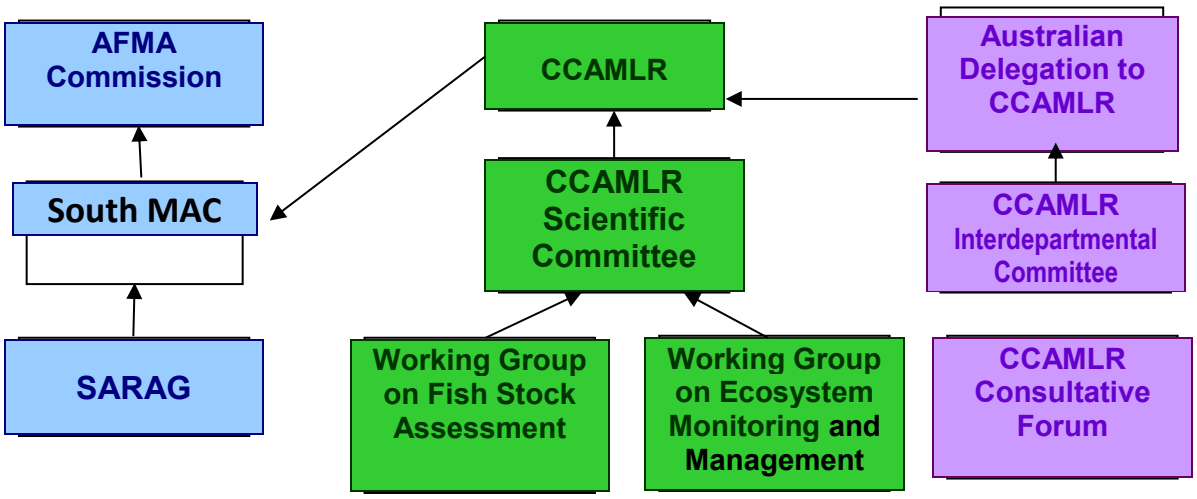

Figure 6. Decision making and consultative processes for determining Conservation Measures for the HIMITF (source: AFMA 2013)

Australian Antarctic Division

AAD manages Australian government activity in Antarctica, provides transport and logistic support, maintains Australian research stations, and conducts and manages scientific research programs both on land and in the Southern Ocean. In this capacity, AAD manages both the land area of HIMI and the territorial sea as a Marine Reserve. Given its location in the Southern Ocean (i.e. within the Antarctic Convergence) AAD also carries out scientific research and provides management advice on fisheries within the AFZ around HIMI. AAD's Policy Coordination branch is responsible for developing policies, supporting Australian positions internationally, promoting the Antarctic program, ensuring environment protection requirements are met, and administering Australian Antarctic and Sub-Antarctic territories.

Scientists from AAD undertake a stock assessment (see above) for Patagonian toothfish every second year as part of their core work.

Australian Fisheries Management Authority

AFMA, established in 1992, undertakes the day to day management of the fisheries in the Australian Fishing Zone (AFZ). For administrative purposes, AFMA manages more than 20 fisheries that are identified by species, fishing method and/or area. The Australian Commonwealth model of fisheries management has a number of features that distinguish it from other countries, the most prominent of which is the partnership approach with industry and other stakeholders. Under this model, the involvement of industry is recognized as being vital to successful fisheries management.

While responsibility for the implementation of fisheries management decisions and AFMA's day-to-day business affairs resides with the Chief Executive Officer, AFMA's operations are overseen by seven Commissioners. The Commissioners are appointed on the basis of their high level of expertise in one or more of the fields of fisheries management, fishing industry operations, science, natural resource management, economics, business or financial management, law, public sector administration or governance. Commissioners cannot hold any executive position in a fishing industry association, nor can they have a controlling interest or executive role in any entity holding a Commonwealth fishing concession. The Commission is responsible for setting the policy framework and for ensuring that adequate resources and expertise are available to meet AFMA's legislative obligations. The outcomes of board meetings are reported to stakeholders as well as to the public through the AFMA website.

SouthMAC considers the conservation measures, including the TAC set by CCAMLR for toothfish, and makes a recommendation to the AFMA Commission on adoption of these measures. The Commission makes the final decision on implementation of these measures.

Fisheries Administration Paper 12 clarifies key decision-making processes associated with the delivery of scientific advice in the pursuit of AFMA's legislative objectives. This includes the interactive processes, respective roles and responsibilities between the AFMA Commission, Resource Assessment Groups (RAGs) and Management Advisory Committees (MACs) (see Figure 6 sourced from AFMA, 2014). Unless delegated by the Commission, all committees/groups are advisory rather than decision making.

The process for setting the TAC for example, starts with scientists from AAD and SARAG providing target species and bycatch data which is used to conduct a biennial integrated stock assessment which is peer reviewed by the CCAMLR WGFSA and then sent to the CCAMLR SC and onto the CCMLAR Commission. The TAC is set based on management advice from CCAMLR. Once the TAC is established, the advice is sent to AFMA management, South MAC and finally to the AFMA Commission to publish a Determination and implement the TAC and associated CMs. The HIMITF is on a two year assessment cycle and thus CCAMLR decides on the TAC every 2 years. However, CCAMLR will review the reported bycatch annually and AFMA reviews the fishery every season.

Objectives for the Fishery

The HIMI Management Plan specifies the objectives for the fishery, consistent with those in the FMA, as:

a. to manage the fishery efficiently and cost-effectively for the Commonwealth; and

b. to ensure that the exploitation of the resources of the fishery and the carrying on of any related activities are conducted in a manner consistent with the principles of ecologically sustainable development and the exercise of the precautionary principle, and in particular, the need to have regard to the impact of fishing activities on non-target species and the long-term sustainability of the marine environment; and

c. to maximise economic efficiency in the exploitation of the resources of the fishery; and

d. to ensure AFMA's accountability to the fishing industry and to the Australian community in management of the resources of the fishery; and

e. to reach Government targets for the recovery of the costs of AFMA in relation to the fishery; and

f. to ensure, through proper conservation and management, that the living resources of the AFZ are not endangered by over-exploitation; and

g. to achieve the best use of the living resources of the AFZ; and

h. to ensure that conservation and management measures in the fishery implement Australia's obligations under international agreements that deal with fish stocks, and other relevant international agreements.

Article II of the Convention for the Conservation of Antarctic Marine Living Resources specifies the objectives of the Convention as follows:

> 1. The objective of this Convention is the conservation of Antarctic marine living resources.
>
> 2. For the purposes of this Convention, the term 'conservation' includes rational use.
>
> 3. Any harvesting and associated activities in the area to which this Convention applies shall be conducted in accordance with the provisions of this Convention and with the following principles of conservation:
>
> a) prevention of decrease in the size of any harvested population to levels below those which ensure its stable recruitment. For this purpose its size should not be allowed to fall below a level close to that which ensures the greatest net annual increment;
>
> b) maintenance of the ecological relationships between harvested, dependent and related populations of Antarctic marine living resources and the restoration of depleted populations to the levels defined in sub-paragraph (a) above; and
>
> c) prevention of changes or minimisation of the risk of changes in the marine ecosystem which are not potentially reversible over two or three decades, taking into account the state of available knowledge of the direct and indirect impact of harvesting, the effect of the introduction of alien species, the effects of associated activities on the marine ecosystem and of the effects of environmental changes, with the aim of making possible the sustained conservation of Antarctic marine living resources.

These objectives encompass both ecosystem-based and precautionary management. The precautionary approach was adopted by CCAMLR in the mid-1990s and includes the objective of maintaining a stock at a proportion of its pre-exploitation abundance such that:

- Escapement of the spawning stock must be sufficient to avoid the likelihood of declining recruitment

- Abundance under exploitation must maintain a sufficient resource for the needs of dependent species (usually predators).

When these two objectives are articulated they give rise to biological reference points that form the basis of decision rules. The CCAMLR decision rules are:
that the probability of the spawning biomass dropping below 20% of its median pre-exploitation level over a 35-year harvesting period is 10% (depletion probability); and.
that the median escapement of the spawning biomass at the end of a 35-year period is 50% of the median pre-exploitation level.

These reference points have been specifically constructed to meet the objectives of CCAMLR.

Fisheries Regulations to Meet Objectives

The HIMI Management Plan provides the overarching framework for regulating the HIMITF. This is supported by the Fisheries Management (Heard Island and McDonald Islands Fishery) Regulations 2002, directions made by AFMA under the HIMI Management Plan and specific conditions on SFRs, through which CCAMLR CMs applying to the fishery are implemented.

The primary regulatory measures in the fishery is the setting of a single TAC and its allocation as ITQs to a limited number of operators. This is supported by a range of reporting and other obligations on SFR holders, gear controls, temporal closures, 100% observer coverage and limits on bycatch. A summary of the regulatory measures that apply to the HIMITF is provided in Table 7.

Table 7. Regulatory framework in the HIMTF (AFMA 2012a).

Management Plan	Supporting instruments
Bycatch arrangements Fishery assessment plan requirements Total allowable catch provisions Quantity of fish that may be taken including overcatch provisions Granting of SFRs Boat nomination Environmental requirements including - Reporting of gear loss - No poultry or brassicas are to be discarded from the boat - Nil offal overboard - Restrictions on the use of plastic packaging bands - Limited light at night Reporting of death or serious injury of seabird and marine mammals Obligations on holders of SFRs to minimize bycatch, carriage of observers and requirement to comply with regulations and fishery assessment plan Contingency arrangements for breakdown of meal plant, disposal of fish meal and injury or death of seabird or marine mammal Schedules -Fishing area, target species and additional species subject to declaration by AFMA.	**Regulations** Gear restrictions (mesh sizes, bobbins etc. restrictions) Contingency arrangement under certain events Boat and gear marking Packing and unloading requirements CCMLAR inspection requirements Observer requirements **Directions** Area closures (territorial waters, buffer zone) Minimum quota holding requirements for trawl operations **Conditions on SFRs** Seasons Seabird bycatch mitigation measures Bycatch restrictions Bycatch move on provisions CCAMLR catch reporting requirements Observer obligations Injury or death of seabird or marine mammal Environmental obligations (including CCAMLR Conservation Measures) Vessel Monitoring System obligations Reporting obligations Transhipping and carrying requirements

Access Rights

The HIMITF is a limited entry fishery. Statutory Fishing rights (SFRs) for toothfish, allocated under the HIMI Management Plan, are held by 4 SFR owners. These SFRs take the form of individual transferable quota, representing a share in the annual TAC.

Review and Audit of the Management Plan

The HIMI Management Plan provides (Section 7 (2), (3) and (4)) that:

- AFMA and the MAC must, at least once every 5 years, assess the effectiveness of the Management Plan including the measures taken to achieve the objectives of this Management Plan by reference to the performance criteria mentioned in subsection (1).
- AFMA must include in its annual report for a financial year a statement of the extent to which the performance criteria mentioned in subsection (1) were met in the year.
- Each year, the MAC must assess the extent to which performance criteria mentioned in subsection (1) have been met in that year.

The effectiveness of some elements of the management plan is also subject to review by the Australian Bureau of Agricultural and Resource Economics and Sciences (ABARES) and the Department of the Environment and Energy. ABARES conducts an annual assessment of the status of stocks and the economics of fisheries managed by AFMA. The Department of the Environment and Energy has conducted regular, five-year reviews of the HIMITF under the Guidelines for the Ecologically Sustainable Management of Fisheries. The processes for this external review has recently changed with a decision by the Government that the maximum period of accreditation of a fishery under the EPBC Act be extended from five to ten years for low-risk fisheries. The List of Exempt Native Species has recently been amended to include fish taken in the HIMITF, thereby extending export approval until October 2026.

Fishery Research Plan

The current research plan for the HIMITF is the Antarctic Fisheries Strategic Research Plan 2014/15 – 2018/19 (AFMA 2015b). The plan was developed by AFMA in consultation with SARAG and SouthMAC. The plan identifies areas of high priority research and provides for research to underpin stock assessment, collection of fishery and biological data and to assess ecological aspects of the fishery. An annual call for research applications addressing the priorities in the strategic research plan is made and applications are assessed for funding either from the AFMA Research Fund or the Fisheries Research and Development Corporation.

The strategic research plan is used to develop the fishery assessment plan (FAP) which is a requirement of the HIMI Management Plan and details the formal collaboration between industry and research providers. The FAP is developed every 2 years to ensure that an adequate program of monitoring takes place in the fishery in order to provide reliable stock estimates for target species and to monitor the direct impact on non-target species and the ecosystem.

4. Evaluation Procedure

4.1 Harmonised Fishery Assessment

For this assessment following PB3 and relevant guidance of PB3 of FCR v 2.0, harmonisation is required with the overlapping Kerguelen Islands (SARPC Client Group) Patagonian toothfish (*Dissostichus eleginoides*) fishery under French management which was certified after the HIMI fishery in 2013. Harmonisation is also required with the HIMI Mackerel Icefish, Australian Blue Grenadier, Northern Prawn, Walkers Seafood and the Macquarie Island toothfish fisheries as it relates to the same AFMA management system (see Table 8 below for details).

Principle 1: Required for overlapping target stock Patagonian toothfish (*Dissostichus eleginoides*). According to the guidance released by the MSC in December 2015, all PIs under Principle 1 need to be harmonized.

In assigning scores to the HIMI fishery we have also considered the French SARPC fishery which was certified after the Australian fishery and with different scores and conditions for several P1 Performance Indicators. Most weight has been given to the assessment of the HIMI fishery, however, as there is now evidence that there is only a minor level of movement of fish between the two areas and there are separate spawning areas. This means that the status of the stock component exploited by the HIMI fishery is mostly affected by the harvest strategy and harvest control rule used for this fishery.

The HIMI fishery scores have been amended where it was considered appropriate to reflect the scores assigned for the French fishery. We consider that the HIMI and SARPC fisheries are harmonised for Principle 1 to the extent that the impacts on the whole stock have been taken into account. The differences that remain are considered to be justified as they pertain to the fishery-specific aspects of their harvest strategies and these differences do not threaten the achievement of P1 outcomes. Therefore, as required by PB 3.1 (FCR v 2.0), having differences in the conditions between the Australian and French fisheries would not "undermine the integrity of MSC fishery assessments". Separate scoring of these fishery-specific aspects of the harvest strategies is also consistent with the approach for fishery-specific management arrangements under P3.

Principle 2: According to the MSC guidance, harmonisation is not required. The fisheries even with the same gear type may still have different bycatches and habitat impacts and management. It should thus not be expected that their scores will be fully harmonised for any of the components in P2.

Principle 3: Harmonisation should also be considered in the case of any overlapping parts of the fishery management systems as it relates to the AFMA and CCAMLR system.

Table 8: Fisheries in the MSC System Considered for Harmonization.

Fishery	Status	Principles for Harmonization	Conformity Assessment Body
1 SARPC Patagonian toothfish (*Dissostichus eleginoides*) under French management	Certified, 3rd surveillance audit	Principle 1 (see below for details) P 3 (related to CCAMLR management system only)	ME Certification
2. HIMI Mackerel Icefish	Recertified	P 3 (related to CCAMLR AFMA management system)	SCS Global Services
3. Australia Blue Grenadier	Certified, 1st surveillance audit	P 3 (related to AFMA management system)	SCS Global Services
4.Northern Prawn	Certified, 4th surveillance audit	P 3 (related to AFMA management system)	MRAG
5. Walkers Seafood	Certified, 1stsurveillance audit	P 3 (related to AFMA management system)	ME Certification
6. Macquarie Island Toothfish	In Re-assessment	P 3 (related to AFMA management system)	SCS Global Services

A specific harmonisation meeting was organized with the assessment team of ME certification after the onsite of the 3rd annual surveillance of the SARPC Fishery on the 11th November 2016 focusing on Principle 1 scores. The outcomes of that meeting were applied to the findings of the 4th annual surveillance report of the HIMI fishery (see also below under summary previous assessment conditions).

Table 9: Alignment of Scores for Harmonisation

PI	Fishery 1	Comments
1.1.1	SARPC	Tagging data now indicates that the HIMI fishery exploits a component of the stock that has a relatively low level of mixing with that exploited by the SARPC fishery. For this PI, therefore, the assigned score, the cited reference points, and current stock status, reflect the stock assessment for the HIMI fishery. The SARPC fishery, however, is also assessed to be at a similar level so an unconditional pass would be assigned even if this fishery was given additional weight in the scoring.
1.1.2	SARPC	CCAMLR reference points are used for the HIMI fishery. These are applied independently of the SARPC fishery which, as noted above, exploits a component of the stock that has a relatively low level of mixing with that exploited by the HIMI fishery. The SARPC fishery, however, also applies the CCAMLR reference points so an unconditional pass would be assigned even if this fishery was given additional weight in the scoring.
1.2.1	SARPC	In assigning a score for the HIMI fishery we have also considered the French fishery which, since the original assessment was completed, had been assessed as meeting all the SG80 requirements, but none of the SG100 requirements. Most weight has been given here to the scores for the HIMI fishery, however, as there is now evidence that there is only a minor level of movement of fish between the two areas and there are separate spawning areas. This means that the status of the stock component exploited by the HIMI fishery is mostly affected by the harvest strategy used for this fishery. The HIMI fishery would be scored at 95 (two of three SG100 scoring issues are met) but the score has been reduced to 90 to reflect the lower score for the French fishery.
1.2.2	SARPC	In assigning a score for the HIMI fishery we have also considered the French fishery which, since the original assessment was completed, had been assessed as not meeting the first of the SG80 requirements because the harvest control rule was not well defined. This is a different scoring issue to the one that was the basis for the original condition for the HIMI fishery. Most weight has been given here to the scores for the HIMI fishery, however, as there is now evidence that there is only a minor level of movement of fish between the two areas and there are separate spawning areas. This means that the status of the stock component exploited by the HIMI fishery is mostly affected by the harvest strategy and harvest control rule used for this fishery. Overall, we consider that the issue of uncertainty about the linkage between the toothfish in the Australian and French EEZs is no longer a major issue for the HCR that is applied to the

		Australian fishery. The Australian HCR requires (and the assessment clearly demonstrates) that catches are in full compliance with CCAMLR objectives. And as catches within the French EEZ are also determined to be within CCAMLR requirements there is very little likelihood of the total combined catch putting the status of the stock as a whole at risk. The HCR for the HIMI fishery is otherwise fully compliant with MSC requirements for certification, and arrangements for the SARPC fishery do not hinder the achievement of CCAMLR objectives for the stock as a whole, so there are no longer any main sources of uncertainty that are not taken into account. The HIMI fishery would be scored at 100 but the score has been reduced to 95 to reflect the lower score for the French fishery. As noted in Section 4.1, we consider that the HIMI and SARPC fisheries are harmonised for this PI to the extent that the impacts on the whole stock have been taken into account. The differences that remain are justified as they pertain to the fishery-specific aspects of their harvest strategies and these differences do not threaten the achievement of P1 outcomes. Therefore, as required by PB3.1, having differences in the conditions between the Australian and French fisheries would not "undermine the integrity of MSC fishery assessments". Separate scoring of these fishery-specific aspects of the harvest strategies is also consistent with the approach for fishery-specific management arrangements under P3.
1.2.3	SARPC	The information available for the HIMI fishery is comprehensive and has been deemed sufficient to meet all SG100 requirements. The information available for the SARPC fishery had been scored as sufficient only to meet SG80 requirements. As for other PIs we have assigned a greater weight to the scores for the HIMI fishery but have reduced the overall score to 95 to reflect the lower score for the SARPC fishery
1.2.4	SARPC	In assigning a score for the HIMI fishery we have also considered the French fishery which, since the original assessment was completed, had been assessed as not meeting the first of the SG80 requirements because the WG-FSA considered that the stock assessment was appropriate for the HCR only in the short term, after which a more robust stock assessment would be required. Thus, unlike the HIMI fishery, the condition on the French fishery was based on its preliminary nature and was not associated with the need for a broader scope for the assessment. There had been an expectation that a joint plateau-wide stock assessment would be required before the original condition on the HIMI fishery could be closed. Now, however, for reasons that are also detailed in the fourth surveillance report (SCS 2016), the assessment can be considered as appropriate for the stock, given the evidence now available that the catch limits for the SARPC

		fishery also meeting CCAMLR objectives. The WG-FSA has accepted this position for several years. Thus, there is now no need for the assessment of the HIMI fishery to extend its scope to more explicitly the catches by the French fishery. As noted above, there is only minimal movement of fish between the two zones. Most weight has been given here to the scores for the HIMI fishery, however, as there is now evidence that the connectivity between the two areas is not great. This means that the status of the stock component exploited by the HIMI fishery is best reflected in the results of the stock assessment used for the HIMI fishery. The HIMI fishery would be scored at 90 but the score has been reduced to 85 to reflect the lower score for the French fishery. As noted in Section 4.1, we consider that the HIMI and SARPC fisheries are harmonised for this PI to the extent that the impacts on the whole stock have been taken into account. The differences that remain are justified as they pertain to the fishery-specific aspects of their harvest strategies and these differences do not threaten the achievement of P1 outcomes. Therefore, as required by PB 3.1, having differences in the conditions between the Australian and French fisheries would not “undermine the integrity of MSC fishery assessments”. Separate scoring of these fishery-specific aspects of the harvest strategies is also consistent with the approach for fishery-specific management arrangements under P3.

PI	This assessment	Fishery 1	Fishery 2	Fishery 3	Fishery 4	Fishery 5	Fishery 6	Comments
3.1.1	100	80	100	100	100	85	100	Despite the unconditional pass assigned in each fishery, the Fishery 1 reduced score primarily related to the TAAF management framework as the regulators of France's southern and Antarctic Islands (i.e. dispute resolution mechanisms have never been tested in TAAF fisheries). Fishery 5 concluded that the dispute resolution mechanism had been tested and proven at the national (AFMA) level but not at the regional level through the Western and Central Pacific Fisheries Commission (WCPFC). These issues are not relevant to this assessment. The CAB for fishery 5 also noted that the legal rights of customary fishers were absent from national fisheries legislation although acknowledged that they are recognized through the *Native Title Act 1993*.
3.1.2	100	85	100	100	100	85	100	Fishery 5 was scored lower due to the apparent absence of formal reporting of the AFMA Commission decision making and queried whether AFMA facilitated effective engagement beyond individuals and entities with known interest in fisheries management. This assessment identified examples that demonstrated this is not the case. The Fishery 1 assessment noted limited consultation with the vessel owners and that both the information used and

								process for setting the TAC is unclear. Neither of these discrepancies affects the outcome of this assessment.
3.1.3	100	100	100	100	100	90	100	Fishery 5 scored lower as a result of the WCPFC long term objectives, including the precautionary approach, not been fully operationalized. Neither of the above issues are relevant to this assessment.
3.1.4	90	80	90	90	100	90	90	This PI for Fishery 1 resulted in a CAB recommendation that seeks to ensure the procedures and criteria for allocating variable amounts of quota between vessels annually is reviewed and published to ensure they do not contribute to unsustainable fishing practices. The score of 90 for Fisheries 2, 3 and 6 was assigned noting that although the fishery was subject to regular internal and external review, incentives were not explicitly considered. Fishery 5 scored 90 on this due to some issues relating to consensus-based decision-making in the WCPFC to ensure unsustainable fishing practices were avoided.

4.2 Previous assessments

This fishery was first certified in March 2012 and this is the first re-assessment. Five conditions were raised during the previous assessment, three in Principle 1 (for Performance Indicators 1.2.1, 1.2.2 and 1.2.4), one in Principle 2 (Performance Indicator 2.4.3) and one in Principle 3 (Performance Indicator 3.1.2). The Principle 1 conditions were closed out during the 4th annual surveillance audit in 2016, the Principle 2 condition was closed out during the second surveillance audit in 2014, and the Principle 3 condition was closed out during the third surveillance audit in 2015.

Table 10. Summary of Previous Assessment Conditions

Condition	Closed?	Justification
PI 1.2.1. By the 4th annual surveillance audit the client shall ensure that the assessment is appropriate for the stock and specifically that it accounts for fishing impacts on the entire known range of the stock including the proportion found and fished in the French zone.	Closed	Closed during fourth annual surveillance audit. Revised score: 90. The 2015 surveillance audit of the SARPC fishery (MEC 2015) reported that the TAAF had published a Management Plan for the fishery in the TAAF Official Journal in August 2015 (TAAF, 2015). They reported that "the management plan documents brings together all recent regulatory changes. The plan sets out an ambitious objective of the estimated toothfish stock biomass in Kerguelen to stabilise at 60% above the initial biomass (B 0), which is higher than the CCAMLR (and HIMI fishery) objective of 50% and may not be achievable in near future." As noted, there is no condition on this PI for the SARPC fishery and we consider that this condition on the HIMI fishery, which was imposed for perceived deficiencies with the harvest strategy for the SARPC fishery, should be closed for the following reasons. • The SARPC fishery has been certified by MSC without a condition on this PI so it has been accepted as meeting the SG80 requirements of this PI. • It is unreasonable to maintain a condition on the HIMI fishery that concerns the HS for the SARPC fishery when no similar condition has been imposed on that fishery. • Requirements for harmonisation also suggest that the condition on the HIMI fishery should be closed. • The CCAMLR Working Group on Fish Stock Assessment (WG-FSA) has accepted that "Although the long-term precautionary yield was not calculated, the current the catch limit set for 2015/16 by France of 5 300 tonnes satisfied the CCAMLR decision rules" (WG-FSA 2015, paragraph 4.42). It has accepted this assessment as the basis for management advice for several years. Therefore the body responsible for reviewing the results of the assessment of this fishery has concluded the current TACs

		for the French fishery is not leading to catches that would threaten the sustainability of the target stock. • Projections made in the 2016 stock assessment (Sinegre and Duhamel 2016) also support this position. <u>Harmonisation with the French fishery</u> There is no condition for this PI for the French fishery. Closing this condition will align the scores for both fisheries and achieve full harmonisation.
PI 1.2.2. By the 4th annual surveillance audit, the client shall ensure that the harvest control rules take into account the main uncertainty in the assessment. This can be achieved once the stock assessment has been updated to incorporate the identified interactions between toothfish across the Kerguelen Plateau. The client shall provide evidence that the harvest control rule application will also explicitly account for the distribution of future catches of Patagonian toothfish in both the Australian and French zones.	Closed	Closed during fourth annual surveillance audit. Revised score: 95. This condition on the HIMI fishery was imposed because of a lack of knowledge of the linkages between the stocks in the Australian and the French EEZs and the view that the current harvest control rules applied to the HIMI fishery did not take this uncertainty into account. The concern was that stocks of toothfish within the Australian EEZ could become depleted by fishing in the French EEZ if that was not adequately constrained. Originally, the condition required that the client provide evidence that the harvest control rule would explicitly account for the distribution of future catches of Patagonian toothfish in both the Australian and the French zones. This was a more prescriptive requirement than would be acceptable under recent instructions about setting conditions (e.g. if following FCR 2.0 - 7.11.1.2). The original rationale also indicated an expectation that meeting the condition would require a joint plateau-wide stock assessment and catch sharing arrangements to be in place. As noted in previous surveillance audits, knowledge of the distribution of spawning grounds has improved with separate spawning locations identified within each EEZ (Welsford et al. 2014). The use of the plateau habitats by Patagonian toothfish has also been modelled (Peron and Welsford 2014). Furthermore tagging work, which is ongoing and has increased, has demonstrated that there is very little fish movement around the whole plateau with less than 5% of fish tagged in the Australian EEZ being recaptured in the French EEZ

		(Welsford et al. 2015). Such movement will be incorporated in the Australian assessment model in 2017, but given that it is at such low levels, not currently accounting for it is considered to be a low risk in the short to medium term (Dirk Welsford personal communication November 2016). Movement within the French EEZ is also considered to be negligible (Sinegre and Duhamel 2016). Since the last surveillance audit collaboration among the relevant Australian and French science groups has continued. The assessment of the stock within the French EEZ has continued to improve and is consistent in approach to that for the Australian fishery. Assessments of both fisheries are evaluated by CCAMLR's WGFSA. This group requested a range of improvements to the Australian assessment in 2013 and these were delivered in 2015 through a structured program that has been described in previous surveillance reports (SCS 2014, SCS 2015). The assessment of the French fishery remains at an earlier stage of development but it provides estimates of the level of catch that would meet the CCAMLR decision rules (Sinegre and Duhamel 2016). As noted under the update for PI 1.2.1, WG-FSA has accepted that the current catch limit set for 2015/16 by France satisfied the CCAMLR decision rules (WG-FSA 2015, paragraph 4.42). Also, in reviewing progress against this condition we note the view expressed last year that separate assessments may be a more conservative approach than one based on the assumption of a single shared stock. Overall, we consider that the issue of uncertainty about the linkage between the toothfish in the Australian and French EEZs is no longer a major issue for the HCR that is applied to the Australian fishery. The Australian HCR requires (and the assessment clearly demonstrates) that catches are in full compliance with CCAMLR objectives. And as catches within the French EEZ are also determined to be within CCAMLR requirements there is very little likelihood of the total combined catch putting the status of the stock as a whole at risk. The HCR for the HIMI fishery is otherwise compliant with

		MSC requirements, and arrangements for the SARPC fishery do not hinder the achievement of CCAMLR objectives for the stock as a whole, so there are no longer any main sources of uncertainty that are not taken into account. Thus, we consider the condition to be closed. In doing so we note that this has been achieved by an approach that is different to that originally envisaged in the condition. It has not required a joint assessment or catch sharing arrangements. It has been sufficient that catches in each fishery are sufficiently precautionary by being consistent with CCAMLR objectives. Such a result is an example of what was anticipated by updated MSC requirements and guidance (FCR v 1.3 and 2.0) which indicates that conditions should not specify the means by which desired outcomes need be achieved. <u>Harmonisation with the French fishery</u> Conditions were imposed on both fisheries for this PI but the rationales differed. Although the condition for the HIMI fishery was based on scoring issue b not being met, for the SARPC fishery the condition was based on scoring issue a not being met. Therefore, closing this condition for the HIMI fishery should not have any direct implications for the condition on the SARPC fishery. The assessment of the SARPC fishery has judged this PI to require a condition and the most recent audit (MEC 2015) assessed the condition as being still open. We note that MSC Interpretation of harmonisation requirements for fisheries (16 December 2015) states that "P1 always considers the impacts of all fisheries on a stock, so any fisheries which have the same P1 species (stocks) should be harmonised." We consider that the HIMI and SARPC fisheries are harmonised for this PI to the extent that the impacts on the whole stock have been taken into account. The differences that remain are justified as they pertain to the fishery-specific aspects of their harvest strategies and these differences do not threaten the achievement of P1 outcomes. Therefore, as required by PB3.1, having differences in the conditions between the Australian and

		French fisheries would not "undermine the integrity of MSC fishery assessments". Separate scoring of these fishery-specific aspects of the harvest strategies is also consistent with the approach for fishery-specific management arrangements under P3.
PI 1.2.4. By the 4th annual surveillance audit, the client shall ensure that the assessment is appropriate for the stock and specifically that it accounts for fishing impacts on the entire known range of the stock including the proportion found and fished in the French zone.	Closed	Closed during fourth annual surveillance audit. Revised score: 85. This condition was originally imposed because the assessment was judged as not being appropriate for the stock in that it did not account for fishing impacts on the entire known range of the stock including the proportion found and fished in the French zone. As for Condition 2, there was an expectation that, for this deficiency to be overcome, a joint plateau-wide stock assessment would be required. Following similar logic to that used above for Condition 2, however, we now argue that the assessment can be considered as appropriate for the stock, given the evidence now available that the catch limits for the SARPC fishery also meeting CCAMLR objectives. The WG-FSA has also accepted this position for several years. Thus, there is now no need for the assessment of the HIMI fishery to extend its scope to more explicitly the catches by the French fishery. As noted above, there is only minimal movement of fish between the two zones but the next assessment of the HIMI fishery will be explicitly incorporating data on such movement from the Australian to the French EEZ. We therefore consider this condition to be closed. <u>Harmonisation with the French fishery</u> A condition was also imposed on the SARPC fishery but, as for PI 1.2.2, although conditions were imposed on both fisheries for the same scoring issue the rationales differed. The rationale for the condition on the SARPC fishery was that the WG-FSA considered that the stock assessment was appropriate for the HCR only in the short term (until next season), after which a more robust stock assessment would be required. Thus, unlike the HIMI fishery, the condition on the French fishery was based on its preliminary nature and was not

		associated with the need for a broader scope for the assessment. Therefore, closing the condition on the HIMI fishery should not have any direct implications for the condition on the SARPC fishery. The assessment of the SARPC fishery has judged this PI to require a condition and the most recent audit (MEC 2015) assessed the condition as being still open. As noted above, MSC Interpretation of harmonisation requirements for fisheries (16 December 2015) states that "P1 always considers the impacts of all fisheries on a stock, so any fisheries which have the same P1 species (stocks) should be harmonised." Nevertheless, we consider that the HIMI and SARPC fisheries are also harmonised for this PI to the extent that the impacts on the whole stock have been taken into account. The differences that remain are justified as they pertain to the fishery-specific aspects of their harvest strategies and these differences do not threaten the achievement of P1 outcomes. Therefore, as required by PB 3.1, having differences in the conditions between the Australian and French fisheries would not "undermine the integrity of MSC fishery assessments". Separate scoring of these fishery-specific aspects of the harvest strategies is also consistent with the approach for fishery-specific management arrangements under P3.
PI 2.4.3. By the 1st annual surveillance audit, the client shall provide evidence that the nature of the impacts of the fishery on different habitat types is known and that monitoring is continuing to detect any increase in risk. The client shall include the results of the ongoing study on habitat impacts in the region.	Closed	Closed during second annual surveillance audit. Revised score: 85. Report investigating habitat impacts has now been published, with results clearly indicating a low risk of there being significant impacts from the fishery to the benthic habitats. Ongoing monitoring from the AFMA vessel monitoring system is occurring to monitor the fishery's footprint.
PI 3.1.2. By the third annual surveillance audit, the client shall provide information that demonstrates consultation processes in all the management systems providing opportunities for all interested and affected parties to be involved.	Closed	Closed during third annual surveillance audit. Revised score: 100. Additional information about the French consultative process became available through the MSC Public Certification Report for the French fishery. The audit team considered that the SARPC assessment constitutes the necessary information to demonstrate that consultation processes in all

		the management systems provide opportunity for all interested and affected parties to be involved.

4.3 Assessment Methodologies

This assessment was conducted by SCS Global Services, an accredited MSC certification body. The fishery was assessed using the MSC Certification Requirements Version 1.3, January 14 2013 and the reporting template used in this report is also V1.3. The default assessment tree was used without adjustments. MSC Fisheries Certification Requirements v2.0 (October 2014) was used for the assessment process only.

Stakeholder Identification and Engagement Process

Stakeholders were identified as per the SCS Stakeholder Engagement Procedure, which includes requesting a list of potential stakeholders and contact information from the client, evaluating overlap from stakeholder lists from other clients, and consulting with the team and identified stakeholders for their input on any additional stakeholders.

Stakeholder announcements were posted to the MSC website for each milestone of the fishery assessment. In addition to this, stakeholders were informed via email of the different milestones of the fishery assessment and when they would have an opportunity to make comments no longer than four days from the start of the consultation period. These milestones are when the fishery enters full assessment, when peer reviewers are proposed, when the Public Comment Draft Report is available for comment and when the objection period begins. These communications also included a link to the fishery assessment on the MSC website and a copy of the stakeholder comment form and MSC guide to stakeholders.

The general steps followed during the assessment were:

Announcement of Re-Assessment and Team Selection (7 July 2016)

At this first step of the assessment process, SCS submitted the announcement that the fishery had entered assessment. The notification also included the nomination of the team and the announcement of the onsite assessment dates (9-10th August 2016 in Hobart, Tasmania). No stakeholder submissions were received.

Input on Fishery Performance (July-August 2016)

SCS requested that the applicants compile and submit written information to the assessment team illustrating the fishery's compliance with the required performance indicators (PIs). At the same time, SCS requested that stakeholders submit their views on the fishery management system's functions and performance. Stakeholders were identified as per the SCS Stakeholder Engagement Procedure.

Meetings with Industry, Managers, and Stakeholders (August 2016)

SCS planned for an onsite meeting and conducted meetings with industry, fishery managers, and fishery scientists on the 9th and 10th August in Hobart, Tasmania. Stakeholders were invited to meet with the assessment team. Additional documentation was requested from the client and the management agency after the meeting.

Scoring the Fishery (August 2016 – January 2017)

The assessment team reviewed and discussed the available information and determined preliminary scores on the last day of the onsite visit using the required MSC methodology and the default assessment tree, without any direct input from the client group or stakeholders.

Drafting Report (August 2016 - February 2017)

The assessment team in collaboration with the SCS representative on the team, Dr. Daume, drafted the report in accordance with MSC-required process. Before the client draft report was completed, the team participated in two rounds of discussions to review and finalise the scores. The draft was finalised in January 2017 and submitted to the client for review.

Peer Review (March-April 2017)

SCS, as required, released an announcement on 3rd March 2017 of potential peer reviewers soliciting comment from stakeholders on the merit of the selected reviewers. No negative stakeholder comments were received and two peer reviewers were confirmed. The peer review was conducted during March-April 2017.

Request for additional information (22 March – 28 April 2017)

SCS, as required, released an announcement on 22nd March 2017 to request any new information relating to the fishery that the team should consider in the assessment, following CR v 2.0 7.3.4.1. Stakeholders were also informed by email but no new information was received.

Release of Public Comment Draft Report PCDR (2 May 2017)

SCS released the draft report for public comment, soliciting stakeholder response through posting on the MSC website and direct email to known stakeholders.

Final Report (15 June 2017)

SCS released the final report with the team determination for a 15-working day objection period. Stakeholders were informed through posting on the MSC website and direct email.

Public Certification Report (11 July 2017)

The SCS certification board accepted the recommendations by the assessment team and the decision to certify the fishery was taken. SCS released the public certification report on the 11th of July 2017 after the certification decision was taken.

4.4 Evaluation Processes and Techniques

4.4.1 Site Visits

The assessment team selected sites and interviewees based on information needed to assess management operations of the unit of assessment. The client group and other relevant stakeholders helped identify and contact fisheries management, research, compliance, and habitat protection personnel and agency representatives. Before the site visit and meetings were conducted, an audit plan was provided to the client and relevant stakeholders. The on-site meetings took place in Hobart, Tasmania between August 9-10th.

Table 11: Audit Plan: Key Meetings and Locations

Meeting number	Date	Location	Topic
1	9th-10th August 2016	Hobart, Tasmania	Discussion of issues relating to P1, P2 and P3 Performance Indicators.

Table 12: 2016 Meeting Attendees

Name	Organization and Title
Dr. Sabine Daume	Lead auditor and P2 Expert, SCS
Mr. Alexander (Sandy) Morison	P1 Expert, Consultant SCS
Sascha Brand-Gardner	P3 Expert, Consultant SCS
Martin Exel*	Client Representative, Austral Fisheries
Rhys Arangio*	Austral Fisheries
Dirk Welsford*	Stock Status and Harvest Strategy, AAD
Jo Fisher*	Management, AFMA

*attended remotely

Stakeholder Consultations and Due Diligence

Stakeholders were identified and contacted as per the SCS Stakeholder Engagement Procedure (described in Section 4.3 of this report). SCS worked in advance of the fishery entering full assessment, to compile an extensive stakeholder list used for emailing announcements and assessment progress to stakeholders. This list contained individuals and organizations spanning the government, private, and non-profit sectors.

4.4.2 Evaluation Techniques

The assessment team received a detailed submission of documents related to the fishery and its management system from the client prior to the onsite meeting. Further documents were requested from the client as well as AFMA, AAD and CSIRO throughout the initial stages of the assessment process and before the client draft report was finalised.

Media Announcements

At the start of the process a list of stakeholders was created based on individuals and organizations previously engaged in MSC assessments in the region. Several names were added throughout the process while the team became aware of their interest. All public announcements were sent separately by email to the whole list of identified stakeholders.

Documentation

One of the most significant, and difficult, aspects of the MSC certification process is ensuring that the assessment team gets a complete and thorough grounding in all aspects of the fishery under evaluation. In even the smallest fishery, this is no easy task as the assessment team typically needs information that is fully supported by documentation in all areas of the fishery from the status of stocks, to ecosystem impacts, through management processes and procedures.

Under the MSC program, it is the responsibility of the applying organizations or individuals to provide the information required proving the fishery or fisheries comply with the MSC standards. It is also the responsibility of the applicants to ensure that the assessment team has access to any and all scientists, managers, and fishers that the assessment team identifies as necessary to interview in its effort to properly understand the functions associated with the management of the fishery. Last, it is the responsibility of the assessment team to make contact with stakeholders that are known to be interested, or actively engaged in issues associated with fisheries in the same geographic location.

AAD and CSIRO scientists were key in providing many of the scientific analyses, figures as well as operational and regulatory information, and were helpful and cooperative throughout the process.

Scoring Process

The scoring methodology followed the procedure described in Section 7.10 of the MSC FCR v2.0.

The Assessment Team member responsible for each Principle led the discussion on that Principle and drafted the scores and rationales to justify the score for that Principle. Other team members also asked

questions or responded in turn during the onsite meeting and helped facilitate communication between the team and the client and scientists of the fishery. Scoring was initiated during the site visit and completed iteratively through phone calls, emails and skype teleconferences between June and September 2016. Following the onsite visit, the team compiled a list of requested documents that were conveyed by the client coordinator, to the relevant parties. These materials were returned to the team leader and disseminated to the team by the team leader. In cases where consensus cannot be reached, the scoring process calls for the scores to be decided by the team leader with consideration of the recommendation of the pertinent Principle expert. This was not the case with any of the performance indicators during this assessment.

The scoring elements considered under each of the Principles are outlined in Table 13. None were considered data deficient or requiring the use of the RBF for the assessment.

Decision rules for final outcome

The decision rule for MSC certification is as follows:

- No PIs score below 60 (cannot receive certification)
- The aggregate score for each Principle, rounded to the nearest whole number, is 80 or above
- The aggregate score for each Principle is calculated by taking the average score for each section followed by the average of all the section scores (see Table 14).

Scoring was completed by consensus through team meetings and exchanging rationales by email and draft score and report sharing.

Table 13A: Scoring elements - Trawl

Component	Scoring elements	Main/not main	Data-deficient or not
Target species	Patagonian Toothfish (*Dissostichus eleginoides*)	NA	Not data deficient
Retained species	Grenadiers	Not main	Not data deficient
	Grey rock cod (*Lepidonotothen squamifrons)*	Main	Not data deficient
	Macrourids	Not main	Not data deficient
	Rajids	Not main	Not data deficient
Bycatch	*Bathyraja murrayi*	Main	Not data deficient
	B. eatonii	Main	Not data deficient
ETP	Seabirds	NA	Not data deficient
	Marine mammals	NA	Not data deficient

*main species are classified by MSC as those species of which the catch is ≥5% of the total catch by weight, or if they are particularly vulnerable.

Table 13B: Scoring elements - Longline

Component	Scoring elements	Main/not main	Data-deficient or not

Target species	Patagonian Toothfish (*Dissostichus eleginoides*)	NA	Not data deficient
Retained species	Grenadiers	Main	Not data deficient
	Grey rock cod (*Lepidonotothen squamifrons)*	Not main	Not data deficient
	Macrourids	Not main	Not data deficient
	Rajids	Not main	Not data deficient
Bait	New Zealand squid (*Nototodarus gouldii* and *Nototodarus sloanii*)	Main	Not data deficient
	Illex argentines	Main	Not data deficient
Bycatch	*Bathyraja murrayi*	Main	Not data deficient
	B. eatonii	Main	Not data deficient
	Sleeper shark (*Somniosus antarcticus*)	Main	Not data deficient
ETP	Seabirds	NA	Not data deficient
	Marine mammals	NA	Not data deficient

*main species are classified by MSC as those species of which the catch is ≥5% of the total catch by weight, or if they are particularly vulnerable.

5. Traceability

5.1Eligibility Date

The actual eligibility date is the date of the re-certification of the fishery which is the 11th July 2017.

5.2Traceability within the Fishery

A description of the tracking, tracing and segregation systems within the fishery.

For the toothfish fishery, all landings are recorded and reported. The monitoring, control and surveillance system in place in the fishery comprises;

- In-port monitoring of Australian port unloads by an AFMA authorised officer(s) to ensure compliance with CCAMLR Conservation Measure 10-03 and the CCAMLR catch documentation required by Conservation Measure 10-05;
- Unloading of vessels outside of Australia are monitored by Port State authorised officers, under agreement with AFMA, to ensure the vessels' compliance with the reciprocal Port State measures as contained in CCAMLR Conservation Measure 10-03, in addition to AFMA issuing the relative Port State a 'port access letter' confirming that the product has been taken legally and in compliance with all CCAMLR conservation measures. In-port monitoring of overseas unload verification and validation is also undertaken by Port State authorised officers to ensure compliance with CCAMLR catch documentation requirements;

- Completion of the CCAMLR toothfish Catch Documentation Scheme (CDS) paperwork for unloading and export of all toothfish product (which is done electronically by government officials from the flag state, port state and import/export states to avoid any illegal substitution of toothfish);
- Completion of shot-by-shot daily logbooks and submission of that data to AFMA, AAD and CCAMLR in accordance with Conservation Measures 23-01 and 23-02;
- Outright (100%) observer coverage providing shot by shot biological, ecological and management information on the fishery (including specific tasks for monitoring vessel compliance, any interactions with seabirds or marine mammals, fishery bycatch and target species biology);
- Automatic satellite Vessel Monitoring System to record the position of the vessels at all times from departure from port until return to port, to ensure the boat has not fished in any regions closed to fishing (these data are provided directly to both AFMA and CCAMLR for monitoring purposes and verification of fishing logs).

An evaluation of the possibility of vessels fishing outside the Unit of Certification.

When fishing in the HIMI fishery, vessels do not fish in other locations during that trip unless prior approval has been provided by AFMA. On rare occasions, other species are fished during the same trip by the same vessel. In these cases, species are easily segregated and separation in the fish holds is validated by the on-board observer and verified at unloading in port (see 2. Below).

Vessels do not use any other gear besides gears included in the UoC. There are a number of pieces of evidence that establish the location where fishing has taken place and species fished. These consist of:

1. Line records for each line noting when it was shot, including location, species and number of fish hauled. These are hand written and then transferred to an electronic log, and verified by the observers as well as the satellite Vessel Monitoring System. Data is sent to AFMA, who then forward it to CCAMLR every ten days, and monthly.
2. Electronic Dissostichus Catch Document (eDCD) created for every trip contains, amongst other information, a field for Area Caught, Vessel, Species, Declared Weight, Scaled Weight, dates vessel fished, etc. This record is signed off by a representative from the fishing company (e.g. Austral Fisheries) and by the authorized officer in the port of unloading (e.g. Mauritius Fisheries Officer, or Cold Store representative in Mauritius if unloaded there, or AFMA officers if unloaded in Australia).
3. Master's Declaration signed by the Captain declares the location of fishing and confirms that the vessel has not called at any other port.
4. Vessel Monitoring System (VMS) data exists for every trip recording positions of the boats hourly from the time the boat leaves port, until the boat returns to port.
5. Where the boat fishes in a separate fishery during a single trip, the fish are separated in the fish hold, and verified and validated by the AFMA observer. This is then taken into account when unloading takes place by the authorized officers, with weights and quantities validated for each of the separate regions and species.

6. There are always two full time observers on any trip to the HIMI fishery, recording positions, catch, species, biological information, seabird and marine mammal sighting and verifying the accuracy of vessel reporting requirements.

An evaluation of the opportunity for substitution of certified fish with non-certified fish prior to and at the point of landing.

A description of the at-sea processing of catch.

- All toothfish from this fishery are processed and frozen at sea. In some cases, further grading and packing of the product is performed in a registered export facility on shore.
- Total on Board (TOB) summary sheet contains information on all product hauled and processed per day with a running total on board count as well. This summary is broken down by product and byproduct grade, including number of fish/bags/blocks, product weight, tare weight and gross weight. Additionally, Fish to Galley, offal and "to crew" are recorded and validated by observers, and deducted from the quota allocation.
- Conversion Factors are provided by AFMA at the start of each season for each vessel, based on the average from that vessel in the previous season. These Conversion Factors are verified by the AMFA observer. An average tare weight (the weight of packaging plus any glazed water) per grade is calculated by the vessel and verified by the AFMA observer on board. These tare weights are multiplied by the number of bags/blocks on board, then deducted from the gross weight of product to determine the actual weight of fish caught, and ultimately deducted from the TAC.

Therefore, there is very low risk of mixing certified with uncertified fish.

Details of the use of transshipping in the fishery.

There is no transshipping in the fishery

Details on the number and/or location of points of landing.

The toothfish is landed predominantly at Port Louis in Mauritius, with occasional landings at the Port of Albany in Western Australia. Port Louis is 24 hours vessel steaming time closer to the fishing grounds than Albany, saving considerable expense and fuel costs over a year of activity for the fishing operators.

An evaluation of the robustness of the management systems related to traceability.

Austral Fisheries' and Australian Longline's management system is very robust with very little risk of potential mixing of certified with uncertified product.

5.3Eligibility to Enter Further Chains of Custody

a. A conclusion and determination of whether the product will be eligible to enter further certified chains of custody

Toothfish landed by the registered vessels using either of the two gear types (demersal trawl and longline). Registered vessels are: Isla Eden, Atlas Cove, Corinthian Bay, Antarctic Chieftain and Antarctic Discovery. The vessel Janas has been operating in the fishery but is no longer active. Toothfish are processed at sea and on shore, are eligible to seek and secure MSC chain of custody certification in order to sell product derived from the fishery with the MSC claim. Toothfish at HIMI is predominantly caught by longline.

b. A list of parties, or category of parties, eligible to use the fishery certificates

Only Austral Fisheries Pty Ltd and Australian Longline Pty Ltd fishing for Patagonian Toothfish are eligible to use the fishery certificate.

c. A list of eligible points of landing

Toothfish gets landed in Port Louis in Mauritius, with occasional landings at the Port of Albany in Western Australia.

d. The point of change of ownership, from which Chain of Custody (CoC) certification is required.

CoC is required from the point of landing. However, legal ownership often does not change until arrival at the buyer`s destination port.

6. Evaluation Results

6.1 Principle Level Scores

Final Principle Scores		
Principle	**Trawl**	**Longline**
Principle 1 – Target Species	96.3	96.3
Principle 2 – Ecosystem	94.0	93.0
Principle 3 – Management System	96.8	96.8

6.2Summary of Scores

Principle	Component	PI No.	Performance Indicator (PI)	Trawl	Longline
One	Outcome	1.1.1	Stock status	100	100
		1.1.2	Reference points	100	100
		1.1.3	Stock rebuilding		
	Management	1.2.1	Harvest strategy	90	90
		1.2.2	Harvest control rules & tools	95	95
		1.2.3	Information & monitoring	100	100
		1.2.4	Assessment of stock status	85	85
Two	Retained species	2.1.1	Outcome	90	80
		2.1.2	Management	95	95
		2.1.3	Information	95	90
	Bycatch species	2.2.1	Outcome	80	80
		2.2.2	Management	95	95
		2.2.3	Information	100	100
	ETP species	2.3.1	Outcome	100	100
		2.3.2	Management	95	95
		2.3.3	Information	95	95
	Habitats	2.4.1	Outcome	100	100
		2.4.2	Management	100	100
		2.4.3	Information	85	85
	Ecosystem	2.5.1	Outcome	90	90
		2.5.2	Management	100	100
		2.5.3	Information	100	100
Three	Governance & policy	3.1.1	Legal & customary framework	100	100
		3.1.2	Consultation, roles & responsibility	100	100
		3.1.3	Long term objectives	100	100
		3.1.4	Incentives for sustainable fishing	90	90
	Fishery specific mgt.	3.2.1	Fishery specific objectives	90	90
		3.2.2	Decision making processes	100	100
		3.2.3	Compliance & enforcement	100	100
		3.2.4	Research plan	90	90
		3.2.5	Mgt. performance evaluation	100	100

6.3Summary of Conditions

There are no conditions proposed for this fishery.

6.3.1 Recommendations

Recommendation 1, PI 2.2.1 (UoC 1 and UoC2)**:** The assessment team recommends updating the ecological risk assessment (ERA) within the next certification cycle, and identifying if significant changes are occurring in the fishery. This will strengthen the score and provide a higher level of certainty that non-target species are within biologically based limits.

6.4 Determination, Formal Conclusion and Agreement

The assessment team recommended that the fishery as defined by the Unit of Certification in section 3.1 be awarded MSC-endorsed certification based on MSC Certification Requirements v2.0. This is based on the fact that no Performance Indicator falls below the required SG60 and also that the average score for each Principle is above 80. On the basis of a careful review of this certification audit report, the SCS Certification Board has accepted the recommendation from the assessment team and determined that the Fishery as defined by the Units of Certification in Section 3.1, merits re-certification.

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Appendix 1. Scoring and Rationales

1.1 Performance Indicator Scores and Rationale

Procedure for Scoring and Rationales

After the team compiled and analysed all relevant information, each UoA was scored against the Performance Indicator Scoring Guideposts (PISGs) in the final assessment tree (the structure of PIs and scoring guideposts that make up the evaluation). The team discussed the evidence in detail before agreeing on a final score for each PI. A brief explanation of the MSC scoring process is provided below and is explained in more detail in MSC Fisheries Certification Requirements and Guidance v2.0 (2014).
The team first assesses each PI against each scoring issue at the SG60 level. If one or more of the SG60 scoring issues is not met, the UoA fails and no further scoring is required.
If all the SG60 scoring issues are met the PI will achieve a minimum score of 60, and the team proceeds to assess each scoring issue against the SG80 level. In order to achieve an 80 score, all of the SG60 scoring issues and all of the SG80 scoring issues must be met. If not all scoring issues are met at SG80 the PI is given an intermediate score in increments of 5 (65, 70 or 75), which reflects overall performance against the SG80 scoring issues:

- The PI will score 65 when performance is slightly above 60 (few scoring issues are met at SG80 but most are not)
- The PI will score 70 when performance is mid-way between SG60 and SG80 (some scoring issues are met at SG80 and some are not)
- The PI will score 75 when performance is almost at SG80 (most scoring issues are met at SG80 and few are not)
-

If one or more of the SG80 scoring issues is not met, the PI is assigned a condition. Only if all of the SG80 scoring issues are met will the team proceed to assess the PI against the SG100 scoring issues. If not all scoring issues meet SG80 then the SG100 scoring issues are not scored.
In order to achieve a 100 score, all of the SG60, SG80 and SG100 scoring issues must be met. If all of the SG60 and SG80 scoring issues are met, but not all of the SG100 scoring issues are met, then the PI is given an intermediate score in increments of 5 (85, 90 or 95) which reflects overall performance against the SG100 scoring issues:

- The PI will score 85 when performance is slightly above 80 (few scoring issues are met at SG100 but most are not)
- The PI will score 90 when performance is mid-way between SG80 and SG100 (some scoring issues are met at SG100 and some are not)
- The PI will score 95 when performance is almost at SG100 (most scoring issues are met at SG100 and few are not)
-

When there is only one scoring issue for a PI then it may be 'partially scored' in increments of 5 if the requirements are partially met.

In Principle 1 or 2 the team scores PIs are comprised of differing scoring elements (species or habitats) that comprise part of a component affected by the UoA. If any single scoring element fails to meet SG80 then then overall score for that element shall be less than 80 and a condition is raised (regardless of whether other elements may be at SG100). The PI is given a score which reflects the number of elements at each SG rather than being a numerical average.

Principle 1

Under Principle 1, seven performance indicators (PIs) are used that are grouped into two key aspects of a fishery's performance: 1) The current status of the target stock resource with three PIs; and 2) Harvest Strategy (Management) with four PIs. The PIs under (1) consider the impact of the fishery on the target species, and particularly whether the stock is at sustainable levels. In contrast, the PIs under (2) consider the tools, measures or strategies that are being used specifically to manage the impact of the fishery on the target species.

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	**Guidepost**	It is likely that the stock is above the point where recruitment would be impaired.	It is highly likely that the stock is above the point where recruitment would be impaired.	There is a high degree of certainty that the stock is above the point where recruitment would be impaired.
	Met?	Y	Y	Y
	Justification	The most recent stock assessment (Ziegler and Welsford 2015), that incorporates the latest fishery independent survey results and other more recently collected data, concluded that the Patagonian toothfish stock in the Australian EEZ was at 0.64 of unfished levels (95% CI: 0.59-0.69) and that it would remain above 20% of unfished levels (the point at which recruitment might be expected to become impaired) throughout the 35 year projection period under the proposed constant catch (Figure 3). Estimates of year-class strength provided by the assessment model also provide no indications that recruitment has been impaired. There is thus a high degree of certainty that the stock is above the point at which recruitment would be impaired. The assessment of the French fishery (Sinegre and Duhamel 2016) indicates that this portion of the stock is also at a relatively high level. Although catches by this fishery (and other data on the French fishery) are not explicitly considered in the HIMI assessment or harvest strategy, the CCAMLR FSA-WG has considered them to also have been within the requirements of the CCAMLR decision rules. Thus, although this fishery is also targeting the same stock, it is also considered highly likely to be above the point where recruitment would be impaired. This meets the requirements of the SG 60, SG 80 and SG 100 levels.		
b	**Guidepost**		The stock is at or fluctuating around its target reference point.	There is a high degree of certainty that the stock has been fluctuating around its target reference point, or has been above its target reference point, over recent years.

PI 1.1.1		The stock is at a level which maintains high productivity and has a low probability of recruitment overfishing		
	Met?		Y	Y
	Justification	The estimated trend in SSB since the fishery began (Figure 3) and the posterior distribution from the MCMC results (Figure 5) both provide strong evidence that the Patagonian toothfish stock in Australian waters has never fallen below target levels (Ziegler and Welsford 2015). TACs have always been set in accordance with the quite conservative CCAMLR decision rules and catches have not exceeded these limits. IUU fishing is now also considered to be minimal. The assessment of the French fishery (Sinegre and Duhamel 2016) indicates that this portion of the stock is also at a relatively high level. Although catches by this fishery (and other data on the French fishery) are not explicitly considered in the HIMI assessment or harvest strategy, the CCAMLR FSA-WG has considered them to also have been within the requirements of the CCAMLR decision rules. Thus, although this fishery is also targeting the same stock, it is also considered highly unlikely to have depleted the combined stock to below target levels. The annual status report produced by the Australian Bureau of Agricultural and Resource Economics and Sciences (ABARES) continues to classify the HIMI toothfish fishery as being 'not overfished' and 'not subject to overfishing' (Patterson and Skirtun 2015). This meets the requirements of the SG 80 and SG 100 levels.		
References		Patterson and Skirtun 2015; Ziegler and Welsford 2015; Sinegre and Duhamel 2016		

Stock Status relative to Reference Points			
	Type of reference point	**Value of reference point**	**Current stock status relative to reference point**
Target reference point	Current SSB relative unfished levels (B_0)	0.5 B_0	Above: SSB = 0.64 B_0
Limit reference point	Current SSB relative unfished levels (B_0)	0.2 B_0	Above: SSB = 0.64 B_0

OVERALL PERFORMANCE INDICATOR SCORE:	**100**
CONDITION NUMBER (if relevant):	

PI 1.1.2		Limit and target reference points are appropriate for the stock		
Scoring Issue		SG 60	SG 80	SG 100
a	Guidepost	Generic limit and target reference points are based on justifiable and reasonable practice appropriate for the species category.	Reference points are appropriate for the stock and can be estimated.	
	Met?	Y	Y	
	Justification	The reference points used for Patagonian toothfish have been specifically constructed to meet the objectives of CCAMLR. Although based on reference points originally designed for krill they have been specifically adapted to be appropriate for Patagonian toothfish. The changes include selecting a lower target reference point than for krill given the differences in the trophic levels of the species which means that there is not a need to make same provisions for the needs of predators of toothfish. The other main change was to extend the projection period over which the impact of proposed catches were evaluated. The choice of a 35 year reference period as the basis for projections is reasonable for a species with a maximum age in excess of 50 years. The status of the stock relative to these reference points is estimated whenever the assessment is updated. This meets the requirements of the SG 60 and SG 80 levels.		
b	Guidepost		The limit reference point is set above the level at which there is an appreciable risk of impairing reproductive capacity.	The limit reference point is set above the level at which there is an appreciable risk of impairing reproductive capacity following consideration of precautionary issues.
	Met?		Y	Y

PI 1.1.2		Limit and target reference points are appropriate for the stock		
	Justification	The limit reference point is set at 20% of B_0, a level at which there is not an appreciable risk of impairing reproductive capacity. This meets the requirements of the SG 80 level. The method of determining future catches ensures that there is a high degree of certainty that TACs will not lead to an appreciable risk of impairing future recruitment. Nevertheless, in the original MSC assessment report (SCS 2012), the Australian limit reference point was assessed as not explicitly taking into account some relevant precautionary issues such as the lack of understanding of the spawning areas and sources of recruitment to the Patagonian toothfish population within the HIMI area. Since that assessment there has been research work completed which has provided a greater understanding of the spawning dynamics of Patagonian toothfish in the HIMI region (Welsford et al. 2012). It identified the presence of spawning fish within the HIMI region and provided evidence that there is likely to be more than one spawning site for the combined HIMI-Kerguelen stock. This study also reviewed previous work on the reproductive biology of Patagonian toothfish and highlighted the extended 8 month duration of the larval phase which provides a long period for potential dispersal of larvae, reducing any likely dependence on local spawning sources. In the original MSC assessment report, there was also concern that the HIMI fishery was the only one setting TACs based on outcomes of a stock assessment and at levels that were clearly within requirements for the long-term security of the target stock. Since that time, there has been substantial collaborative work to develop a comparable assessment of the French fishery and, although this is not yet used as the basis for TAC setting, it has been developed sufficiently to allow the CCAMLR FSA-WG to determine that the catch limits for the French fishery are likely to also be within CCAMLR requirements. Therefore, the limit reference point is now considered to be at a level at which there is no appreciable risk of impairing reproductive capacity following consideration of precautionary issues. This meets the requirements of the SG 100 level.		
c	Guidepost		The target reference point is such that the stock is maintained at a level consistent with B_{MSY} or some measure or surrogate with similar intent or outcome.	The target reference point is such that the stock is maintained at a level consistent with B_{MSY} or some measure or surrogate with similar intent or outcome, or a higher level, and takes into account relevant precautionary issues such as the ecological role of the stock with a high degree of certainty.
	Met?		Y	Y

PI 1.1.2		Limit and target reference points are appropriate for the stock		
	Justification	There are several ways that the Australian target reference point is precautionary so there is a high degree of certainty that it will achieve the required management objectives. Firstly, the choice of the target of 50% of un-fished levels is conservative, being above the 40% level generally recognized as the best default estimate of the biomass at maximum sustainable yield (B_{MSY}) and the default level that is set in Australia's Commonwealth Harvest Strategy Policy (DAFF 2007). Although there are no estimates of B_{MSY} for this fishery, the level at which the target is set (0.5 B_0) is at least consistent with (and is likely to be above) a target of B_{MSY}. Secondly, the use of constant catch projections in both reference points will produce more conservative catches than projections that allow updating of catches to reflect any forecast changes in biomass over the projection period. Thirdly, the choice of a long projection period for evaluating catches that will only apply for two years is precautionary because the range of projections will progressively widen and this uncertainty in turn requires a lower constant catch to meet the limit reference point in particular. Patagonian toothfish are known not to be a key food source for predators so there is no need for additional precaution on this account. There are no other issues that would warrant a higher target reference point, which is already set at a relatively conservative level. This meets the requirements of the SG 80 and SG 100 levels.		
d	Guidepost		For key low trophic level stocks, the target reference point takes into account the ecological role of the stock.	
	Met?		Not relevant	
	Justification	Patagonian toothfish is not a key low trophic level species.		
References		SCS 2012; Welsford et al. 2012		
OVERALL PERFORMANCE INDICATOR SCORE:				100
CONDITION NUMBER (if relevant):				

PI 1.1.3		Where the stock is depleted, there is evidence of stock rebuilding within a specified timeframe		
Scoring Issue		SG 60	SG 80	SG 100
a	Guidepost	Where stocks are depleted rebuilding strategies, which have a reasonable expectation of success, are in place.		Where stocks are depleted, strategies are demonstrated to be rebuilding stocks continuously and there is strong evidence that rebuilding will be complete within the specified timeframe.
	Met?	Not relevant		
	Justification	Not relevant. Stocks are not rebuilding		
b	Guidepost	A rebuilding timeframe is specified for the depleted stock that is the shorter of 30 years or 3 times its generation time. For cases where 3 generations is less than 5 years, the rebuilding timeframe is up to 5 years.	A rebuilding timeframe is specified for the depleted 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 depleted stock.
	Met?	Not relevant		
	Justification	Not relevant. Stocks are not rebuilding		
c	Guidepost	Monitoring is in place to determine whether the rebuilding strategies are effective in rebuilding the stock within a specified timeframe.	There is evidence that they are rebuilding stocks, or it is highly likely based on simulation modelling or previous performance that they will be able to rebuild the stock within a specified timeframe.	
	Met?	Not relevant		

PI 1.1.3		Where the stock is depleted, there is evidence of stock rebuilding within a specified timeframe
	Justification	Not relevant. Stocks are not rebuilding
References		
OVERALL PERFORMANCE INDICATOR SCORE:		
CONDITION NUMBER (if relevant):		

PI 1.2.1		There is a robust and precautionary harvest strategy in place		
Scoring Issue		SG 60	SG 80	SG 100
A	Guidepost	The harvest strategy is expected to achieve stock management objectives reflected in the target and limit reference points.	The harvest strategy is responsive to the state of the stock and the elements of the harvest strategy work together towards achieving management objectives reflected in the target and limit reference points.	The harvest strategy is responsive to the state of the stock and is designed to achieve stock management objectives reflected in the target and limit reference points.
	Met?	Y	Y	Y

PI 1.2.1		There is a robust and precautionary harvest strategy in place		
	Justification	The harvest strategy that is used for the Australian Patagonian toothfish Fishery contains all of the required elements (monitoring, stock assessment, harvest control rules, and management actions that follow the agreed rules. It is designed to meet stock management objectives and its elements work together to achieve this. The strategy is also responsive to the state of the assessed component of the stock, as catch limits are determined based on a range of data sources that will reflect stock status including the results of the annual fishery-independent survey of abundance. The management objectives that the harvest strategy is designed to achieve are articulated in the precautionary approach that was adopted by CCAMLR in the mid-1990s and include the objective of maintaining a stock at a proportion of its pre-exploitation abundance as specified in the reference points: 1. escapement of the spawning stock must be sufficient to avoid the likelihood of declining recruitment, and 2. abundance under exploitation must maintain a sufficient resource for the needs of dependent species (usually predators). The undertaking of annual biomass surveys as the basis for setting TACs each year, and the adoption of a relatively low exploitation rate with a high degree of certainty, indicate that the elements of this harvest strategy are designed to achieve these objectives. This meets the requirements of SG60, SG80 and SG100.		
B	**Guidepost**	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?	Y	Y	N
	Justification	There is evidence from the monitoring of stock status and the fishery, and the outputs of the stock assessment that use these data, that stocks have been maintained above target levels throughout the history of the fishery. These provide good evidence that the harvest strategy for the HIMI fishery is achieving its objectives. The harvest strategy for this fishery has not, however, been fully evaluated. Given the scale of the fishery and the sophistication of the assessment, an evaluation in the form of an MSE is a reasonable expectation to meet the SG 100 requirements. This meets the requirements of the SG 60 and SG 80 levels but not of the SG 100 level.		

PI 1.2.1		There is a robust and precautionary harvest strategy in place		
c	Guidepost	Monitoring is in place that is expected to determine whether the harvest strategy is working.		
	Met?	Y		
	Justification	As outlined in the background, there is a comprehensive monitoring program in place that provides both fishery-dependent and fishery-independent information on the stock. These sources of information feed into the stock assessment which provide the synthesized overview of the status of the stock and the main indicator of whether the harvest strategy is working. This meets the requirements of the SG 60 level.		
d	Guidepost			The harvest strategy is periodically reviewed and improved as necessary.
	Met?			Y
	Justification	The Australian harvest strategy was reviewed to check that it complied with the requirements of Australia's Harvest Strategy Policy which was introduced in 2007. Also, given that the harvest strategy has maintained the biomass of Patagonian toothfish above target levels, additional reviews have not been necessary. This meets the requirements of the SG 100 level.		
e	Guidepost	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?	Not relevant	Not relevant	Not relevant
	Justification	Sharks are not a target species		
References		SCS 2012; SCS 2016		
OVERALL PERFORMANCE INDICATOR SCORE: Consideration of the French Fishery:				90

PI 1.2.1	There is a robust and precautionary harvest strategy in place	
In assigning a score for the Australian fishery we have also considered the French fishery which, since the original assessment was completed, had been assessed as meeting all the SG80 requirements, but none of the SG100 requirements. Most weight has been given here to the scores for the HIMI fishery, however, as there is now evidence that there is only a minor level of movement of fish between the two areas and there are separate spawning areas. This means that the status of the stock component exploited by the HIMI fishery is mostly affected by the harvest strategy used for this fishery. The HIMI fishery would be scored at 95 (two of three SG100 scoring issues are met) but the score has been reduced to 90 to reflect the lower score for the French fishery.		
CONDITION NUMBER (if relevant):		

PI 1.2.2		There are well defined and effective harvest control rules in place		
Scoring Issue		SG 60	SG 80	SG 100
a	**Guidepost**	Generally understood harvest rules are in place that are consistent with the harvest strategy and which act to reduce the exploitation rate as limit reference points are approached.	Well defined harvest control rules are in place that are consistent with the harvest strategy and ensure that the exploitation rate is reduced as limit reference points are approached.	
	Met?	Y	Y	
	Justification	There are well defined harvest control rules in place for the Australian fishery for Patagonian toothfish that are consistent with the harvest strategy. These are described in Ziegler and Welsford (2015) and in the background. Briefly, two catch levels are calculated based on stock projections: firstly, yield γ 1, that reflects the probability of the spawning biomass dropping below 20% of its median pre-exploitation level over a 35-year harvesting period is 10% (depletion probability); and secondly yield γ 2, that would produce a median escapement of the spawning biomass at the end of a 35-year period that is 50% of the median pre-exploitation level. The lower of γ 1 and γ 2 is then selected as the recommended catch. The catches that these rules allow will reduce as the stock approaches the target reference point. Should the stock fall below this target and approach the limit reference point, the rules would further reduce catches and could lead to the fishery being closed. It is therefore clear that they will act to reduce the exploitation rate as a LRP is approached. This meets the requirements of the SG 60 and SG 80 levels.		

PI 1.2.2		There are well defined and effective harvest control rules in place		
b	Guidepost		The selection of the harvest control rules takes into account the main uncertainties.	The design of the harvest control rules takes into account a wide range of uncertainties.
	Met?		Y	Y
	Justification	The MCMC projections that are used to determine constant catches that would be consistent with the harvest control rules incorporate uncertainty in all model parameters including recruitment variability, growth, survey catchability, and fishery selectivity. Uncertainty is further taken into account by the requirement that catches meet the requirements of the CCAMLR control rules over a 35 year projection period, even though the TACs would be in place for only one or two years. This meets the requirements of the SG 80 level. In the initial assessment, it was concluded that the Australian harvest control rules did not take into account a key uncertainty arising from the lack of knowledge of the nature of any inter-dependencies between the Patagonian toothfish population in the HIMI area and the population fished by the French around the Kerguelen Islands. As outlined in the fourth surveillance report (SCS 2016), this uncertainty has now been resolved and the precautionary features of the harvest control rules (which are those used by CCAMLR) can now be considered to take a wide range of uncertainties into account. This meets the requirements of the SG 100 level.		
c	Guidepost	There is some evidence that tools used to implement harvest control rules 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 harvest control rules.	Evidence clearly shows that the tools in use are effective in achieving the exploitation levels required under the harvest control rules.
	Met?	Y	Y	Y

PI 1.2.2		There are well defined and effective harvest control rules in place
	Justification	The key tool used to implement the harvest control rules is the TAC that is set for the fishery. Compliance with the TAC is monitored through compulsory logbooks that record set by set catch and effort details and through 100% observer coverage. These provide strong evidence that catches have never exceeded the TAC (beyond a small administrative allowance that was deducted from the next year's quota) and therefore that the tools used to implement these harvest control rules are effective in controlling the exploitation level from this fishery to required levels. The results of the stock assessments and RSTS add confidence to this and the evidence is clear that the tools in use are effective in achieving the exploitation levels required under the harvest control rules. This meets the requirements of the SG 60, SG 80 and SG 100 levels.
References		SCS 2012; SCS 2016; Welsford et al. 2012

OVERALL PERFORMANCE INDICATOR SCORE:	
Consideration of the French Fishery: In assigning a score for the Australian fishery we have also considered the French fishery which, since the original assessment was completed, had been assessed as not meeting the first of the SG80 requirements because the harvest control rule was not well defined. Most weight has been given here to the scores for the HIMI fishery, however, as there is now evidence that there is only a minor level of movement of fish between the two areas and there are separate spawning areas. This means that the status of the stock component exploited by the HIMI fishery is mostly affected by the harvest strategy and harvest control rule used for this fishery. The HIMI fishery would be scored at 100 but the score has been reduced to 95 to reflect the lower score for the French fishery. As noted in Section 4.1, we consider that the HIMI and SARPC fisheries are harmonised for this PI to the extent that the impacts on the whole stock have been taken into account. The differences that remain are justified as they pertain to the fishery-specific aspects of their harvest strategies and these differences do not threaten the achievement of P1 outcomes. Therefore, as required by CI3.1, having differences in the conditions between the Australian and French fisheries would not "undermine the integrity of MSC fishery assessments". Separate scoring of these fishery-specific aspects of the harvest strategies is also consistent with the approach for fishery-specific management arrangements under P3.	**95**
CONDITION NUMBER (if relevant):	

PI 1.2.3	Relevant information is collected to support the harvest strategy		
Scoring Issue	SG 60	SG 80	SG 100

PI 1.2.2		There are well defined and effective harvest control rules in place		
a	Guidepost	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 is available to support the harvest strategy.	A comprehensive range of information (on stock structure, stock productivity, fleet composition, stock abundance, fishery removals and other information such as environmental information), including some that may not be directly related to the current harvest strategy, is available.
	Met?	Y	Y	Y
	Justification	As outlined in the first assessment of the fishery (SCS 2012) and updated in the background, published papers and reports from AFMA, AAD and CCAMLR indicate that there is a comprehensive range of information available that is relevant to and supports the Australian harvest strategy. A wide range of other information about the ecosystem is also available (e.g. see papers in Duhamel and Welsford 2011). This meets the requirements of the SG 60, SG 80 and SG 100 levels.		
b	Guidepost	Stock abundance and fishery removals are monitored and at least one indicator is available and monitored with sufficient frequency to support the harvest control rule.	Stock abundance and fishery 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.	All information required by the harvest control rule is monitored with high 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?	Y	Y	Y

PI 1.2.2		There are well defined and effective harvest control rules in place		
	Justification	All the information required by the Australian Harvest Strategy is monitored annually. There is excellent information available on all fishery removals from the stock which, within the Australian zone, are exclusively taken by the fleets seeking certification. The information collected includes set-by-set records in logbooks, 100% observer coverage, size and age composition of the catch, tagging and recapture data, and inspection of all landings. The stock assessment and other reports of the SARAG and the relevant CCAMLR groups indicate that there is a good understanding of the inherent uncertainties in the data that are collected and used. The robustness of the assessment to this uncertainty is examined by a combination of sensitivity tests and by the outputs of the MCMC projections. The choice of a conservative HCR for determining acceptable catch levels is also a means for ensuring that management actions are robust to this uncertainty. This meets the requirements of the SG 60, SG 80 and SG 100 levels.		
c	Guidepost		There is good information on all other fishery removals from the stock.	
	Met?		Y	
	Justification	Catches by the French fishery are also monitored and reported annually to CCAMLR. IUU fishing, which has been a significant problem for some Antarctic high seas fisheries, but no IUU fishing vessels have been detected since 2004 inside the Australian Exclusive Economic Zone adjacent to HIMI or the French EEZ surrounding the Kerguelen Islands (Patterson and Skirtun 2015). This meets the requirements of the SG 80 level.		
References		Duhamel and Welsford 2011; Patterson and Skirtun 2015; SCS 2012		
OVERALL PERFORMANCE INDICATOR SCORE:				100
CONDITION NUMBER (if relevant):				

PI 1.2.4	There is an adequate assessment of the stock status		
Scoring Issue	SG 60	SG 80	SG 100

PI 1.2.4		There is an adequate assessment of the stock status		
a	Guidepost		The assessment is appropriate for the stock and for the harvest control rule.	The assessment is appropriate for the stock and for the harvest control rule and takes into account the major features relevant to the biology of the species and the nature of the fishery.
	Met?		Y	Y
	Justification	In the first assessment of this fishery (SCS 2012), the stock assessment was not considered to be appropriate for the stock only because it did not cover the proportion found and fished in the French zone. As outlined in the Fourth Surveillance Report (SCS 2016), there was originally an expectation that, for this deficiency to be overcome, a joint plateau-wide stock assessment would be required. More recent evidence from the latest assessment of the French fishery (Sinegre and Duhamel 2016) indicates that the catch limits for the SARPC fishery are also meeting CCAMLR objectives. This has been accepted by the WG-FSA as the basis for advice in the short term (WG-FSA 2015). There is only minimal movement of fish between the two zones (Welsford et al. 2015) and such movement is therefore not a major feature of the species' biology that needs to be taken into account in the assessment. In the fourth Surveillance Audit (SCS 2016) we concluded, therefore that there is now no need for the assessment of the HIMI fishery to extend its scope to include the catches by the French fishery. We still hold this opinion and therefore also that the assessment can be considered as appropriate for the stock, and that it takes into account the major features of the biology of Patagonian toothfish and the nature of the fishery. This meets the requirements of the SG 80 and SG 100 levels.		
b	Guidepost	The assessment estimates stock status relative to reference points.		
	Met?	Y		
	Justification	The assessment for the Australian fishery estimates stock status through the CASAL assessment model which provides estimates of current biomass and current biomass relative to unfished levels. Projections of this assessment are used to identify future catches which are consistent with the reference points. This meets the requirements of the SG 60 level.		

PI 1.2.4		There is an adequate assessment of the stock status		
c	Guidepost	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?	Y	Y	Y
	Justification	The major sources of uncertainty have also been identified and are recorded in a range of documents presented to SARAG and CCAMLR's FSA-WG. The assessment has taken this uncertainty into account. It explores the sensitivity of outputs to a range of plausible values for model parameters and makes projections that also consider such uncertainties. One of the uncertainties that was a focus of conditions in the original assessment (for other PIs) concerned linkages between the toothfish found within the Australian and French EEZs. This uncertainty is taken into account to some extent through the use of the RSTS, the results of which should reflect the impacts of fishing elsewhere on the plateau. Stock status is evaluated relative to the reference points using Monte Carlo Markov Chains (MCMC) sampling that provide the probabilistic estimates of catches that satisfy the decision rules. This meets the requirements of the SG 60, SG 80 and SG 100 levels.		
d	Guidepost			The assessment has been tested and shown to be robust. Alternative hypotheses and assessment approaches have been rigorously explored.
	Met?			N
	Justification	There is an ongoing program of review of assessment assumptions and approaches by the AAD staff and aspect of the assessment model have been updated to address recommendations from CCAMLR. As outlined in the background section, some sensitivity analyses have also been undertaken but here has, however, been no testing in the form of retrospective analyses or simulation testing that might have been undertaken to explore any systematic biases in the model. Additional sources of uncertainty to which the assessment has not been shown to be robust include the effect of the differential distributions of males and females around the whole Kerguelen/HIMI Plateau, the impact of assessing only the HIMI stock, the effect of an unknown proportion of females not spawning each year, and the potential for there to have been a significant IUU catch prior to 1997. We therefore consider that the assessment of the fishery has not been tested in the way that similar integrated assessments elsewhere have been tested. This does not meet the requirements of the SG 100 level.		

PI 1.2.4		There is an adequate assessment of the stock status		
e	Guidepost		The assessment of stock status is subject to peer review.	The assessment has been internally and externally peer reviewed.
	Met?		Y	N
	Justification	The assessment is regularly reviewed both by SARAG and by the scientific processes of CCAMLR. There is a level of external review provided by the FSA-WG as the group includes experienced scientific staff from several countries. Aspects of the assessment have also been published in peer-review journals but there has been no external peer review of the assessment as a whole. Nevertheless, for assessment against this scoring issue we consider this to be an internal review as it is a part of the normal processes of the fishery management system. This meets the requirements of the SG 80 level but not of the SG 100 level.		
References		SCS 2012; SCS 2016		

OVERALL PERFORMANCE INDICATOR SCORE: Consideration of the French Fishery: In assigning a score for the Australian fishery we have also considered the French fishery which, since the original assessment was completed, had been assessed as not meeting the first of the SG80 requirements because the WG-FSA considered that the stock assessment was appropriate for the HCR only in the short term, after which a more robust stock assessment would be required. Thus, unlike the HIMI fishery, the condition on the French fishery was based on its preliminary nature and was not associated with the need for a broader scope for the assessment. Most weight has been given here to the scores for the HIMI fishery, however, as there is now evidence that the connectivity between the two areas is not great. This means that the status of the stock component exploited by the HIMI fishery is best reflected in the results of the stock assessment used for the HIMI fishery. The HIMI fishery would be scored at 90 but the score has been reduced to 85 to reflect the lower score for the French fishery. As noted in the Fourth Surveillance Report (SCS 2016), we consider that the HIMI and SARPC fisheries are harmonised for this PI to the extent that the impacts on the whole stock have been taken into account. The differences that remain are justified as they pertain to the fishery-specific aspects of their harvest strategies and these differences do not threaten the achievement of P1 outcomes. Therefore, as required by CI3.1, having differences in the conditions between the Australian and French fisheries would not "undermine the integrity of MSC fishery assessments". Separate scoring of these fishery-specific aspects of the harvest strategies is also consistent with the approach for fishery-specific management arrangements under P3.	**85**
CONDITION NUMBER (if relevant):	

Principle 2

There are five components that need to be assessed under Principle 2, with each consisting of three Performance Indicators (PIs) each. The first PI of each component is focused on the outcome status, the second one concerns the management and the third one relates to the information available. The five components are: 1) Retained Catch; 2) Bycatch (not retained); 3) Endangered, Threatened or Protected Species; 4) Impacts on the Habitats; and 5) Impacts on the Ecosystem.

PI 2.1.1 – UoC Trawl

PI 2.1.1		**The fishery does not pose a risk of serious or irreversible harm to the retained species and does not hinder recovery of depleted retained species**		
Scoring Issue		SG 60	SG 80	SG 100
a	**Guidepost**	Main retained species are likely to be within biologically based limits (if not, go to scoring issue c below).	Main retained species are highly likely to be within biologically based limits (if not, go to scoring issue c below).	There is a high degree of certainty that retained species are within biologically based limits and fluctuating around their target reference points.
	Met?	Y	Y	Y
	Justification	Management requires that all species are retained in the HIMI fishery, which includes fishing for icefish and toothfish, to reduce interactions with marine mammals and seabirds. Only mackerel icefish is retained whole and can be sold upon return to port. Macrouridae or Grenadiers, a large and diverse family of species, are caught in both the trawl and longline sectors of the fishery, and together with other minor species ground into fishmeal and discarded outside the fishing zone because they are deemed unsuitable for sale. Total by-catch in the toothfish trawl fisheries is generally less than 10% of the total catch. Rockcod is considered a main species following MSC guidance (CR v 1.3) because in one recent season (2012/13) it was 8% (>5%) of total catch by weight. Macrouridae comprise approximately up to 2% of the total catch by weight for the 2014/15 season in the trawl sector respectively and are therefore not a main species. The team determined that the fishery meets all of the components for SG 60, SG 80 and SG 100 is met because the catch limits were based on assessments that determined biologically based limits for these species. The level 3 SAFE assessment for these species suggests that fishing mortality is sustainable and also notes that F could be overestimated using this method. Therefore, there is a high degree of certainty that retained species are within biologically based limits.		

PI 2.1.1		The fishery does not pose a risk of serious or irreversible harm to the retained species and does not hinder recovery of depleted retained species		
b	Guidepost			Target reference points are defined for retained species.
	Met?			N
	Justification	There are no reference points for retained species and there is no quantitative assessment of the retained species to indicate that they are fluctuating around their target reference points. This does not meet the requirement of SG100.		
c	Guidepost	If main retained species are outside the limits there are measures in place that are expected to ensure that the fishery does not hinder recovery and rebuilding of the depleted species.	If main retained species are outside the limits there is a partial strategy of demonstrably effective management measures in place such that the fishery does not hinder recovery and rebuilding.	
	Met?	NA	NA	
	Justification	The main species are within biologically based limits		
d	Guidepost	If the status is poorly known there are measures or practices in place that are expected to result in the fishery not causing the retained species to be outside biologically based limits or hindering recovery.		
	Met?	NA		

PI 2.1.1		The fishery does not pose a risk of serious or irreversible harm to the retained species and does not hinder recovery of depleted retained species	
	Justification	The status of the retained species are well known.	
References			
OVERALL PERFORMANCE INDICATOR SCORE:			90
CONDITION NUMBER (if relevant):			

PI 2.1.1 – UoC 2 Longline

PI 2.1.1		The fishery does not pose a risk of serious or irreversible harm to the retained species and does not hinder recovery of depleted retained species		
Scoring Issue		SG 60	SG 80	SG 100
a	Guidepost	Main retained species are likely to be within biologically based limits (if not, go to scoring issue c below).	Main retained species are highly likely to be within biologically based limits (if not, go to scoring issue c below).	There is a high degree of certainty that retained species are within biologically based limits and fluctuating around their target reference points.
	Met?	Y	Y	N
		Management requires that all species are retained in the HIMI fishery, which includes fishing for icefish and toothfish, to reduce interactions with marine mammals and seabirds. Only mackerel icefish is retained whole and is only caught in the trawl sector. Whole fish may be sold upon return to port. Macrouridae or Grenadiers, a large and diverse family of species, are caught in the longline sector of the fishery. Grenadiers other minor species ground into fishmeal and discarded outside the fishing zone because they are deemed unsuitable for sale. Total landed by-catch in the longline fisheries ranged from 6 to 13% of the total catch. Grenadiers spp. comprise approximately 7.5% of the total catch by weight for the 2014/15 season in the longline and are therefore a main species under the MSC guidance (CR v 1.3,) in the longline sector.		

PI 2.1.1		The fishery does not pose a risk of serious or irreversible harm to the retained species and does not hinder recovery of depleted retained species		
	Justification	BAIT The bait used for longline gear is also assessed under this PI. Approximately 70 - 100 t of squid is used for bait during each trip which is generally sourced from Argentina or New Zealand. Squid from both fisheries is considered "main" for the purpose of this assessment, as the amount used as bait in the toothfish longline sector are between 14-20% of total toothfish catch by weight. The NZ fishery captures two species (*Nototodarus gouldii* and *Nototodarus sloanii*) which are both found across the continental shelf generally in waters less than 300m depth and are targeted by trawling and jigging. The New Zealand squid fishery is managed under quota which was around 160,000 t in 2016 of which 62,452 t was caught. Based on the biology of squid and the long-term sustainability of the New Zealand squid fishery, the use of <100 t product from this fishery annually will not have a detrimental effect on the source populations. Squid sourced from South Atlantic squid fishery, most likely Argentine shortfin squid (*Illex argentines*). This fishery has shown large (up to a factor of 5) interannual variations over the last decade and was thought to have had a temporary collapse around 2009, but has recovered since 2011. Catches range between 200,000 and 1,000,000 t, so again, the use of <100 t product in one year from this fishery will not have a detrimental effect on the source populations. Jack mackerel (*Trachurus symmetricus*) and sardines (likely from New Zealand) are also used as bait, but in much smaller amounts (19-23 t). The status of both species status are unknown, however, at up to 23 t (1.7% of catch of toothfish in one year but much less in other years) it is considered unlikely to have a detrimental effect on the source populations The team determined that the fishery meets all of the components for SG 60, SG 80 and SG 100 is met because the catch limits were based on assessments that determined biologically based limits for the retained species. The level 3 SAFE assessment for these species suggests that fishing mortality is sustainable and also notes that F could be overestimated using this method. For the main bait species (squid from New Zealand and Argentina) this can only be said to be highly likely and therefore overall this is met at SG 80 overall for the longline sector.		
b	Guidepost			Target reference points are defined for retained species.
	Met?			N

PI 2.1.1		The fishery does not pose a risk of serious or irreversible harm to the retained species and does not hinder recovery of depleted retained species		
	Justification	There are no reference points for retained species (including bait species) and there is no quantitative assessment of the retained species to indicate that they are fluctuating around their target reference points. This does not meet the requirement of SG100.		
c	Guidepost	If main retained species are outside the limits there are measures in place that are expected to ensure that the fishery does not hinder recovery and rebuilding of the depleted species.	If main retained species are outside the limits there is a partial strategy of demonstrably effective management measures in place such that the fishery does not hinder recovery and rebuilding.	
	Met?	NA	NA	
	Justification	Main retained species including bait species are within biologically based limits.		
d	Guidepost	If the status is poorly known there are measures or practices in place that are expected to result in the fishery not causing the retained species to be outside biologically based limits or hindering recovery.		
	Met?	NA		
	Justification	Status of the main retained species are well known, however for the main bait species the fishery is not causing the species to be outside biologically based limits because only a very small fraction of the overall source fishery is used as bait in this fishery.		
References				
OVERALL PERFORMANCE INDICATOR SCORE:				80
CONDITION NUMBER (if relevant):				

PI 2.1.2 - UoC 1 Trawl

PI 2.1.2		There is a strategy in place for managing retained species that is designed to ensure the fishery does not pose a risk of serious or irreversible harm to retained species		
Scoring Issue		SG 60	SG 80	SG 100
a	**Guidepost**	There are measures in place, if necessary, that are expected to maintain the main retained species at levels which are highly likely to be within biologically based limits, or to ensure the fishery does not hinder their recovery and rebuilding.	There is a partial strategy in place, if necessary, that is expected to maintain the main retained species at levels which are highly likely to be within biologically based limits, or to ensure the fishery does not hinder their recovery and rebuilding.	There is a strategy in place for managing retained species.
	Met?	Y	Y	Y
	Justification	CM 33-02 ((CCAMLR 2015) provided updated bycatch limits for both the toothfish and icefish fisheries at HIMI. Limits for unicorn icefish (*Channichthys rhinoceratus*) are 1 663 t the by-catch of grey rock cod (Lepidonotothen squamifron) is 80 t, the by-catch of Macrourus caml and *Macrourus whitsoni* are 409 t, whereas the by-catch of *Macrourus holotrachys* and *Macrourus carinatus* combined shall not exceed 360 t, and the by-catch of skates and rays (combined) are 120 t. The limit of 150 t for unicorn icefish and grey rock cod are based on GYM analysis (Constable et al. 1998, Maschette and Dell 2015). Given that the limits are set on a biological basis, the fishery operates well below these limits (unicorn icefish with an annual range between >1 and 37 over the last 10 years), the fishery ceases operating if the limits are exceeded in any one year, and there is a provision requiring vessels to move out of an area if there is greater than, 5 t for *Channichthys rhinoceratus,* 3 t for all Macrourus spp. combined, or 2 t for *Lepidonotothen squamifrons*, or 2 t of Somniosus spp. (deep water dogfish) or 2 t of skates and rays, or if the by-catch in any one haul of any other by-catch species for which by-catch limitations apply under this conservation measure is equal to, or greater than, 1 t. Therefore there is a full strategy in place for managing retained species in the trawl sector of the fishery and SG100 is met.		

PI 2.1.2		There is a strategy in place for managing retained species that is designed to ensure the fishery does not pose a risk of serious or irreversible harm to retained species		
b	Guidepost	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 partial strategy will work, based on some information directly about the fishery and/or species involved.	Testing supports high confidence that the strategy will work, based on information directly about the fishery and/or species involved.
	Met?	Y	Y	N
	Justification	The strategy includes move-on provisions and closure of the fishery, which are in place when bycatch TACs are exceeded, to ensure that there is a management response. This strategy is based on information about the species for the main and minor retained species like unicorn icefish and rockcods. The SG 60 and 80 are met. However, there are three concerns that prevent the fishery achieving SG100. First, there is a lack of testing of the strategy using management strategy evaluation or a similar evaluation mechanism. Second, as noted by the ABARES fishery report, the GYM analysis is based on parameters taken from outside the populations affected by the fishery in some cases (Phillips & Ansell 2009). This is not ideal; it would be better to estimate the biological parameters required for the assessments of retained species using data from the actual populations affected. Third, although there are data from the fisheries-independent survey, they are currently not analyzed to assess the effect of the fishery on non-target species. Thus, while there are data available that could serve as evidence that the management strategy is successful, they are currently not being utilized.		
c	Guidepost		There is some evidence that the partial strategy is being implemented successfully.	There is clear evidence that the strategy is being implemented successfully.
	Met?		Y	Y
	Justification	The fishery is supported by a fisheries-independent survey each year, in addition to 100% observer coverage on the vessels with estimates of total biomass for all species taken in the fishery. Observers have not reported that there are any variations from the specified conditions; thus, implementation appears successful and 100% observer coverage provides clear evidence which supports a score of SG 100.		

PI 2.1.2		There is a strategy in place for managing retained species that is designed to ensure the fishery does not pose a risk of serious or irreversible harm to retained species		
d	Guidepost			There is some evidence that the strategy is achieving its overall objective.
	Met?			Y
	Justification	The strategy based on bycatch limits for all non-target species or species groups (including retained and discarded) also includes move-on provisions and closure of the fishery if the limits are exceeded. Based on fishery-independent surveys, estimates of total biomass for all species taken in the fishery and 100% observer coverage on the vessels there is high confidence that the strategy is operating and achieving its objective of avoiding a decline in the retained species. Therefore, a score of 100 is justified for this scoring issue.		
e	Guidepost	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?	Not relevant	Not relevant	Not relevant
	Justification	No sharks are retained in the fishery which is supported by 100% observer coverage on the vessels.		
References		CM 33-02 (2015), Constable *et al.* 1998, Maschette & Dell 2015, Phillips & Ansell 2009		
OVERALL PERFORMANCE INDICATOR SCORE:				95
CONDITION NUMBER (if relevant):				

PI 2.1.2 - UoC 2 Longline

PI 2.1.2	There is a strategy in place for managing retained species that is designed to ensure the fishery does not pose a risk of serious or irreversible harm to retained species		
Scoring Issue	SG 60	SG 80	SG 100

PI 2.1.2		There is a strategy in place for managing retained species that is designed to ensure the fishery does not pose a risk of serious or irreversible harm to retained species		
a	Guidepost	There are measures in place, if necessary, that are expected to maintain the main retained species at levels which are highly likely to be within biologically based limits, or to ensure the fishery does not hinder their recovery and rebuilding.	There is a partial strategy in place, if necessary, that is expected to maintain the main retained species at levels which are highly likely to be within biologically based limits, or to ensure the fishery does not hinder their recovery and rebuilding.	There is a strategy in place for managing retained species.
	Met?	Y	Y	Y

PI 2.1.2		There is a strategy in place for managing retained species that is designed to ensure the fishery does not pose a risk of serious or irreversible harm to retained species		
	Justification	CM 33-02 (CCAMLR 2015) provided updated bycatch limits for both the toothfish and icefish fisheries at HIMI. Limits for unicorn icefish (*Channichthys rhinoceratus*) are 1663 t, the by-catch of grey rock cod (*Lepidonotothen squamifron*) is 80 t, the by-catch of Macrourus *caml* and *Macrourus whitsoni* are 409 t, whereas the by-catch of *Macrourus holotrachys* and *Macrourus carinatus* combined shall not exceed 360 t, and the by-catch of skates and rays (combined) are 120 t. The limit of 150 t for unicorn icefish and grey rock cod are based on GYM analysis (Constable et al. 1998, Maschette and Dell 2015). Given that the limits are set on a biological basis, the fishery operates well below these limits (unicorn icefish with an annual range between >1 and 37 t over the last 10 years), the fishery ceases operating if the limits are exceeded in any one year, and there is a provision requiring vessels to move out of an area if there is greater than 5 t for *Channichthys rhinoceratus,* 3 t for all *Macrourus* spp. combined, or 2 t for *Lepidonotothen squamifrons*, or 2 t of *Somniosus* spp. (deep water dogfish) or 2 t of skates and rays, or if the by-catch in any one haul of any other by-catch species for which by-catch limitations apply under this conservation measure is equal to, or greater than, 1 t. The main bait species squid are either sourced from New Zealand or from Argentinia (*Illex argentines*). The NZ squid fishery is managed under quota which was around 160,000 t in 2016 of which 62,452 t was caught. The Argentinian squid fishery has shown large interannual variations over the last decade and was thought to have had a temporary collapse around 2009, but has recovered since 2011. Catches range between 200,000 and 1,000,000 t, so again, the use of <100 t product in one year from this fishery will not have a detrimental effect on the source populations. Therefor there is a full strategy in place for managing retained species, including main bait species, in the longline of the fishery and SG100 is met.		
b	**Guidepost**	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 partial strategy will work, based on some information directly about the fishery and/or species involved.	Testing supports high confidence that the strategy will work, based on information directly about the fishery and/or species involved.
	Met?	Y	Y	N

PI 2.1.2		There is a strategy in place for managing retained species that is designed to ensure the fishery does not pose a risk of serious or irreversible harm to retained species		
	Justification	The strategy includes move-on provisions and closure of the fishery, which are in place when bycatch TACs are exceeded, to ensure that there is a management response. This strategy is based on information about the species for the main and minor retained species like unicorn icefish and rock cods. The SG 60 and 80 are met. However, there are three concerns that prevent the fishery achieving SG100. First, there is a lack of testing of the strategy using management strategy evaluation or a similar evaluation mechanism. Second, as noted by the ABARES fishery report, the GYM analysis is based on parameters taken from outside the populations affected by the fishery in some cases (Phillips & Ansell 2009). This is not ideal; it would be better to estimate the biological parameters required for the assessments of retained species using data from the actual populations affected. Third, although there are data from the fisheries-independent survey, they are currently not analyzed to assess the effect of the fishery on non-target species. Thus, while there are data available that could serve as evidence that the management strategy is successful, they are currently not being utilized.		
c	Guidepost		There is some evidence that the partial strategy is being implemented successfully.	There is clear evidence that the strategy is being implemented successfully.
	Met?		Y	Y
	Justification	The fishery is supported by a fisheries-independent survey each year, in addition to 100% observer coverage on the vessels with estimates of total biomass for all species taken in the fishery. Observers have not reported that there are any variations from the specified conditions; thus, implementation appears successful and 100% observer coverage provides clear evidence which supports a score of SG 100.		
d	Guidepost			There is some evidence that the strategy is achieving its overall objective.
	Met?			Y

PI 2.1.2		There is a strategy in place for managing retained species that is designed to ensure the fishery does not pose a risk of serious or irreversible harm to retained species		
	Justification	The strategy based on bycatch limits for all non-target species or species groups (including retained and discarded) also includes move-on provisions and closure of the fishery if the limits are exceeded. Based on fishery-independent surveys, estimates of total biomass for all species taken in the fishery and 100% observer coverage on the vessels there is high confidence that the strategy is operating and achieving its objective of avoiding a decline in the retained species. Therefore, a score of 100 is justified for this scoring issue.		
e	Guidepost	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?	Not relevant	Not relevant	Not relevant
	Justification	No sharks are retained in the fishery which is supported by 100% observer coverage on the vessels.		
References		CM 33-02 (2015), Constable *et al.* 1998, Maschette & Dell 2015, Phillips & Ansell 2009		
OVERALL PERFORMANCE INDICATOR SCORE:				95
CONDITION NUMBER (if relevant):				

PI 2.1.3 – UoC 1 Trawl

PI 2.1.3		Information on the nature and extent of retained species is adequate to determine the risk posed by the fishery and the effectiveness of the strategy to manage retained species		
Scoring Issue		SG 60	SG 80	SG 100
a	**Guidepost**	Qualitative information is available on the amount of main retained species taken by the fishery.	Qualitative information and some quantitative information are available on the amount of main retained species taken by the fishery.	Accurate and verifiable information is available on the catch of all retained species and the consequences for the status of affected populations.
	Met?	Y	Y	Y
	Justification	All commercial fishing effort is monitored by observers, with two observers on every vessel (AFMA observer reports 2013-2015). All unloading is monitored in port by independent observers. Vessels and observers maintain shot by shot logbooks which provide accurate and verifiable information on the catch of all retained species. In addition, there is a comprehensive and statistically robust fisheries-independent survey conducted each year prior to commercial operations to determine the status of the affected populations. A score of 100 is met.		
b	**Guidepost**	Information is adequate to qualitatively assess outcome status with respect to biologically based limits.	Information is sufficient to estimate outcome status with respect to biologically based limits.	Information is sufficient to quantitatively estimate outcome status with a high degree of certainty.
	Met?	Y	Y	Y
	Justification	The information is derived from annual fishery independent surveys and is sufficient to estimate the outcome status at a high degree of certainty. The stock assessment for unicorn icefish has recently been updated (Maschette and Dell 2015). There has also been a new study on the age and growth dynamics of grey rockcod around HIMI (Maschette et al. 2015). The SG 100 is met		
c	**Guidepost**	Information is adequate to support measures to manage main retained species.	Information is adequate to support a partial strategy to manage main retained species.	Information is adequate to support a strategy to manage retained species, and evaluate with a high degree of certainty whether the strategy is achieving its objective.
	Met?	Y	Y	N

PI 2.1.3		Information on the nature and extent of retained species is adequate to determine the risk posed by the fishery and the effectiveness of the strategy to manage retained species		
	Justification	The information collected is adequate to support a strategy, however, testing of the strategy using management strategy evaluation or a similar evaluation mechanism has not occurred to date, preventing the fishery to score 100 for this scoring issue.		
d	Guidepost		Sufficient data continue to be collected to detect any increase in risk level (e.g. due to changes in the outcome indicator score or the operation of the fishery or the effectiveness of the strategy)	Monitoring of retained species is conducted in sufficient detail to assess ongoing mortalities to all retained species.
	Met?		Y	Y
	Justification	Data continues to be collected on an annual basis with 100% observer coverage and shot by shot logbook reporting. Therefore, monitoring of all retained species is conducted in sufficient detail to assess ongoing mortalities to all retained species and SG100 is met.		
References		AFMA observer reports 2013-2015; Maschette & Dell 2015; Maschette et al. 2015		
OVERALL PERFORMANCE INDICATOR SCORE:				95
CONDITION NUMBER (if relevant):				

PI 2.1.3 – UoC 2 Longline

PI 2.1.3		Information on the nature and extent of retained species is adequate to determine the risk posed by the fishery and the effectiveness of the strategy to manage retained species		
Scoring Issue		SG 60	SG 80	SG 100
a	Guidepost	Qualitative information is available on the amount of main retained species taken by the fishery.	Qualitative information and some quantitative information are available on the amount of main retained species taken by the fishery.	Accurate and verifiable information is available on the catch of all retained species and the consequences for the status of affected populations.

PI 2.1.3		Information on the nature and extent of retained species is adequate to determine the risk posed by the fishery and the effectiveness of the strategy to manage retained species		
	Met?	Y	Y	Y
	Justification	All commercial fishing effort is monitored by observers, with two observers on every vessel (AFMA observer reports 2013-2015). All unloading is monitored in port by independent observers. Vessels and observers maintain shot by shot logbooks which provide accurate and verifiable information on the catch of all retained species. In addition, there is a comprehensive and statistically robust fisheries-independent survey conducted each year prior to commercial operations to determine the status of the affected populations. Regarding bait, the amount and species as well as country of origin of all species is recorded by all operators for each vessel and can be verified. Very small amounts of jack mackerel and sardine are used. The vast majority of bait used in the fishery is squid (>90%). Very small amounts are used relative to the size of these fisheries and therefore the effect on the status of affected populations is likely to be minimal. A score of 100 is met.		
b	Guidepost	Information is adequate to qualitatively assess outcome status with respect to biologically based limits.	Information is sufficient to estimate outcome status with respect to biologically based limits.	Information is sufficient to quantitatively estimate outcome status with a high degree of certainty.
	Met?	Y	Y	N
	Justification	The information is derived from annual fishery independent surveys and is sufficient to estimate the outcome status at a high degree of certainty. The stock assessment for unicorn icefish has recently been updated (Maschette and Dell 2015). There has also been a new study on the age and growth dynamics of grey rockcod around HIMI (Maschette et al. 2015). The SG 100 is met. For the NZ bait species (squid, jack mackerel and sardines) annual catch data relative to TAC is monitored for different fishing grounds against historical catches (Ministry for Primary Industries 2013). Similarly, the catch of the Argentinia squid fishery is monitored but outcome status of this species cannot be estimated with a high degree of certainty. Therefore the SG80 is met but not the SG 100.		

PI 2.1.3		Information on the nature and extent of retained species is adequate to determine the risk posed by the fishery and the effectiveness of the strategy to manage retained species		
c	Guidepost	Information is adequate to support measures to manage main retained species.	Information is adequate to support a partial strategy to manage main retained species.	Information is adequate to support a strategy to manage retained species, and evaluate with a high degree of certainty whether the strategy is achieving its objective.
	Met?	Y	Y	N
	Justification	The information collected is adequate to support a strategy. Testing of the strategy, using management strategy evaluation or a similar evaluation mechanism, has not occurred to date, preventing the fishery to score 100 for this scoring issue. The same can be ascertained for the main bait species and therefore the SG 80 is met overall.		
d	Guidepost		Sufficient data continue to be collected to detect any increase in risk level (e.g. due to changes in the outcome indicator score or the operation of the fishery or the effectiveness of the strategy)	Monitoring of retained species is conducted in sufficient detail to assess ongoing mortalities to all retained species.
	Met?		Y	Y
	Justification	Data continues to be collected on an annual basis with 100% observer coverage and shot by shot logbook reporting. Therefore, monitoring of all retained species including bait species is conducted in sufficient detail to assess ongoing mortalities to all retained species and SG100 is met.		
References		AFMA observer reports 2013-2015; Maschette & Dell 2015; Maschette et al. 2015		
OVERALL PERFORMANCE INDICATOR SCORE:				90
CONDITION NUMBER (if relevant):				

PI 2.2.1 – UoC 1 Trawl

PI 2.2.1		The fishery does not pose a risk of serious or irreversible harm to the bycatch species or species groups and does not hinder recovery of depleted bycatch species or species groups		
Scoring Issue		SG 60	SG 80	SG 100
a	**Guidepost**	Main bycatch species are likely to be within biologically based limits (if not, go to scoring issue b below).	Main bycatch species are highly likely to be within biologically based limits (if not, go to scoring issue b below).	There is a high degree of certainty that bycatch species are within biologically based limits.
	Met?	Y	Y	N
	Justification	Most non-target species and catch have been covered under retained species indicators (2.1.1 through 2.1.3), because these species are required to be retained, either retained whole and sold or ground into offal. The fishery is managed on the basis of a 50 t annual catch limit for all species that are not covered by other limits. The exception for bycatch species is the catch limit for skates (120 tons per year), which was based on a GYM analysis (Constable *et al.* 1998). Based on reported catch of non-target species, all species are within their limits and have not exceeded them since 1998 (CCAMLR 2014a). These results are consistent with a simple quantitative assessment developed for bycatch species in the HIMI trawl sector as part of the ERA process (Zhou *et al.* 2009). Based on spatial overlap of fishing and species distributions, this assessment concluded that all bycatch species in the fishery had fishing mortalities below their values at maximum sustainable mortality. However, two skate species (*Bathyraja murrayi* and *B. eatonii*) may have fishing mortalities above the lower boundary of sustainable mortality (Zhou *et al.* 2009). There are no main bycatch species, following MSC guidance, due to % of total catch by weight (<3% over the last 5 years). See Table 5 in the background section of the report. However, two skate species (*Bathyraja irrasa* and *B. eatonii*) were considered main due to their vulnerability. Therefore, not all bycatch species are within biologically based limits with high degree of certainty and the SG 100 is not met.		

PI 2.2.1		The fishery does not pose a risk of serious or irreversible harm to the bycatch species or species groups and does not hinder recovery of depleted bycatch species or species groups		
b	Guidepost	If main bycatch species are outside biologically based limits there are mitigation measures in place that are expected to ensure that the fishery does not hinder recovery and rebuilding.	If main bycatch species are outside biologically based limits there is a partial strategy of demonstrably effective mitigation measures in place such that the fishery does not hinder recovery and rebuilding.	
	Met?	Y	Y	
	Justification	Two skate species (*Bathyraja murrayi* and *B. eatonii*) considered as the main bycatch species due to their vulnerability and there is no high degree of confidence that these are within biologically based limits. The strategy includes a requirement where vessels need to move at least 5 miles away from a site for at least 5 days if a vessel catches equal to, or greater than, 5 t for *Channichthys rhinoceratus*, 3 t for all *Macrourus* spp. combined, or 2 t for *Lepidonotothen squamifrons*, or 2 t of *Somniosus* spp., or 2 t of skates and rays (CCAMLR Conservation Measure 33-02 (2015). There is also an extensive Marine Reserve set up to protect non-target species amongst others. The catch rates of skates from the trawl fisheries at HIMI are low. There has been no observed decline in the catch of these species (AFMA 2014); thus, these measures can be considered to be demonstrably effective. Similarly, no declines have been reported in the catches taken during fisheries independent surveys. The Marine Reserves, combined with the conservation measures employed by CCAMLR and implemented by AFMA in the HIMI fishery appear to provide effective protection for the skates and there is very little signs of depletion (Nowara *et al.* 2009, 2016). Therefore the SG 80 is met.		

PI 2.2.1		The fishery does not pose a risk of serious or irreversible harm to the bycatch species or species groups and does not hinder recovery of depleted bycatch species or species groups		
c	Guidepost	If the status is poorly known there are measures or practices in place that are expected to result in the fishery not causing the bycatch species to be outside biologically based limits or hindering recovery.		
	Met?	Y		
	Justification	There has been a recent study on the distribution and abundance of skates at the Kerguelen Plateau where the fishery operates and there appears to be little change in abundance of this species (Nowara et al. 2016).		
References		Nowara *et al.* 2009, 2016.		

OVERALL PERFORMANCE INDICATOR SCORE:	80
CONDITION NUMBER (if relevant): **Recommendation 1:** The assessment team recommends updating the ecological risk assessment (ERA) within the next certification cycle, and identifying if significant changes are occurring in the fishery. This will strengthen the score and provide a higher level of certainty that non-target species are within biologically based limits.	

PI 2.2.1 – UoC 2 Longline

PI 2.2.1		The fishery does not pose a risk of serious or irreversible harm to the bycatch species or species groups and does not hinder recovery of depleted bycatch species or species groups		
Scoring Issue		SG 60	SG 80	SG 100
a	Guidepost	Main bycatch species are likely to be within biologically based limits (if not, go to scoring issue b below).	Main bycatch species are highly likely to be within biologically based limits (if not, go to scoring issue b below).	There is a high degree of certainty that bycatch species are within biologically based limits.
	Met?	Y	Y	N

PI 2.2.1		The fishery does not pose a risk of serious or irreversible harm to the bycatch species or species groups and does not hinder recovery of depleted bycatch species or species groups		
	Justification	Most non-target species and catch has been covered under retained species indicators (2.1.1 through 2.1.3) because these species are required to be retained, either retained whole and sold or ground into offal. Apart from a small portion to continue research, the fishery is primarily using longline. The fishery is managed on the basis of a 50 t annual catch limit for all species that are not covered by other limits. The exception for bycatch species is the catch limit for skates (120 tons per year), which was based on a GYM analysis (Constable *et al.* 1998). Based on reported catch of non-target species, all species are within their limits and have not exceeded them since 1998 (CCAMLR 2014a). These results are consistent with a simple quantitative assessment developed for bycatch species in the HIMI trawl sector as part of the ERA process (Zhou *et al.* 2009). Based on spatial overlap of fishing and species distributions, this assessment concluded that all bycatch species in the fishery had fishing mortalities below their values at maximum sustainable mortality. However, two skate species (*Bathyraja murrayi* and *B. eatonii*) may have fishing mortalities above the lower boundary of sustainable mortality (Zhou *et al.* 2009). There are no main bycatch species, following MSC guidance, due to % of total catch by weight (<3% over the last 5 years). Two skate species (*Bathyraja irrasa* and *B. eatonii*) and the Southern Sleeper Shark, *Somniosus antarcticus*, which is an extremely large dogshark that gets caught very occasionally by longline methods. These species are released if captured, but the survival rate once they are released is uncertain. Therefore these species has been considered as a main bycatch species for the longline sector. Not all bycatch species are within biologically based limits with high degree of certainty and the SG 100 is not met.		
b	Guidepost	If main bycatch species are outside biologically based limits there are mitigation measures in place that are expected to ensure that the fishery does not hinder recovery and rebuilding.	If main bycatch species are outside biologically based limits there is a partial strategy of demonstrably effective mitigation measures in place such that the fishery does not hinder recovery and rebuilding.	
	Met?	Y	Y	

PI 2.2.1		The fishery does not pose a risk of serious or irreversible harm to the bycatch species or species groups and does not hinder recovery of depleted bycatch species or species groups		
	Justification	Two skate species and the sleeper shark are considered as the main bycatch species due to their vulnerability and there is no high degree of confidence that these are within biologically based limits. The strategy includes requiring vessels to move at least 5 miles away from a site for at least 5 days if a vessel catches equal to, or greater than, 5 tonnes for *Channichthys rhinoceratus*, 3 tonnes for all *Macrourus* spp. combined, or 2 tonnes for *Lepidonotothen squamifrons*, or 2 tonnes of *Somniosus* spp., or 2 tonnes of skates and rays (CCAMLR Conservation Measure 33-02 (2015). There is also an extensive Marine Reserve set up to protect also non-target species amongst others. The catch rates of skates and the sleeper shark are low. There has been no observed decline in the catch of these species (AFMA 2016); thus, these measures can be considered to be demonstrably effective. Similarly, no declines have been reported in the catches taken during the fisheries independent survey. The Marine Reserves, combined with the conservation measures employed by CCAMLR and implemented by AFMA in the HIMI fishery appear to provide effective protection for the skates and there is very little signs of depletion (Nowara *et al.* 2009, 2016). Therefore the SG 80 is met.		
c	Guidepost	If the status is poorly known there are measures or practices in place that are expected to result in the fishery not causing the bycatch species to be outside biologically based limits or hindering recovery.		
	Met?	Y		
	Justification	There has been a recent study on the distribution and abundance of skates at the Kerguelen Plateau where the fishery operates and there appears to be little change in abundance of this species (Nowara et al. 2016).		
References		Nowara *et al.* 2009, 2016.		
OVERALL PERFORMANCE INDICATOR SCORE:				80

PI 2.2.1	The fishery does not pose a risk of serious or irreversible harm to the bycatch species or species groups and does not hinder recovery of depleted bycatch species or species groups	
CONDITION NUMBER (if relevant): **Recommendation 1:** The assessment team recommends updating the ecological risk assessment (ERA) within the next certification cycle, and identifying if significant changes are occurring in the fishery. This will strengthen the score and provide a higher level of certainty that non-target species are within biologically based limits.		

PI 2.2.2 – UoC1 -Trawl

PI 2.2.2		There is a strategy in place for managing bycatch that is designed to ensure the fishery does not pose a risk of serious or irreversible harm to bycatch populations		
Scoring Issue		SG 60	SG 80	SG 100
a	**Guidepost**	There are measures in place, if necessary, that are expected to maintain the main bycatch species at levels which are highly likely to be within biologically based limits, or to ensure the fishery does not hinder their recovery and rebuilding.	There is a partial strategy in place, if necessary, that is expected to maintain the main bycatch species at levels which are highly likely to be within biologically based limits, or to ensure the fishery does not hinder their recovery and rebuilding.	There is a strategy in place for managing and minimizing bycatch.
	Met?	Y	Y	Y
	Justification	There is a strategy for mitigating bycatch in the fishery. The strategy includes requiring vessels to move at least 5 miles away from a site for at least 5 days if a vessel catches equal to, or greater than, 5 tonnes for *Channichthys rhinoceratus*, 3 tonnes for all *Macrourus* spp. combined, or 2 tonnes for *Lepidonotothen squamifrons*, or 2 tonnes of *Somniosus* spp., or 2 tonnes of skates and rays (CCAMLR Conservation Measure 33-02 (2015). There is also an extensive Marine Reserve set up to protect also non-target species amongst others the SG 100 is met.		

PI 2.2.2		There is a strategy in place for managing bycatch that is designed to ensure the fishery does not pose a risk of serious or irreversible harm to bycatch populations		
b	Guidepost	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 partial strategy will work, based on some information directly about the fishery and/or species involved.	Testing supports high confidence that the strategy will work, based on information directly about the fishery and/or species involved.
	Met?	Y	Y	N
	Justification	There is partial evidence that the strategy will work. The limits are considered precautionary. Based on catches of bycatch species over the last 10 years of operation there does not appear to be a decline in bycatch populations (see background section). In addition, no declines have been noted by regulatory authorities or scientists analyzing the fisheries independent survey data, although there is no specific program of analysis for this criteria. Therefore, the SG 100 is not met for this indicator because it cannot be confirmed with high confidence based on testing that the strategy will work.		
c	Guidepost		There is some evidence that the partial strategy is being implemented successfully.	There is clear evidence that the strategy is being implemented successfully.
	Met?		Y	Y
	Justification	Implementation of the strategy appears to be successful, as there are no reported incidences of non-compliance by observers and all fishing effort is observed. Therefore, SG100 is met for this scoring issue.		
d	Guidepost			There is some evidence that the strategy is achieving its overall objective.
	Met?			Y
	Justification	There is some evidence that the strategy is achieving its objective because no declines have been noted by regulatory authorities or scientists analyzing the fisheries independent survey data.		

PI 2.2.2	There is a strategy in place for managing bycatch that is designed to ensure the fishery does not pose a risk of serious or irreversible harm to bycatch populations	
References	CCAMLR 2014a; 2016	
OVERALL PERFORMANCE INDICATOR SCORE:		**95**
CONDITION NUMBER (if relevant):		

PI 2.2.2 – UoC 2 -Longline

PI 2.2.2		There is a strategy in place for managing bycatch that is designed to ensure the fishery does not pose a risk of serious or irreversible harm to bycatch populations		
Scoring Issue		SG 60	SG 80	SG 100
a	**Guidepost**	There are measures in place, if necessary, that are expected to maintain the main bycatch species at levels which are highly likely to be within biologically based limits, or to ensure the fishery does not hinder their recovery and rebuilding.	There is a partial strategy in place, if necessary, that is expected to maintain the main bycatch species at levels which are highly likely to be within biologically based limits, or to ensure the fishery does not hinder their recovery and rebuilding.	There is a strategy in place for managing and minimizing bycatch.
	Met?	Y	Y	Y
	Justification	There is a strategy for mitigating bycatch in the fishery. The strategy includes requiring vessels to move at least 5 miles away from a site for at least 5 days if a vessel catches equal to, or greater than, 5 t for *Channichthys rhinoceratus*, 3 tonnes for all *Macrourus* spp. combined, or 2 t for *Lepidonotothen squamifrons*, or 2 t of *Somniosus* spp., or 2 t of skates and rays (CCAMLR Conservation Measure 33-02 (2015). There is also an extensive Marine Reserve set up to protect non-target species amongst others, the SG 100 is met.		
b	**Guidepost**	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 partial strategy will work, based on some information directly about the fishery and/or species involved.	Testing supports high confidence that the strategy will work, based on information directly about the fishery and/or species involved.
	Met?	Y	Y	N

PI 2.2.2		There is a strategy in place for managing bycatch that is designed to ensure the fishery does not pose a risk of serious or irreversible harm to bycatch populations		
	Justification	There is partial evidence that the strategy will work. The limits are considered precautionary. Based on catches of bycatch species over the last 10 years of operation there does not appear to be a decline in bycatch populations (see background section). In addition, no declines have been noted by regulatory authorities or scientists analyzing the fisheries independent survey data. There currently isn't a specific program of analysis for this criteria, hence the SG 100 is not met, for it cannot be confirmed with high confidence based on testing that the strategy will work.		
c	Guidepost		There is some evidence that the partial strategy is being implemented successfully.	There is clear evidence that the strategy is being implemented successfully.
	Met?		Y	Y
	Justification	Implementation of the strategy appears to be successful, as there are no reported incidences of non-compliance by observers and all fishing effort is observed. Therefore, SG100 is met for this scoring issue.		
d	Guidepost			There is some evidence that the strategy is achieving its overall objective.
	Met?			Y
	Justification	There is some evidence that the strategy is achieving its objective because no declines have been noted by regulatory authorities or scientists analyzing the fisheries independent survey data.		
References		CCAMLR 2014a; 2016		
OVERALL PERFORMANCE INDICATOR SCORE:				95
CONDITION NUMBER (if relevant):				

PI 2.2.3 – UoC - Trawl

PI 2.2.3		Information on the nature and the amount of bycatch is adequate to determine the risk posed by the fishery and the effectiveness of the strategy to manage bycatch		
Scoring Issue		SG 60	SG 80	SG 100
a	**Guidepost**	Qualitative information is available on the amount of main bycatch species taken by the fishery.	Qualitative information and some quantitative information are available on the amount of main bycatch species taken by the fishery.	Accurate and verifiable information is available on the catch of all bycatch species and the consequences for the status of affected populations.
	Met?	Y	Y	Y
	Justification	The fishery has both 100% observer coverage of all commercial fishing and an extensive annual fisheries independent survey based on the commercial gear, which provides both accurate and verifiable information of all bycatch species. Therefore, the SG 100 is met.		
b	**Guidepost**	Information is adequate to broadly understand outcome status with respect to biologically based limits	Information is sufficient to estimate outcome status with respect to biologically based limits.	Information is sufficient to quantitatively estimate outcome status with respect to biologically based limits with a high degree of certainty.
	Met?	Y	Y	Y
	Justification	The information is of sufficient quality to assess whether bycatch rates are changing, and the status relative to the various bycatch TACs. Based on available information, it is possible to estimate the number of individuals caught for each taxa in the fishery. This scoring issue is therefore met at the SG100 level.		
c	**Guidepost**	Information is adequate to support measures to manage bycatch.	Information is adequate to support a partial strategy to manage main bycatch species.	Information is adequate to support a strategy to manage retained species, and evaluate with a high degree of certainty whether the strategy is achieving its objective.
	Met?			Y
	Justification	The information covers each commercial shot, and is adequate to support the implementation of both move-on rules and TACs. Therefore, a score of 100 is justified.		

PI 2.2.3		Information on the nature and the amount of bycatch is adequate to determine the risk posed by the fishery and the effectiveness of the strategy to manage bycatch		
d	Guidepost		Sufficient data continue to be collected to detect any increase in risk to main bycatch species (e.g., due to changes in the outcome indicator scores or the operation of the fishery or the effectively of the strategy).	Monitoring of bycatch data is conducted in sufficient detail to assess ongoing mortalities to all bycatch species.
	Met?		Y	Y
	Justification	Annual fishery independent surveys are conducted which provide sufficient details to assess mortalities of all bycatch species. Therefore, SG 100 is met.		
References		CCAMLR 2014a; 2016		
OVERALL PERFORMANCE INDICATOR SCORE:				100
CONDITION NUMBER (if relevant):				

PI 2.2.3 – UoC - Trawl

PI 2.2.3		Information on the nature and the amount of bycatch is adequate to determine the risk posed by the fishery and the effectiveness of the strategy to manage bycatch		
Scoring Issue		SG 60	SG 80	SG 100
a	Guidepost	Qualitative information is available on the amount of main bycatch species taken by the fishery.	Qualitative information and some quantitative information are available on the amount of main bycatch species taken by the fishery.	Accurate and verifiable information is available on the catch of all bycatch species and the consequences for the status of affected populations.
	Met?	Y	Y	Y

PI 2.2.3		Information on the nature and the amount of bycatch is adequate to determine the risk posed by the fishery and the effectiveness of the strategy to manage bycatch		
	Justification	The fishery has both 100% observer coverage of all commercial fishing and an extensive annual fisheries independent survey, which provides both accurate and verifiable information of all bycatch species. Therefore the SG 100 is met.		
b	Guidepost	Information is adequate to broadly understand outcome status with respect to biologically based limits	Information is sufficient to estimate outcome status with respect to biologically based limits.	Information is sufficient to quantitatively estimate outcome status with respect to biologically based limits with a high degree of certainty.
	Met?	Y	Y	Y
	Justification	The information is of sufficient quality to assess whether bycatch rates are changing, and the status relative to the various bycatch TACs. Based on available information, it is possible to estimate the number of individuals caught for each taxa in the fishery. This scoring issue is therefore met at the SG100 level.		
c	Guidepost	Information is adequate to support measures to manage bycatch.	Information is adequate to support a partial strategy to manage main bycatch species.	Information is adequate to support a strategy to manage retained species, and evaluate with a high degree of certainty whether the strategy is achieving its objective.
	Met?			Y
	Justification	The information covers each commercial shot, and is adequate to support the implementation of both move-on rules and TACs. Therefore, a score of 100 is justified.		
d	Guidepost		Sufficient data continue to be collected to detect any increase in risk to main bycatch species (e.g. due to changes in the outcome indicator scores or the operation of the fishery or the effectively of the strategy).	Monitoring of bycatch data is conducted in sufficient detail to assess ongoing mortalities to all bycatch species.
	Met?		Y	Y

PI 2.2.3		Information on the nature and the amount of bycatch is adequate to determine the risk posed by the fishery and the effectiveness of the strategy to manage bycatch	
	Justification	Annual fishery independent surveys are conducted which provide sufficient details to assess mortalities of all bycatch species. Therefore, SG 100 is met.	
References		CCAMLR 2014a; 2016	
OVERALL PERFORMANCE INDICATOR SCORE:			100
CONDITION NUMBER (if relevant):			

PI 2.3.1 – UoC 1- trawl

PI 2.3.1		The fishery meets national and international requirements for the protection of ETP species The fishery does not pose a risk of serious or irreversible harm to ETP species and does not hinder recovery of ETP species		
Scoring Issue		SG 60	SG 80	SG 100
a	**Guidepost**	Known effects of the fishery are likely to be within limits of national and international requirements for protection of ETP species.	The effects of the fishery are known and are highly likely to be within limits of national and international requirements for protection of ETP species.	There is a high degree of certainty that the effects of the fishery are within limits of national and international requirements for protection of ETP species.
	Met?	Y	Y	Y
	Justification	The HIMI fishery is a world leader in the quality of management measures for ETP species. After many innovations in the fishery, interaction rates with ETP species are very low. In the two most recent fishing years reported by CCAMLR, no seabirds were killed and there have been no seabird mortalities since 2012/13, in the trawl sector of the fishery. There were also no marine mammal mortalities in the last 5 years. There is 100% observer coverage of the fishery; thus, the effects of the fishery are known with a high degree of certainty and the SG100 scoring issue is met.		
b	**Guidepost**	Known direct effects are unlikely to create unacceptable impacts to ETP species.	Direct effects are highly unlikely to create unacceptable impacts to ETP species.	There is a high degree of confidence that there are no significant detrimental direct effects of the fishery on ETP species.
	Met?	Y	Y	Y
	Justification	Based on these very low levels of impact in recent years and 100% observer coverage, the fishery does meet this scoring issue at the SG100 guidepost.		
c	**Guidepost**		Indirect effects have been considered and are thought to be unlikely to create unacceptable impacts.	There is a high degree of confidence that there are no significant detrimental indirect effects of the fishery on ETP species.
	Met?		Y	Y

PI 2.3.1		**The fishery meets national and international requirements for the protection of ETP species** **The fishery does not pose a risk of serious or irreversible harm to ETP species and does not hinder recovery of ETP species**
	Justification	Indirect effects have been considered, and might be possible, but are highly unlikely for marine mammals (AFMA 2009d, AFMA 2009e).
References		AFMA 2009d, AFMA 2009e
OVERALL PERFORMANCE INDICATOR SCORE:		**100**
CONDITION NUMBER (if relevant):		

PI 2.3.1 – UoC 2 longline

PI 2.3.1		**The fishery meets national and international requirements for the protection of ETP species** **The fishery does not pose a risk of serious or irreversible harm to ETP species and does not hinder recovery of ETP species**		
Scoring Issue		SG 60	SG 80	SG 100
a	**Guidepost**	Known effects of the fishery are likely to be within limits of national and international requirements for protection of ETP species.	The effects of the fishery are known and are highly likely to be within limits of national and international requirements for protection of ETP species.	There is a high degree of certainty that the effects of the fishery are within limits of national and international requirements for protection of ETP species.
	Met?	Y	Y	Y
	Justification	The HIMI fishery is a world leader in the quality of management measures for ETP species. After many innovations in the fishery, interaction rates with ETP species are very low. In the two most recent fishing years reported by CCAMLR only one seabird mortalities was reported in the longline sector each year of the fishery. There have been a few marine mammal mortalities in the last 5 years varying between 2 and 8). There is 100% observer coverage of the fishery; thus, the effects of the fishery are known with high certainty and the SG100 scoring issue is met.		

PI 2.3.1		**The fishery meets national and international requirements for the protection of ETP species** **The fishery does not pose a risk of serious or irreversible harm to ETP species and does not hinder recovery of ETP species**		
b	**Guidepost**	Known direct effects are unlikely to create unacceptable impacts to ETP species.	Direct effects are highly unlikely to create unacceptable impacts to ETP species.	There is a high degree of confidence that there are no significant detrimental direct effects of the fishery on ETP species.
	Met?	Y	Y	Y
	Justification	Based on these very low levels of impact in recent years and 100% observer coverage, the fishery does meet this scoring issue at the SG100 guidepost.		
c	**Guidepost**		Indirect effects have been considered and are thought to be unlikely to create unacceptable impacts.	There is a high degree of confidence that there are no significant detrimental indirect effects of the fishery on ETP species.
	Met?		Y	Y
	Justification	Indirect effects have been considered and might be possible, but are highly unlikely for marine mammals (AFMA 2009d, AFMA 2009e). A recent study investigated the spatial and temporal depredation, involving sperm whales (Physeter microcephalus) which have been reported in the longline fishery since 2011 (Welsford and Arangio, 2015). Strong seasonal pattern to sperm whale presence, with depredation events confined to the months April-July. Further work is planned in collaboration with experts involving also the French fishery, to study behaviour across the Kerguelen Plateau with the overall aim to develop strategies for long term mitigation.		
References		AFMA 2009d, AFMA 2009e; Welsford and Arangio 2015		
OVERALL PERFORMANCE INDICATOR SCORE:				**100**
CONDITION NUMBER (if relevant):				

PI 2.3.2 – UoC 1 - Trawl

PI 2.3.2		The fishery has in place precautionary management strategies designed to: • Meet national and international requirements; • Ensure the fishery does not pose a risk of serious harm to ETP species; • Ensure the fishery does not hinder recovery of ETP species; and • Minimise mortality of ETP species.		
Scoring Issue		SG 60	SG 80	SG 100
a	**Guidepost**	There are measures in place that minimise 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 fishery'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 fishery'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?	Y	Y	Y
	Justification	The fishery is compliant with domestic regulations; in particular, species recovery plans for seabirds and marine mammals. Moreover, the fishery complies with all management measures from CCAMLR with respect to ETP species. The fishery has extensive strategies in place to reduce the capture of seabirds, including controls on fishing practices, seasonal restrictions on gear use, temporal restrictions on gear use, and requirements for real time reporting of interactions along with development of management measures (AFMA 2014a, b). Interactions with marine mammals were not identified as an issue in the ecological risk analysis, and thus there was no explicit strategy for their mitigation in the risk management plans (AFMA 2009a, b). There is also a domestic Bycatch and Discard Workplan which was reviewed (Welsford *et al.* 2012) as part of a broader review of the Commonwealth Bycatch Policy in 2012. Finally, CCAMLR has developed conservation measures (Conservation Measure 25-03) for seabirds and marine mammals which provides guidance on mitigation measures for reducing interaction rates, along with a resolution (resolution 22/XXV) outlining its international standards in this respect for seabirds. The measures are reflected as conditions on the SFRs which the HIMI fishery is required to comply with by the management agency (AFMA). and There have been no reported issues with compliance. Therefore, the SG 100 is met.		

PI 2.3.2		The fishery has in place precautionary management strategies designed to: • Meet national and international requirements; • Ensure the fishery does not pose a risk of serious harm to ETP species; • Ensure the fishery does not hinder recovery of ETP species; and • Minimise mortality of ETP species.		
b	Guidepost	The measures are considered likely to work, based on plausible argument (e.g., general experience, theory or comparison with similar fisheries/species).	There is an objective basis for confidence that the strategy will work, based on information directly about the fishery and/or the species involved.	The strategy is mainly based on information directly about the fishery and/or species involved, and a quantitative analysis supports high confidence that the strategy will work.
	Met?	Y	Y	N
	Justification	For seabirds, there is evidence that the mitigation measures are effective based on observer coverage, with low numbers of interactions in recent years (AAD 2016). Marine mammal interactions are not considered to be a major issue in the fishery. The SG 80 is met. The SG100 is not met, as there is no testing of the effectiveness of the strategies relative to management objectives.		
c	Guidepost		There is evidence that the strategy is being implemented successfully.	There is clear evidence that the strategy is being implemented successfully.
	Met?		Y	Y
	Justification	The measures are being implemented successfully, and this can be verified based on 100% coverage of commercial operations by observers (AFMA observer reports 2013-2015). There are specific procedures for observers to raise issues with compliance while at sea, along with ongoing reporting to the management agency. Therefore, this scoring issue is met at the SG 100 level.		
d	Guidepost			There is evidence that the strategy is achieving its objective.
	Met?			Y
	Justification	Based on very low interactions with any ETP species and no interactions in recent years, there is evidence that the strategy is achieving its objective. The SG 100 is met.		

PI 2.3.2	**The fishery has in place precautionary management strategies designed to:** • **Meet national and international requirements;** • **Ensure the fishery does not pose a risk of serious harm to ETP species;** • **Ensure the fishery does not hinder recovery of ETP species; and** • **Minimise mortality of ETP species.**	
References	AAD 2016; AFMA observer reports 2013-2015; Welsford *et al.* 2012	
OVERALL PERFORMANCE INDICATOR SCORE:		**95**
CONDITION NUMBER (if relevant):		

PI 2.3.2 – UoC 2 Longline

PI 2.3.2		The fishery has in place precautionary management strategies designed to: • Meet national and international requirements; • Ensure the fishery does not pose a risk of serious harm to ETP species; • Ensure the fishery does not hinder recovery of ETP species; and • Minimise mortality of ETP species.		
Scoring Issue		SG 60	SG 80	SG 100
a	**Guidepost**	There are measures in place that minimise 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 fishery'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 fishery'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?	Y	Y	Y

PI 2.3.2		**The fishery has in place precautionary management strategies designed to:** • **Meet national and international requirements;** • **Ensure the fishery does not pose a risk of serious harm to ETP species;** • **Ensure the fishery does not hinder recovery of ETP species; and** • **Minimise mortality of ETP species.**		
	Justification	The fishery is compliant with domestic regulations; in particular, species recovery plans for seabirds and marine mammals. Moreover, the fishery complies with all management measures from CCAMLR with respect to ETP species. The fishery has extensive strategies in place to reduce the capture of seabirds, including controls on fishing practices, seasonal restrictions on gear use, temporal restrictions on gear use, and requirements for real time reporting of interactions along with development of management measures (AFMA 2014a,b). Interactions with marine mammals were not identified as an issue in the ecological risk analysis, and thus there was no explicit strategy for their mitigation in the risk management plans (AFMA 2009a, b). There is also a domestic Bycatch and Discard Workplan which was reviewed (Welsford *et al.* 2012) as part of a broader review of the Commonwealth Bycatch Policy in 2012. Finally, CCAMLR has developed conservation measures (Conservation Measure 25-03) for seabirds and marine mammals which provides guidance on mitigation measures for reducing interaction rates, along with a resolution (resolution 22/XXV) outlining its international standards in this respect for seabirds. The HIMI fishery is required to comply with these measures by the management agency (AFMA) and there have been no reported issues with compliance. There was also a new voluntary industry move on provisions for sperm whales that ensures the next line shot is 50 miles away if sperm whale depredation is detected in the longline fishery. A new study will be looking at the behaviour across the whole Kerguelen Plateau with the overall aim to develop strategies for long term mitigation (Welsford and Arangio, 2015). Therefore, the SG 100 is met.		
b	**Guidepost**	The measures are considered likely to work, based on plausible argument (e.g., general experience, theory or comparison with similar fisheries/species).	There is an objective basis for confidence that the strategy will work, based on information directly about the fishery and/or the species involved.	The strategy is mainly based on information directly about the fishery and/or species involved, and a quantitative analysis supports high confidence that the strategy will work.
	Met?	Y	Y	N

PI 2.3.2		**The fishery has in place precautionary management strategies designed to:** • **Meet national and international requirements;** • **Ensure the fishery does not pose a risk of serious harm to ETP species;** • **Ensure the fishery does not hinder recovery of ETP species; and** • **Minimise mortality of ETP species.**		
	Justification	For seabirds, there is evidence that the mitigation measures are effective based on observer coverage, with low numbers of interactions in recent years (AAD 2016). Marine mammal interactions are not considered to be a major issue in the fishery. The SG 80 is met. The SG100 is not met, as there is no testing of the effectiveness of the strategies relative to management objectives.		
c	**Guidepost**		There is evidence that the strategy is being implemented successfully.	There is clear evidence that the strategy is being implemented successfully.
	Met?		Y	Y
	Justification	The measures are being implemented successfully, and this can be verified based on 100% coverage of commercial operations by observers (AFMA observer reports 2013-2015). There are specific procedures for observers to raise issues with compliance while at sea, along with ongoing reporting to the management agency. Therefore, this scoring issue is met at the SG 100 level.		
d	**Guidepost**			There is evidence that the strategy is achieving its objective.
	Met?			Y
	Justification	Based on very low interactions with any ETP species and no seabird interactions in recent years, there is evidence that the strategy is achieving its objective. The SG 100 is met.		
References		AAD 2016; AFMA observer reports (2013-2015); Welsford *et al.* 2012; Welsford and Arangio, 2015		
OVERALL PERFORMANCE INDICATOR SCORE:				**95**
CONDITION NUMBER (if relevant):				

PI 2.3.3 – UoC 1- Trawl

PI 2.3.3		Relevant information is collected to support the management of fishery 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	**Guidepost**	Information is sufficient to qualitatively estimate the fishery related mortality of ETP species.	Sufficient information is available to allow fishery related mortality and the impact of fishing to be quantitatively estimated for ETP species.	Information is sufficient to quantitatively estimate outcome status of ETP species with a high degree of certainty.
	Met?	Y	Y	Y
	Justification	There is high quality quantitative information on the impact of the fishery on ETP species, including effort, location, and gear configuration of all fishing effort. There is 100% observer coverage, and all ETP interactions (seabirds and mammals) are recorded and can be related to information on fishing available in logbooks. Thus, gear configuration, timing, location and other factors that affect ETP interactions and outcomes of those interactions are known (CCAMLR 2014a). The information is sufficient to estimate the outcome status. Therefore, the SG100 is met.		
b	**Guidepost**	Information is adequate to broadly understand the impact of the fishery on ETP species.	Information is sufficient to determine whether the fishery may be a threat to protection and recovery of the ETP species.	Accurate and verifiable information is available on the magnitude of all impacts, mortalities and injuries and the consequences for the status of ETP species.
	Met?	Y	Y	Y
	Justification	The information is accurate and verifiable regarding the magnitude of the threat to all ETP species due to the 100% observer coverage. The information is sufficient to be used in assessments or ERAs to generally determine the consequences for the status of ETP species and, as such, the SG 100 is met.		

PI 2.3.3		**Relevant information is collected to support the management of fishery 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.**		
c	**Guidepost**	Information is adequate to support measures to manage the impacts on ETP species.	Information is sufficient to measure trends and support a full 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?	Y	Y	N
	Justification	There is adequate information for design and evaluation of the comprehensive strategy. However, there has been no specific evaluation of the full strategy whether it is achieving its objectives or if that was necessary. Therefore, the SG 100 is not met.		
References		CCAMLR 2014a		
OVERALL PERFORMANCE INDICATOR SCORE:				**95**
CONDITION NUMBER (if relevant):				

PI 2.3.3 – UoC 2 Longline

PI 2.3.3		Relevant information is collected to support the management of fishery 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	**Guidepost**	Information is sufficient to qualitatively estimate the fishery related mortality of ETP species.	Sufficient information is available to allow fishery related mortality and the impact of fishing to be quantitatively estimated for ETP species.	Information is sufficient to quantitatively estimate outcome status of ETP species with a high degree of certainty.
	Met?	Y	Y	Y
	Justification	There is high quality quantitative information on the impact of the fishery on ETP species, including effort, location, and gear configuration of all fishing effort. There is 100% observer coverage, and all ETP interactions (seabirds and mammals) are recorded and can be related to information on fishing available in logbooks. Thus, gear configuration, timing, location and other factors that affect ETP interactions and outcomes of those interactions are known (CCAMLR 2014a). The information is sufficient to estimate the outcome status. Therefore, the SG100 is met.		
b	**Guidepost**	Information is adequate to broadly understand the impact of the fishery on ETP species.	Information is sufficient to determine whether the fishery may be a threat to protection and recovery of the ETP species.	Accurate and verifiable information is available on the magnitude of all impacts, mortalities and injuries and the consequences for the status of ETP species.
	Met?	Y	Y	Y
	Justification	The information is accurate and verifiable regarding the magnitude of the threat of all ETP species due to the 100% observer coverage and, as such, the SG 100 is met		

PI 2.3.3		Relevant information is collected to support the management of fishery 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.		
c	Guidepost	Information is adequate to support measures to manage the impacts on ETP species.	Information is sufficient to measure trends and support a full 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?	Y	Y	N
	Justification	There is adequate information for design and evaluation of the comprehensive strategy. However, there has been no specific evaluation of the full strategy whether it is achieving its objectives or if that was necessary. Therefore, the SG 100 is not met.		
References		CCAMLR 2014a		
OVERALL PERFORMANCE INDICATOR SCORE:				95
CONDITION NUMBER (if relevant):				

PI 2.4.1 – UoC 1 - Trawl

PI 2.4.1		The fishery does not cause serious or irreversible harm to habitat structure, considered on a regional or bioregional basis, and function		
Scoring Issue		SG 60	SG 80	SG 100
a	Guidepost	The fishery is unlikely to reduce habitat structure and function to a point where there would be serious or irreversible harm.	The fishery is highly unlikely to reduce habitat structure and function to a point where there would be serious or irreversible harm.	There is evidence that the fishery is highly unlikely to reduce habitat structure and function to a point where there would be serious or irreversible harm.
	Met?	Y	Y	Y

PI 2.4.1		The fishery does not cause serious or irreversible harm to habitat structure, considered on a regional or bioregional basis, and function
	Justification	All vessels in the fishery carry a VMS that reports all fishing locations in addition to comprehensive 100% observer coverage (Observer reports 2013-2015). The fishery operates in a region that has an extensive Marine Reserve system that was designed based on a bioregionalization with the explicit goal of protecting a comprehensive, adequate and representative collection of the existing Australian marine biota. Welsford et al. (2014) combined data on the fishing footprint with estimates of taxa-specific vulnerability and concluded that the great majority of vulnerable organisms live on the seafloor in depths less than 1200 m. This range overlaps with the depths targeted by the trawl fishery, however due to the fact that the majority of trawling has focussed on a few relatively small fishing grounds, less than 1.5% of all the biomass in waters less than 1200 m were estimated to have been damaged or destroyed. The fishery is excluded from these Marine Reserves, and thus while the demersal gear may affect the habitat on a bioregional basis there are significant areas (39% of the area that is less than 1000 meters depth) that are protected from any potential harm. Moreover, effort in the fishery is concentrated in a relatively small portion of the region around Heard Island and McDonald Islands. An estimated 0.7% of the seafloor area within the EEZ at HIMI has had some level of interaction with demersal fishing gear between 1997 and 2013 and thus at present impacts are expected to be limited in spatial extent even within the fished area. The SG 100 is met.
References		Observer reports 2013-2015; Welsford et al. (2014)
OVERALL PERFORMANCE INDICATOR SCORE:		**100**
CONDITION NUMBER (if relevant):		

PI 2.4.1 – UoC 2 - longline

PI 2.4.1		The fishery does not cause serious or irreversible harm to habitat structure, considered on a regional or bioregional basis, and function		
Scoring Issue		SG 60	SG 80	SG 100
a	Guidepost	The fishery is unlikely to reduce habitat structure and function to a point where there would be serious or irreversible harm.	The fishery is highly unlikely to reduce habitat structure and function to a point where there would be serious or irreversible harm.	There is evidence that the fishery is highly unlikely to reduce habitat structure and function to a point where there would be serious or irreversible harm.

PI 2.4.1		The fishery does not cause serious or irreversible harm to habitat structure, considered on a regional or bioregional basis, and function		
	Met?	Y	Y	Y
	Justification	All vessels in the fishery carry a VMS that reports all fishing locations in addition to comprehensive 100% observer coverage (Observer reports 2013-2015). The fishery operates in a region that has an extensive Marine Reserve system that was designed based on bioregionalization with the explicit goal of protecting a comprehensive, adequate and representative collection of the existing Australian marine biota. Welsford et al. (2014) combined data on the fishing footprint with estimates of taxa-specific vulnerability and concluded that the great majority of vulnerable organisms live on the seafloor in depths less than 1200 m. This range overlaps with the depths targeted by the trawl fishery, however due to the fact that the majority of trawling has focussed on a few relatively small fishing grounds, less than 1.5% of all the biomass in waters less than 1200 m were estimated to have been damaged or destroyed. The fishery is excluded from these Marine Reserves, and thus while the demersal gear may affect the habitat on a bioregional basis there are significant areas (39% of the area that is less than 1000 meters depth) that are protected from any potential harm. Moreover, effort in the fishery is concentrated in a relatively small portion of the region around Heard Island and McDonald Islands. An estimated 0.7% of the seafloor area within the EEZ at HIMI has had some level of interaction with demersal fishing gear between 1997 and 2013 and thus at present impacts are expected to be limited in spatial extent even within the fished area. The SG 100 is met.		
References		Observer reports 2013-2015; Welsford et al. (2014)		
OVERALL PERFORMANCE INDICATOR SCORE:				**100**
CONDITION NUMBER (if relevant):				

PI 2.4.2 -UoC 1 - Trawl

PI 2.4.2	There is a strategy in place that is designed to ensure the fishery does not pose a risk of serious or irreversible harm to habitat types		
Scoring Issue	SG 60	SG 80	SG 100

PI 2.4.2		There is a strategy in place that is designed to ensure the fishery does not pose a risk of serious or irreversible harm to habitat types		
a	Guidepost	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 the fishery on habitat types.
	Met?	Y	Y	Y
	Justification	An extensive and well-designed Marine Reserve system exists in the region around HIMI which is adequate and representative and designed to protect all habitat types in the region. This can be regarded as a full strategy to manage impacts of the fishery on habitats and a score of SG 100 is justified.		
b	Guidepost	The measures are considered likely to work, based on plausible argument (e.g. general experience, theory or comparison with similar fisheries/habitats).	There is some objective basis for confidence that the partial strategy will work, based on information directly about the fishery and/or habitats involved.	Testing supports high confidence that the strategy will work, based on information directly about the fishery and/or habitats involved.
	Met?	Y	Y	Y
	Justification	The strategy is anticipated to provide reliable protection for habitats and the biodiversity they support. Welsford et al. (2014) combined data on the fishing footprint with estimates of taxa-specific vulnerability. A risk categorisation framework was then applied that allowed the seascape around HIMI to be categorised and the level of protection afforded by the Marine Reserve to be quantified. As a result of this study, the boundaries of the Marine Reserve were expanded on 28 March 2014 and the Marine Reserve's area increased to 71,000 square kilometers to include an area of high conservation value and Category II risk rating (Commonwealth of Australia 2014). Therefore, testing of the original reserve and the new expansion now supports the strategy with high confidence and the SG 100 is met.		
c	Guidepost		There is some evidence that the partial strategy is being implemented successfully.	There is clear evidence that the strategy is being implemented successfully.
	Met?		Y	Y

PI 2.4.2		There is a strategy in place that is designed to ensure the fishery does not pose a risk of serious or irreversible harm to habitat types		
	Justification	Compliance by operators with Marine Reserve boundaries, and complete observer and VMS coverage provide high confidence that the reserve system has been successfully implemented (Commonwealth of Australia 2014).		
d	Guidepost			There is some evidence that the strategy is achieving its objective.
	Met?			Y
	Justification	Welsford *et al.* (2014) produced an assessment of the current status of benthic habitats in the fishing area providing comprehensive evidence that the strategy is achieving its objective to protect all habitat types in the fishing area. The SG 100 is met.		
References		Commonwealth of Australia, 2014; Welsford *et al.* 2014		
OVERALL PERFORMANCE INDICATOR SCORE:				100
CONDITION NUMBER (if relevant):				

PI 2.4.2 – UoC 2 - Longline

PI 2.4.2		There is a strategy in place that is designed to ensure the fishery does not pose a risk of serious or irreversible harm to habitat types		
Scoring Issue		SG 60	SG 80	SG 100
a	Guidepost	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 the fishery on habitat types.
	Met?	Y	Y	Y
	Justification	An extensive and well-designed Marine Reserve system exists in the region around HIMI which is adequate and representative and designed to protect all habitat types in the region. This can be regarded as a full strategy to manage impacts of the fishery on habitats and a score of SG 100 is justified.		

PI 2.4.2		There is a strategy in place that is designed to ensure the fishery does not pose a risk of serious or irreversible harm to habitat types		
b	Guidepost	The measures are considered likely to work, based on plausible argument (e.g. general experience, theory or comparison with similar fisheries/habitats).	There is some objective basis for confidence that the partial strategy will work, based on information directly about the fishery and/or habitats involved.	Testing supports high confidence that the strategy will work, based on information directly about the fishery and/or habitats involved.
	Met?	Y	Y	Y
	Justification	The strategy is anticipated to provide reliable protection for habitats and the biodiversity they support. Welsford et al. (2014) combined data on the fishing footprint with estimates of taxa-specific vulnerability. A risk categorisation framework was then applied that allowed the seascape around HIMI to be categorised and the level of protection afforded by the Marine Reserve to be quantified. As a result of this study, the boundaries of the Marine Reserve were expanded on 28 March 2014 and the Marine Reserve's area increased to 71,000 square kilometers to include an area of high conservation value and Category II risk rating (Commonwealth of Australia 2014). Therefore, testing of the original reserve and the new expansion now supports the strategy with high confidence and the SG 100 is met.		
c	Guidepost		There is some evidence that the partial strategy is being implemented successfully.	There is clear evidence that the strategy is being implemented successfully.
	Met?		Y	Y
	Justification	Compliance by operators with reserve boundaries, and complete observer and VMS coverage provide high confidence that the Marine Reserve system has been successfully implemented (Commonwealth of Australia 2014).		
d	Guidepost			There is some evidence that the strategy is achieving its objective.
	Met?			Y

PI 2.4.2		There is a strategy in place that is designed to ensure the fishery does not pose a risk of serious or irreversible harm to habitat types	
	Justification	Welsford *et al.* (2014) produced an assessment of the current status of benthic habitats in the fishing area providing comprehensive evidence that the strategy is achieving its objective to protect all habitat types in the fishing area. The SG 100 is met.	
References		Commonwealth of Australia, 2014; Welsford *et al.* 2014	
OVERALL PERFORMANCE INDICATOR SCORE:			100
CONDITION NUMBER (if relevant):			

PI 2.4.3 – UoC 1 - Trawl

PI 2.4.3		Information is adequate to determine the risk posed to habitat types by the fishery and the effectiveness of the strategy to manage impacts on habitat types		
Scoring Issue		SG 60	SG 80	SG 100
a	Guidepost	There is basic understanding of the types and distribution of main habitats in the area of the fishery.	The nature, distribution and vulnerability of all main habitat types in the fishery are known at a level of detail relevant to the scale and intensity of the fishery.	The distribution of habitat types is known over their range, with particular attention to the occurrence of vulnerable habitat types.
	Met?	Y	Y	Y
	Justification	There is high quality data on the spatial extent, timing and location of the use of fishing gear based on ongoing observer and VMS coverage (Commonwealth of Australia, 2014). This data is of sufficient quality to address the current extent and any changes in that extent through time. The distribution of habitat types at the scale relevant to the fishery is known within the Australian region of the Kerguelen Plateau (AAD 2005). In addition, Welsford et al. (2014) applied a risk categorisation framework that allowed the seascape around HIMI to be categorised and the level of protection afforded by the Marine Reserve to be quantified. The SG 100 is clearly met.		

PI 2.4.3		Information is adequate to determine the risk posed to habitat types by the fishery and the effectiveness of the strategy to manage impacts on habitat types		
b	Guidepost	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.	Sufficient data are available to allow the nature of the impacts of the fishery on habitat types to be identified and there is reliable information on the spatial extent of interaction, and the timing and location of use of the fishing gear.	The physical impacts of the gear on the habitat types have been quantified fully.
	Met?	Y	Y	N
	Justification	Welsford *et al.* (2014) combined data on the fishing footprint with estimates of taxa-specific vulnerability and together with the risk categorisation allowed the seascape around HIMI to be categorised and the level of protection afforded by the Marine Reserve to be quantified. However, these are not fully quantified for all habitat types and this scoring issue is met at the SG 80 level.		
c	Guidepost		Sufficient data continue to be collected to detect any increase in risk to habitat (e.g. due to changes in the outcome indicator scores or the operation of the fishery or the effectiveness of the measures).	Changes in habitat distributions over time are measured.
	Met?		Y	N
	Justification	Monitoring is ongoing through the routine recording of the fishery's effort footprint through AFMA's VMS, logbooks and observer reports. However, there are no additional studies planned to measure changes in habitat distribution over time. The SG 80 is met.		
References		Commonwealth of Australia, 2014; Welsford *et al.* 2014		
OVERALL PERFORMANCE INDICATOR SCORE:				85
CONDITION NUMBER (if relevant):				

PI 2.4.3 – UoC 2 -Longline

PI 2.4.3		Information is adequate to determine the risk posed to habitat types by the fishery and the effectiveness of the strategy to manage impacts on habitat types		
Scoring Issue		SG 60	SG 80	SG 100
a	**Guidepost**	There is basic understanding of the types and distribution of main habitats in the area of the fishery.	The nature, distribution and vulnerability of all main habitat types in the fishery are known at a level of detail relevant to the scale and intensity of the fishery.	The distribution of habitat types is known over their range, with particular attention to the occurrence of vulnerable habitat types.
	Met?	Y	Y	Y
	Justification	There is high quality data on the spatial extent, timing and location of the use of fishing gear based on ongoing observer and VMS coverage (Commonwealth of Australia, 2014). This data is of sufficient quality to address the current extent and any changes in that extent through time. The distribution of habitat types at the scale relevant to the fishery is known within the Australian region of the Kerguelen Plateau (AAD 2005). In addition, Welsford et al. (2014) applied a risk categorisation framework that allowed the seascape around HIMI to be categorised and the level of protection afforded by the marine reserve to be quantified. The SG 100 is clearly met.		
b	**Guidepost**	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.	Sufficient data are available to allow the nature of the impacts of the fishery on habitat types to be identified and there is reliable information on the spatial extent of interaction, and the timing and location of use of the fishing gear.	The physical impacts of the gear on the habitat types have been quantified fully.
	Met?	Y	Y	N
	Justification	Welsford *et al.* (2014) combined data on the fishing footprint with estimates of taxa-specific vulnerability and together with the risk categorisation allowed the seascape around HIMI to be categorised and the level of protection afforded by the marine reserve to be quantified. However, these are not fully quantified for all habitat types and this scoring issue is met at the SG 80 level.		

PI 2.4.3		Information is adequate to determine the risk posed to habitat types by the fishery and the effectiveness of the strategy to manage impacts on habitat types		
c	Guidepost		Sufficient data continue to be collected to detect any increase in risk to habitat (e.g. due to changes in the outcome indicator scores or the operation of the fishery or the effectiveness of the measures).	Changes in habitat distributions over time are measured.
	Met?		Y	N
	Justification	Monitoring is ongoing through the routine recording of the fishery's effort footprint through AFMA's VMS, logbooks and observer reports. However, there are no additional studies planned to measure changes in habitat distribution over time. The SG 80 is met.		
References		Commonwealth of Australia, 2014; Welsford *et al.* 2014		
OVERALL PERFORMANCE INDICATOR SCORE:				85
CONDITION NUMBER (if relevant):				

PI 2.5.1 – UoC 1 - Trawl

PI 2.5.1		The fishery 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	Guidepost	The fishery 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 fishery 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 fishery 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?	Y	Y	Partial

PI 2.5.1		The fishery does not cause serious or irreversible harm to the key elements of ecosystem structure and function
	Justification	The Heard Island Predator Prey Integrated Ecosystem Study (HIPPIES) was completed in 2010. Papers were published in a special issue from the International Science Symposium on the Kerguelen Plateau in Concarneau, France. Formal publications were released in late 2011 providing a great overview of the current knowledge of the ecosystem, food webs and the latest development on ecosystem approach to managing fisheries at HIMI (Casper *et al.* 2010; Staniland *et al.* 2010; Van Wijk *et al.* 2010). One of the largest Marine Protected Areas in the world exists in the HIMI region. The Marine Reserve incorporates over 39% of all waters shallower than 1,000 metres in the HIMI EEZ. The marine reserve incorporates over 39% of all waters shallower than 1,000 meters in the HIMI EEZ where fishing is prohibited. The HIMI toothfish Fishery is managed in accordance with the requirements of CCAMLR for precautionary ecosystem-based management of fisheries. In addition, the fishery has been operating for 20 years, with no major ongoing impacts documented on the system. Based on this management system and the operating evidence, it is highly unlikely that the fishery will cause serious or irreversible harm to the ecosystem. A broad scale ecosystem model for quantifying and assessing Southern Ocean habitats, species and foodweb is in development under the Antarctic Climate and Ecosystem CRC with national and international collaborators. The geographical focus of ACE CRC's work is on the Indian and West Pacific Sectors of the Southern Ocean. In January 2016 one science voyage focused on the Kerguelen Axis with Heard Island at the northern end of the axis. The fishery clearly meets the 60 and 80 scoring guidepost but there are no completed directed investigations on ecosystem wide impacts that are required for a score of 100. However due to the published HIPPIES study and continuing work on an ecosystem model a score of 90 is warranted.
References		Casper *et al.* 2010; Staniland *et al.* 2010; Van Wijk *et al.* 2010, de la Mare *et al.* 1998, Constable & Welsford 2011,
OVERALL PERFORMANCE INDICATOR SCORE:		**90**
CONDITION NUMBER (if relevant):		

PI 2.5.1 – UoC 2 - Longline

PI 2.5.1	The fishery does not cause serious or irreversible harm to the key elements of ecosystem structure and function		
Scoring Issue	SG 60	SG 80	SG 100

PI 2.5.1		The fishery does not cause serious or irreversible harm to the key elements of ecosystem structure and function		
a	Guidepost	The fishery 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 fishery 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 fishery 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?	Y	Y	Partial
	Justification	The Heard Island Predator Prey Integrated Ecosystem Study (HIPPIES) was completed in 2010. Papers were published in a special issue from the International Science Symposium on the Kerguelen Plateau in Concarneau, France. Formal publications were released in late 2011 providing a great overview of the current knowledge of the ecosystem, food webs and the latest development on ecosystem approach to managing fisheries at HIMI (Casper *et al.* 2010; Staniland *et al.* 2010; Van Wijk *et al.* 2010). One of the largest Marine Protected Areas in the world exists in the HIMI region. The Marine Reserve incorporates over 39% of all waters shallower than 1,000 metres in the HIMI EEZ. The Marine Reserve incorporates over 39% of all waters shallower than 1,000 meters in the HIMI EEZ where fishing is prohibited. The HIMI toothfish Fishery is managed in accordance with the requirements of CCAMLR for precautionary ecosystem-based management of fisheries. In addition, the fishery has been operating for 20 years, with no major ongoing impacts documented on the system. Based on this management system and the operating evidence, it is highly unlikely that the fishery will cause serious or irreversible harm to the ecosystem. A broad scale ecosystem model for quantifying and assessing Southern Ocean habitats, species and foodwebs is in development, under the Antarctic Climate and Ecosystem CRC with national and international collaborators. The geographical focus of ACE CRC's work is on the Indian and West Pacific Sectors of the Southern Ocean. In January 2016 one science voyage focused on the Kerguelen Axis with Heard Island at the northern end of the axis. The fishery clearly meets the 60 and 80 scoring guidepost. However, there are no completed directed investigations on ecosystem wide impacts that are required for a score of 100. However due to the published HIPPIES study and continuing work on an ecosystem model a score of 90 was warranted.		
References		Casper *et al.* 2010; Staniland *et al.* 2010; Van Wijk *et al.* 2010, de la Mare *et al.* 1998, Constable & Welsford 2011,		
OVERALL PERFORMANCE INDICATOR SCORE:				90

PI 2.5.1	The fishery does not cause serious or irreversible harm to the key elements of ecosystem structure and function	
CONDITION NUMBER (if relevant):		

PI 2.5.2 – UoC 1 Trawl

PI 2.5.2		There are measures in place to ensure the fishery does not pose a risk of serious or irreversible harm to ecosystem structure and function		
Scoring Issue		SG 60	SG 80	SG 100
a	Guidepost	There are measures in place, if necessary.	There is a partial strategy in place, if necessary.	There is a strategy that consists of a plan, in place.
	Met?	Y	Y	N
	Justification	The fishery operates under precautionary ecosystem-based principles. One of the three CCAMLR principles aims to maintain ecological relationships between the harvested, dependent and related species. Another principle is to minimize the risk of ecosystem changes that are not potentially reversible in 20-30 years. The harvest strategy is designed to meet stock management objectives and uses the precautionary approach. The HIMI region has one of the largest Marine Protected Areas in the world. The Marine Reserve incorporates over 39% of all waters shallower than 1,000 meters in the HIMI EEZ. The Reserve's area increased to 71,000 square kilometres in 2014 where fishing is prohibited (Welsford et al. 2014). However, there is no specific plan containing all elements of the strategy for all ecosystem impacts and, as such, the SG 100 is not met.		

PI 2.5.2		There are measures in place to ensure the fishery does not pose a risk of serious or irreversible harm to ecosystem structure and function		
b	Guidepost	The measures take into account potential impacts of the fishery on key elements of the ecosystem.	The partial strategy takes into account available information and is expected to restrain impacts of the fishery on the ecosystem so as to achieve the Ecosystem Outcome 80 level of performance.	The strategy, which consists of a plan, contains measures to address all main impacts of the fishery on the ecosystem, and at least some of these measures are in place. The plan and measures are based on well-understood functional relationships between the fishery and the Components and elements of the ecosystem. This plan provides for development of a full strategy that restrains impacts on the ecosystem to ensure the fishery does not cause serious or irreversible harm.
	Met?	Y	Y	N
	Justification	The ecosystem-based principles are based on specific studies of the fishery, using detailed analysis of fisheries independent data taking into account available information. These are expected to restrain impacts on prey species that are important in the ecosystem. The extensive Marine Reserve system with its recent extension is expected to protect all important vulnerable habitats and infauna. The SG 80 is met. There is no specific plan containing measures for all main ecosystem impacts in place and, as such, the SG 100 is not met.		
c	Guidepost	The measures are considered likely to work, based on plausible argument (e.g., general experience, theory or comparison with similar fisheries/ecosystems).	The partial strategy is considered likely to work, based on plausible argument (e.g., general experience, theory or comparison with similar fisheries/ecosystems).	The measures are considered likely to work based on prior experience, plausible argument or information directly from the fishery/ecosystems involved.
	Met?	Y	Y	Y

PI 2.5.2		There are measures in place to ensure the fishery does not pose a risk of serious or irreversible harm to ecosystem structure and function		
	Justification	Solid evidence has been provided to demonstrate that the strategy is being successfully implemented and is likely to achieve its objective. This is based on the fact that the fishery has not exceeded its catch limits as verified by 100% observer coverage at sea and unloading observer records, plus compliance with closed fishing areas within the Marine Reserve, also observer verified.. Therefore, the SG 100 is met.		
d	Guidepost		There is some evidence that the measures comprising the partial strategy are being implemented successfully.	There is evidence that the measures are being implemented successfully.
	Met?		Y	Y
	Justification	Based on the fact that the fishery has not exceeded its catch limits, verified by 100% observer coverage at sea and unloading observer records, there is good evidence that the strategy is being successfully implemented and meeting this scoring issue at the SG 100.		
References		Welsford et al. 2014		
OVERALL PERFORMANCE INDICATOR SCORE:				90
CONDITION NUMBER (if relevant):				

PI 2.5.2 – UoC2 Longline

PI 2.5.2		There are measures in place to ensure the fishery does not pose a risk of serious or irreversible harm to ecosystem structure and function		
Scoring Issue		SG 60	SG 80	SG 100
a	Guidepost	There are measures in place, if necessary.	There is a partial strategy in place, if necessary.	There is a strategy that consists of a plan, in place.
	Met?	Y	Y	N

PI 2.5.2		There are measures in place to ensure the fishery does not pose a risk of serious or irreversible harm to ecosystem structure and function		
	Justification	The fishery operates under precautionary ecosystem-based principles. One of the three CCAMLR principles aims to maintain ecological relationships between the harvested, dependent and related species. Another principle is to minimize the risk of ecosystem changes that are not potentially reversible in 20-30 years. The harvest strategy is designed to meet stock management objectives and uses the precautionary approach. The HIMI region has one of the largest Marine Protected Areas in the world. The Marine Reserve incorporates over 39% of all waters shallower than 1,000 meters in the HIMI EEZ. The Marine Reserve's area increased to 71,000 square kilometers in 2014 where fishing is prohibited (Welsford et al. 2014). However, there is no specific plan containing all elements of the strategy for all ecosystem impacts and, as such, the SG 100 is not met.		
b	Guidepost	The measures take into account potential impacts of the fishery on key elements of the ecosystem.	The partial strategy takes into account available information and is expected to restrain impacts of the fishery on the ecosystem so as to achieve the Ecosystem Outcome 80 level of performance.	The strategy, which consists of a plan, contains measures to address all main impacts of the fishery on the ecosystem, and at least some of these measures are in place. The plan and measures are based on well-understood functional relationships between the fishery and the Components and elements of the ecosystem. This plan provides for development of a full strategy that restrains impacts on the ecosystem to ensure the fishery does not cause serious or irreversible harm.
	Met?	Y	Y	N
	Justification	The ecosystem-based principles are based on specific studies of the fishery, using detailed analysis of fisheries independent data taking into account available information. These are expected to restrain impacts on prey species that are important in the ecosystem. The extensive Marine Reserve system with its recent extension is expected to protect all important vulnerable habitats and infauna. The SG 80 is met. There is no specific plan containing measures for all main ecosystem impacts in place and, as such, the SG 100 is not met.		

PI 2.5.2		There are measures in place to ensure the fishery does not pose a risk of serious or irreversible harm to ecosystem structure and function		
c	Guidepost	The measures are considered likely to work, based on plausible argument (e.g., general experience, theory or comparison with similar fisheries/ecosystems).	The partial strategy is considered likely to work, based on plausible argument (e.g., general experience, theory or comparison with similar fisheries/ecosystems).	The measures are considered likely to work based on prior experience, plausible argument or information directly from the fishery/ecosystems involved.
	Met?	Y	Y	Y
	Justification	Based on the fact that the fishery has not exceeded its catch limits, verified by 100% observer coverage at sea and unloading observer records, compliance verified by observers with closed fishing areas within the reserve, there is good evidence that the strategy is being successfully implemented and the strategy is likely to work and achieve its objective. Therefore, the SG 100 is met.		
d	Guidepost		There is some evidence that the measures comprising the partial strategy are being implemented successfully.	There is evidence that the measures are being implemented successfully.
	Met?		Y	Y
	Justification	Based on the fact that the fishery has not exceeded its catch limits, verified by 100% observer coverage at sea and unloading observer records, there is good evidence that the strategy is being successfully implemented meeting this scoring issue at the SG 100.		
References		Welsford et al. 2014		
OVERALL PERFORMANCE INDICATOR SCORE:				90
CONDITION NUMBER (if relevant):				

PI 2.5.3 – UoC1 - Trawl

PI 2.5.3		There is adequate knowledge of the impacts of the fishery on the ecosystem		
Scoring Issue		SG 60	SG 80	SG 100
a	**Guidepost**	Information is adequate to identify the key elements of the ecosystem (e.g., trophic structure and function, community composition, productivity pattern and biodiversity).	Information is adequate to broadly understand the key elements of the ecosystem.	
	Met?	Y	Y	
	Justification	The information on the impact of the fishery (i.e., biomass of icefish, bycatch species taken, habitat impact, trophic interactions) is of high quality and able to support the understanding of the consequences of the take and interactions. The SG 60 is met In addition, the SG 80 is met because the information is adequate to broadly understand the key elements of the ecosystem.		
b	**Guidepost**	Main impacts of the fishery on these key ecosystem elements can be inferred from existing information, and have not been investigated in detail.	Main impacts of the fishery on these key ecosystem elements can be inferred from existing information and some have been investigated in detail.	Main interactions between the fishery and these ecosystem elements can be inferred from existing information, and have been investigated.
	Met?	Y	Y	Y
	Justification	The main impacts on key ecosystem elements can be inferred and impacts on habitat types and predator prey relationships have been investigated in detail (Welsford *et al.* 2014; Casper *et al.* 2010). Therefore, this scoring issue has been met at the SG 100 level.		
c	**Guidepost**		The main functions of the Components (i.e., target, Bycatch, Retained and ETP species and Habitats) in the ecosystem are known.	The impacts of the fishery on target, Bycatch, Retained and ETP species are identified and the main functions of these Components in the ecosystem are understood.
	Met?		Y	Y

PI 2.5.3		There is adequate knowledge of the impacts of the fishery on the ecosystem		
	Justification	The impacts of the fishery on Target, Bycatch, Retained and ETP species are identified and the functions of these species in the ecosystem understood, meeting this issue at SG 100 level.		
d	Guidepost		Sufficient information is available on the impacts of the fishery on these Components to allow some of the main consequences for the ecosystem to be inferred.	Sufficient information is available on the impacts of the fishery on the Components and elements to allow the main consequences for the ecosystem to be inferred.
	Met?		Y	Y
	Justification	The information on the impact of the fishery (i.e. biomass of toothfish and bycatch species taken, fishing footprint and habitat types) is of high quality and able to support the understanding of the consequences of the take and interactions, meeting this issue at the SG 100 level.		
e	Guidepost		Sufficient data continue to be collected to detect any increase in risk level (e.g. due to changes in the outcome indicator scores or the operation of the fishery or the effectiveness of the measures).	Information is sufficient to support the development of strategies to manage ecosystem impacts.
	Met?		Y	Y
	Justification	Monitoring is ongoing, collecting sufficient data to allow managers to assess any changes in risk if there is adequate knowledge to place those impacts in context. Strategies to manage ecosystem impacts have been developed that are supported by sufficient information, meeting this issue at the SG 100 level.		
References		Welsford *et al.* 2014; Casper *et al.* 2010		
OVERALL PERFORMANCE INDICATOR SCORE:				**100**
CONDITION NUMBER (if relevant):				

PI 2.5.3 – UoC 2 -Longline

PI 2.5.3		There is adequate knowledge of the impacts of the fishery on the ecosystem		
Scoring Issue		SG 60	SG 80	SG 100
a	**Guidepost**	Information is adequate to identify the key elements of the ecosystem (e.g., trophic structure and function, community composition, productivity pattern and biodiversity).	Information is adequate to broadly understand the key elements of the ecosystem.	
	Met?	Y	Y	
	Justification	Information on fishery impacts (i.e., biomass of icefish, bycatch species taken, habitat impact, trophic interactions) are of high quality and able to support the understanding of the consequences of the take and interactions. The SG 60 is met In addition, the SG 80 is met because the information is adequate to broadly understand the key elements of the ecosystem.		
b	**Guidepost**	Main impacts of the fishery on these key ecosystem elements can be inferred from existing information, and have not been investigated in detail.	Main impacts of the fishery on these key ecosystem elements can be inferred from existing information and some have been investigated in detail.	Main interactions between the fishery and these ecosystem elements can be inferred from existing information, and have been investigated.
	Met?	Y	Y	Y
	Justification	The main impacts on key ecosystem elements can be inferred and impacts on habitat types and predator prey relationships have been investigated in detail (Welsford *et al.* 2014; Casper *et al.* 2010). Therefore, this scoring issue has been met at the SG 100 level.		
c	**Guidepost**		The main functions of the Components (i.e., target, Bycatch, Retained and ETP species and Habitats) in the ecosystem are known.	The impacts of the fishery on target, Bycatch, Retained and ETP species are identified and the main functions of these Components in the ecosystem are understood.

PI 2.5.3		There is adequate knowledge of the impacts of the fishery on the ecosystem		
	Met?		Y	Y
	Justification	The impacts of the fishery on Target, Bycatch, Retained and ETP species are identified and the functions of these species in the ecosystem understood, meeting this issue at SG 100 level.		
d	Guidepost		Sufficient information is available on the impacts of the fishery on these Components to allow some of the main consequences for the ecosystem to be inferred.	Sufficient information is available on the impacts of the fishery on the Components and elements to allow the main consequences for the ecosystem to be inferred.
	Met?		Y	Y
	Justification	The information on the impact of the fishery (i.e. biomass of toothfish and bycatch species taken, fishing footprint and habitat types) is of high quality and able to support the understanding of the consequences of the take and interactions, meeting this issue at the SG 100 level.		
e	Guidepost		Sufficient data continue to be collected to detect any increase in risk level (e.g. due to changes in the outcome indicator scores or the operation of the fishery or the effectiveness of the measures).	Information is sufficient to support the development of strategies to manage ecosystem impacts.
	Met?		Y	Y
	Justification	Monitoring is ongoing, collecting sufficient data to allow managers to assess any changes in risk if there is adequate knowledge to place those impacts in context. Strategies to manage ecosystem impacts have been developed that are supported by sufficient information, meeting this issue at the SG 100 level.		
References		Welsford *et al.* 2014; Casper *et al.* 2010		
OVERALL PERFORMANCE INDICATOR SCORE:				100

PI 2.5.3	There is adequate knowledge of the impacts of the fishery on the ecosystem	
CONDITION NUMBER (if relevant):		

Principle 3

The intent of Principle 3 is to ensure that there is an institutional and operational framework, appropriate to the size and scale of the fishery, for implementing Principles 1 and 2, that is capable of delivering sustainable fisheries in accordance with the outcomes articulated by Principles 1 and 2. The Assessment Tree structure divides the performance indicators into two categories: the first, 1) Governance and Policy, captures the broad, high-level context of the fishery management system within which the fishery under assessment is found, it has four PIs and the second, 2) Fishery Specific Management System, has five PIs, and focuses on the management system directly applied to the fishery undergoing assessment.

PI 3.1.1

PI 3.1.1		**The management system exists within an appropriate legal and/or customary framework which ensures that it:** • **Is capable of delivering sustainable fisheries in accordance with MSC Principles 1 and 2; and** • **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	**Guidepost**	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?	Y	Y	Y

	Justification	As a fishery within Australia's EEZ and within the Convention Area of CCAMLR, the HIMITF is managed by AFMA in cooperation with the ADD and in accordance with CCAMLR's conservation measures. The management system therefore comprises both the Australian domestic management regime and that of CCAMLR. The French Toothfish Fishery which abuts the HIMITF fish the same toothfish stock and is also in the CCAMLR Convention Area. As a result, management of the French Fishery is relevant to the assessment. The key pieces of legislation are the *Fisheries Administration Act 1991* and the *Fisheries Management Act 1991* (FMA). This legislation sets out AFMA's responsibilities in relation to the pursuit of ecological sustainable development which delivers management outcomes consistent with MSC principles 1 and 2. The main legislative instrument for management of the fishery is the *Heard Island and McDonald Islands Fishery Management Plan 2002*. The Plan is a statutory instrument established under the FMA. The explicit objectives of the Plan states that the exploitation of the resources of the fishery and related activities are to be conducted in a manner consistent with the principles of ecologically sustainable development. The French toothfish fishery is managed by the French state through the local Government office of the TAAF. The key legislative instrument for management of the French toothfish Fishery is the 2015 French Management Plan of the fishery in the French EEZ of the Kerguelen and Crozet Islands. Similarly, the first explicit objective of this Plan is to reconcile the long term conservation and sustainable exploitation of the fish resources in the French EEZ of the Kerguelen and Crozet Islands in line with the principles of ecological sustainable development for protection and conservation of the marine ecosystem. Australian national policies such as the Commonwealth Harvest Strategy Policy and the Commonwealth Policy on Fisheries Bycatch govern the actions of AFMA, which also ensure that the management outcomes are consistent with Principles 1 & 2. CCAMLR was established under the Convention for the Conservation of Antarctic Living Marine Resources. CCAMLR has been a leader in developing and implementing the Ecosystem Approach to Fisheries and the Precautionary Approach. Two central concepts have evolved to guide CCAMLR in carrying out its management responsibilities, namely: a. Management strives to follow a 'precautionary' approach. This means that CCAMLR collects the data it can, then weighs up the extent and effect of the uncertainties and gaps in such data before making a management decision. The approach aims to minimise the risk of long term adverse effects rather than delaying decisions until all necessary data are available. b. Management also follows an 'ecosystem' approach. Ideally, this takes into account all the delicate and complex relationships between organisms (of all sizes)

		and physical processes (such as currents and sea temperature) that constitute the Antarctic marine ecosystem (CCAMLR 2010). Australia is a member of CCAMLR and its obligations to CCAMLR are implemented under the *Antarctic Living Marine Resources Conservation Act 1981*. Australia's management of the HIMITF is consistent with CCAMLR requirements and exceeds these in some respects. France is a member of CCAMLR and its regulatory system for its sub-Antarctic Islands includes the measures adopted by France in response to CCAMLR decisions and, as set out in a decree, implements the French mainland system of fisheries management. As with all Commonwealth managed fisheries, the HIMITF is subject to assessment against the Guidelines for the Ecologically Sustainable Management of Fisheries under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). The processes for this external review have recently changed with a decision by the Government that the maximum period of accreditation of a fishery under the EPBC Act be extended from five to ten years for low-risk fisheries. The List of Exempt Native Species has recently been amended to include fish taken in the HIMITF, thereby extending export approval until October 2026. Other EPBC Act obligations include compliance with the threat abatement plan for seabirds. A Treaty between the Government of Australia and the Government of the French Republic on cooperation in the maritime areas adjacent to the French Southern and Antarctic Territories (TAAF), Heard Island and the McDonald Islands, which took effect in 2005, provides the basis for cooperation between Australia and France in relation to the HIMI Fishery. The objectives of the Treaty are to enhance cooperative surveillance and cooperative scientific research on marine living resources. In addition, the Agreement on Cooperative Enforcement of Fisheries Laws between the Government of Australia and the Government of the French Republic in the Maritime Areas Adjacent to the French Southern and Antarctic Territories, Heard Island and the McDonald Islands in 2007 which aims specifically to enhance cooperative enforcement of fisheries laws came into effect in January 2011. The agreement provides for joint Australian and French patrols to enforce each other's fishing laws in their respective EEZ's and territorial seas in the Southern Ocean. There is also a formal data sharing agreement between Australia and France that was signed in 2013. The management system for the HIMITF lies within a national legal system framework and a framework for cooperation with other parties, namely CCAMLR and French management, to deliver outcomes consistent with MSC Principles 1 and 2 (SG 60). Cooperation with other parties is not only organised and effective (SG 80) but the procedures governing this cooperation are binding, through legislation (SG 100). That is, SG 100 is met.

PI 3.1.1		**The management system exists within an appropriate legal and/or customary framework which ensures that it:** • **Is capable of delivering sustainable fisheries in accordance with MSC Principles 1 and 2; and** • **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.**		
b	**Guidepost**	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 fishery.	The management system incorporates or 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?	Y	Y	Y

	Justification	The Australian management system has well established mechanisms for administrative and judicial appeals of decisions taken in respect of the fishery. A person affected by a relevant decision made by AFMA who is dissatisfied with the decision may seek a reconsideration of that decision by AFMA. A relevant decision is defined in section 165(1) of the FMA. AFMA must within 45 days of receiving the request, reconsider the relevant decision and may make a decision in substitution of the relevant decision, whether on the same terms or not, or revoke the relevant decision. AFMA's decision on reconsideration is known as a reviewable decision. Where AFMA makes a reviewable decision, a person whose interests are affected by the decision may make an application to the Administrative Appeals Tribunal for a review of the decision. Depending on the nature of the decision, the applicant may also have the right to make an application to the Federal Court for judicial review of the decision under the *Administrative Decisions (Judicial Review) Act 1977* and/or the *Judiciary Act 1903*. These mechanisms have been used and tested extensively by AFMA, but their use has not been required in the HIMITF. AFMA advises fishers in writing of their appeal rights and the processes involved as a matter of course when, for example, alterations are made to their fishing concession conditions. In addition to these processes, the consultation and advisory processes established by AFMA provide mechanisms for the discussion and resolution of different perspectives on fisheries management issues by stakeholders. Similarly, disputes relating to management of the French fishery can be taken up through the French legal system, which prevails and has a specific administrative legal system to resolve disputes that individuals or companies may have with government decisions (see harmonisation Table 9 for more information). Disputes within CCAMLR are dealt with through the consensus rule set up in Article XII of the Convention for matters of substance. The performance review of CCAMLR noted that consensus decision-making has worked for CCAMLR over a long period of time (CCAMLR 2008b). CCAMLR's dispute resolution procedures are established by Article XXV of the Convention. To date the dispute settlement mechanisms have not been utilized. The Performance Review recommended some improvements to these procedures, but CCAMLR has agreed to defer acting upon this recommendation. The management system of the HIMITF is subject by law to mechanisms for the resolution of legal disputes. There is a mechanism in place for the resolution of disputes within the management system (SG 60). The mechanism in respect of the Australian component of the system is transparent (SG 80) and has been tested and proven to be effective (SG 100). While CCAMLR's dispute resolution

PI 3.1.1		**The management system exists within an appropriate legal and/or customary framework which ensures that it:** • **Is capable of delivering sustainable fisheries in accordance with MSC Principles 1 and 2; and** • **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.**		
		mechanism remains untested and some parts of the mechanism have been identified as requiring improvement, this does not impact directly on the delivery of Principle 1 and Principle 2 outcomes in the unit of assessment. It is therefore considered that the HIMITF meets the requirements of SG 100.		
d	**Guidepost**	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?	Y	Y	Y

PI 3.1.1		**The management system exists within an appropriate legal and/or customary framework which ensures that it:** • **Is capable of delivering sustainable fisheries in accordance with MSC Principles 1 and 2; and** • **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.**
	Justification	Operators in the HIMITF are granted access to the fishery through the allocation of SFRs. SFRs are granted under the FMA (Sections 21 and 31) where statutory management plans determined under Section 17 of the Act (such as the HIMI Management Plan), exist for a Commonwealth managed fishery. Statutory fishing rights can be permanently transferred to another person or company, or leased. When SFRs are granted or purchased a Certificate of Owned Statutory Fishing Rights is issued. This specifies the type and number of SFRs owned. SFRs do not expire, they remain in force for the life of the Management Plan or until they are cancelled, surrendered or otherwise cease to have effect under the Act. AFMA maintains a register of owned SFRs on its website. In 1992, the High Court of Australia recognised native title, i.e. that indigenous Australians may continue to hold native title and to be uniquely connected to the land. The Commonwealth *Native Title Act 1993* provides the means by which the Australian legal system recognises the traditional rights and interests of Aboriginal and Torres Strait Islander people. This ensures access to fish and shellfish resources for people who depend on fishing for their food. There are no native title claims to the area of waters in which the fishery operates. There is no known occupation of Heard Island and McDonald Islands by Australia's indigenous population. Given the remoteness of the island from the mainland there is little likelihood that customary fishing was conducted in the waters around the island and even less likely that it was conducted in the area of waters of the HIMITF (i.e. outside 13 nm around the island). The management system respects (SG 60), observes (SG 80) and formally commits (SG 100) 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.
References		[List any references here]
OVERALL PERFORMANCE INDICATOR SCORE:		**100**
CONDITION NUMBER (if relevant):		

PI 3.1.2

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	**Guidepost**	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?	Y	Y	Y
		The organizations and bodies involved in the Australian management system include the AFMA Commission, AFMA Management, SouthMAC, SARAG, AAD and CCAMLR (including the Consultative Forum and associated committees). The responsibilities for administration of legislation by AFMA and the AAD, are prescribed in Administrative Arrangements Orders made by Australia's Governor General. AAD leads Australia's participation in CCAMLR with Australia's position on CCAMLR matters determined through consultation within the Interdepartmental Committee (which includes AAD, AFMA, the Department of Agriculture, the Department of Foreign Affairs and Trade and the Attorney General's Department) and the CCAMLR Consultative Forum. AFMA is responsible for implementation of measures agreed by CCAMLR and it achieves this through the inclusion of CCAMLR CMs in the Fisheries Management (Heard Island and McDonald Islands Fishery) Regulations 2002 or as conditions on the SFRs allocated to participants in the HIMITF. The functions of AFMA are set out in section 7 of the *Fisheries Administration Act 1991*. The functions and roles of the MAC and RAG are defined in the *Fisheries Management Act 1991* and in AFMA policy documents (AFMA2015, AFMA 2014e). The functions of the CCAMLR SC are established by the CCAMLR Convention and CCAMLR has established clear terms of reference for the WGFSA and the WGEMM. The WGIMAF meets as required to deal with specific issues identified by the SC.		

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		
	Justification	The key agencies involved in management of the French system are the Terres Australes et Antarctiques Francaises (TAAF), attached to the Ministry of Overseas Territories, and the Museum National d'Histoire Naturelle. The roles and responsibilities of these groups in the management of the French toothfish fishery on Kerguelen are explicitly defined in the management plan and well understood (see also Table 9). A TAAF consultative committee, the Comité de Pilotage, (Committee on Good Fishing Practice) comprises representatives from each of the fishing companies licensed to fish in the fishery and TAAF fisheries inspectors. This committee provides a mechanism for discussion of measures designed to ensure a sustainable ecosystem and fishery. While there are, however, no formal mechanisms for engagement of NGOs in management of the fishery, NGOs have been actively engaged with the scientists and industry in relation to development of seabird bycatch mitigation measures. In addition, the interaction of the French fishery with the CCAMLR system provides opportunities for engagement by other interested parties. The organisations and individuals involved in the management process have been identified. Functions, roles and responsibilities are generally understood (SG 60) and have been explicitly defined (SG 80) for all areas of responsibility and interaction (SG 100).		
b	Guidepost	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?	Y	Y	Y

	Justification	The Australian and CCAMLR management systems include extensive and comprehensive consultation processes. The Australia management system includes statutory requirements for public consultation in relation to matters such as development and amendment of management plans for Commonwealth fisheries. These requirements were met in the development and subsequent amendments of the HIMI Management Plan. AFMA also invites public comment on policy documents undergoing development or re-development. Other public comment opportunities include AFMA position papers regarding significant management issues such as recommended TAC settings, which are placed on the website and open to all interested parties for comment. A key characteristic of the AFMA management system is the partnership approach. This approach is operationalised mainly through the operations of MACs and RAGs that report to AFMA management and the AFMA Commission. These bodies obtain relevant information from scientists, economists, managers, industry and conservation groups that is used to develop advice to the Commission. They meet regularly and records of their meetings, including consideration of information obtained, are made publicly available on the AFMA web site. The Chairs summary from AFMA Commission meetings is also publicly available on the website. Decisions of the AFMA Commission are published regularly through the AFMA Update which is distributed to interested stakeholders and available on the AFMA website. Some information is provided on the issues considered in reaching these decisions. In the case of the HIMITF, consultative opportunities through SouthMAC and SARAG, are complemented by the CCAMLR consultative forum, the CCAMLR interdepartmental committee, the Fisheries Review Group and the annual stakeholder workshop. Each of these groups provides opportunities for the contribution of local knowledge, particularly by industry and conservation groups. CCAMLR and its subsidiary bodies meet annually and reports of these meetings and decisions arising, specifically through CCAMLR CMs, are published on the CCAMLR web site. These reports include consideration of the information obtained and describe how that information is used in decision making. Some information on the web site is available only to CCAMLR members. CCAMLR has transparent and consultative processes and is receptive to participation of observers at meetings of the Commission and the Scientific Committee and allows observers to provide documents to the Commission. In the French management system, the final decision on the level of the TAC, as well as other regulations, is the responsibility of the head of the TAAF, taking into account the scientific advice of the MNHN, as well as the views of the ministries of fisheries, overseas countries and territories and of foreign affairs. TAAF decisions are also informed by a Consultative Council that includes scientists and other

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		
		persons nominated by the various ministries that meets twice a year. There is also extensive scientific cooperation between Australia, France and New Zealand for the development of stock assessment models. The management system obtains relevant information from the main affected parties (SG 60). The opportunities available for consultation demonstrate that the management system regularly seek and accept relevant information, including local knowledge, and reports available demonstrate consideration of the information obtained (SG 80). From these reports, it is also possible to determine how or if the information available has been used (SG 100). As such, SG 100 is met.		
c	**Guidepost**		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?		Y	Y

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**
	Justification	AFMA engages with stakeholder groups through a variety of avenues, including management advisory committees, website information, workshops, liaison officers, port visits, newsletters, *AFMA Update* and direct mail across all major Commonwealth fisheries. These mechanisms provide an important advisory function and maintain an open dialogue between AFMA and those with an interest in the management of the fisheries. The CCAMLR Consultative Forum, including government agencies, industry and non-government conservation agencies meets three times each year. Outcomes of the annual CCAMLR meeting are discussed with stakeholders and SouthMAC prior to development of advice to AFMA. South MAC is comprised of representatives from the fishing industry, the conservation community, the research sector, AFMA and AAD and representatives from industry, AAD, CSIRO, and AFMA are on SARAG. In addition to the formal consultative mechanisms provided by the MAC and RAG ad hoc meetings between industry and AAD and AFMA are conducted as required and an annual workshop is held for scientists, managers, policy makers, scientific observers and industry participants, including skippers, to provide a forum for informal exchange of information. Bi-monthly fisheries review meetings are also held to monitor and operationalise the fisheries research plan. The 2010 research workshop between Australia and France and the planned Australian/France Kerguelen Plateau Symposium in November 2017 provide opportunities for interested people to be involved. There are extensive consultation processes in place through the CCAMLR system and the Australian domestic management regime. These processes provide opportunities for all interested and affected parties to be involved (SG 80). The processes available encourage and facilitate effective engagement by these parties (SG 100 is met)
References		AFMA 2014e; AFMA 2015
OVERALL PERFORMANCE INDICATOR SCORE:		**100**
CONDITION NUMBER (if relevant):		

PI 3.1.3

PI 3.1.3		The management policy has clear long-term objectives to guide decision-making that are consistent with MSC Principles and Criteria, and incorporates the precautionary approach		
Scoring Issue		SG 60	SG 80	SG 100
a	**Guidepost**	Long-term objectives to guide decision-making, consistent with the MSC Principles and Criteria and the precautionary approach, are implicit within management policy	Clear long-term objectives that guide decision-making, consistent with MSC Principles and Criteria and the precautionary approach are explicit within management policy.	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.
	Met?	Y	Y	Y

	Justification	Part 3 of the Fisheries Management Act 1991 states: (1) The following objectives must be pursued by the Minister in the administration of this Act and by AFMA in the performance of its functions: (a) implementing efficient and cost-effective fisheries management on behalf of the Commonwealth; and (b) ensuring that the exploitation of fisheries resources and the carrying on of any related activities are conducted in a manner consistent with the principles of ecologically sustainable development (which include the exercise of the precautionary principle), in particular the need to have regard to the impact of fishing activities on non-target species and the long term sustainability of the marine environment; and (c) maximising the net economic returns to the Australian community from the management of Australian fisheries; and (d) ensuring accountability to the fishing industry and to the Australian community in AFMA's management of fisheries resources; and (e) achieving government targets in relation to the recovery of the costs of AFMA. (2) In addition to the objectives mentioned in subsection (1), or in section 78 of this Act, the Minister, AFMA and Joint Authorities are to have regard to the objectives of: (a) ensuring, through proper conservation and management measures, that the living resources of the AFZ are not endangered by over-exploitation; and (b) achieving the optimum utilisation of the living resources of the AFZ; and (c) ensuring that conservation and management measures in the AFZ and the high seas implement Australia's obligations under international agreements that deal with fish stocks; and (d) to the extent that Australia has obligations: (i) under international law; or (ii) under the Compliance Agreement or any other international agreement; in relation to fishing activities by Australian-flagged boats on the high seas that are additional to the obligations referred to in paragraph (c)—ensuring that Australia implements those first-mentioned obligations; but must ensure, as far as practicable, that measures adopted in pursuit of those objectives must not be inconsistent with the preservation, conservation and protection of all species of whales. Article II of the Convention for the Conservation of Antarctic Marine Living Resources specifies the long-term objectives of the Convention as follows: 1. The objective of this Convention is the conservation of Antarctic marine living resources. 2. For the purposes of this Convention, the term 'conservation' includes rational use. 3. Any harvesting and associated activities in the area to which this Convention applies shall be conducted in accordance with the provisions of this Convention and with the following principles of conservation: a. prevention of decrease in the size of any harvested population to levels below those which ensure its stable recruitment. For this purpose its size should not be

PI 3.1.3		The management policy has clear long-term objectives to guide decision-making that are consistent with MSC Principles and Criteria, and incorporates the precautionary approach
		allowed to fall below a level close to that which ensures the greatest net annual increment; b. maintenance of the ecological relationships between harvested, dependent and related populations of Antarctic marine living resources and the restoration of depleted populations to the levels defined in sub-paragraph (a) above; and c. prevention of changes or minimisation of the risk of changes in the marine ecosystem which are not potentially reversible over two or three decades, taking into account the state of available knowledge of the direct and indirect impact of harvesting, the effect of the introduction of alien species, the effects of associated activities on the marine ecosystem and of the effects of environmental changes, with the aim of making possible the sustained conservation of Antarctic marine living resources. The French toothfish fishery is effectively a signatory to CCAMLR's long-term objectives listed above. In addition, the EU Marine Strategy Framework Directive has been transposed into the French Environmental Code that sets out two priorities: an integrated management of the sea and coastal areas, and the protection and conservation of the marine environment which is consistent with MSC principles and criteria. The French decree 2009-1039 from the Ministry of Agriculture and Fisheries also sets out the objectives for management of fisheries in the TAAF zone. These objectives encompass both ecosystem-based and precautionary management. The long-term objectives of all elements of the management system for the fishery are consistent with MSC principles and Criteria and the precautionary approach (SG 60), are explicit (SG 80) within, and required by (SG 100) management policy. As such, SG 100 is met.
References		Fisheries Management Act 1991 available at: https://www.legislation.gov.au/Series/C2004A04237 Convention for the Conservation of Antarctic Marine Living Resources available at https://www.ccamlr.org/en/organisation/camlr-convention-text#II France, 2009. décret n° 2009-1039 of 26 August 2009 http://www.taaf.fr/IMG/pdf/decret_2009-1039.pdf; http://www.outre-mer.gouv.fr/?les-taaf.html and http://www.outre-mer.gouv.fr/?les-relations-internationales-et-la-cooperation-regionale.html
OVERALL PERFORMANCE INDICATOR SCORE:		**100**
CONDITION NUMBER (if relevant):		

PI 3.1.4

PI 3.1.4		The management system provides economic and social incentives for sustainable fishing and does not operate with subsidies that contribute to unsustainable fishing		
Scoring Issue		SG 60	SG 80	SG 100
a	**Guidepost**	The management system provides for incentives that are consistent with achieving the outcomes expressed by MSC Principles 1 and 2.	The management system provides for incentives that are consistent with achieving the outcomes expressed by MSC Principles 1 and 2, and seeks to ensure that perverse incentives do not arise.	The management system provides for incentives that are consistent with achieving the outcomes expressed by MSC Principles 1 and 2, and explicitly considers incentives in a regular review of management policy or procedures to ensure they do not contribute to unsustainable fishing practices.
	Met?	Y	Y	Partial
		AFMA allocates SFRs, in the form of ITQs under the HIMITF Management Plan. SFRs provide security of access to fishers, promote stewardship of the resource and provide a platform for the maximisation of economic efficiency of fishing operations. ITQs are the Australian Government's preferred fisheries management mechanism, a policy position that was reviewed and reiterated in 2003 (Department of Agriculture, Fisheries and Forestry 2003). The annual TAC and allocation of ITQs provide positive incentives for sustainable fishing of the target stock. Management of broader ecosystem impacts is applied through conditions placed on SFRs that reflect the CCAMLR Conservation Measures. The sanctions in place for a breach of conditions, such as suspension or cancellation of a fishing concession, provides effective deterrence against unsustainable fishing practices.		

PI 3.1.4		The management system provides economic and social incentives for sustainable fishing and does not operate with subsidies that contribute to unsustainable fishing
	Justification	Management costs are recovered from operators as required by the Australian Government's Cost Recovery Policy (Department of Finance and Deregulation, 2005). Costs are recovered in line with AFMA's Cost Recovery Impact Statement 2010 (CRIS) (AFMA 2010) which specifies the attribution of costs of management, research and surveillance between the fishing industry and government. The CRIS specifies that industry contribute 100% of costs associated with management of domestic commercial fisheries, including costs associated: with management advisory committees; data collection and management (data management, logbooks, observers and compliance data); and licensing registration and revenue collection. Industry pays 80% of the costs associated with RAGs and the Government contributes the remainder. Government contributes 100% of the costs associated with defining international treaty standards and developing regulation, policy support and domestic and foreign fisheries compliance and enforcement. Costs associated with research are shared between the industry and the government depending on the flow of benefits to the industry and the broader community. Some of the costs associated with the HIMITF are therefore subsidised by the Government. These subsidies can be considered to provide perverse incentives to fishing operations although the robust management system is considered to counter any adverse effects of these subsidies and to ensure that unsustainable fishing practices are avoided. The HIMITF Management Plan requires that "AFMA and South MAC must, at least once every 5 years, assess the effectiveness of the Plan including the measures taken to achieve the objectives of this Management Plan by reference to the performance criteria mentioned in subsection (1)". This review is reported to the AFMA Commission. The management arrangements are reviewed for ecologically sustainability under the EPBC Act and ABARES reports on the economic efficiency of the HIMITF annually (Patterson and Savage 2016). The management system is subject to regular internal and external review, which ensures that it is not encouraging unsustainable fishing practices. However, these reviews do not explicitly consider incentives. As a result, the fishery is considered to meet the requirements of SG60 and SG80 but only the first part of SG100.
References		AFMA (2010), DAFF (2003), Department of Finance and Deregulation (2005), Patterson and Savage (2016)
OVERALL PERFORMANCE INDICATOR SCORE:		**90**
CONDITION NUMBER (if relevant):		

PI 3.2.1

PI 3.2.1		The fishery 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	**Guidepost**	Objectives, which are broadly consistent with achieving the outcomes expressed by MSC's Principles 1 and 2, are implicit within the fishery's 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's 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's management system.
	Met?	Y	Y	Partial
		The fishery specific long term objectives are specified in the HIMITF Management Plan and are: (a) to manage the fishery efficiently and cost-effectively for the Commonwealth; and b) to ensure that the exploitation of the resources of the fishery and the carrying on of any related activities are conducted in a manner consistent with the principles of ecologically sustainable development and the exercise of the precautionary principle, and in particular, the need to have regard to the impact of fishing activities on non-target species and the long-term sustainability of the marine environment; and (c) to maximise economic efficiency in the exploitation of the resources of the fishery; and (d) to ensure AFMA's accountability to the fishing industry and to the Australian community in management of the resources of the fishery; and (e) to reach Government targets for the recovery of the costs of AFMA in relation to the fishery; and (f) to ensure, through proper conservation and management, that the living resources of the AFZ are not endangered by over-exploitation; and (g) to achieve the best use of the living resources of the AFZ; and (h) to ensure that conservation and management measures in the fishery implement Australia's obligations under international agreements that deal with fish stocks, and other relevant international agreements.		

PI 3.2.1		The fishery has clear, specific objectives designed to achieve the outcomes expressed by MSC's Principles 1 and 2
	Justification	On the basis that there is known to be a low level of mixing between the target stock and the population exploited by the French fishery, specific objectives for the French fishery are also relevant. Following publication of the French toothfish Fishery Management Plan, the short and long term objectives are now explicit and are synonymous with those in the HIMI management plan including the principles of ecological sustainable development. The short term objectives for the fishery are not specified as explicitly as the long term objectives but are well defined and measureable. The objectives for the target stock are reflected in the application of the CCMALR control rules which requires that stocks are maintained at a proportion of their pre-exploitation abundance such that: • escapement of the spawning stock is sufficient to avoid the likelihood of declining recruitment; and • abundance under exploitation must maintain a sufficient resource for the needs of dependent species (usually predators). These objectives are reflected in the decision rules for the fishery (see discussion under performance indicators 1.2.1 and 1.2.2) and are well defined and measureable. For non-target species (e.g. Unicorn icefish, grey rockcod) and species groups (e.g. skates and rays) there are TACs in place. This short-term management objective is explicitly prescribed in the *Heard Island and McDonald Islands Fishery Total Allowable Catch Determination 2016* and is measureable. AFMA's 5 year Antarctic Fisheries Strategic Research Plan contains explicit and measureable objectives which are demonstrably consistent with achieving the outcomes expressed by MSC's Principles 1 and 2. The short and long-term objectives for the fishery are consistent with achieving the outcomes expressed by MSC Principles 1 and 2 (SG 60 and 80). These objectives are explicit in the management system (SG 80). The long-term objectives are well-defined and measurable, however, this is not the case for all the short-term objectives, so SG 100 is only partially met. The short-term objectives as they relate to the CCMALR control rules should be clearly identifiable and objectives for the management of habitats, would improve the score against this indicator.
References		AFMA (2011)

OVERALL PERFORMANCE INDICATOR SCORE:	**90**
CONDITION NUMBER (if relevant):	

PI 3.2.2

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 under assessment.		
Scoring Issue		SG 60	SG 80	SG 100
a	**Guidepost**	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?	Y	Y	
	Justification	AFMA is required to pursue the objectives in the *Fisheries Management Act 1991* which are also reflected in the HIMITF Management Plan. These include ensuring that fishing is consistent with ecologically sustainable development, maximising the net economic returns to the Australian community and optimal utilisation of the living resources of the Australian Fishing Zone. AFMA must, by law, make science-based decisions. AFMA consults with and seeks advice from South MAC and SARAG whose membership includes a range of stakeholders such as scientists, commercial fishers and conservation representatives. South MAC and SARAG's advice is formed taking into account the decisions of CCAMLR on issues such as TAC setting and other relevant Conservation Measures. While AFMA takes their views into account it is ultimately the independent AFMA Commission that makes decisions to best pursue AFMA's objectives. There are decision-making processes in place that result in measures and strategies to achieve fishery-specific objectives (SG 60). These processes are well established (SG 80 is met).		
b	**Guidepost**	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.

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 under assessment.		
	Met?	Y	Y	Y
	Justification	The AFMA Commission's decisions are made on a timely basis and the Chair's summary is provided on the AFMA website. Agendas and minutes from the RAG and MAC meetings are also placed on AFMA's website in a timely manner to ensure the issues identified are transparent. The capacity of the HIMITF management system to respond to issues arising from research, monitoring, evaluation and consultation in a transparent manner has been demonstrated by the setting of TACs in response to the findings of the stock assessment and consistent with the harvest controls rules. Outcomes of monitoring of interactions with ETP species are reported quarterly on the AFMA web site. The stock assessment and basis for setting the annual TAC are available from both the CCAMLR and the AFMA websites. The audit team noted some delays in uploading some information onto AFMA's website (e.g. the current strategic research plan), however, did not identify any issues arising from research, monitoring, evaluation and consultation where the management system had failed to respond. As a result, the audit team concluded that the requirements of SG 60, SG 80 and SG 100 were met.		
c	**Guidepost**		Decision-making processes use the precautionary approach and are based on best available information.	
	Met?		Y	

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 under assessment.		
	Justification	The precautionary approach is a central component of AFMA's and the HIMITF's management objectives as prescribed in the FMA. The FMA uses the following definition of the precautionary principle: Where there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation. In the application of the precautionary principle, public and private decisions should be guided by (i) careful evaluation to avoid, wherever practicable, serious or irreversible damage to the environment; and (ii) an assessment of the risk-weighted consequences of various options. As noted above, AFMA's management decisions must be consistent with the objectives in the FMA including the application of the precautionary principle. AFMA's decision-making processes are well established in all components of the management system. Those processes require the application of the precautionary principle and the nature of the processes, as described previously, ensures that the best available information is used. Fisheries Administration Paper 12 outlines the key principles that are to be observed in relation to the respective committees/groups within AFMAs decision-making framework. One of the principles is that "advice will be evidence based and use the best available scientific information." Another principle is that "AFMA seeks, through its scientific processes and committees/groups, to obtain the best quality information and advice" and that the "scientific advisory and reporting processes will be a transparent and open process." Fisheries Management paper 1 states that the role of the research member of the MAC is to provide advice using the latest scientific developments of relevance to the fishery. Decision-making processes use the precautionary approach and are based on best available information (SG 80 is met).		
d	Guidepost	Some information on fishery performance and management action is generally available on request to stakeholders.	Information on fishery 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 fishery 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?	Y	Y	Y

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 under assessment.		
	Justification	Formal reporting to all interested stakeholders on the HIMITF's performance and management actions is provided through mechanisms including publicly available: • AFMA Annual Report • Minutes of South MAC and SARAG; • Outcomes of AFMA Commission meetings • Reports of CCAMLR and its subsidiary bodies • Stock assessments and ecological risk management reports • Annual status reports conducted by ABARES • 5-yearly submissions to the Department of the Environment and Energy for consideration against the Guidelines for Ecologically Sustainable Management of Fisheries. (AFMA 2010) In addition, reporting on performance and management is conducted through stakeholder workshops and fishery review meetings. Taken together these mechanisms provide comprehensive information on the fishery's performance and management actions and describe how the management system responded to findings and relevant recommendations emerging from research, monitoring, evaluation and review. The requirements of SG 60, SG 80 and SG 100 are met.		
e	Guidepost	Although the management authority or fishery may be subject to continuing court challenges, it is not indicating a disrespect or defiance of the law by repeatedly violating the same law or regulation necessary for the sustainability for the fishery.	The management system or fishery is attempting to comply in a timely fashion with judicial decisions arising from any legal challenges.	The management system or fishery acts proactively to avoid legal disputes or rapidly implements judicial decisions arising from legal challenges.
	Met?	Y	Y	Y

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 under assessment.**
	Justification	The management system for the HIMITF is not subject to continuing court challenges and there are no legal disputes or judicial decisions arising from legal challenges that apply to the fishery. The consultative and participatory characteristics of the management system act to avoid legal disputes by engendering a strong understanding of management and a strong sense of stewardship by operators. The transparent and inclusive nature of management decision making minimizes the likelihood of legal disputes. As outlined in assessment of PI 3.1.1 the overarching management system includes comprehensive and proven dispute resolution mechanisms which would be applied if any legal disputes arose in the HIMITF. It is considered that the management system acts proactively to avoid disputes and that mechanisms exist to respond and comply with judicial decisions should that be necessary. The requirements of SG 60, SG 80 and SG 100 are met.
References		AFMA (2010b) Annual Status Report for DoEE http://www.afma.gov.au/wp-content/uploads/2010/06/Macquarie-Island-Toothfish-Fishery-Annual-Status-Report-2010.pdf
OVERALL PERFORMANCE INDICATOR SCORE:		**100**
CONDITION NUMBER (if relevant):		

PI 3.2.3

PI 3.2.3		Monitoring, control and surveillance mechanisms ensure the fishery's management measures are enforced and complied with		
Scoring Issue		SG 60	SG 80	SG 100
a	**Guidepost**	Monitoring, control and surveillance mechanisms exist, are implemented in the fishery under assessment and there is a reasonable expectation that they are effective.	A monitoring, control and surveillance system has been implemented in the fishery under assessment 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 under assessment and has demonstrated a consistent ability to enforce relevant management measures, strategies and/or rules.
	Met?	Y	Y	Y
		AFMA's National Compliance Operations and Enforcement Policy aims to 'Effectively deter illegal fishing in Commonwealth fisheries and the Australian Fishing Zone'. In order to achieve this aim, AFMA is continuing its risk based compliance and enforcement program in 2016–17. The program will consist of four major components; 1. Communication and Education, 2. General Deterrence, 3. Targeted Risk and 4. Maintenance (AFMA 2016a). AFMA conducts compliance risk assessments biennially and the fishery specific risks are ranked. Any issues identified through this process are relayed to industry to provide them with the opportunity to correct particular practices to ensure compliance. No compliance risks specific to the HIMITF have been identified. The monitoring, control and surveillance system in place in the HIMITF comprises: • An integrated Computerised VMS and satellite surveilllance; • A requirement to carry two observers (at least one of which must be an AFMA observer and one may be a data collection officer engaged by the industry) primarily for biological and data collection purposes, but these scientific observers also detect any instances of non-compliance with management arrangements such as closed areas, minimum size limits, bycatch limits and collection of data; • Both observers collect the same data, although the AFMA observer is the lead observer and prepares the observer reports. The AFMA observer provides instruction to the data collection officer on permit conditions, observations and supplementary instructions once on-board; • The assessment team noted that the observer arrangements in the HIMITF exceed the CCAMLR requirements and provide for significantly enhanced monitoring activity; • In port monitoring of all unloads in Australian ports by an AFMA authorised officer to ensure compliance with catch limits;		

PI 3.2.3		Monitoring, control and surveillance mechanisms ensure the fishery's management measures are enforced and complied with
	Justification	• Completion of CCAMLR Catch Documentation Scheme (CDS) paperwork for unloading and export of all Toothfish product; and, • Completion of shot-by-shot daily logbooks and submission of that data to AFMA, and AAD. The "Agreement on Cooperative Enforcement of Fisheries Laws between the Government of Australia and the Government of the French Republic in the Maritime Areas Adjacent to the French Southern and Antarctic Territories, Heard Island and the McDonald Islands" which aims specifically to enhance cooperative enforcement of fisheries laws came into effect in January 2011. The agreement provides for joint Australian and French patrols to enforce each other's fishing laws in their respective EEZ's and territorial seas in the Southern Ocean. Australia maintains a surveillance presence in the region to combat the threat of IUU fishing. The Australian Customs and Border Protection (ACBP) conducted a 42 day patrol in the Southern Ocean in April and May 2015. The ACBP "remains committed to collaborating with AFMA and international partners to detect, deter and disrupt IUU fishing vessels operating in defiance of international conventions" (ACBP, 2015). The Coalition of Legal Toothfish Operators organisation also plays an important role in preventing IUU fishing in the Southern Ocean. The high level of observer coverage provides a high degree of confidence that fishers comply with the management measures and this is verified through observer reports. The assessment team was advised that there have been no infringement notices, warnings issued or prosecutions in relation to operations in the HIMITF since the original assessment in 2012. Each year AFMA provides an estimate of IUU fishing in the HIMI EEZ to CCAMLR. This year AFMA reported to CCAMLR that no IUU vessels were detected in the HIMI EEZ in the 2015-2016 fishing. This estimate remains unchanged from the previous five fishing seasons. This estimate took into account all available information, including the results of a satellite imagery project conducted by the CCAMLR Secretariat, in collaboration with France, during 2015/2016. The implementation of CCAMLR's CDS has greatly improved the detection of IUU fishing for toothfish. CCAMLR also maintains an IUU vessel list with reports of vessel sightings from members. There is a comprehensive monitoring, control and surveillance system in place for both domestic and IUU foreign operations. The evidence available indicates that the system has demonstrated a consistent ability to enforce relevant management measures, strategies and/or rules. The requirements of SG 60, SG 80 and SG 100 are met.

PI 3.2.3		Monitoring, control and surveillance mechanisms ensure the fishery's management measures are enforced and complied with		
b	Guidepost	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?	Y	Y	Y
	Justification	The FMA provides for penalties and sanctions in the event that fishers do not comply with the management measures in the fishery. The sanctions can take the form of penalty points, exclusion from fishing for a specified period, suspension or cancellation of the fishing concession, forfeiture of the vessel, net, equipment and fish on board and the proceeds of the sale of any such fish. The high level of compliance in the HIMIF is, in the audit team's view, indicative in part of the effective deterrence provided by the sanctions available. While there are no known infringements in relation to the HIMITF, there is evidence that AFMA consistently applies sanctions in other fisheries under its control. AFMA has decision matrices for offences as endorsed by the Operational Management Committee. These matrices help ensure consistency in AFMA's approach to compliance action. Sanctions to deal with non-compliance exist (SG 60 is met) and the evidence available indicates that these are consistently applied (SG 80 is met) and that they demonstrably provide effective deterrence (SG 100 is met).		
c	Guidepost	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?	Y	Y	Y

PI 3.2.3		**Monitoring, control and surveillance mechanisms ensure the fishery's management measures are enforced and complied with**		
	Justification	Managers and industry are confident that there is good compliance with the management systems and the available evidence (such as observer reports) supports this. The industry has an excellent record of participation in the collection and submission of data and information relating to the HIMITF and the ecosystem in which it operates. The current Fisheries Assessment Plan (FAP) (AFMA 2016b), which is required under the HIMITF Management Plan, outlines the program of monitoring that will occur in the fishery during the 2016/17 and 2017/18 season. The FAP formalises how the monitoring responsibilities (tagging in particular) will be conducted and shared (or traded) between the holders of SFRs in the fishery. Operators have consistently contributed significantly to research through the provision of vessel time, an observer program, direct financial contributions and the expertise of crew. There is a high degree of confidence that fishers comply with the management system under assessment, including through collaboration with researchers and managers to provide information required for effective management of the fishery. All the requirements of SG 60, SG 80 and SG 100 are met.		
d	**Guidepost**		There is no evidence of systematic non-compliance.	
	Met?		Y	
	Justification	There is no evidence of systematic non-compliance in the fishery. This is supported by the 100% observer coverage requirement.		
References		AFMA (2016a) http://www.afma.gov.au/wp-content/uploads/2016/08/National-Compliance-and-Enforcement-Program-2016-17.pdf , AFMA (2016b), ACBP (2015)		
OVERALL PERFORMANCE INDICATOR SCORE:				**100**
CONDITION NUMBER (if relevant):				

PI 3.2.4

PI 3.2.4		The fishery has a research plan that addresses the information needs of management		
Scoring Issue		SG 60	SG 80	SG 100
a	**Guidepost**	Research is undertaken, as required, to achieve the objectives consistent with MSC's Principles 1 and 2.	A research plan provides the management system with a strategic approach to research and reliable and timely information sufficient to achieve the objectives consistent with MSC's Principles 1 and 2.	A comprehensive research plan provides the management system with a coherent and strategic approach to research across P1, P2 and P3, and reliable and timely information sufficient to achieve the objectives consistent with MSC's Principles 1 and 2.
	Met?	Y	Y	N
		The HIMITF Management Plan requires that "cost-effective and high quality research is carried out in relation to the fishery in accordance with a 5-year strategic research plan, the results of which are: (i) included in the assessment process of the fishery; and (ii) published in the assessment reports of the fishery; and (iii) taken into consideration in determining the total allowable catch, and other management arrangements, in a fishing year." The current research plan for the HIMITF is the Antarctic Fisheries Strategic Research Plan 2014/15 – 2018/19 (AFMA 2015b). The plan is developed and reviewed annually by SARAG with input from the AAD. The plan reflects domestic fisheries priorities, CCAMLR requirements and recommendations made by the CCAMLR Scientific Committee. The plan provides for research to underpin stock assessment, collection of fishery and biological data and to assess ecological aspects of the fishery. The plan indicates that, given the current funding environment, it is possible that all projects may not be completed within the 5year timeframe. The AFMA Research Committee puts out an annual call for research applications addressing the priorities in the strategic research plan and applications are assessed for funding either from the AFMA Research Fund or the Fisheries Research and Development Corporation. The following projects relevant to the HIMITF are currently identified as being underway and funded under the Strategic Research Plan: • CCAMLR stock assessment • Spatial stock structure and movement dynamics • Development of management strategy evaluation models • Random stratified trawl samples • Collection of fisheries and biological data; and		

PI 3.2.4		The fishery has a research plan that addresses the information needs of management		
	Justification	• Ecological assessment of the fishery (monitoring by the observer program including bycatch identification and analysis) Other identified areas have not yet secured funding such as a risk assessment on skates and rays. The strategic research plan is used to develop the fishery assessment plan (FAP) which is a requirement of the HIMITF Management Plan and details the formal collaboration between industry and research providers. The FAP is developed every 2 years to ensure that an adequate program of monitoring takes place in the fishery in order to provide reliable stock estimates for target species and to monitor the direct impact on non-target species and the ecosystem. Each SFR holder's contribution to research is allocated in proportion to the number of SFRs they hold at the beginning of each fishing season. The audit team was provided with a copy of the 2015/16 and 2016/17 FAP that specified 17 days of random stratified trawl surveys and deployment of 6,810 tags, for each of the fishing years. The research plan provides a strategic approach to research across P1, P2 and P3. However, the assessment team cannot rule out the possibility that some of the high priority projects identified in the Research Plan may not be completed or may not be undertaken as a result of funding shortfalls. As a result, the plan meets the requirement of SG60 and 80 but only partially meets the requirements of SG100.		
b	Guidepost	Research results are available to interested parties.	Research results are disseminated to all interested parties in a timely fashion.	Research plan and results are disseminated to all interested parties in a timely fashion and are widely and publicly available.
	Met?	Y	Y	Y
	Justification	The research plan is available on the AFMA website. Research results are provided to SARAG and South MAC and are available to stakeholders through the various consultative mechanisms described under Indicator 3.1.2. Results are published variously as papers to CCAMLR, in peer reviewed journals and/or on the AFMA website. Not all research papers provided to CCAMLR are available to the public since they contain commercial in confidence information or contain information that could facilitate IUU fishing. CCAMLR and AFMA make research results available in a timely manner. The assessment team considered that the research plan and results are disseminated to all interested parties in a timely fashion and are widely and publicly available. The requirements of SG60, 80 and 100 are met.		
References		AFMA (2015b) http://www.afma.gov.au/wp-content/uploads/2014/02/6.-Five-Year-Strategic-Research-Plan-2014-5-to-2018-9-FINAL-May-2015.pdf		
OVERALL PERFORMANCE INDICATOR SCORE:				90
CONDITION NUMBER (if relevant):				

PI 3.2.5

PI 3.2.5		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	**Guidepost**	The fishery has in place mechanisms to evaluate some parts of the management system.	The fishery has in place mechanisms to evaluate key parts of the management system	The fishery has in place mechanisms to evaluate all parts of the management system.
	Met?	Y	Y	Y
	Justification	The performance of the fishery is subject to scrutiny by South MAC and SARAG, AFMA, ADD and other government agencies, the CCMLAR Scientific Committee and a range of stakeholders. The South MAC assessed the effectiveness and the performance criteria of the HIMITF Management Plan in 2012 and it will be assessed at the next South MAC meeting as part of the 5 year requirement stipulated in the Plan. The effectiveness of measures is reviewed on an ongoing basis by AFMA and South MAC. AFMA's expenditure is also reviewed against the budget at each South MAC meeting. The management plan also requires that, each year, South MAC must conduct an assessment of the performance of the Fishery against the performance criteria contained in the Plan. This assessment is reported on in AFMA's Annual Report and is publicly available on the AFMA website. The Strategic Research Plan is reviewed annually by SARAG and the data gathered are analysed and reviewed annually by the SARAG and are used in the stock assessments prepared by the Australian Antarctic Division. The SARAG also reviews the fishery ERA re-assessments and provides scientific advice of the FMS. The effectiveness of the compliance activities are subject to biennial risk assessments undertaken by AFMA and appropriate changes made where required. The management plan was last amended in 2012. These amendments effectively constitute a review. AFMA has established an ERA Technical Working Group that is currently reviewing the Environmental Risk Assessment for the Effects of Fishing (ERAEF) framework. The performance of CCAMLR was reviewed in 2008 by a Performance Review Panel and the report is publically available (http://archive.ccamlr.org/pu/E/revpanrep.htm). The report has been considered by CCAMLR bodies including the Scientific Committee, the Standing Committee on Administration and Finance and the Standing Committee on Implementation and Compliance as well as the Commission. CCAMLR has begun implementation of some recommendations contained in the report and continues to consider progress against the recommendations of the review at its annual meeting. Taken together, the audit team considers that these mechanisms evaluate all parts of the fishery-specific management system. As a result the requirements of SG 60, SG 80 and SG 100 are met.		

PI 3.2.5		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		
b	Guidepost	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?	Y	Y	Y
	Justification	The HIMITF Management plan includes performance criteria against which the HIMITF must be assessed and requires that each year, South MAC assess the extent to which those performance criteria have been met in that year and AFMA include in its annual report for a financial year a statement of the extent to which those performance criteria were met. AFMA and SouthMAC (which include some external members), at least once every 5 years, assess the effectiveness of the Plan including the measures taken to achieve the objectives by reference to those performance criteria. AFMA's performance in managing fisheries, including the HIMITF, is also reviewed through: • annual reports by ABARES on the biological, ecological and economic status of AFMA-managed fisheries; and • five-yearly (and now ten-yearly) assessments of ecological sustainability by the Department of the Environment and Energy (DoEE). Periodic audits by the Australian National Audit Office (2009) such as that done for the Domestic compliance programme further confirms that there is a wide range of review and monitoring mechanisms in place for this fishery and cover all parts of the management system. The assessment team considers that the management system is subject to regular internal and external review and the requirements of SG 60, SG 80 and SG 100 are met.		
References		Australian National Audit Office (2009) Management of Domestic Fishing Compliance https://www.anao.gov.au/work/performance-audit/management-domestic-fishing-compliance DoEE HIMI assessment https://www.environment.gov.au/marine/fisheries/commonwealth/heard-mcdonald		
OVERALL PERFORMANCE INDICATOR SCORE:				**100**
CONDITION NUMBER (if relevant):				

1.3 Conditions

No conditions were placed on the fishery during the re-assessment. One recommendation was made by the assessment team.

Recommendation 1, PI 2.2.1 (UoC 1 and UoC2)**:** The assessment team recommends updating the ecological risk assessment (ERA) within the next certification cycle, and identifying if significant changes are occurring in the fishery. This will strengthen the score and provide a higher level of certainty that non-target species are within biologically based limits.

Appendix 2. Peer Review Reports

Peer Reviewers Overall Opinion

Overall Opinion of the Report		
	Peer Reviewer 1	**Peer Reviewer 2**
Has the assessment team arrived at an appropriate conclusion based on the evidence presented in the assessment report? (Yes/No)	Yes	Yes
Peer Reviewer Justification		The assessment team has generally done a high quality and very comprehensive assessment. My comments do not affect the overall conclusions.
Certification Body Response		
Do you think the condition(s) raised are appropriately written to achieve the SG80 outcome within the specified timeframe? (Yes/No)	NA	NA
Peer Reviewer Justification		
Certification Body Response	No response required	

Client Action Plan Comments

Client Action Plan Comments (if included)		
	Peer Reviewer 1	**Peer Reviewer 2**
Do you think the client action plan is sufficient to close the conditions raised?	**NA**	**NA**
Peer Reviewer Justification		
Certification Body Response	No response required	

Peer Reviewers General Comments

Peer Reviewer General Comments (optional)	
Peer Reviewer 1	**Peer Reviewer 2**
The main report is comprehensive with all updated information in support of the overall score and recommendation for re-certification of	Many of my comments below regarding scoring under Principle 1 mostly derive from the assessment not fully accounting for

the fishery. The information presented in Appendix 1- Scoring and rationales - specifically in the justification of scores is also sufficient to support the scores assigned, however there are some PIs where the information could be strengthened by including details/and or peer-reviewed references from the main report. These include PI 2.3.3.b (both for UoC trawl and longline); PI2.4.1, PI 2.4.2a. Apart from the issues (above) which I believe can be addressed easily with cross referencing to the main report, I believe the scores are justified and where necessary appropriately harmonized with the related scores and information from the French fisheries. The recommendation proposed for PI 2.2.1. is prudent and is supported. Based on my review of the report with these modifications, I support the re-certification of the fishery.	uncertainties. According to scoring guidelines this is not necessarily a good reason to score an assessment lower. However, this fishery has harvest control rules that are based on probabilistic future projections that would generate different catch recommendations for different assessment uncertainty levels. This makes assessment uncertainty an important issue for this fishery in particular. Additionally I believe that the harvest control rules as described require MSE testing to demonstrate their effectiveness at achieving management objectives in both the short-term (as is the TAC-setting cycle), and the long-term.
Certifying Body Response	
No response required. No changes to scores are proposed. Issues raised have been addressed below under the relevant PIs.	

Peer Reviewers Comments Related to Scores and Rationales

Principle 1

Performance Indicator 1.1.1		
	Peer Reviewer 1	**Peer Reviewer 2**
Has all the relevant information available been used to score this indicator? (yes/no)	Yes	yes
Does the information and/or rationale used to score this indicator support the given score? (yes/no)	Yes	yes
Will the condition(s) raised improve the fishery's performance to the SG80 level? (yes/no/NA)	NA	NA
Peer Reviewer Justification		I agree generally with the scoring. I can accept mean base case assessed status results. It is helpful that the French fishery results also indicate a lightly exploited stock.
Certification Body Response	No response required.	

Performance Indicator 1.1.2		
	Peer Reviewer 1	**Peer Reviewer 2**
Has all the relevant information available been used to score this indicator? (yes/no)	Yes	no
Does the information and/or rationale used to score this indicator support the given score? (yes/no)	Yes	yes
Will the condition(s) raised improve the fishery's performance to the SG80 level? (yes/no/NA)	NA	NA
Peer Reviewer Justification		I agree that the reference points used are theoretically appropriate (limit 0.2 and target 0.5 B_0) and that the target is conservative. As the reference points are evaluated via long-term projection and do not explicitly take short-term fishery behaviour (e.g. fishing at greater than Fmsy) into account, their ability to meet management objectives is difficult to discern from the description alone and seem dependent on assessment precision and the 35 year time-frame. Unfortunately, the reference points based on probabilistic projections used here do require good estimates of assessment model uncertainty. If documentation exists that has shown via simulation or otherwise that these reference points as calculated meet expectations and management objectives, then that should be referenced by the MSC Assessment Report.
Certification Body Response	No response required. All relevant available documents have been used and cited.	

Performance Indicator 1.1.3		
	Peer Reviewer 1	**Peer Reviewer 2**
Has all the relevant information available been used to score this indicator? (yes/no)	Yes	NA
Does the information and/or rationale used to score this indicator support the given score? (yes/no)	Yes	
Will the condition(s) raised improve the fishery's performance to the SG80 level? (yes/no/NA)	NA	
Peer Reviewer Justification		
Certification Body Response	No response required	

Performance Indicator 1.2.1		
	Peer Reviewer 1	**Peer Reviewer 2**
Has all the relevant information available been used to score this indicator? (yes/no)	Yes	yes
Does the information and/or rationale used to score this indicator support the given score? (yes/no)	Yes	yes
Will the condition(s) raised improve the fishery's performance to the SG80 level? (yes/no/NA)	NA	NA
Peer Reviewer Justification		I agree that MSE testing would be required to improve the score, but also would further support scores for PI 1.1.2.
Certification Body Response	No response required.	

Performance Indicator 1.2.2		
	Peer Reviewer 1	**Peer Reviewer 2**
Has all the relevant information available been used to score this indicator? (yes/no)	Yes	yes
Does the information and/or rationale used to score this indicator support the given score? (yes/no)	Yes	yes
Will the condition(s) raised	NA	NA

improve the fishery's performance to the SG80 level? (yes/no/NA)		
Peer Reviewer Justification		I believe that under 1.2.2b the intention and design of the harvest control rules takes into account a wide range of uncertainties due to built-in conservativeness, but this needs to be fully demonstrated. Unfortunately, the outcomes of harvest control rules used for this fishery heavily rely on the level of uncertainty produced by the assessment (more so than for "standard" F vs B harvest control rules).
Certification Body Response	No response required. No changes to scores suggested. Issue about demonstrating conservativeness of HCR evaluated under PI 1.2.4. Additional text about uncertainties that should be evaluated has been added to the background and relevant scoring rationales.	

Performance Indicator 1.2.3		
	Peer Reviewer 1	**Peer Reviewer 2**
Has all the relevant information available been used to score this indicator? (yes/no)	Yes	yes
Does the information and/or rationale used to score this indicator support the given score? (yes/no)	Yes	yes
Will the condition(s) raised improve the fishery's performance to the SG80 level? (yes/no/NA)	NA	NA
Peer Reviewer Justification		Frequency and comprehensiveness of monitoring is excellent.
Certification Body Response	No response required	

Performance Indicator 1.2.4		
	Peer Reviewer 1	**Peer Reviewer 2**
Has all the relevant information	Yes	yes

available been used to score this indicator? (yes/no)		
Does the information and/or rationale used to score this indicator support the given score? (yes/no)	Yes	yes
Will the condition(s) raised improve the fishery's performance to the SG80 level? (yes/no/NA)	NA	NA
Peer Reviewer Justification		The base assessment results seem very precise, suggesting that the model has limited flexibility given the available data. This is common in many accepted stock assessments, but also indicates that the base model gives a very selective picture of the stock, probably greatly underestimating true uncertainty. That true uncertainty may be shown by sensitivity analyses, but the suggestion here is that a fairly narrow range of sensitivities may also have been selected (and then apparently not used further). For example, would assessment inclusion of uncertainties (into projections for reference point calculations) such as combined French/HIMI stock, skip spawning, significant IUU catch prior to 1997, alternative values for survey q/M/steepness etc greatly affect results? I have not seen the assessment doc, so can only guess at additional possible sources of uncertainty, but I am sure there are influential ones. This has been accounted for but not included in the justification for scoring less

		than level SG 100 under PI 1.2.4d.
Certification Body Response	No change to score has been suggested but rationale has been revised to reflect additional issues that prevent the fishery meeting SG100 requirements.	

Principle 2

Performance Indicator 2.1.1		
	Peer Reviewer 1	**Peer Reviewer 2**
Has all the relevant information available been used to score this indicator? (yes/no)	Yes	yes
Does the information and/or rationale used to score this indicator support the given score? (yes/no)	Yes	yes
Will the condition(s) raised improve the fishery's performance to the SG80 level? (yes/no/NA)	NA	NA
Peer Reviewer Justification		
Certification Body Response	No response required	

Performance Indicator 2.1.2		
	Peer Reviewer 1	**Peer Reviewer 2**
Has all the relevant information available been used to score this indicator? (yes/no)	Yes	yes
Does the information and/or rationale used to score this indicator support the given score? (yes/no)	Yes	yes
Will the condition(s) raised improve the fishery's performance to the SG80 level? (yes/no/NA)	NA	NA
Peer Reviewer Justification		
Certification Body Response	No response required	

Performance Indicator 2.1.3		
	Peer Reviewer 1	**Peer Reviewer 2**
Has all the relevant information available been used to score this indicator? (yes/no)	Yes	yes

Does the information and/or rationale used to score this indicator support the given score? (yes/no)	Yes	yes
Will the condition(s) raised improve the fishery's performance to the SG80 level? (yes/no/NA)	NA	NA
Peer Reviewer Justification		
Certification Body Response	No response required	

Performance Indicator 2.2.1		
	Peer Reviewer 1	**Peer Reviewer 2**
Has all the relevant information available been used to score this indicator? (yes/no)	Yes	yes
Does the information and/or rationale used to score this indicator support the given score? (yes/no)	Yes	yes
Will the condition(s) raised improve the fishery's performance to the SG80 level? (yes/no/NA)	NA	NA
Peer Reviewer Justification		
Certification Body Response	No response required	

Performance Indicator 2.2.2		
	Peer Reviewer 1	**Peer Reviewer 2**
Has all the relevant information available been used to score this indicator? (yes/no)	Yes	yes
Does the information and/or rationale used to score this indicator support the given score? (yes/no)	Yes	yes
Will the condition(s) raised improve the fishery's performance to the SG80 level? (yes/no/NA)	NA	NA
Peer Reviewer Justification		
Certification Body Response	No response required	

Performance Indicator 2.2.3		
	Peer Reviewer 1	**Peer Reviewer 2**
Has all the relevant information available been used to score this indicator? (yes/no)	Yes	yes
Does the information and/or rationale used to score this indicator support the given score? (yes/no)	Yes	yes
Will the condition(s) raised improve the fishery's performance to the SG80 level? (yes/no/NA)	NA	NA
Peer Reviewer Justification		
Certification Body Response	No response required	

Performance Indicator 2.3.1		
	Peer Reviewer 1	**Peer Reviewer 2**
Has all the relevant information available been used to score this indicator? (yes/no)	Yes	yes
Does the information and/or rationale used to score this indicator support the given score? (yes/no)	Yes	yes
Will the condition(s) raised improve the fishery's performance to the SG80 level? (yes/no/NA)	NA	NA
Peer Reviewer Justification		
Certification Body Response	No response required	

Performance Indicator 2.3.2		
	Peer Reviewer 1	**Peer Reviewer 2**
Has all the relevant information available been used to score this indicator? (yes/no)	Yes	yes
Does the information and/or rationale used to score this indicator support the given score? (yes/no)	Yes	yes
Will the condition(s) raised improve the fishery's performance to the SG80 level?	NA	NA

(yes/no/NA)		
Peer Reviewer Justification		
Certification Body Response	No response required	

Performance Indicator 2.3.3		
	Peer Reviewer 1	**Peer Reviewer 2**
Has all the relevant information available been used to score this indicator? (yes/no)	Yes	yes
Does the information and/or rationale used to score this indicator support the given score? (yes/no)	No	yes
Will the condition(s) raised improve the fishery's performance to the SG80 level? (yes/no/NA)	NA	NA
Peer Reviewer Justification	Justification for 2.3.3. b for both UoC trawl and UoC longline could be strengthened with more detailed information and/or cross referencing to supporting evidence in main report.	
Certification Body Response	PR1: Further information has been added in the rational for this indicator drawing from information already provided in background section.	

Performance Indicator 2.4.1		
	Peer Reviewer 1	**Peer Reviewer 2**
Has all the relevant information available been used to score this indicator? (yes/no)	Yes	yes
Does the information and/or rationale used to score this indicator support the given score? (yes/no)	No	yes
Will the condition(s) raised improve the fishery's performance to the SG80 level? (yes/no/NA)	NA	NA

Peer Reviewer Justification	Are there any peer reviewed publications other than the observer reports or based on the observer information which could be referenced here?	I agree with the score but it might improve the justification particularly for trawl if some sense is provided of how much potentially trawlable habitat is unfished or within protected areas. It seems possibly disingenuous to talk about the percentage of habitat shallower than 1000m that is protected if, say, most of the protected area is shallower than 200m and most of the slope between 200 and 1000m is unprotected.
Certification Body Response	PR 1: The main reference is the Welsford et al. (2014) report which was based on a very comprehensive FRDC funded project combined data on the fishing footprint with estimates of taxa-specific vulnerability. This report publicly available on the FRDC website (http://frdc.com.au/research/Documents/Final_reports/2006_042_DLD.pdf) Further information has been added in the rational for this indicator. PR2: Further information has been added in the rational by providing an estimate from the report on how much biomass was damaged in fished areas up to 1200m where fishing is occurring.	

Performance Indicator 2.4.2		
	Peer Reviewer 1	**Peer Reviewer 2**
Has all the relevant information available been used to score this indicator? (yes/no)	Yes	yes
Does the information and/or rationale used to score this indicator support the given score? (yes/no)	No	yes
Will the condition(s) raised improve the fishery's performance to the SG80 level? (yes/no/NA)	NA	NA
Peer Reviewer Justification	The justification for the score assigned to 2.4.2 should be strengthened, possibly with cross-referencing to details provided in the main report.	
Certification Body Response	PR1: Further information has been added in the rational for this indicator drawing from information already provided in background section.	

Performance Indicator 2.4.3		
	Peer Reviewer 1	**Peer Reviewer 2**
Has all the relevant information available been used to score this indicator? (yes/no)	Yes	yes
Does the information and/or rationale used to score this indicator support the given score? (yes/no)	Yes	yes
Will the condition(s) raised improve the fishery's performance to the SG80 level? (yes/no/NA)	NA	NA
Peer Reviewer Justification		
Certification Body Response	No response required	

Performance Indicator 2.5.1		
	Peer Reviewer 1	**Peer Reviewer 2**
Has all the relevant information available been used to score this indicator? (yes/no)	Yes	yes
Does the information and/or rationale used to score this indicator support the given score? (yes/no)	Yes	yes
Will the condition(s) raised improve the fishery's performance to the SG80 level? (yes/no/NA)	NA	NA
Peer Reviewer Justification		The mention of a broad-scale ecosystem model for Southern Ocean habitats in development requires a little more detail – how does the area covered relate to the HIMI EEZ?
Certification Body Response	PR2: Additional information was added for this indicator re the model and research that feeds into the model.	

Performance Indicator 2.5.2		
	Peer Reviewer 1	**Peer Reviewer 2**
Has all the relevant information available been used to score this indicator? (yes/no)	Yes	yes
Does the information and/or rationale used to score this	Yes	yes

indicator support the given score? (yes/no)		
Will the condition(s) raised improve the fishery's performance to the SG80 level? (yes/no/NA)	NA	NA
Peer Reviewer Justification		
Certification Body Response	No response required	

Performance Indicator 2.5.3		
	Peer Reviewer 1	**Peer Reviewer 2**
Has all the relevant information available been used to score this indicator? (yes/no)	Yes	yes
Does the information and/or rationale used to score this indicator support the given score? (yes/no)	Yes	yes
Will the condition(s) raised improve the fishery's performance to the SG80 level? (yes/no/NA)	NA	NA
Peer Reviewer Justification		
Certification Body Response	No response required	

Principle 3

Performance Indicator 3.1.1		
	Peer Reviewer 1	**Peer Reviewer 2**
Has all the relevant information available been used to score this indicator? (yes/no)	Yes	yes
Does the information and/or rationale used to score this indicator support the given score? (yes/no)	Yes	yes
Will the condition(s) raised improve the fishery's performance to the SG80 level? (yes/no/NA)	NA	NA
Peer Reviewer Justification		In 3.1.1a does the French Management Plan contain wording about application of the principles of ecologically sustainable development that

		can be mentioned here?
Certification Body Response	PR2: Yes, the French Management Plan contains objectives that explicitly refer to the principles of ESD. The text in the table has been amended to reflect this.	

Performance Indicator 3.1.2		
	Peer Reviewer 1	**Peer Reviewer 2**
Has all the relevant information available been used to score this indicator? (yes/no)	Yes	yes
Does the information and/or rationale used to score this indicator support the given score? (yes/no)	Yes	yes
Will the condition(s) raised improve the fishery's performance to the SG80 level? (yes/no/NA)	NA	NA
Peer Reviewer Justification		
Certification Body Response	No response required	

Performance Indicator 3.1.3		
	Peer Reviewer 1	**Peer Reviewer 2**
Has all the relevant information available been used to score this indicator? (yes/no)	Yes	yes
Does the information and/or rationale used to score this indicator support the given score? (yes/no)	Yes	yes
Will the condition(s) raised improve the fishery's performance to the SG80 level? (yes/no/NA)	NA	NA
Peer Reviewer Justification		
Certification Body Response	No response required	

Performance Indicator 3.1.4		
	Peer Reviewer 1	**Peer Reviewer 2**
Has all the relevant information available been used to score this indicator? (yes/no)	Yes	yes
Does the information and/or rationale used to score this	Yes	yes

indicator support the given score? (yes/no)		
Will the condition(s) raised improve the fishery's performance to the SG80 level? (yes/no/NA)	NA	NA
Peer Reviewer Justification		
Certification Body Response	No response required	

Performance Indicator 3.2.1		
	Peer Reviewer 1	**Peer Reviewer 2**
Has all the relevant information available been used to score this indicator? (yes/no)	Yes	yes
Does the information and/or rationale used to score this indicator support the given score? (yes/no)	Yes	yes
Will the condition(s) raised improve the fishery's performance to the SG80 level? (yes/no/NA)	NA	NA
Peer Reviewer Justification		Entirely agree in particular that short-term objectives need clarification, and that testing is required to demonstrate that the system in place (principally the harvest strategy) is able to provide a balanced performance across those objectives (regardless of the current state of exploitation).
Certification Body Response	No response required	

Performance Indicator 3.2.2		
	Peer Reviewer 1	**Peer Reviewer 2**
Has all the relevant information available been used to score this indicator? (yes/no)	Yes	yes
Does the information and/or rationale used to score this indicator support the given score? (yes/no)	Yes	yes
Will the condition(s) raised improve the fishery's	NA	NA

performance to the SG80 level? (yes/no/NA)		
Peer Reviewer Justification		
Certification Body Response	No response required	

Performance Indicator 3.2.3		
	Peer Reviewer 1	**Peer Reviewer 2**
Has all the relevant information available been used to score this indicator? (yes/no)	Yes	yes
Does the information and/or rationale used to score this indicator support the given score? (yes/no)	Yes	yes
Will the condition(s) raised improve the fishery's performance to the SG80 level? (yes/no/NA)	NA	NA
Peer Reviewer Justification		
Certification Body Response	No response required	

Performance Indicator 3.2.4		
	Peer Reviewer 1	**Peer Reviewer 2**
Has all the relevant information available been used to score this indicator? (yes/no)	Yes	yes
Does the information and/or rationale used to score this indicator support the given score? (yes/no)	Yes	yes
Will the condition(s) raised improve the fishery's performance to the SG80 level? (yes/no/NA)	NA	NA
Peer Reviewer Justification		
Certification Body Response	No response required	

Performance Indicator 3.2.5		
	Peer Reviewer 1	**Peer Reviewer 2**
Has all the relevant information available been used to score this indicator? (yes/no)	Yes	yes
Does the information and/or rationale used to score this	Yes	yes

indicator support the given score? (yes/no)		
Will the condition(s) raised improve the fishery's performance to the SG80 level? (yes/no/NA)	NA	NA
Peer Reviewer Justification		There is no specific regular external review of the management system for the HIMITF, so SG 100 may not be completely justified for PI 3.2.5b.
Certification Body Response	PR2: Regular reviews under the MSC standard refer to every 3-5 years. The combination of the annual reviews by ABARES, DoEE assessments on ecological sustainability and regular scrutiny by ADD and the CCMLAR Scientific Committee constitute external reviews by the assessment team.	

Any Other Comments (optional)		
	Peer Reviewer 1	**Peer Reviewer 2**
Certification Body Response	No response required	

Appendix 3. Stakeholder submissions

No stakeholder submissions were received during the assessment process. MSC provided comments to the public comment draft report and these have been addresses (see below).

Page Reference	Grade	Requirement Version	Oversight Description	Pi	CAB Comment
39	Guidance	FCR-PB3.1 v2.0	The team refers to the harmonisation process requirements of CRv 1.3 in Section 4.1 and throughout the scoring tables. However, as outlined in '4.3 Assessment Methodologies', the team assessed this fishery against the process requirements of FCR v2.0.		This has been corrected and all process requirements refer to CR v 2.0.
82	Major	FCR-7.10.6.1 v2.0	PI 1.2.4, scoring issue a: The team states that "There is only minimal movement of fish between the two zones (Welsford et al. 2015) but the next assessment of the HIMI fishery will be explicitly incorporating data on such movement from the Australian to the French EEZ. We conclude, therefore that there is now no need for the assessment of the HIMI fishery to extend its scope to include the	1.2.4	The level of movement between the stocks is sufficiently small to be not a major feature of the species biology. Accounting for this movement is therefore not needed to meet the SG100 requirements. This has been clarified in a revised rationale. The note that movement would be incorporated into the next iteration of the assesmment was additional information but it is not relevant to the score and has therefore been deleted from the rationale.

			catches by the French fishery." The teams conclusion here seems to contradict the reason that the next HIMI assessment would include movement data. In other words, why would the next assessment explicitly include movement data if there is now no need to extend the scope of the catches to include the French component? At present, the rationale does not support the team's conclusion at SG100.		
98	Major	FCR-7.10.6 v2.0	PI. 2.1.3, scoring issue a (UoC longline) scores SG100. The SG100 level requires that 'accurate and verifable information is available', including on the 'consequences for the status on affected populations'. However the report states in PI 2.1.1 that the status of a number of componant bait species is unknown (e.g. sardine and mackerel), so it is not clear how	2.1.3	As indicated in the rational and background, small amounts of jack mackerel and sardine are used as bait in the longline fishery. The vast majority of bait used in the fishery is squid (>90%). Particulary regarding to the size of the source fishery, this is unlikely to have any impact on the status of the population. The uncertainty in stock status resulted in a lower score under 2.1.1 and 2.1.3 scoring issue b. The assessment team determined that the information about the actual amounts used which are

			the SG100 level is met for these species.		acurate and verifiable is sufficient to justify a likely low impact from the toothfish fishery bait use.
71-73	Major	FCR-7.10.6.1 v2.0	1.1.2(a) - In light of CB2.3.3, the provided rationale does not emphasize how the reference points have been adapted for toothfish. 1.1.2(c) - Score of SG100 given yet how precautionary issues are taken into account is not thoroughly elaborated on.	1.1.2	1.1.2(a) - The adaptations were described in the background but additional text has now also been added to the rationales. 1.1.2(c) - The background text that was referenced has now also been included in the rationale.
78	Major	FCR-7.10.6.1 v2.0	1.2.2(a) -Although the 'rules' mentioned act to reduce catches if the stock approaches the target and limit reference points , it is not clear how this is ensured and specifically how the exploitation rate would be reduced. What are the rules?	1.2.2	The rules are described fully in the background but a summary has now been added to the rationales to support the proposed score.

	Guidance	FCR_7.12.1.3 v2.0	The reassessment was done using the CRV1.3 standard requirements. Please note that for future assessments the fishery team will be required to use the Full Assessment and Reporting Template v2.0, including Section 5 on Traceability, to assess traceability risks in the fishery and determine eligibility to enter Chain of Custody. Therefore, please ensure the current report (even if not using the Reporting Template) documents whether each risk in Table 4 of the reporting template is applicable, and how each applicable risk is mitigated, e.g. use of gears not included in the UoC, etc.		Further details have been added to specifically focus on any potential gear type or other fishing outside the UoC.
57	Minor	FCR_7.12.1.1 v2.0	The report explains that vessels may fish within and outside of the UoC on the same trip. Please explain how systems allow traceability to the UoC. For example, how would assurance be provided to a buyer		In the traceability section of the report under "evaluation of the possibility of vessels fishing outside the Unit of Certification", details have been provided: on rare occasions and unless prior approved by AFMA, vessels do not fish outside the UoC. It also states that VMS exists for every trip and observer witness and certify

			that product comes from the certified area?		separating into separate holding tanks on board the vessels. This is also taken into account at unloading and supervised by authorised officers.
59	Minor	FCR_7.12.1.5.b v2.0	The report states CoC is required from the point of landing. However, please also state the point of intended change in ownership of product.		Additional information was added. Ownership changes at the point of delivery at new point of origin, e.g. if product is sold to a customer in China, it will be at a port in China. Product in containers on their way to the new destination are still owned by the fishing company.
9-13, 39-52	Major	FCR-PB3.3.3 v2.0	The team have not adequately justified why this fishery has scored differently than the overlapping SARPC toothfish fishery in PIs 1.2.2 and PI 1.2.4. Although it is explained that there is limited mixing based on tagging study data, there are also indications in the report that there are other factors at play, including the modelled spatial variation in predicted sex ratio indicating that males and females were segregated across the Plateau. Also, the team does not account for issues like	1.2.2, 1.2.4	The reasons for the differences in scores that remain for PI 1.2.2 and PI 1.2.4 are considered to be justified as they pertain to the fishery-specific aspects of the harvest strategies and these differences do not threaten the achievement of P1 outcomes. The harvest strategy for the HIMI fishery is based on a more robust assessment and a clear application of the CCAMLR harvest control rules. The SARPC toothfish fishery does not yet apply the same rigorous approach but is nevertheless considered to be fished at a level that also complies with the CCAMLR harvest control rules. A more complete justification for the

			the low catch rates compared to TAC, which could indicate that the uncertainties are not adequately taken into account in the assessment. In short, the team have not been precautionary in how they have considered overlapping elements of these fisheries, particularly with regard to PIs where the SARPC fishery scores <80 in P1 (1.2.2 and 1.2.4).		differences was contained in the fourth surveillance audit and some of this has now been incorporated into the report. Low catch rates have only been anecdotally reported for the most recent fishing season. There are not as yet any public reports detailing them and they have not yet been incorporated into a revised stock assessment, so there are not yet any clear implications for the stock. Such results would be considered at subsequent surveillance audits. We note, however, that catch rates cannot be compared to the TAC which is based on catches.
72-73	Minor	FCR-7.10.6.1 v2.0	1.1.2(c) - Score of SG100 given yet how precautionary issues are taken into account is not thoroughly elaborated on. There is a cross-reference to the background section of the report but more specific information should be provided here.	1.1.2	Additional text from the background has been included in the rationale to strengthen the rationale.

Appendix 4. Surveillance Frequency

A level 2 surveillance program is suggested for this fishery. This is the first re- certification of the fishery and no conditions were assigned. Therefore, a reduced surveillance level with only one auditor is permitted following CR v 2.0 7.23.4.2).

Review of information is proposed for the first surveillance audit. The second and third surveillance can be conducted off-site. The final surveillance audit is likely to occur with the start of the re-assessment and should be conducted on-site.

Table 4.1: Surveillance level rationale

Year	Surveillance activity	Number of auditors	Rationale
1	*Review of information*	*1 auditors off-site*	*Any changes or update of information can be reviewed remotely.*
2	*Off-site audit*	*1 auditors off-site*	*Any changes or update of information can be reviewed remotely.*

Table 4.2: Fishery Surveillance Program

Surveillance Level	Year 1	Year 2	Year 3	Year 4
Level 2	*Review of information*	*Off site surveillance audit*	*Off surveillance audit*	*On-site surveillance audit & re-certification site visit*

Appendix 5. Client Agreement

AUSTRAL FISHERIES
SUSTAINABLE SEAFOOD

Dr Sabine Daume
AquaMeer Pty Ltd
on behalf of SCS Global Services

By email: SDaume@scsglobalservices.com

10 July 2017

Dear Dr Daume

RE: Toothfish report client acceptance

I have pleasure in confirming that Austral Fisheries, on behalf of the HIMI Toothfish Fishery operators, agree with the specific recommendations for the HIMI Toothfish fishery that have been identified during the assessment process.

Specifically, we agree with the following:

Recommendation 1, PI 2.2.1 *(UoC 1 and UoC2): The assessment team recommends updating the ecological risk assessment (ERA) within the next certification cycle, and identifying if significant changes are occurring in the fishery. This will strengthen the score and provide a higher level of certainty that non-target species are within biologically based limits.*

We have already started a process of working with AFMA, and SARAG, to update the ERA, and will provide the details as they become available.

We note also there were no conditions placed on the HIMI Toothfish fishery during the reassessment.

Please contact me at any time if I can provide more details or clarification.

Regards,

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