



MSC Public Comment Draft Report

THE AUSTRALIAN HEARD ISLAND & McDONALD ISLANDS PATAGONIAN TOOTHFISH FISHERY

December 2011

The fishery evaluated in this report:

Species:	<i>Dissostichus eleginoides</i> (Figure 1)
Geographic Area:	Australia's Heard Island and McDonald Islands (Subantarctic)
Fishing Method:	Demersal Trawl and Demersal Longline
Fishery Management:	Australian Fisheries Management Authority, Australian Antarctic Division, and CCAMLR (Commission for the Conservation of Antarctic Marine Living Resources).

Accredited Certification Body:
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Versions Issued

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MSC Accreditation Manual Issue 4

MSC Fisheries Assessment Methodology (FAM) Version 2.1

MSC TAB Directives

MSC Policy Advisories

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PREAMBLE

This report is the sole responsibility of SCS. All advice and comments from Assessment Team members, peer reviewers, client, fishery managers and the MSC have been reviewed by SCS and incorporated into the report by SCS as deemed warranted.

ABBREVIATIONS

AFMA	Australian Fisheries Management Authority
AHP	Analytical Hierarchy Process
ASI	Accreditation Services International
CCAMLR	Commission for the Conservation of Antarctic Marine Living Resources
CB	Certifying Body
CPUE	Catch Per Unit Effort
ETP	Endangered, Threatened and Protected species
ERA	Ecological Risk Assessment
ESD	Ecologically Sustainable Development
FAM	Fisheries Assessment Methodology v2.1
FAO	Food and Agriculture Organization [of the United Nations]
HIMI	Heard Island, McDonald Islands
IUCN	International Union for Conservation of Nature
MAC	Management Advisory Committee
MSC	Marine Stewardship Council
MSY	Maximum Sustainable Yield
PI	Performance Indicator
RSTS	Random Stratified Trawl Survey
SCS	Scientific Certification Systems
SG	Scoring Guidepost
SSB and R	Spawning Stock Biomass and Recruitment
TAB	Technical Advisory Board [of the MSC]
TAC	Total Allowable Catch

1 INTRODUCTION

The Marine Stewardship Council (MSC) is a non-profit organization dedicated to the long-term protection or “sustainability” of marine fisheries and related habitats. First started as a joint initiative between Unilever and the World Wildlife Fund (WWF), the MSC is now a fully independent organization that is governed by an independent Board of Directors advised by a panel of scientific, economic, and fishery experts.

The MSC’s original mission statement promoted responsible, environmentally appropriate, socially beneficial, and economically viable fisheries practices, as well as the maintenance of biodiversity, productivity and ecological processes of the marine environment. The current MSC mission statement (redrafted in 2001) provides a slightly more focused mission and reads,

“To safeguard the world’s seafood supply by promoting the best environmental choice”.

Dedicated to promoting “well-managed” or “sustainable” fisheries, the MSC initiative intends to identify such fisheries through means of independent third-party assessments and certification. Once certified, fisheries will be awarded the opportunity to utilize an MSC promoted eco-label to gain economic advantages in the marketplace. Through certification and eco-labeling, the MSC intends to promote and encourage better management of world fisheries, many of which have been suggested to suffer from poor management.

The Marine Stewardship Council developed the original standards for sustainable fisheries management in a three-step process: 1) Assemble a group of experts in Bagshot (UK) to draft an initial set of Principles and Criteria; 2) Conduct an 18-month process to review the standard in 8 major international venues; and 3) Convene a second set of experts in Warrenton, Virginia (Airlie Conference Center, USA) to revise and finalize the MSC Principles and Criteria.

The MSC Fisheries Certification Methodology used for this report, the Marine Stewardship Council Fisheries Assessment Methodology (FAM) and Guidance to Certification Bodies Including Default Assessment Tree and Risk-Based Framework Version 2.1 was issued on 1 May 2010.

2 SUMMARY

2.1 The Assessment Process

The client provided the pre-assessment report of the Australian Heard Island and McDonald Islands (HIMI) Toothfish Fishery to SCS. After review of the pre-assessment, the applicants for certification authorized the formal, full assessment of the fishery. All aspects of the assessment process were carried out under the auspices of Scientific Certification Systems, Inc., an accredited MSC certification body, and in direct accordance with MSC requirements.

In order to ensure a thorough and robust assessment process, and a process in which all interested stakeholders could and would participate, SCS took the approach of allowing additional time as needed for both industry and stakeholders to respond to requests for information and participation.

To be thorough and transparent, SCS provided opportunities for input at all stages of the assessment process. The general steps followed were:

- Team Selection (September 2010)
At this first step of the assessment process, SCS sought input from interested parties. SCS sent out an advisory through direct email and posting on the MSC web site requesting comment on

the nominations of persons capable of providing the expertise needed in the assessment. No comments were received and the team was confirmed on the 8th October 2010.

- **Setting Performance Indicators and Scoring Guideposts (October-November 2010)**
In accordance with the assessment procedures required by the MSC at the time, the assessment team posted an announcement and advised through direct emails the intend to use the 'Performance Indicators' and 'Scoring Guideposts' of the Default Assessment Tree (DAT) and its suitable for assessing the HIMI Toothfish fishery. No comments were received and the DAT was confirmed.
- **Input on fishery performance (November 2010)**
Once performance indicators were finalized, SCS requested that the clients compile and submit written information to the assessment team illustrating the fishery's compliance with the required performance indicators. At the same time, SCS requested that stakeholders submit their views on the fishery management system's functions and performance. SCS sent out an advisory through direct email which was also posted on the MSC web site on the 22 October 2010.
- **Input on fishery performance (November-December 2010)**
Once use of the default assessment tree was finalized, SCS requested that the applicants compile and submit written information to the assessment team illustrating the fishery's compliance with the required performance indicators (PI). At the same time, SCS requested that stakeholders submit their views on the fishery management system's functions and performance.
- **Meetings with industry, managers, and stakeholders (November-December 2010)**
SCS planned for and conducted meetings on the 30th November – 2nd December 2010 in Hobart, Tasmania, Australia.
- **Scoring fishery (December 2010)**
The assessment team scored the fishery using the required MSC methodology and the default assessment tree of the FAM and without input from the client group or stakeholders.
- **Drafting report (January – April 2011)**
The assessment team in collaboration with the SCS lead assessor, Sabine Daume, drafted the report in accordance with MSC required process.
- **Harmonization with overlapping assessment and input into assessment from fishery that is sharing some of the same aspects of MSC Principles (April – October 2011)**

The HIMI Toothfish Fishery is based on a stock that is also fished by French vessels operating in the French EEZ around Kerguelen Island under French management. Following MSC guidance (8.1.1-8.1.2, FAM 2.1), the French management system needs to be considered under PIs 3.1-3.4. The French SARPC Toothfish fishery is currently also under assessment against the MSC standard using the same assessment tree (FAM v.2.1). The assessment is conducted by a different Certification Body (MacAlister Elliott & Partners Ltd). Following TAB-D-15v 2 the SCS team reached out to the assessment team of the French fishery and fishery information was collected by conference calls and email between the CBs and scientists. However, the scoring process has not been finalized at the time of writing this report. The considerations of the

French management system in this assessment rely heavily on information provided by the assessment team conducting the MSC assessment of the SARPC Toothfish fishery, supplemented where possible by publicly available material

- Selection of peer reviewers (May-June 2011)
SCS, as required, released an announcement on the 21 June 2011 of potential peer reviewers soliciting comment from stakeholders on the merit of the selected reviewers. No negative comments were received and the peer reviewers were confirmed on the 12 July 2011.
- Release of Public Comment Draft Report (December 2011)
SCS releases this draft report for public comment, soliciting stakeholder response through posting on MSC website and direct email to known potential stakeholders.

2.2 Meeting Conditions for Continued Certification

To be awarded an MSC certificate for the fishery, the applicants must agree in written contract to develop an action plan for meeting the required 'Conditions'; a plan that must provide specific information on what actions will be taken, who will take the actions, and when the actions will be completed. The Action Plan must be approved by SCS as the certification body of record. The applicant must also agree in a written contract to be financially and technically responsible for surveillance visits by an MSC accredited certification body, which would occur at a minimum of once a year, or more often at the discretion of the certification body (based on the applicant's action plan or by previous findings by the certification body from annual surveillance audits or other sources of information). The contract must be in place prior to certification being awarded. Surveillance audits will be comprised in general of (1) checking on compliance with the agreed action plan for meeting pre-specified 'Conditions', and (2) sets of selected questions that allow the certifier to determine whether the fishery is being maintained at a level of performance similar to or better than the performance recognized during the initial assessment.

2.2.1 General Conditions for Continued Certification

The general 'Conditions' set for the Client (Austral Fisheries Pty Ltd and Australian Longline Pty Ltd) are:

- Client must recognize that MSC standards require regular monitoring inspections at least once a year, focusing on compliance with the 'Conditions' set forth in this report (as outlined below) and continued conformity with the standards of certification.
- Client must agree by contract to be responsible financially and technically for compliance with required surveillance audits by an accredited MSC certification body, and a contract must be signed and verified by SCS prior to certification being awarded.
- Client must recognize that MSC standards require a full re-evaluation for certification (as opposed to yearly monitoring for update purposes) every five years.
- Prior to receiving final certification, the Client shall develop an 'Action Plan for Meeting the Condition for Continued Certification' and have it approved by SCS.

2.2.2 Specific Conditions for Continued Certification

In addition to the general requirements outlined above, Client must also agree in a written contract with an accredited MSC certification body to meet the specific conditions as described in Section 9 and summarized below (within the timelines that will be agreed in the 'Action Plan for Meeting the Condition for Continued Certification' to be approved by SCS).

Specific Conditions are:

1.2.2 There are well defined and effective harvest control rules in place.

Score 70

Condition 1.2.2:

By the fourth 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 the French zones.

1.2.4 There is an adequate assessment of the stock status.

Score 70

Condition 1.2.4:

By the fourth 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.

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.

Score 70

Condition 2.4.3:

By the first annual surveillance audit, the client shall provide some 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 consider including the results of the ongoing study on habitat impacts in the region.

3.1.2 The management system has effective consultation processes that are open to interested and affected parties.

Score 75

Condition 3.1.2:

By the third annual surveillance audit the client shall provide information that demonstrates consultation processes in all the management systems provide opportunity for all interested and affected parties to be involved.

3 BACKGROUND TO THE REPORT

3.1 Assessment Team/Authors

Dr. Sabine Daume, Program Manager, SCS

Dr Daume is responsible for leading SCS's Sustainable Seafood Certification program, which includes both fishery and chain of custody certification under the auspices of the MSC, using the MSC methodology and standards. Dr. Daume has been involved and/ or lead numerous pre and full assessments, including the Western Australian Rock Lobster fishery, Mexican Spiny Rock Lobster fishery, Mexican Sardine fishery,

the Australian Lakes & Coorong fishery and the North Pacific Halibut fishery and the North Pacific Sablefish (Black Cod) fishery. Dr. Daume is a marine biologist with special expertise in the biology and ecology of exploited marine resources. She has over 10 years experience working closely with the fishing and aquaculture industry in Australia. In her role as the Senior Research Scientist at the Department of Fisheries in Western Australia, she lead research projects related to fishery enhancement and fishery habitats of temperate and tropical invertebrate species. She is also a lead auditor certified to the ISO 9001:2008 standard.

Mr. Alexander “Sandy” Morison, Consultant, Morison Aquatic Sciences

Mr. Morison is a consultant for Morison Aquatic Sciences, a private consulting firm specializing in fisheries and aquatic sciences. He has over 10 years experience in senior research positions for state and national organizations in Australia and over 25 years experience working in fishery science and assessment at state, national and international levels. This includes commercial and recreational fisheries in freshwater, estuarine and marine habitats. He has chaired a wide range fishery assessment groups ranging from small inshore fisheries to large multinational offshore fisheries and has experience with invertebrate, chondrichthyan and teleost fisheries. He has particular expertise with fish age and growth and has been involved in the development and implementation of harvest strategies for several fisheries. Mr. Morison has participated as part of a team undertaking Marine Stewardship Council pre-assessment for Australian Commonwealth-managed fisheries.

Ms. Mary Lack, Shellack Pty Ltd.

Ms. Lack has qualifications in agricultural and resource economics and has over 25 years experience in Australian and international fisheries management. She has been Director of Shellack Pty. Ltd., a consulting company, based in Canberra Australia, specializing in fisheries management and trade and working with government, non-government and intergovernmental organizations for the past 10 years. Prior to her work with Shellack Pty Ltd., Ms. Lack worked in various senior fisheries management roles in the Australian Government. During that time she has developed strong skills in fisheries management, domestic and international fisheries governance and fisheries trade analysis. In recent years her work has focused on sustainability and governance issues in Australian fisheries and in regional fisheries management organizations. Mary has extensive relevant experience with MSC methodology, particularly in the Australian Antarctic region. She has been involved in pre-assessments, annual surveillances and re-assessments under the MSC standard.

3.2 Peer Reviewers

Dr Ian Boyd, University of St Andrews, UK

Dr Boyd is a Professor in Biology at the University of St Andrews. He is Director of the Scottish Oceans Institute and the NERC Sea Mammal Research Unit. He has been chairman of the Marine Alliance for Science and Technology for Scotland (MASTS) and was Chief Executive of SMRU Ltd. His research field is in marine ecology with a specialization in marine mammals and he has gained awards for his research in polar science, zoology and marine science. He led a UK research program in Antarctica for 14 years, has led several international research projects as chief scientist, and he is an adviser to the Government about issues concerning marine management. He has degrees from the Universities of Aberdeen and Cambridge, is a Fellow of the Royal Society of Edinburgh and the Society for Biology, and is a member of the Scottish Science Advisory Council. He has also served on two inquiries in to the future of Scottish fisheries and chairs a Scientific Advisory Board on offshore decommissioning for Oil and Gas UK. He has published over 150 peer-reviewed scientific papers and 10 books. He has also conducted MSC peer review for toothfish species.

Dr Indrani Lutchman is responsible for leading IEEP’s fisheries program and related activities. She has expert knowledge on the Common Fisheries Policy (over 15 years experience), the implementation of related instruments including the habitats and birds Directive, the EU’s Biodiversity Strategy and the Integrated Maritime Policy (IMP). She also has 20 years experience of fisheries and marine management in

international waters including the Caribbean and Antarctica. With specific experience in the implementation of the ecosystem-based approach to fisheries management at the EU and international level specifically in relation to the management of Antarctic marine living resources, she assists in the development of indicators for monitoring fisheries policy performance, including the use of marine protected areas (MPAs), the integration of environmental principles in fisheries management and the use of market-based instruments in the fisheries context. She was the lead researcher executing a wide range of projects for WWF/IUCN UK/International on EU, Antarctic and international fisheries projects including evaluations of North Sea Conference outcomes and new initiatives to control IUU fishing in the Southern Oceans. She has been the environmental representative on UK delegation to CCAMLR since 1990, and has worked closely with the UK and EU and CCAMLR delegations on the development of measures to deter IUU fishing including CCAMLR's Catch documentation Scheme (CDS) and associated measures include the electronic *Dissostichus* catch document and IUU vessel lists. She has also been a peer reviewer for other MSC toothfish assessments.

3.3 Summary of Meetings

The sites and people chosen for visits and interviews were based on the assessment team's need to acquire information about the management operations of the fisheries under evaluation. Agencies and their respective personnel responsible for fishery management, fisheries research, fisheries compliance, and habitat protection were identified and contacted with the assistance of the client group and stakeholders.

The assessment team met with stakeholders on the 30th November and with scientists, managers and client representatives on the 1st-2nd December 2010 in Hobart, Tasmania, Australia. As with all assessments, there are always a number of issues that come to light when reviewing all the information with critical management and scientific personnel. Questions that arose after the meetings were handled through email and phone calls with the client and any other necessary entities.

Table 1. Assessment Attendees

Name	Role	Affiliation
Dr. Sabine Daume	Assessment Team Leader	SCS
Sandy Morison	Assessment Team member	Consultant
Mary Lack	Assessment Team member	Consultant
Martin Exel	Client Representative	Austral Fisheries Pty Ltd.
Les Scott	Client Representative	Australian Longline Pty Ltd
Dr. Malcolm Haddon	Stock status/ harvest strategy	CSIRO
Dr. Dirk Welsford	Stock status/ harvest strategy	AAD
Peter Neave	Management	AFMA
Fraser McEachan	Compliance	AFMA
Lihini Weragoda	Management/ Policy	AAD
Peter Trott	Stakeholder	WWF
Rob Nicoll	Stakeholder	WWF

3.4 Submission of Data on the Fishery

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.

4 HEARD ISLAND AND MCDONALD ISLANDS PATAGONIAN TOOTHFISH FISHERY

A brief description of the Australian HIMI Patagonian toothfish Fishery assessed in this project is provided in the following subsections. The descriptions are general in nature and brief, since a good deal of this information is more fully discussed in Section 10, Assessment Team Performance Evaluations.

4.1 Unit of Certification

The fishery under assessment is the Patagonian toothfish *Dissostichus eleginoides* in sub-Antarctic waters within the Australian EEZ around the Heard Island and McDonald Islands Plateau. Marine Stewardship Council Principles and Criteria for Sustainable Fishing are applied to the following 2 units of certification:

1. Patagonian toothfish *Dissostichus eleginoides* demersal trawl
2. Patagonian toothfish *Dissostichus eleginoides* demersal longline

4.2 Target Species and Life History

The fishery targets Patagonian toothfish *Dissostichus eleginoides* (Fig. 1). The species is a member of the Family Notothenidae and is one of two species in the genus, Antarctic toothfish (*Dissostichus mawsoni*) being the other. Patagonian toothfish grow to over 2.2 m long and live to a maximum of over 50 years of age. 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. Sexual maturation occurs between 75 and 80 cm in males and between 97 and 99 cm in females (9-10 years of age).



source:http://data.aad.gov.au/aadc/biodiversity/taxon_documents.cfm?taxon_id=101640

Fig. 1: Patagonian toothfish *Dissostichus eleginoides*

4.3 Distribution

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. *D. eleginoides* occurs throughout the Heard Island and McDonald Islands Plateau, from shallow depths near Heard Island to at least 1 800 m depth around the periphery of the plateau.

4.4 Stock structure

Considerable mitochondrial DNA heterogeneity has been found among populations of *D. eleginoides* from three southern ocean locations, Macquarie Island, HIMI and Shag Rocks/South Georgia suggesting that are genetically distinct even though there were no significant differences among these populations when comparing seven nuclear microsatellite loci. 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. 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 *D. eleginoides* may exist in the Indian Ocean sector.

4.5 Migration and movement

A tag and recapture study found the vast majority of *D. eleginoides* 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. Nevertheless, during surveys and fishing on the Kerguelen Plateau in 2006 102 of 587 tagged and recaptured toothfish (17%) were from Heard Island and McDonald Islands and during the 2009/10 season, 17 of 194 (9%) recaptured fish had been tagged in these Australian waters. A small number of individuals tagged in the Australian EEZ, however, have also been recaptured by the Crozet Islands toothfish fishery, a migration of greater than 1000 nm including crossings of oceanic troughs over 4000 m deep and 390 nm wide.

The average size of toothfish caught increases with increasing depth of the fishery. It is believed they move to deeper waters once sexual maturity is reached and that juveniles move into the fishery from shallower coastal waters. Very few fish greater than 850 mm are caught by the trawl fishery. 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. 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 (>1 000 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 1 000 and 2000 m depth but few fish caught are >1 000 mm TL, even though the maximum size is more than twice this length.

4.6 Reproduction

Antarctic Notothenid fish typically produce large yolky eggs and mature at about half their maximum length. Spawning occurs from July to September although the location of spawning grounds is unknown. There are some indications that in South Georgia, *D. eleginoides* 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 size at which 50% of fish become sexually mature occurs at 78.5cm +/- 0.5cm total length for male and 98.2 cm +/- 1cm for female fish. There is also evidence that a significant proportion of sexually mature fish (25 to 43 %) do not come into spawning condition each year. These sizes correspond to an age of 7-10 years for males and 10-12 years for females.

4.7 Diet

D. eleginoides 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 *D. eleginoides* 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.

4.8 Predators

Killer whales (*Orcinus orca*) and sperm whales (*Physeter macrocephalus*) have been observed to remove *D. eleginoides* from commercial fishery long lines around South Georgia Island. Feeding by killer whales in particular can depress longline CPUE by up to 50% (Clark and Agnew 2010). It is unlikely that *D. eleginoides* 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 *D. eleginoides* 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. 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.

4.9 Geographic Setting of the Australian Patagonian Toothfish Fishery

HIMI are external territories of Australia located in the Southern Indian Ocean about 4,000 km south-west of Perth. The islands lie within the Antarctic Convergence, and inside the area of application of the Convention on the Conservation of Antarctic Marine Living Resources (CCAMLR Convention) but outside the Antarctic Treaty Area (see Appendix I).

The HIMI fishery, which includes both Patagonian toothfish and mackerel icefish *Champsocephalus gunnari*, operates in shelf areas within the Australian Fishing Zone (AFZ) surrounding HIMI out to 200 nautical miles. It is managed by the Australian Fisheries Management Authority (AFMA). The AFZ adjoins the French fishing zone at the Kerguelen Islands.

Heard Island and McDonald Islands are the only examples of unmodified Sub-Antarctic island ecosystem in the world. They provide valuable breeding and feeding areas for many species of marine mammals and birds, while supporting a vast array of endemic invertebrates. Both HIMI and the territorial sea around the islands (to 12 nautical miles) were declared a Wilderness Reserve in 1992, managed by the Australian Antarctic Division (AAD). Subsequently, in 1997, the Australian Territory of Heard Island and McDonald Islands was added to the World Heritage List.

In addition, there are extensive Marine Reserves already in place in the HIMI fishery, effectively setting aside 39.6% of all seabed in depths under 1,000 metres from any fishing activity (see below). The HIMI Marine Reserve was declared by Proclamation under section 344 of the EPBC Act on 16 October 2002 for the purpose of ‘*protecting the conservation values of Heard Island and McDonald Islands and the adjacent unique and vulnerable marine ecosystems*’. The reserve covers approximately 65,000 square kilometres and is listed as ICUN category 1a protected (‘strict nature reserve’). The marine reserve provides significant protection for benthic habitats, as well as feeding grounds for many species of seabirds and marine mammals. No commercial harvesting activities are permitted to occur in the HIMI Marine Reserve. Recreational fishing in the Reserve is also prohibited.

The HIMI Marine Reserve is managed through the *Heard Island and McDonald Islands Marine Reserve Management Plan 2005*, as required by the EPBC Act. The HIMI Marine Reserve Management Plan is in force until 2012 and is currently undergoing review.

At the time of declaring the HIMI Marine Reserve four additional areas were declared as a Conservation Zone to further assess their values for possible inclusion in the Marine Reserve. A scientific assessment has been completed and a formal process will be underway to finalise this.

Only limited fishing activities have been allowed within the Conservation Zone areas. A recommendation on the areas of the Conservation Zone to be included in the area of the Marine Reserve is expected to be provided to the Minister for Sustainability, Environment, Water, Population and Communities shortly for decision (AFMA 2010, see also Appendix 1 for details).

4.10 Background of the Australian Patagonian toothfish Fishery

Commercial fishing by Australian operators was first permitted by AFMA in 1995, but did not commence until March 1997. Fishing in the HIMI region has been limited to a maximum of three Australian boats at any one time and is subject to stringent management arrangements.

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 (see Appendix I), which has a strong influence over the management of the fishery. The area within 13 nautical miles of the islands is protected from fishing. Out to 12 nautical miles the area is listed on the World Heritage List and forms part of the Heard Island Wilderness 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 zone to the Wilderness Reserve. 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.

Statutory Fishing Rights (SFRs) govern access to the fishery with each operator currently requiring a minimum quota holding of 25.5 % of the total number of SFRs (so limiting the number of boats to a maximum of 3). The fishing season extends from 1 December to 30 November each year.

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

5 FISHERY MANAGEMENT SYSTEM

As noted above, the HIMI Patagonian Toothfish Fishery is located in waters that are both in the Australian EEZ, and also inside the boundaries of the CCAMLR Convention. The fishery is managed by AFMA, in concurrence with the AAD and in accordance with the *Fisheries Management Act 1991 (FMA)* taking into account the requirements of other domestic legislation, in particular the *Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)*, and in conjunction with the requirements of the *Antarctic Marine Living Resources Conservation Act 1981*, which implements the CCAMLR Convention. All aspects of the fishery specific management system including the research, surveys, stock assessments, harvest strategies, CCAMLR Conservation Measures and management controls are administrated by AFMA.

The HIMI Toothfish Fishery is based on a stock that is also considered to be fished by French vessels operating in the French EEZ around Kerguelen Island. As a result, some aspects of the French management system for this wider fleet are relevant to the assessment.

5.1 Convention on the Conservation of Antarctic Marine Living Resources

The CCAMLR requirements for management of Antarctic marine living resources are well recognized as being the world's leading example of a multi-lateral structure providing an ecosystem-based management framework for fisheries management. In particular, the requirements to make specific allocation of biomass for predators as a measure to protect against impacts of fishing, is a strong feature of the management process.

The HIMI Toothfish Fishery is managed in close accord with the requirements of CCAMLR for precautionary ecosystem-based management of fisheries. The principles of conservation governing all harvesting and associated activity in the Convention Area are set out in [Article II of the CCAMLR Convention](#). The three principles can be paraphrased as follows (CCAMLR 2000):

- (i) prevention of population decline to levels which threaten stable recruitment of harvested species,
- (ii) maintenance of ecological relationships between the harvested, dependent and related species, and

- (iii) minimization of the risk of ecosystem changes that are not potentially reversible in 20-30 yrs.

These guiding principles underpin the essential elements of CCAMLR's approach to management. They encompass both the precautionary and ecosystem approaches.

The CCAMLR process requires interested and responsible nations to come together in an annual multi-lateral 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 an impressive record of agreeing to key measures, such as catch limits, in line with the advice to the Commission from its Scientific Committee.

The Scientific Committee is supported by several constituent working groups that focus on specific areas of science. There are standing working groups on Fish Stock Assessment (WGFA), Ecosystem Monitoring and Management (WGEMM) and Incidental Mortality Arising from Fishing (WGIMAF). This hierarchical approach (management advice flows up from the working groups to the Scientific Committee 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).

5.2 Australian Antarctic Division and Australian Fisheries Management Authority

There are two main components of the Australian Government with management responsibilities for HIMI and its surrounding waters: The AAD, a part of the Australian Government Department of Sustainability, Environment, Water, Population and Communities (SEWPAC), and AFMA, a Commission responsible for day to day management of Commonwealth fisheries, including the HIMI Patagonian Toothfish fishery. Policy input on fisheries management is provided to the Minister and to the Parliamentary Secretary for Agriculture, Fisheries and Forestry, by the Department of Agriculture, Fisheries and Forestry (DAFF).

AAD manages Australian Government activity in Antarctica and in the subantarctic, 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 Wilderness Reserve. The territorial sea is therefore closed to fishing. In addition, AAD manages the HIMI Marine Reserve which encompasses the HIMI Territory and a portion of the HIMI EEZ. Given its location in the Southern Ocean (i.e. south of the Antarctic Convergence) AAD also carries out scientific research and provides management advice on fisheries within the AFZ around HIMI. AAD's Strategies 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.

AFMA, established in 1992, undertakes the day to day management of the fisheries in the AFZ. For administrative purposes, AFMA manages more than 20 fisheries that are identified by species, fishing method and/or area. The 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 (CEO), AFMA's operations are overseen by nine 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. Two committees, the AFMA Research Committee and the Environment Committee, report to the Commission. The Audit and Risk Committee reports to the CEO. The outcomes of Commission meetings are reported to stakeholders and the public through the AFMA website.

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 fulfill 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, not dissimilar to that of the Commission. MACs therefore 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 HIMI fisheries, along with other Antarctic and sub-Antarctic fisheries under Australian jurisdiction, is SouthMAC (Sub-Antarctic Fisheries Management Advisory Committee). The seven statutory members of SouthMAC comprise two from industry, one from the conservation community (currently from the Tasmanian Conservation Trust), a research member (the chair of the Sub-Antarctic Resource Assessment Group (SARAG) – see below), and one from AAD (Strategies Branch). In addition, there is an AFMA representative and an independent Chair. Observers are welcome to attend meetings of the MAC and from time to time students, other industry members and representatives from other environment non-government organizations attend. SouthMAC meets once a year, after the annual CCAMLR meeting, and provides the public forum for ongoing development and adaptation of the management regime for the HIMI Toothfish Fishery. The first meeting of SouthMAC was held in November 1998 and the

most recent meeting was held in Hobart in December 2010. In addition to the annual meeting the MAC attends to urgent issues out-of-session via email and phone discussion.

Resource Assessment Groups (RAGs) have been established by AFMA to provide independent advice on technical issues relating to the fishery including stock status and to achieve transparency in the collection and analysis of data for fisheries management purposes. The HIMI Toothfish Fishery stock assessment process is reviewed by SARAG which provides advice to SouthMAC and the Commission. SARAG is currently composed of a Chair and eleven members including six government scientists (four from AAD and two from CSIRO), two industry members, an AFMA member and a representative from the Tasmanian Department of Primary Industries, Parks, Water and Environment. An observer from the Australian Bureau of Agricultural and Resource Economics and Sciences (ABARES) regularly attends the meetings. Other observers also attend these meetings. The RAG meets three to four times per year and there is considerable commonality of membership across the MAC and RAG.

In addition to the formal consultative mechanisms provided by the MAC and RAG, there is ongoing informal correspondence between the industry members and scientists and managers throughout the year. There are also a number of broader consultative mechanisms that include other government agencies and non-government organizations. These are discussed in more detail in the assessment of the Fishery against Principle 3.

5.3 French Management System

The French fishery for Patagonian Toothfish in its EEZ around Kerguelen Island in CCAMLR Division 58.5.1 began in 1984/85 as a trawl fishery but toothfish had been taken as bycatch to earlier targeted trawling for other species in the EEZ. A longline fishery for Patagonian toothfish, which continues to the present day, began in 1991/92 and trawling was discontinued after 2000/01. The longline fishery is active throughout most of the year. Lebouvier and Frenot (2007) report that commercial fishing is strictly regulated in the French EEZ around Kerguelen Island with measures including a ban on fishing in inshore waters, closed seasons and areas where appropriate, minimum size of fish, the need to hold a fishing licence, return of detailed catch records, and presence of observers at all times. France sets the TAC for Patagonian toothfish for its fishery in CCAMLR Division 58.5.1. In 2010/1 the TAC was set at 5,100 t and was allocated to seven longliners (SC CCAMLR, .

Several key organizations are involved in conservation and management in the French sub-Antarctic islands. Stock assessment and management are conducted by the Museum National d'Histoire Naturelle in Paris. The Terres Australes et Antarctiques Françaises (TAAF), attached to the Ministry of Overseas Territories is responsible for national sovereignty in the French sub-Antarctic islands. The Committee for the Polar Environment (CEP), created in 1993, gives advice and recommendations in matters relating to environment and wildlife protection, protected areas and management issues (Lebouvier and Frenot, 2007).

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. The TAAF operates under the provisions of the Code rural et de la Pêche maritime¹. Following amendments to the Code in 2010, French laws now apply to Kerguelen Island. As a result, the Common Fisheries Policy of the European Union now also applies to management of the French toothfish around Kerguelen Island.

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- ¹ Available at:
http://www.legifrance.gouv.fr/affichCode.do;jsessionid=B53E28072032D8805389FFCE6CD11526.tp_djo16v_2?cidTexte=LEGITEXT000006071367&dateTexte=20110513

Conservation and management in the French sub-Antarctic islands are regulated by successive laws and decrees. The 1928 National Park Act protected marine mammals (in particular fur seals and elephant seals) and some bird species. Specific access regulation became effective in 1985: access to some areas was reserved for scientific activities, and visits to several pristine or little-disturbed islands and areas were strictly restricted and had to be justified by compelling scientific aims. Since 2001, a TAAF committee has been in charge of surveys, inventories and conservation of historical and cultural sites.

In 2006 the sub-Antarctic islands were given the status of Nature Reserve (Reserve Naturelle nationale des Terres australes Françaises, decree no. 2006-1211, 03/10/2006), which is the strongest protection available under French law. The Nature Reserve includes all terrestrial areas, internal and territorial waters around Kerguelen Island as well as several marine areas at Kerguelen. A management plan is being drawn up within a for the Reserve and, in the interim, general regulations for the protected marine areas include:

- A prohibition on fishing in the Nature Reserve
- Prohibition on the destruction mutilation, capture or removal of cetaceans
- Specification of the location and use of anchorages
- Provision for passage of vessels through the marine areas included in the Marine reserve.

The TAAF consultative committee is designated as the consultative committee for the Nature Reserve and the CEP is designated as the scientific committee to be consulted about the management plan and about every scientific issue relevant to the environment.

In addition to those agreed by CCAMLR, French national measures in force in the fishery include:

- Annual fishing season closure (February)
- Annual catch limit and limitation of number of longliners (seven)
- Compulsory logbooks
- Allocation of fishing effort (not more than one longliner per 0.5° latitude by 1° longitude rectangle)
- One French observer on board each licensed vessel
- Minimum fishing depth (500m)
- Minimum legal size for toothfish (60cm)
- Mitigation measures for the reduction of bird mortality
- Landings occur at one place (Reunion Island)
- Skates to be cut off if not processed (started December 2006)
- Port inspection (CCAMLR, 2010d)

5.4 Cooperation between Australia and France

The *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) and territorial seas in the Southern Ocean.

Patagonian toothfish has been a key target of illegal fishing in the area and France has been very active in the fight against this illegal activity, including monitoring by satellite (Lebouvier and Frenot, 2007). This activity includes formal cooperation and coordination with Australian monitoring, control and surveillance operations around HIMI. Cooperative enforcement measures include the boarding, inspection, hot pursuit, apprehension, seizure and investigation of fishing vessels that are believed to have breached fisheries laws. No IUU fishing has occurred within the French EEZ since 2004/05 (CCAMLR, 2010d).

In addition to cooperation on IUU fishing, Australia and France have conducted cooperative work on analysis of catch, effort and other data to be used to progress understanding of fish stocks and fishery dynamics in Divisions 58.5.1 and 58.5.2 (CCAMLR, 2010d). There is no formal stock assessment for Patagonian toothfish in Division 58.5.1. CCAMLR WGFS noted in 2010 that France has made progress on a stock assessment of the area using CASAL. France has advised the WGFS that development of a stock assessment model is ongoing and that it intends to present the model to a future meeting of the Working Group (CCAMLR,).

6 FISHERY'S IMPACT ON ECOSYSTEM

6.1 Ecosystem

The fishery operates on the Kerguelen plateau, and is active in a relatively small portion of the ecosystem. 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 area within 13 nautical miles of the islands is protected from fishing. Out to 12 nautical miles the area is listed on the World Heritage List and forms part of the Heard Island Wilderness Reserve (Meyer et al. 2000) and an additional buffer zone of 1nm is provided by AFMA Direction HIMIFD 11 which prohibits fishing between 12 and 13nm. . In addition, the islands are on the Register of the National Estate as the only unmodified example of a Sub-Antarctic Island ecosystem. One of the largest Marine Protected Areas in the world also exists in the HIMI region and preventing fishing. The Marine Reserve incorporates over 39% of all waters shallower than 1,000 metres in the HIMI EEZ and covers 65,000 km² with an additional 11,500 km² under consideration for the reserve (see <http://www.environment.gov.au/coasts/mpa/heard/>, AFMA 2009b).

6.2 Bycatch - Retained and discard species

In an MSC assessment, “bycatch” consists of the catch of all species that are not included under target species, and are either “retained” vs. “discarded or released” bycatch. Under MSC Guidelines (FAM v2.1, 7.1.1), 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 rules 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 are considered separately (PI 2.3.1 - 2.3.3). Seabirds and marine mammals are covered under those PIs see also section 6.3.

The Scoring Guidepost (SG) 60 and SG 80 in the Default Assessment Tree (DAT) refer to “main” species in the retained and discarded bycatch. Main species are those that comprise 5% or more of the total catch by weight or if the species is particularly 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 “main” retained or discarded bycatch species.

In an MSC assessment, the bait used in the fishery, if caught by the same fishermen or bought from other sources, is considered “bycatch” (FAM v2.1, 2010). Species that are not caught in the fishery, but are used as bait or species that may be affected indirectly by the fishery are also considered and discussed in Principle 2 Performance Indicator rationales for “bycatch species.” Bait is used in the longline sector of the HIMI Patagonian Toothfish Fishery.

All species caught in the fishery were the subject of an ecological risk assessment and management process (AFMA 2009a, AFMA 2009c, AFMA 2009d, AFMA 2009f). This process addressed both the demersal trawl and longline fishery for toothfish.

6.2.1 Ecological risk assessment (ERA)

The ecological risk assessment (ERA) is followed by an ecological risk management (ERM) framework developed by AFMA including the HIMI toothfish fishery. The methodology applied is a set of screening or prioritization steps that work towards a full 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). Only one skate species was identified as being at potential high risk in the demersal longline sub fishery which, in contrast to the trawl sector, was not confirmed with the level 3 SAFE assessment in the longline sector. It is also noted in the report that F may be overestimated using the SAFE 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).

The management measures to reduce the incidental catch of non-target species include 1) a marine protected area system covering significant areas in the ecosystem with no fishing permitted, 2) catch limits on target and bycatch species based on either precautionary CCAMLR advice or assessments, 3) prohibition on release of wastes including offal, 4) release procedures for non-target species that have a high chance of survival like sharks and rays, 5) gear restrictions to protect habitat from impact, 6) move on rules with specific triggers for catch weights of bycatch species, 7) mandatory streamer (tori) lines and line weighting for the longline sector to mitigate bird interactions, and 8) minimization of lighting to also reduce bird interactions along with a range of voluntary measures by industry (AFMA 2009c, AFMA 2009d, AFMA 2010). These measures go hand in hand with requirements including 100% observer coverage (2 full time observers per vessel per trip), mandatory reporting of all interactions with any endangered, threatened or protected species (ETPS), shot by shot reporting of all target species and bycatch, and ongoing consideration of bycatch by SARAG (AFMA 2009c, AFMA 2009d).

Skates, sharks, jellyfish, sponges and crabs are returned to the ocean as these species either have a high chance of survival, do not attract seabirds and marine mammals when discarded or cannot be effectively processed through the meal plant (AFMA 2009b). The majority of these are ground for fishmeal. Fishmeal is discarded outside the fishing zone because it is deemed unsuitable for sale. Only grey rockcod and unicorn Icefish are retained whole. All species caught in the fishery have TACs of 50 tonnes, unless otherwise specified. This limit is based on CCAMLR advice, and taken to be a precautionary limit (Phillips and Ansell 2008).

6.2.2 'Move-on' rule

Since 2001 specific measures are in place for some retained and bycatch species (SouthMAC Minutes, 2001) that gets updated on a regular basis. The CCAMLR Conservation Measure 33-02 - Limitation of by-catch in Statistical Division 58.5.2 in the 2010/11 season states that “*if, in the course of directed fishing, the by-catch of in any one haul of Channichthys rhinoceratus, Lepidonotothen squamifrons, Macrourus spp., Somniosus spp. or skates and rays is equal to, or greater than 2 tonnes,*” then the vessel must move on 5 n miles for a period of at least five days. If any vessel catches *equal to, or greater than 1 tonne of a by-catch species of any other bycatch species for which by-catch limitations apply under this conservation measure*, it should move on.

Unicorn Icefish (along with grey rockcod) have a specific upper catch limit, which is based on a stock assessment done in the late 1990's (Constable et al. 1998). This stock assessment has been noted as being in need of update as it is not based on parameters estimated from HIMI unicorn Icefish (Philips and Ansell 2008). However, catches of unicorn Icefish are stable or increasing in the last 10 years (AFMA 2009b), suggesting that given the absence of significant targeting, it is unlikely that this species is suffering depletion. Discarding is prohibited in the fishery, and given the complete (i.e. 100%) observer coverage, is unlikely to be occurring (AFMA 2009b). Species caught in the fishery which are in adequate condition are returned alive to the water. These include corals and other benthic invertebrates, along with some fraction of skates, rays and other species.

1. Demersal trawl

Trawl operators target 3-6 year old toothfish that are on average 60 cm long and 2-3 kg in weight (AFMA 2010). Total by-catch in the toothfish trawl fisheries is generally less than 10% of the total catch (CCAMLR 2010) and over the history of the fishery no bycatch species has been caught in quantities approaching the catch limits. Only grey rockcod and unicorn Icefish are retained whole and are only caught in the trawl sector. Unicorn Icefish comprises approximately 4% and grey rock cod 2% of the total catch by weight for the 2008/09 season (CCAMLR 2010). However, using the MSC guidance (FAM v 2.1, 2010), the assessment team considered unicorn Icefish as a main retained species because total catch can fluctuate significantly and reach levels close to 5% of total catch by weight. Rockcod is not considered a main species under the MSC guidance (FAM v 2.1, 2010) because it is neither close to 5% of total catch by weight nor is this species considered particularly vulnerable. Macrouridae or Grenadiers, a large and diverse family of species, are caught in both sectors of the fishery, and together with other minor species ground into fishmeal and discarded outside the fishing zone. Macrouridae comprise approximately 0.1% of the total catch by weight for the 2008/09 season (CCAMLR 2010) and are therefore not a main species under the MSC guidance (FAM v 2.1, 2010). Skates, rays and invertebrate are released and are therefore considered as bycatch species. They comprise approximately 1% or less of the total catch by weight (CCAMLR 2010). The ecological risk assessment (ERA) considered 85 bycatch species for the trawl sector (Daley et al. 2007).

However the ERA together with the residual risk assessment identified three skate species as being at high risk from the demersal trawl fishery which was confirmed with the level 3 SAFE assessment. As a result, they have been assessed here as main bycatch species.

2. Demersal longline

Longline operators target 7-15 year old toothfish that are on average 80 cm long and 5-7 kg in weight (AFMA 2010). Total landed by-catch in the longline fisheries ranged from 6 to 13% of the total catch (~8% in 2009/10). No bycatch species was caught in quantities approaching the catch limits. There are no retained species in the longline sector. Macrouridae comprise approximately 9% of the total catch by weight

for the 2008/09 season (CCAMLR 2010) and are therefore a main species under the MSC guidance (FAM v 2.1, 2010).

Skates, rays and invertebrate are released and are therefore considered as bycatch species. They comprise approximately 1% or less of the total catch by weight (CCAMLR 2010). 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).

Squid (*Nototodarus sloanii* or *Illex argentinus*), jack mackerel (*Trachurus symmetricus*) and barracouta (*Thyrstites atun*) are used as bait in the longline fishery. Squid is either imported from New Zealand (*Nototodarus sloanii*) or from Argentinean waters (*Illex argentinus*). The team considered squid a main bait species (> 70% of total bait used). The total amount of bait use in the longline toothfish fishery at HIMI is approximately 250-300 tonnes. In addition mackerel and barracouta are used in much smaller amounts of around 30-60 tonnes each (M. Exel and L. Scott pers.com, AFMA observer reports 2010). Risks associated with frozen bait are assessed by AQIS (Australian Quarantine and Inspection Service). AQIS import certificates are mandatory for all imported bait used in the fishery.

The status of bycatch species including the bait species used in the longline sector is not very well known. Assessments for squid are not available, but consideration of the squid fishery and life histories (short lived, rapid growth and significant recruitment) suggest that current fishing levels are sustainable and not having severe adverse impacts on the population.

6.3 Endangered, threatened and protected (ETP) species

ETP species are those that are recognized by national legislation and/or binding international agreements to which the jurisdictions controlling the fishery under assessment are party (FAM 2.1, 2010). The Assessment Team considered any species that is listed on the Convention on International Trade in Endangered Species (CITES) list to be an ETP species and/ or recognized by national legislation. Seabird bycatch is regulated domestically for longline fisheries under a threat abatement plan. The fishery does interact with some ETP species. In particular they interact with seabirds, and to a lesser extent with marine mammals. Since 2000, AFMA reports that there have been 13 seabird mortalities combined from both sectors of the HIMI toothfish fishery and 32 marine mammal mortalities as a result of interactions with the fishing gear. Fishers are required to report each interaction within 24 hours of its occurrence, and reports must include a response plan designed to minimize further interactions that is implemented immediately (AFMA 2010).

The ecological risk assessment (ERA) considered 84 and 82 ETP species for the demersal longline and trawl sector respectively. In the trawl sector ETP species were eliminated at Level 1. It is important to note that the worst case scenario considered for both sectors was the impact of capture on black-browed albatross populations during the course of fishing. This bird species has the smallest population size (ca. 1,200) for any in the region. However, it is almost certain that even an annual catch of 1% (12 birds per year, which is significantly in excess of any catches of seabirds in this fishery) would not prevent this fishery from meeting its main objective for ETP species - ensure that ETP species do not further approach extinction or become extinct.

There are a range of measures that have been implemented to reduce ETP interactions specifically, including: 1) prohibiting the discharge of offal and other waste, 2) temporary and permanent spatial closures, 3) temporal closures for longline fishing (no fishing between November and the 15th of April is allowed each year, as that coincides with the main breeding and feeding season for seabirds). Compliance with these measures is very

high, as there are two observers on each vessel with 100% coverage of all fishing activities, along with automated satellite monitoring systems on each boat, providing position data on a regular basis to the management agencies and CCAMLR (data can be collected to every 30 seconds for position). No other significant risks of indirect interactions with ETP species were identified.

6.4 Habitats

While recognizing that impacts occur on benthic communities, AFMA considers that based on current knowledge, the fishery does not have significant impact on the benthos as: 1) Fishing grounds were established in areas that were shown to have lower benthic bycatch, 2) a small area is fished, 3) assessment work suggests that there is adequate coverage of each habitat type in the reserve, 4) trawl gear in the fishery has been modified to reduce benthic impacts. The majority of the EEZ around HIMI is not trawled because of its unsuitable trawl ground, due largely to excessive depth. Of the areas that are shallow enough to trawl, operators tend to concentrate on areas that are known to hold assemblages of either toothfish or icefish. (AFMA 2010b). The ecological risk assessment (ERA) did not consider habitat due to lack of information. Therefore a project jointly funded by Fisheries Research and Development Corporation with industry, AAD and AFMA, investigated “Demersal fishing interactions with marine benthos in the Australian EEZ of the Southern Ocean: an assessment of the vulnerability of benthic habitats to damage by demersal gears” (AFMA 2009b). Preliminary results are now available from this project, with a description of habitat biota across habitat types in the region (Hibberd et al. 2008). The results of an impact assessment of demersal trawl gear are expected as part of the next progress report from the project (Constable 2008).

7 TRACKING AND TRACING OF FISH AND FISH PRODUCTS

Traceability of product from the sea to the consumer is vital to ensure that the MSC standard is maintained. There are several aspects to traceability that the MSC requires to be evaluated: Traceability within the fishery; at-sea processing; at the point of landing; and subsequently the eligibility of product to enter the chain of custody.

7.1 Traceability within the fishery

For the toothfish fishery, all landings are recorded and reported. The monitoring, control and surveillance system in place in the Toothfish 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 catch documentation required by Conservation Measure 10-05
- unloads of Australian Toothfish vessels outside of Australia are monitored by AFMA to ensure the vessels compliance with the reciprocal Port State measures as contained in CM 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 CCAMLR conservation measures. In port monitoring of overseas unloads are 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 Measure 23-01 and 23-02

- 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);
- Vessel monitoring system to record the position of the boats 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 with the CDS).

7.2 At-sea processing

All toothfish from this fishery is processed and frozen at sea.

7.3 Points of landing

The Toothfish is landed predominantly at Port Louis in Mauritius, with the remainder at the Port of Albany in Western Australia, Devonport in Tasmania and at Port of Nelson in New Zealand. 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.

7.4 Eligibility to enter Chains of Custody

At the writing of this report, toothfish landed by any of the registered vessels (Austral Leader II, Janas, Southern Champion and Antarctic Chieftain) are eligible to enter further Chains of Custody.

7.5 Target Eligibility date

The target eligibility date for the HIMI Toothfish Fishery, the date from which product from a certified fishery is eligible to bear the label if the fishery is certified, will be the 15 June 2011, which is 6 months before the release of the Public Comment Draft Report (PCDR).

8 OTHER FISHERIES IN THE AREA

There is only one other significant fishery that operates in the same territorial waters, and it is a fishery for Mackerel Icefish (*Champsocephalus gunnari*). Both fisheries Patagonian Toothfish and Icefish, operate in shelf areas within the Australian Fishing Zone (AFZ) surrounding HIMI out to 200 nautical miles. Both fisheries are conducted using Demersal Trawl although the toothfish fishery also uses longline gear and pots (in trial operations).

8.1 Harmonization with overlapping assessment and input into assessment from fishery that is sharing some of the same aspects of MSC Principles

The HIMI Toothfish Fishery is based on a stock that has a proportion also fished by French vessels operating in the French EEZ around Kerguelen Island under French management. Following MSC guidance (8.1.1-8.1.2, FAM 2.1), the French management system needs to be considered under PIs 3.1-3.4. The French Toothfish fishery is currently also under assessment against the MSC standard using the same assessment tree (FAM v.2.1). The assessment is conducted by a different Certification Body (MacAlister Elliott & Partners Ltd). Following TAB-D-15v 2 the SCS team reached out to the assessment team of the French fishery and fishery information was collected by conference calls and email between the CBs and scientists. However, the scoring process has not been finalized at the time of writing this report. The considerations of the French management system in this assessment rely heavily on information provided by the assessment team conducting the MSC assessment of the SARPC Toothfish fishery, supplemented where possible by publicly available material.

9 MSC PRINCIPLES AND CRITERIA

9.1 MSC Principle 1 – Stock Status and Harvest Strategy

A fishery must be conducted in a manner that does not lead to over-fishing or depletion of the exploited populations and, for those populations that are depleted; the fishery must be conducted in a manner that demonstrably leads to their recovery.

Intent:

The intent of this principle is to ensure that the productive capacities of resources are maintained at high levels and are not sacrificed in favor of short term interests. Thus, exploited populations would be maintained at high levels of abundance designed to retain their productivity, provide margins of safety for error and uncertainty, and restore and retain their capacities for yields over the long term.

MSC Criteria:

1. The fishery shall be conducted at catch levels that continually maintain the high productivity of the target population(s) and associated ecological community relative to its potential productivity.
2. Where the exploited populations are depleted, the fishery will be executed such that recovery and rebuilding is allowed to occur to a specified level consistent with the precautionary approach and the ability of the populations to produce long-term potential yields within a specified time frame.
3. Fishing is conducted in a manner that does not alter the age or genetic structure or sex composition to a degree that impairs reproductive capacity.

9.2 MSC Principle 2 – Ecosystem

Fishing operations should allow for the maintenance of the structure, productivity, function and diversity of the ecosystem (including habitat and associated dependent and ecologically related species) on which the fishery depends.

Intent:

The intent of this principle is to encourage the management of fisheries from an ecosystem perspective under a system designed to assess and restrain the impacts of the fishery on the ecosystem.

MSC Criteria:

1. The fishery is conducted in a way that maintains natural functional relationships among species and should not lead to trophic cascades or ecosystem state changes.
2. The fishery is conducted in a manner that does not threaten biological diversity at the genetic, species or population levels and avoids or minimizes mortality of, or injuries to endangered, threatened or protected species.
3. Where exploited populations are depleted, the fishery will be executed such that recovery and rebuilding is allowed to occur to a specified level within specified time frames, consistent with the precautionary approach and considering the ability of the population to produce long-term potential yields.

9.3 MSC Principle 3 – Management

The fishery is subject to an effective management system that respects local, national and international laws and standards and incorporates institutional and operational frameworks that require use of the resource to be responsible and sustainable.

Intent:

The intent of this principle is to ensure that there is an institutional and operational framework for implementing Principles 1 and 2, appropriate to the size and scale of the fishery.

MSC Criteria:

A. Management System: The fishery shall not be conducted under a controversial unilateral exemption to an international agreement.

The management system shall:

1. demonstrate clear long-term objectives consistent with MSC Principles and Criteria and contain a consultative process that is transparent and involves all interested and affected parties so as to consider all relevant information, including local knowledge. The impact of fishery management decisions on all those who depend on the fishery for their livelihoods, including, but not confined to subsistence, artisanal, and fishing-dependent communities shall be addressed as part of this process;
2. be appropriate to the cultural context, scale and intensity of the fishery – reflecting specific objectives, incorporating operational criteria, containing procedures for implementation and a process for monitoring and evaluating performance and acting on findings;
3. observe the legal and customary rights and long term interests of people dependent on fishing for food and livelihood, in a manner consistent with ecological sustainability;
4. incorporates an appropriate mechanism for the resolution of disputes arising within the system;
5. provide economic and social incentives that contribute to sustainable fishing and shall not operate with subsidies that contribute to unsustainable fishing;
6. act in a timely and adaptive fashion on the basis of the best available information using a precautionary approach particularly when dealing with scientific uncertainty;
7. incorporate a research plan – appropriate to the scale and intensity of the fishery – that addresses the information needs of management and provides for the dissemination of research results to all interested parties in a timely fashion;
8. require that assessments of the biological status of the resource and impacts of the fishery have been and are periodically conducted;
9. specify measures and strategies that demonstrably control the degree of exploitation of the resource, including, but not limited to:
10. set catch levels that will maintain the target population and ecological community's high productivity relative to its potential productivity, and account for the non-target species (or size, age, sex) captured and landed in association with, or as a consequence of, fishing for target species;
11. identify appropriate fishing methods that minimize adverse impacts on habitat, especially in critical or sensitive zones such as spawning and nursery areas;
12. provide for the recovery and rebuilding of depleted fish populations to specified levels within specified time frames;
13. have mechanisms in place to limit or close fisheries when designated catch limits are reached;
14. establish no-take zones where appropriate;
15. contain appropriate procedures for effective compliance, monitoring, control, surveillance and enforcement which ensure that established limits to exploitation are not exceeded and specify corrective actions to be taken in the event that they are.

B. MSC Operational Criteria:

Fishing operations shall:

16. make use of fishing gear and practices designed to avoid the capture of non-target species (and non-target size, age, and/or sex of the target species); minimize mortality of this catch where it cannot be avoided, and reduce discards of what cannot be released alive;

17. implement appropriate fishing methods designed to minimize adverse impacts on habitat, especially in critical or sensitive zones such as spawning and nursery areas;
18. not use destructive fishing practices such as fishing with poisons or explosives;
19. minimize operational waste such as lost fishing gear, oil spills, on-board spoilage of catch, etc.;
20. be conducted in compliance with the fishery management system and all legal and administrative requirements; and
21. assist and co-operate with management authorities in the collection of catch, discard, and other information of importance to effective management of the resources and the fishery.

9.4 Interpretations of MSC Principles for Performance Assessments

Along with developing a standard for sustainable fisheries management, the MSC also developed a certification methodology that provides the process by which all fisheries are to be evaluated. ASI accredits certification bodies that can show that the expertise and experience necessary to carry out MSC evaluation is present in the organization. In addition, each certification body must demonstrate its fluency with the MSC standards and evaluation methods through the use of these in a fishery evaluation

The methods are provided in great detail through documents that can be downloaded from the MSC website (www.msc.org). The Fisheries Assessment Methodology (FAM) Version 2.1, released 1 May 2010 is being used for the assessment of the fishery.

The MSC Principles and Criteria are general statements describing what aspects need to be present in fisheries to indicate that they are moving toward sustainable management. The certification approach or methodology adopted by the MSC requires that any assessment of a fishery or fisheries move beyond a management verification program that simply provides third-party assurances that a company's stated management policies are being implemented. The MSC's 'Certification Methodology' is designed to be an evaluation of a fishery's performance to determine if the fishery is being managed consistent with emerging international standards of sustainable fisheries.

10 ASSESSMENT TEAM PERFORMANCE EVALUATIONS

After completing all the reviews and interviews, the assessment team is tasked with utilizing the information it has received to assess the performance of the fishery against the default assessment tree (DAT) of the Fisheries assessment methodology (FAM 2.1, 2010). With the help of the MSC guidelines, the assessment team assigns numerical scores between <60 and 100 to each of the performance indicators. If a fishery scores less than 60 for any performance indicator, it is excluded from certification. In essence, the process requires that all team members work together to discuss and evaluate the information they have received for a given performance indicator and come to a consensus decision on scores. Scores are then combined to get overall scores for each of the three MSC Principles. A fishery must have normalized scores of 80 or above on each of the three MSC Principles to be recommended for certification. Should an individual indicator receive a score of less than 80, a 'Condition' is established that when met, would bring the fishery's performance for that indicator up to the 80 level score representing a well-managed fishery.

Below is a written explanation of the assessment team's evaluation of the information it received and the team's interpretation of the information as it pertains to the fishery's compliance with the MSC Principles and Criteria.

10.1 MSC Principle 1

A fishery must be conducted in a manner that does not lead to over-fishing or depletion of the exploited populations and, for those populations that are depleted, the fishery must be conducted in a manner that demonstrably leads to their recovery.

1.1.1

The stock is at a level which maintains high productivity and has a low probability of recruitment overfishing.

SG 60	SG 80	SG 100
It is <u>likely</u> that the stock is above the point where recruitment would be impaired.	It is <u>highly likely</u> that the stock is above the point where recruitment would be impaired. The stock is at or fluctuating around its target reference point.	There is a <u>high degree of certainty</u> that the stock is above the point where recruitment would be impaired. There is a <u>high degree of certainty</u> that the stock has been fluctuating around its target reference point, or has been above its target reference point, <u>over recent years</u> .

Score: 80

1.1.1 Scoring Rationale

The assessment for Patagonian toothfish uses an age-structured model that is implemented with the CASAL software. In addition to the results of the annual RSTS other key inputs include total catches and catch-at-age proportions from the fishery (obtained by applying year-specific age-length keys to year specific length-frequency distributions), standardized catch per unit effort (CPUE) for the trawl grounds, and estimates of IUU catches. Refinements to the assessment model are made regularly to incorporate new data and improved analytical methods. The assessment is fully age structured and now also considers the influences of age-length key sampling error, random ageing error and haul-level variability in catch-at-length proportions.

The assessment was updated in 2009 (Candy and Welsford 2009) and estimated that the spawning stock biomass was at 63% of unfished levels which, although lower than the previous estimate of 73%, was well above the limit reference point and complies with the CCAMLR objectives (Constable *et al.* 2000). There is a declining trend in the estimated biomass that is forecast to continue and take the stock to slightly below target levels before beginning to increase again after about 2020 (Figure 1).

The estimated long-term yield that satisfied the CCAMLR decision rules was 2550 t (CCAMLR 2009). The annual catch limit has been set close to or below this level since 2005/06. 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 *et al.* 2010).

There has also been an assessment (Zhou *et al.* 2009) that suggested that the fishing mortality for Patagonian toothfish in recent year has been greater than its maximum sustainable fishing mortality. The method used in this study is based on the extent of the spatial overlap between a species distribution and the area fished and was developed for species for which there were no other quantitative assessments. The authors of his study however, themselves noted the difference between their results and previous assessments for Patagonian toothfish and concluded that the method may have led to an overestimate of the fishing impact for other species as well. The results of the integrated assessment which includes a much more comprehensive range of data sources, has been reviewed at CCAMLR and is accepted as the preferred basis for setting TACS, are therefore also preferred for determining the status of Patagonian toothfish.

One of the key inputs to the assessment is the catch taken during the RSTS (Random Stratified Trawl Survey). The catches of Patagonian toothfish in the 2009 RSTS were four times those taken in 2008 but closer to the average catches over the previous three years (Nowara 2009). The overall trend in biomass shows a decline although there is less of a trend in the estimates of abundance (Figure 2) which indicates a trend towards smaller fish in the survey area.

Results of fishery-independent surveys in both the French zone (Duhamel and Hauteceur 2009) and the Australian zone (CCAMLR 2010) indicate that substantial quantities of toothfish are found in both zones. If, as is currently believed, the fish in these areas are part of the same genetic stock then understanding the nature and extent of the linkage between them is clearly important for assessing the impacts of fishing in the Australian EEZ.

The current assessment for the Australian Zone does not explicitly include information from the French EEZ although there have been proposals for the Australian assessment to examine its sensitivity to the inclusion of the data from the French fishery. There has also been cooperative work between France and Australia analyzing catch, effort and other data to progress understanding of fish stocks and fishery dynamics for both the French zone around Kerguelen Islands and the Australian zone around HIMI that is the subject of this assessment.

Appleyard *et al.* (2004) showed that Patagonian toothfish sampled from HIMI, Kerguelen, Crozet and Prince Edward and Marion Island areas are not genetically different and warned that managers needed to consider the possibility of having to manage stocks of the species across national boundaries and isolated submarine features.

Tagging data, however, indicates that most adult toothfish are not very mobile. Tagging data from HIMI suggest that Patagonian toothfish rarely move more than 15 n miles from their point of release and do not often move between grounds although some fish are capable of moving longer distances across deep-water basins (Williams *et al.*, 2002). Of 3938 recaptured tagged Patagonian toothfish, 3826 (97%) have been recaptured from within the HIMI EEZ and only 112 (2.8%) from waters outside the HIMI EEZ; two toothfish tagged in the recently initiated French tagging program in the adjacent Kerguelen Island fishery have also been recovered in the HIMI EEZ (AFMA 2010b). In the 2009/10 season in the French EEZ, 194 tagged fish were caught on longlines of which 177 had French tags and 17 had Australian tags (CCAMLR 2010c).

The findings from genetic work and tagging are not necessarily contradictory. Only a relatively small number of individuals need to move between populations for the consequent gene flow to be sufficient to counteract the effects of genetic drift or selection. The tagging work also targets juveniles and adults and dispersal by very young juveniles or larval fish may be more prevalent.

Assessment against SGs

The assessment team concluded that the fishery for Patagonian toothfish meets the requirements for the one element of the SG60 level and both elements of SG 80 level as it was “highly likely that the stock is above the point where recruitment would be impaired” and “is at or fluctuating around its target reference point”. This is based on consideration of the following information.

- The range of plausible estimates of current depletion levels that result from different model assumptions (47% to 82% - Candy and Constable 2008) are all above the point where recruitment would be impaired.
- The assessment is informed by annual fishery-independent surveys (the RSTS), the results of which should integrate the impacts of a range of influences on the stock including the regulated fishery.
- The precautionary nature of the decision rules, which makes it highly unlikely that regulated fishing could deplete the stock.

- The complete observer coverage for the fishery, which mitigates the likelihood that reported catches are erroneous.
- The record which shows that regulated fishing has never exceeded the prescribed catch limits.
- The inclusion of catch estimates from IUU fishing for the period from 1996 until 2005 where it was occurring in the HIMI EEZ.
- The absence of IUU fishing since 2005, which reduces the potential of there being unaccounted fishing mortality.

There was not considered to be the high degree of certainty about stock status needed to meet the requirements of the SG 100 level because of some important uncertainties identified during the assessment.

- The catch in the French zone of the Kerguelen Plateau, which is believed to come from the same stock, is not explicitly accounted for in the assessment, other than through its influence on the results of the annual RSTS.
- There is no accepted assessment for the whole stock, particularly one that includes the whole of the Kerguelen Plateau.
- The relative contribution of recruitment from spawning activity in French and Australian zones is uncertain.
- The forecast biomass trend which suggests stocks will decline to below target levels.
- The standardized CPUE for trawling is at historically low levels and the CASAL model does not fit the trend well (Figure 3). It is noted, however, that commercial CPUE (even when standardized) is likely to be a less robust indicator of toothfish abundance than that obtained from the RSTS.
- The RSTS does not cover waters deeper than 1000m (although the fishery does extend to these depths) or the part of the stock in the French Zone (where it is also fished) which reduces, to an unknown extent, the ability of the survey to provide a robust index on the status of the stock as a whole.

The last of the uncertainties listed above may act to make the assessment conservative. Nevertheless, collectively, these uncertainties were considered to reduce the likelihood that the stock was above the target reference point to below the level required for attributing a high degree of certainty to the outcome, which would be required to meet the SG 100 level.

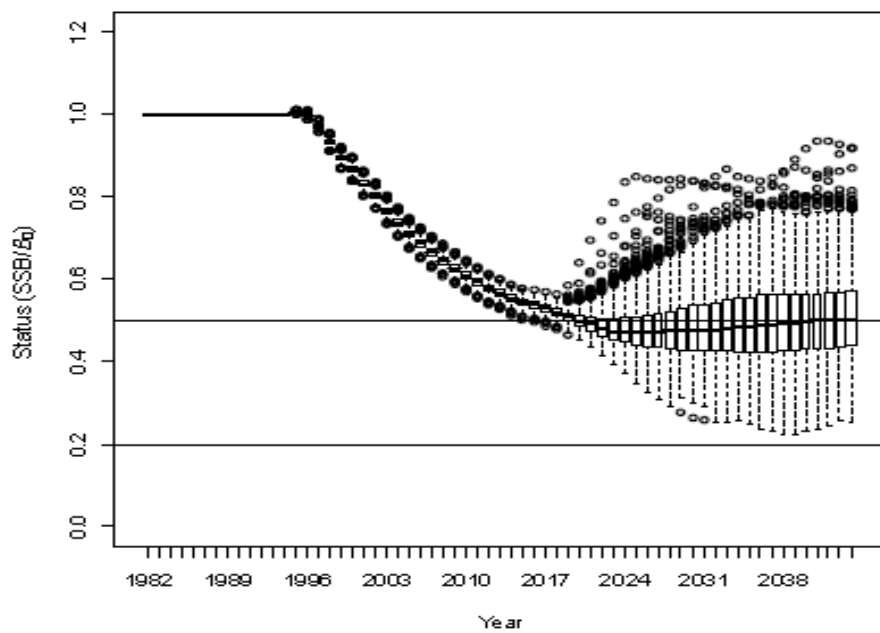


Figure 1. Model projections of the status of spawning stock biomass of Patagonian toothfish in a trial relative to B_0 in that projection trial using future random lognormal recruitment from 2007 with an annual catch of 2 500 tonnes between 2010 and 2044 distributed among sub-fisheries based on catches for 2009. Each box represents the distribution of the variable across 1000 projection trials for that year (used in CCAMLR decision rules - lines show the 50% and 20% status levels for reference) (from CCAMLR 2009).

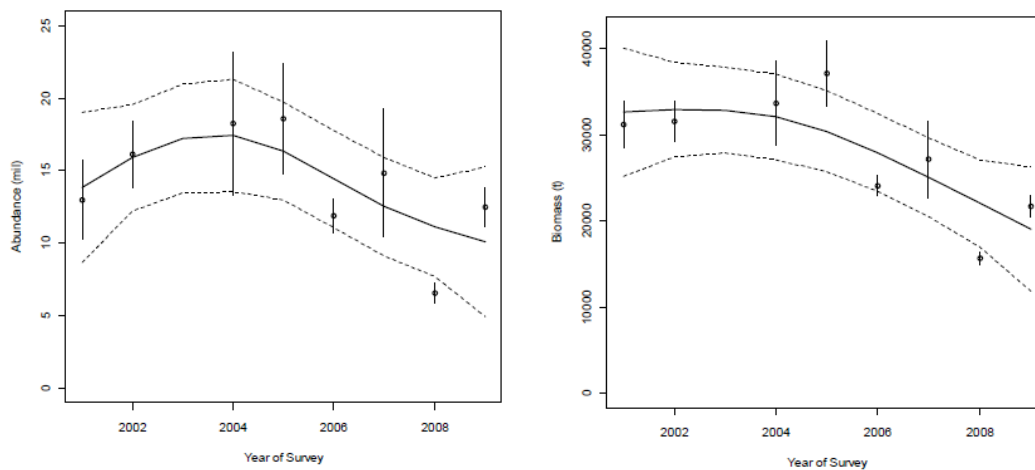


Figure 2. Estimated abundance (left) and biomass (right) (+/- 1 SE bars) of Patagonian toothfish from RSTS. Fitted curve (solid line) and its 2 x SE bounds (dashed line). (from CCAMLR 2010).

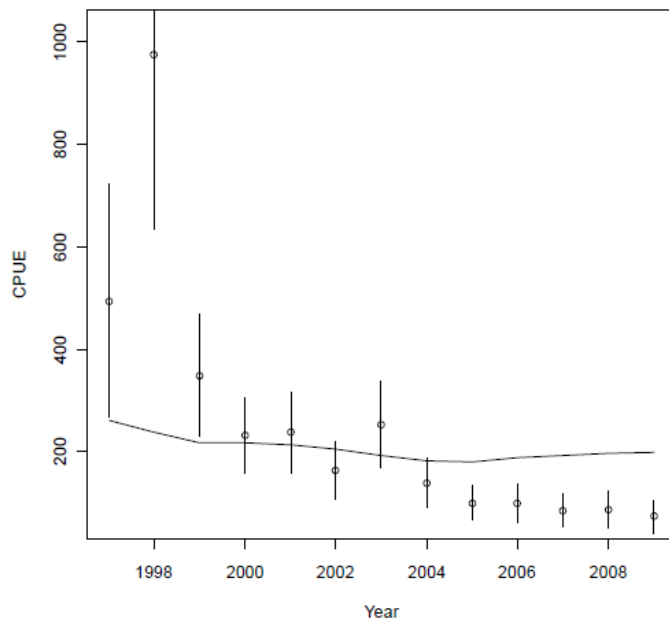


Figure 3. "Observed" and standardized CPUE series (SE bars shown) and fitted CASAL trend line (from CCAMLR 2009)

1.1.1 Trace References

AFMA (2010b), Appleyard *et al.* (2004), CCAMLR (2009) [SC Report], CCAMLR 2010 [SC Report Appendix P HIMI Fishery Report], Duhamel and Hauteceur (2009), Horn (2002), Nowara (2009), Candy and Constable (2008), Constable *et al.* (2000), Patterson *et al.* (2010) [ABARES report], Williams *et al.* (2002), Zhou *et al.* (2009).

1.1.2

Limit and target reference points are appropriate for the stock.

SG 60	SG 80	SG 100
<p><u>Generic</u> limit and target reference points are based on justifiable and reasonable practice appropriate for the species category.</p>	<p>Reference points are appropriate for the stock and can be estimated.</p> <p>The limit reference point is set above the level at which there is an appreciable risk of impairing reproductive capacity.</p> <p>The target reference point is such that the stock is maintained at a level consistent with BMSY or some measure or surrogate with similar intent or outcome.</p> <p>For low trophic level species, the target reference point takes into account the ecological role of the stock.</p>	<p>The limit reference point is set above the level at which there is an appreciable risk of impairing reproductive capacity following consideration of relevant <u>precautionary issues</u>.</p> <p>The target reference point is such that the stock is maintained at a level consistent with BMSY or some measure or surrogate with similar intent or outcome, <u>or a higher level</u>, and takes into account relevant precautionary issues such as the ecological role of the stock with a high degree of certainty.</p>

Score: 90

1.1.2 Scoring Rationale

There are two reference points used in the calculations of TACs for Patagonian toothfish (CCAMLR 2009).

Escapement reference point 1: median escapement of the spawning biomass at the end of a 35 year projection period is 50% of the median pre-exploitation level.

Depletion reference point 2: (also called the threshold status or ‘recruitment criterion’, Constable 2004): ensure that the probability of the spawning biomass dropping below 20% of its median pre-exploitation level is less than 10% over the projection.

The level of escapement is calculated as the proportion of samples from the Bayesian posterior where the predicted future status of the SSB was below 50% of the pre-exploitation median spawning biomass at the end of a 35-year projected period.

The depletion probability is calculated as the proportion of samples from the Bayesian posterior where the predicted future SSB was below 20% of the pre-exploitation median spawning biomass in any one year, for each year over a 35-year projected period.

The allowable catch is set at the lower of the two catch levels estimated to satisfy these reference points.

Although they are not identified as such the first reference point is essentially a target reference point and the second a limit reference point.

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 the reference points and decision rule 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 (CHSP) (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.

The second (limit) reference point is also consistent with the CHSP in which 20% of unfished levels is the default biomass at which stocks are considered to be at an unacceptable risk. Stocks are required to be maintained above this level with a 90% probability.

Scoring Assessment against SGs

The chosen reference points are more than just generic reference points. They are appropriate to the species category. They therefore clearly meet the requirements of the SG60 level. Both reference points are also consistent with CCAMLR objectives and can be estimated, thus meeting the requirements of the first element of the SG80 level. The second (limit) reference point is set above the level at which there should be any risk of impairing reproductive capacity, thus meeting the requirements of the second element of the SG80 level.

The first (target) reference point should maintain the stock above B_{MSY} , thus meeting the requirements of the third element of the SG80 level.

The fourth element of SG80 is not relevant as Patagonian toothfish is not a low trophic species (Constable 2004).

The choice of the limit reference point does not explicitly take into account any relevant precautionary issues. An appropriate issue would be the lack of understanding of the spawning areas and sources of recruitment to the Patagonian toothfish population within the HIMI area. The first element of the SG100 level is therefore not met.

The target reference point, however, is precautionary and takes account of the trophic level of the species with a high degree of certainty. The second element of the SG100 level is therefore met, justifying a score of 90.

1.1.2 Trace References

CCAMLR 2009, DAFF 2007, Constable *et al.* 2000, Constable 2004.

1.1.3		
Where the stock is depleted, there is evidence of stock rebuilding.		
SG 60	SG 80	SG 100
Where stocks are depleted rebuilding strategies which have a <u>reasonable expectation</u> of success are in place.	Where stocks are depleted rebuilding strategies are in place.	Where stocks are depleted, strategies are <u>demonstrated</u> to be rebuilding stocks continuously and there is strong evidence that
Monitoring is in place to determine	There is <u>evidence</u> that they are rebuilding stocks, or it is highly likely based on	

whether they are effective in rebuilding the stock within a <u>specified</u> timeframe.	simulation modeling or previous performance that they will be able to rebuild the stock within a <u>specified</u> timeframe	rebuilding will be complete within the <u>shortest practicable</u> timeframe.
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Score: N/A

FAM guidance for Performance Indicator 1.1.3 indicates that it shall only be scored when the Principle 1, Stock Status PI 1.1.1 reveals that a stock is depleted, meaning that it “is consistently below the target reference point, and which may be approaching the point at which recruitment is impaired” (MSC 2009). The assessment for PI 1.1.1 is that Patagonian toothfish are not below the target reference point and that it is highly likely that the stock is above the point where recruitment would be impaired. Therefore this PI is not scored.

1.2.1		
There is a robust and precautionary harvest strategy in place.		
SG 60	SG 80	SG 100
<p>The harvest strategy is <u>expected</u> to achieve stock management objectives reflected in the target and limit reference points.</p> <p>The harvest strategy is <u>likely</u> to work based on prior experience or plausible argument.</p> <p><u>Monitoring</u> is in place that is expected to determine whether the harvest strategy is working.</p>	<p>The harvest strategy is responsive to the state of the stock and the elements of the harvest strategy <u>work together</u> towards achieving management objectives reflected in the target and limit reference points.</p> <p>The harvest strategy may not have been fully tested but monitoring is in place and <u>evidence</u> exists that it is achieving its objectives.</p>	<p>The harvest strategy is responsive to the state of the stock and is <u>designed</u> to achieve stock management objectives reflected in the target and limit reference points.</p> <p>The performance of the harvest strategy has been <u>fully evaluated</u> and evidence exists to show that it is achieving its objectives including being clearly able to maintain stocks at target levels.</p> <p>The harvest strategy is <u>periodically reviewed and improved</u> as necessary.</p>

Score: 90

1.2.1 Scoring Rationale

The harvest strategy that is used for the Patagonian toothfish Fishery 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 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 such that:

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. As such the requirements of first elements of the SG60, SG80 and SG100 levels are met.

The harvest strategy used for Patagonian toothfish has not been fully evaluated but there is evidence, from results of the RSTS, that it is achieving the first of the objectives. The monitoring of stock status and the fishery is sufficient to determine whether the harvest strategy is working and also provides evidence that it is achieving its objectives. This meets the requirements of the second elements of the SG60 and SG80 levels and justifies a score of at least 80. The lack of any full evaluation of the harvest strategy, however, means that it does not meet the requirements of the second element of the SG100 level.

The 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. Thus, the requirements of the third element of the SG100 level are met.

Taken together, the assessment team considered that a score of 90 reflects the fact that the harvest strategy meets the requirements of two of the three elements of the SG 100 level (in addition to meeting all of the requirements for the SG60 and SG80 levels).

1.2.2		
There are well defined and effective harvest control rules in place.		
SG 60	SG 80	SG 100
<p><u>Generally understood</u> harvest control 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.</p> <p>There is <u>some evidence</u> that tools used to implement harvest control rules are appropriate and effective in controlling exploitation.</p>	<p><u>Well defined</u> 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.</p> <p>The <u>selection</u> of the harvest control rules takes into account the <u>main</u> uncertainties.</p> <p><u>Available evidence indicates</u> that the tools in use are appropriate and effective in achieving the exploitation levels required under the harvest control rules.</p>	<p>The <u>design</u> of the harvest control rules take into account a <u>wide</u> range of uncertainties.</p> <p><u>Evidence clearly shows</u> that the tools in use are effective in achieving the exploitation levels required under the harvest control rules.</p>

Score: 70

1.2.2 Scoring Rationale

There are well defined harvest control rules in place for Patagonian toothfish that are consistent with the harvest strategy, and they will act to reduce the exploitation rate as a LRP is approached. This therefore meets the requirements of the first elements of both the SG60 and SG80 levels.

There is also evidence from the fact that the reliably recorded catch statistics have never exceeded the TAC that the tools used to implement these harvest control rules (including mandatory logbooks and 100% observer coverage) are effective in controlling the exploitation level from this fishery to required levels. This therefore meets the requirements of the second element of the SG60 level and the third element of the SG80 level.

The harvest control rules, however, currently do not take into account a key uncertainty in the assessment of stock status and determination of the TAC. This is the 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 around the Kerguelen Islands. The issue has been identified as a result of extensive tag and release of toothfish since the beginning of the HIMI fishery, with some fish tagged on the HIMI side of the plateau, being recovered on the French side of the plateau. It is not known whether the population within the HIMI area is sustained by spawning locally or whether there is a significant level of recruitment from the French zone or elsewhere. There is some evidence to suggest that there is spawning stock on the Western side of the plateau and research is currently being undertaken to investigate this further.

As mentioned above, the results of the surveys within both zones suggest that each contains substantial quantities of toothfish. The catch taken within the French EEZ has also been much larger than that taken in the Australian EEZ. The assessments conducted on data collected from within the Australian EEZ may therefore not reflect the true status of the overall stock. Neither reference point may achieve its intended outcome if the main drivers of stock dynamics are not responsive to the catch limits they prescribe through the harvest control rule. Stocks of toothfish within the Australian EEZ may therefore eventually become depleted by fishing elsewhere. The extent to which this is an issue is dependent on the linkages between fish populations in both areas and particularly on whether recruitment in the Australian zone is derived from within the area of the HIMI fishery.

The RSTS provides a robust measure of the current size of the toothfish population available to the trawl fishery within the Australian zone and the results would integrate all local and external influences on this population. This does not, however, guarantee that even relatively conservative catch limits that are set based on the results of these surveys will maintain this population at the target levels. As a worst case scenario, if most of the recruitment comes from outside the Australian zone, and the recruitment from these other areas declines (whether due to fishing or natural causes), the surveys might merely track a steady decline in the stock - one which the HIMI harvest strategy and catch limits would be powerless to prevent. This concern is heightened by the size of the fishery in the French EEZ and the fact that there are no publicly available documents that outline the basis for the catch limits for this area including whether they are based on a formal stock assessment process as part of a formal harvest strategy with agreed reference points.

The current failure to address this key uncertainty within the harvest strategy means that the second element of the SG80 level is not met and a score of 70 is the maximum that could be assigned. A Condition is therefore required.

Discussions during the assessment process revealed important cooperation between French and Australian scientists. It led the assessment team to expect that, if an assessment is developed that covers both the French and Australian zones, the catch projections used for the harvest control rules will also explicitly account for future catches in both zones. Such a change would be a logical extension if a joint assessment is developed. Nevertheless, there is currently no formal statement to this effect in documents available to the assessment team. In the assessment team's view, effective implementation of such revised application of the harvest control rules will also require an agreed allocation process between Australian and French fisheries. Developing and implementing such a process between countries is likely to take some time and is not under the control of the

fishery seeking certification. The assessment team has therefore allowed until the fourth annual surveillance audit for this process to be completed. Once negotiated, the allocation process also needs to become an explicit input to inform the future harvest control rules process.

Condition 1.2.2:

By the fourth 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 the French zones.

1.2.3		
Relevant information is collected to support the harvest strategy.		
SG 60	SG 80	SG 100
<p><u>Some</u> relevant information related to stock structure, stock productivity and fleet composition is available to support the harvest strategy.</p> <p>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.</p>	<p><u>Sufficient</u> relevant information related to stock structure, stock productivity, fleet composition and other data is available to support the harvest strategy.</p> <p>Stock abundance and fishery removals are <u>regularly monitored at a level of accuracy and coverage consistent with the harvest control rule</u>, and one or more indicators are available and monitored with sufficient frequency to support the harvest control rule.</p> <p>There is good information on all other fishery removals from the stock.</p>	<p>A <u>comprehensive range</u> 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 relevant to the current harvest strategy, is available.</p> <p><u>All information</u> required by the harvest control rule is monitored with high frequency and a high degree of certainty, and there is a good understanding of the inherent <u>uncertainties</u> in the information [data] and the robustness of assessment and management to this uncertainty.</p>

Score: 90

1.2.3 Scoring Rationale

Information provided to the assessment team in the form of published papers, reports from AFMA, AAD and CCAMLR, and the results of discussions with assessment experts, indicate that there is a comprehensive range of information available that is relevant to the harvest strategy, with the exception of information concerning the uncertainties noted in PI 1.1.1. The information available is assessed here against its ability to support the current harvest strategy and harvest control rules and not the improved rules that have been identified above as being necessary.

It is important to note that the information available is assessed here against its ability to support the current harvest strategy and harvest control rules, which focus only on that portion of the stock found within the Australian EEZ, and not the improved rules that have been identified above as being necessary. Conditions have been specified elsewhere, however, that reflect the need for the harvest control rules (PI 1.2.2) and

assessment (PI 1.2.4) to be revised to consider that portion of the stock and fishery based outside the Australian EEZ. When these conditions are satisfied there will be a consequent need for an expansion in the information that is collected to support the revised assessment and harvest control rules. At that stage it would be expected that this PI should also be re-scored.

All the information required by the Harvest Control Rule is monitored annually and it was readily apparent to the assessment team that those involved in the scientific aspects of the assessment process have a good understanding of the inherent uncertainties in the data that are collected and used. 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 is outlined in Section 7 above and includes shot-by-shot records in logbooks, 100% observer coverage and inspection of all landings. IUU fishing, which has been a significant problem for some Antarctic high seas fisheries, is no longer regarded as an issue for Patagonian toothfish in the HIMI region (Phillips and Ansell 2009).

The assessment team considered that the fishery meets the requirements for all elements at the SG60 and SG80 levels. It is also considered to meet the requirements of the first element and most of the second element of the SG 100 level, falling short only with regard to information on some of the uncertainties in the assessment that have been mentioned above. A score of 90 was therefore considered to be warranted on this PI.

1.2.3 Trace References

Phillips and Ansell (2009)

1.2.4		
There is an adequate assessment of the stock status.		
SG 60	SG 80	SG 100
<p>The assessment estimates stock status relative to reference points.</p> <p>The major sources of uncertainty are identified.</p>	<p>The assessment is appropriate for the stock and for the harvest control rule, and is evaluating stock status relative to reference points.</p> <p>The assessment takes uncertainty into account.</p> <p>The stock assessment is subject to peer review.</p>	<p>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.</p> <p>The assessment takes into account uncertainty and is evaluating stock status relative to reference points in a probabilistic way.</p> <p>The assessment has been tested and shown to be robust. Alternative hypotheses and assessment approaches have been rigorously explored.</p> <p>The assessment has been <u>internally and externally</u> peer reviewed.</p>

Score: 70

1.2.4 Scoring Rationale

The assessment 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 clearly meets the requirements for the first element of the SG60 level.

The major sources of uncertainty have also been identified and are recorded in a range of documents presented to the Stock Assessment Working Group. This meets the requirements for the second element of the SG60 level.

The assessment evaluates stock status relative to reference points but is not considered appropriate for the stock as it does not cover the proportion found and fished in the French zone. The assessment therefore does not meet all requirements of the first element of the SG80 level.

The assessment takes into account some types of uncertainty that have been identified. It explores the sensitivity of outputs to a range of plausible values for model parameters and makes projections that also consider such uncertainties. It is acknowledged, however, that there is a substantial issue of whether or not the assessment meets the requirements of the second element of the SG80 level based on the uncertainty about the potential dependency of stocks within the Australian EEZ on recruitment from outside, especially from within the French EEZ. This uncertainty about the linkages between the toothfish found within the Australian and French EEZs has been mentioned under P 1.1.1 and was the basis for reducing the scoring under PI 1.2.2. It is also relevant to this PI but following the principle that the one issue should not penalize the assessment under multiple PIs this issue is not also considered in the scoring for this PI. The assessment is therefore considered to meet the second element of the SG80 level.

The assessment is also regularly reviewed both by SARAG and by the comprehensive scientific processes of CCAMLR. This review process meets the requirements of the third element of the SG 80 level. The assessment therefore meets two of three elements of the SG80 level which justifies a score of 70.

Condition 1.2.4:

By the fourth 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.

10.2 MSC Principle 2

One score is given for each performance indicator in P2. Each score represents the score for both gear types, demersal trawl and demersal longline. Special explanation is given when appropriate e.g. 2.2.1 bait that is according to MSC guidelines covered under bycatch. Scores represent the lowest given score for each unit of certification.

Fishing operations should allow for the maintenance of the structure, productivity, function and diversity of the ecosystem (including habitat and associated dependent and ecologically related species) on which the fishery depends.

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.		
SG 60	SG 80	SG 100

<p>Main retained species are <u>likely</u> to be within biologically based limits or if outside the limits there are <u>measures</u> in place that are <u>expected</u> to ensure that the fishery does not hinder recovery and rebuilding of the depleted species.</p> <p>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.</p>	<p>Main retained species are <u>highly likely</u> to be within biologically based limits, or if outside the limits there is a <u>partial strategy</u> of <u>demonstrably effective</u> management measures in place such that the fishery does not hinder recovery and rebuilding.</p>	<p>There is a <u>high degree of certainty</u> that retained species are within biologically based limits.</p> <p>Target reference points are defined and retained species are at or fluctuating around their target reference points.</p>
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2.1.1	Both gear types
Score	90

2.1.1 Scoring Rationale:

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 grey rockcod and unicorn icefish are retained whole. These two species are 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 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. Total landed by-catch in the longline fisheries ranged from 6 to 13% of the total catch (~8% in 2009/10). Unicorn icefish comprises approximately 4% and grey rock cod, 2% of the total catch by weight from the trawl fishery for the 2008/09 season (CCAMLR 2010). However the assessment team considered unicorn icefish as a main retained species because total catch can fluctuate significantly and reach a level close to 5% of total catch by weight. Rockcod is not considered a main species under 7.2.2 of the MSC guidance (FAM v 2.1, MSC 2010) because it is neither close to 5% of total catch by weight nor is this species considered particularly vulnerable. Macrouridae comprise approximately 9% and 0.1% of the total catch by weight for the 2008/09 season in the longline and trawl sector respectively (CCAMLR 2010) and are therefore a main species under the MSC guidance (FAM v 2.1, MSC 2010) in the longline sector but not the trawl sector.

The team determined that the fishery meets all of the components for the SG 60 and SG80. In addition the first element of the 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 methods. Therefore there is a high degree of certainty that retained species are within biologically based limits and this indicator received a 90 score.

2.1.1 Trace References

CCAMLR (2010), MSC (2010))

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.		
SG 60	SG 80	SG 100

<p>There are <u>measures</u> 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.</p> <p>The measures are considered <u>likely</u> to work, based on plausible argument (eg, general experience, theory or comparison with similar fisheries/species).</p>	<p>There is a <u>partial strategy</u> 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.</p> <p>There is some <u>objective basis for confidence</u> that the partial strategy will work, based on some information directly about the fishery and/or species involved.</p> <p>There is <u>some evidence</u> that the partial strategy is being <u>implemented successfully</u>.</p>	<p>There is a <u>strategy</u> in place for managing retained species.</p> <p>The strategy is mainly based on information directly about the fishery and/or species involved, and <u>testing</u> supports <u>high confidence</u> that the strategy will work.</p> <p>There is <u>clear evidence</u> that the strategy is being <u>implemented successfully</u>, and intended changes are occurring.</p> <p>There is some evidence that the strategy is <u>achieving its overall objective</u>.</p>
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2.1.2	Both gear types
Score	95

2.1.2 Scoring Rationale:

The limit of 150 t for unicorn icefish is based on a generalized yield model (GYM) which included fishery independent survey data along with other parameters taken from similar species (Constable 1988). While the GYM analysis has not been updated since its initial development, there is an ongoing effort to collect data which will allow improvement of the model. CCAMLR identified this as a high priority in 2007, and scientific observers were collecting data to this end in the 2008 - 2009 fishing season (Phillips and Ansell 2009). Given that the limits are set on a biological basis, the fishery operates well below these limits (37 t unicorn icefish were taken in the 2008 – 2009 season, 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 more than 2 t in any one trawl net haul (AFMA 2009a) there is a full strategy in place for managing retained species.

Limits are set at 80 t for grey rockcod based on GYM analysis (Constable et al. 1998, AFMA 2009b). Limits are set at 360 t for Macrouridae based on parameters determined from commercial and research data. Other species caught in the Toothfish fishery have catch limits set at 50 t, which is considered precautionary by CCAMLR (AFMA 2009a).

Move on provisions and closure of the fishery when bycatch TACs are exceeded, ensure that there is a management response. This strategy is based on information about the species for the primary retained species. The fishery is supported by a fisheries independent survey each year. All vessels have two observers for all fishing trips providing reliable estimates of total biomass for all species taken in the fishery. No decline in catch rates has been noted in either the independent survey or in the observer data on the commercial hauls. Based on this there is high confidence that the strategy is working. Observers do not report that there are any variations from the specified conditions, thus implementation appears to be successful and it is achieving its objective of avoiding a decline in the retained species.

The team determined that the fishery meets all of the components for the SG 60 and SG80. In addition, the first, third and fourth element of the SG 100 is met. The management strategy evaluation or a similar evaluation mechanism of the management strategy has not occurred as yet and therefore the second element of the scoring guidepost 100 is not met. In addition, the GYM analysis is based on parameters taken from outside the populations affected by the fishery in some cases (Phillips and Ansell 2008). Therefore the fishery achieves a score of 95.

2.1.2 Trace References

AFMA (2009a), AFMA (2009b), Constable, et al. (1998), Phillips and Ansell (2008)

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.

SG 60	SG 80	SG 100
<p><u>Qualitative information</u> is available on the amount of main retained species taken by the fishery.</p> <p>Information is <u>adequate</u> to <u>qualitatively</u> assess outcome status with respect to biologically based limits.</p> <p>Information is adequate to support <u>measures</u> to manage <u>main</u> retained species.</p>	<p><u>Qualitative information</u> and some quantitative information are available on the amount of main retained species taken by the fishery.</p> <p>Information is <u>sufficient</u> to estimate outcome status with respect to biologically based limits.</p> <p>Information is adequate to support a <u>partial strategy</u> to manage <u>main</u> retained species.</p> <p>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 strategy).</p>	<p>Accurate and verifiable information is available on the catch of all retained species and the consequences for the status of affected populations.</p> <p>Information is <u>sufficient</u> to <u>quantitatively</u> estimate outcome status with a <u>high degree of certainty</u>.</p> <p>Information is adequate to support a <u>comprehensive strategy</u> to manage retained species, and evaluate with a <u>high degree of certainty</u> whether the strategy is achieving its objective.</p> <p>Monitoring of retained species is conducted in sufficient detail to assess ongoing mortalities to all retained species.</p>

2.1.3	Both gear types
Score	100

2.1.3 Scoring Rationale:

All commercial effort in the fishery is monitored by observers, with two observers on every vessel (AFMA 2009a). In addition, all unloading is monitored in port by independent observers (AFMA 2009a). Vessels and observers maintain shot by shot logbooks. Furthermore, there is a comprehensive and statistically robust fisheries independent trawl survey conducted each year (AFMA 2009a). The team determined that all elements of the 60, 80 and 100 guideposts are met. Accurate verifiable information is available and retained species are monitored in sufficient detail to assess ongoing mortalities. 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 methods. There is a high degree of certainty that retained species are within biologically based limits. Therefore the information is

sufficient to estimate the status of the retained species quantitatively and more than adequate to support the management strategy which is achieving its objectives all with a high degree of certainty.

2.1.3 Trace References

AFMA (2009a)

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.		
SG 60	SG 80	SG 100
Main bycatch species are <u>likely</u> to be within biologically based limits, or if outside such limits there are mitigation <u>measures</u> in place that are <u>expected</u> to ensure that the fishery does not hinder recovery and rebuilding. If the status is poorly known there are measures or practices in place that are expected result in the fishery not causing the bycatch species to be biologically based limits or hindering recovery.	Main bycatch species are <u>highly likely</u> to be within biologically based limits or if outside such limits there is a <u>partial strategy of demonstrably effective</u> mitigation measures in place such that the fishery does not hinder recovery and rebuilding.	There is a <u>high degree of certainty</u> that bycatch species are within biologically based limits.

2.2.1	Both gear types
Score	80

2.2.1 Scoring Rationale:

There are 141 catch categories based on observer data from the fishery between 2002 and 2005 (AFMA 2009a). This section considers species which do not need to be retained due to management rules and are not sold due to their commercial value, (see MSC guidelines FAM v.2.1 2010). In the case of the toothfish fishery, most nontarget catch falls into the retained species category covered above in 2.1.1 through 2.1.3.

All species caught in the fishery have TACs of 50 tons, unless otherwise specified. This limit is based on CCAMLR advice, and taken to be a precautionary limit (Phillips and Ansell 2008).

The exception for bycatch species is the catch limit for skates (120 t per year), which was based on a GYM analysis (Constable et al. 1998). Based on reported catch of nontarget species, all species are within their limits and have not exceeded them since 1998 (AFMA 2009a). 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. But results did suggest that further analysis of the situation for three skate species was warranted.

There is a strategy for mitigating bycatch in the fishery. The seabird and marine mammal measures will be covered below in 2.2.3. For other bycatch species the provisions include 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 2 tonnes of *Channichthys rhinoceratus*, *Lepidonotothen squamifrons*, *Macrourus* spp., *Somniosus* spp. or skates and rays or 1 tonne of all other species for which by-catch limitations apply under this conservation measure together

in one trawl (CCAMLR Conservation Measure 33-02). There has been no observed decline in the catch of bycatch species in the commercial trawls (AFMA 2009a), 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; however, there does not appear to be a policy of estimating population trends for nontarget species.

There are pending improvements in the management of nontarget stocks. In particular CCAMLR has plans to develop a new stock assessment for skates (AFMA 2009a). There are no estimates of biomass for the bycatch species at present or their status relative to biological limits, but the proposed new assessment may correct this for skates at least. Furthermore, it has been proposed that the results of the fisheries independent surveys could be used to estimate biomass for the nontarget species and evaluate the sustainability of catches. Future MSC assessments should consider these any such improvements made in revisiting the current score on this performance indicator.

In addition bait is used in the longline sector of the fishery. Squid are the main bait species (> 70% of total bait used) and are either *Nototodarus sloanii* imported from New Zealand or *Illex argentinus* from Argentina. Jack mackerel (*Trachurus symmetricus*) and barracouta (*Thyrstites atun*) are also used as bait but in much smaller amounts (M. Exel and L. Scott pers.com, AFMA observer reports 2010). Assessments for squid are not available, but consideration of the fishery and life histories suggest that current fishing levels are sustainable and not having severe adverse impacts on the population. The assessment team noted that squid are difficult to assess because they are short-lived species whose biomass is strongly governed by environmental conditions and can fluctuate substantially from year-to-year.

The team determined that the fishery meets all of the components for the SG 60 and SG80. The elements for the SG100 are not met as the ecological risk assessment (ERA) and subsequent SAFE analyses found evidence that there was a threat identified to three skate species (*Bathyrāja irrasa*, *B. murrayi*, and *B. eatonii*) from the demersal trawl fishery. Two of these skate species (*Bathyrāja irrasa* and *B. eatonii*) were also identified as being at high risk in the demersal longline fishery, but this was not confirmed with the Level 3 SAFE assessment in the longline sector placing less emphasis on the results in the demersal longline sector. These skate species are widely distributed across the Plateau (Nowara et al. 2009). However, estimates of the status of other bycatch species as well as bait species used in the longline sector are not known. Therefore there is not a high degree of certainty required for a score of 100 that all bycatch species are within biological limits.

2.2.1 Trace References

AFMA (2009a), AFMA (2009b), AFMA (2009c), AFMA (2009d), AFMA (2009e), Nowara et al. 2009, Phillips and Ansell (2008), Zhou et al. (2009)

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.		
SG 60	SG 80	SG 100
There are <u>measures</u> in place, if necessary, which are expected to maintain main bycatch species at levels	There is a <u>partial strategy</u> in place, if necessary, for managing bycatch that is expected to maintain main bycatch species at levels which are highly likely	There is a <u>strategy</u> in place for managing and minimising bycatch. The strategy is mainly based on

which are highly likely to be within biologically based limits or to ensure that the fishery does not hinder their recovery. The measures are considered <u>likely</u> to work, based on plausible argument (e.g general experience, theory or comparison with similar fisheries/species).	to be within biologically based limits or to ensure that the fishery does not hinder their recovery. There is <u>some objective basis for confidence</u> that the partial strategy will work, based on some information directly about the fishery and/or the species involved. There is <u>some evidence</u> that the partial strategy is being implemented successfully.	information directly about the fishery and/or species involved, and testing supports <u>high confidence</u> that the strategy will work. There is <u>clear evidence</u> that the strategy is being implemented successfully, and intended changes are occurring. There is some evidence that the strategy is achieving its objective.
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2.2.2	Both gear types
Score	80

2.2.2 Scoring Rational:

The scoring rationale for 2.2.1 provides details on the strategy for managing bycatch to avoid harm to the bycatch populations. There is partial evidence that the strategy has, and will continue to work. No declines of bycatch species have been noted by regulatory authorities or scientists analyzing the fisheries independent survey data (AFMA 2009a). Implementation also appears to be successful, as there are no reported incidences of noncompliance by observers and all fishing effort is observed.

The main bait species (used only in the longline sector of the fishery) are either imported from New Zealand (*Nototodarus sloanii*) or from Argentinean waters (*Illex argentine*s). The NZ species is under quota management but there is no quota for the Argentinean species. Assessments for squid are not available, but consideration of the fishery and life histories suggest that current fishing levels are sustainable and are not having severe adverse impacts on the population.

The team determined that the fishery meets all of the components for the SG 60 and SG80. While there is a strategy which appears to be effective for the bycatch species of the fishery and there is evidence of its successful implementation, species-specific assessments are available for only a subset of the species (AFMA 2009a, Phillips and Ansell 2008). Thus, the fishery does not meet the SG100 guidelines.

2.2.2 Trace References

AFMA (2009a), Phillips and Ansell (2008)

2.2.3		
Information on the nature and amount of bycatch is adequate to determine the risk posed by the fishery and the effectiveness of the strategy to manage bycatch.		
SG 60	SG 80	SG 100
<u>Qualitative information</u> is available on the amount of main	<u>Qualitative information and some quantitative information</u> are available on the amount of main bycatch species affected by the fishery.	<u>Accurate and verifiable information</u> is available on the amount of all bycatch and the consequences for the status of affected populations.

<p>bycatch species affected by the fishery.</p> <p>Information is <u>adequate to broadly understand</u> outcome status with respect to biologically based limits.</p> <p>Information is adequate to support <u>measures</u> to manage bycatch.</p>	<p>Information is sufficient to estimate outcome status with respect to biologically based limits.</p> <p>Information is adequate to support a <u>partial strategy</u> to manage main bycatch species.</p> <p>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 effectiveness of the strategy).</p>	<p>Information is <u>sufficient</u> to quantitatively estimate outcome status with respect to biologically based limits with a <u>high degree of certainty</u>.</p> <p>Information is adequate to support a <u>comprehensive strategy</u> to manage bycatch, and evaluate with a high degree of certainty whether a strategy is achieving its objective.</p> <p>Monitoring of bycatch data is conducted in sufficient detail to assess ongoing mortalities to all bycatch species.</p>
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2.2.3	Both gear types
Score	80

2.2.3 Scoring Rationale:

The fishery has both 100% observer coverage of all commercial fishing and an extensive annual fisheries independent survey based on the commercial gear, thus there is adequate high quality information on bycatch (AFMA 2009a). The information is of sufficient quality to assess whether bycatch rates are changing, and the status relative to the various bycatch TACs. The information covers each commercial shot, and is adequate to support the implementation of both move on rules and TACs. Based on the information it is possible to estimate the number of individuals caught for each taxa in the fishery.

The team determined that the fishery meets all of the components for the SG 60 and SG80. However accurate and verifiable information is not available for any of the bait species used in the longline sector of the fishery and therefore the fishery cannot meet the SG 100. In addition there is not a comprehensive strategy to manage bait species in this sector of the fishery.

2.2.3 Trace References

AFMA (2009a)

2.3.1		
<p>The fishery meets national and international requirements for protection of ETP species.</p> <p>The fishery does not pose a risk of serious or irreversible harm to ETP species and does not hinder recovery of ETP species.</p>		
SG 60	SG 80	SG 100
Known effects of the fishery are <u>likely</u> to be within limits of national	The effects of the fishery are known and are <u>highly likely</u> to be within limits of national and international requirements for	There is a <u>high degree of certainty</u> that the effects of the fishery are within limits of national and

and international requirements for protection of ETP species. Known direct effects are <u>unlikely to create unacceptable impacts to ETP species.</u>	protection of ETP species. Direct effects are <u>highly unlikely to create unacceptable impacts to ETP species.</u> Indirect effects have been considered and are thought to be unlikely to create unacceptable impacts.	international requirements for protection of ETP species. There is a <u>high degree of confidence</u> that there are <u>no significant detrimental effects (direct and indirect)</u> of the fishery on ETP species.
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2.3.1	Both gear types
Score	90

2.3.1 Scoring Rationale:

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 most recent fishing year reported by CCAMLR no seabird mortalities were observed in the trawl sector and 2 Cape petrel mortalities were recorded in the longline sector (CCAMLR 2010). There have been no marine mammal mortalities or interactions in the trawl or longline subfishery in 2009/10 (CCAMLR 2010). There is 100% observer coverage of the fishery, thus the effects of the fishery are known with high certainty.

The fishery is compliant with domestic regulations, in particular species recovery plans for seabirds and marine mammals (AFMA 2009a). Moreover, the fishery complies with all management measures from CCAMLR with respect to ETP species (AFMA 2009a). Thus, in terms of operational practices, the fishery is fully compliant with requirements. For example, requirements to report any ETP species interactions are in place for both sectors of the fishery. In addition, seabird bycatch is regulated domestically for longline fisheries under a threat abatement plan (2006) which the fishery complies with. However, there are no specific national or international standards limiting the effects on the ETP species in the trawl sector of this fishery.

The Ecological Risk Assessment for the fishery considered the impact to ETP species on a species-by-species basis. The risk assessment is based on an estimate of the proportion of the population exposed to fishing, and the impact of fishing interactions on the individuals and populations that are exposed. Based on the ecological risk assessment conducted for the demersal trawl and longline sectors of this fishery, neither is expected to have an adverse direct adverse impact on ETP species (AFMA 2009b, AFMA 2009c). ETP species, including birds, were eliminated from the ERA at level 1 (lowest risk) for both longline and trawl sector. The ERA states: *“It is important to note that the worst case scenario considered for ETP species was the impact of capture fishing on black-browed albatross. This bird species has the smallest population size for any in the region – around 1,200. However, it is almost certain that an annual catch of 1% (12 birds per year) would not prevent this fishery from meeting its main objective for TEP species - ensure TEP species do not further approach extinction or become extinct.”*

Indirect effects have been considered, and might be possible but are highly unlikely for marine mammals (AFMA 2009d, AFMA 2009e). Nevertheless, the issue is currently being investigated further as part of an assessment of food web dynamics based on an ecosystem model under development.

The team determined that the fishery meets all of the components for the SG 60, SG 80 and SG100.

2.3.1 Trace References

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 or irreversible harm to ETP species;
- ensure the fishery does not hinder recovery of ETP species; and
- minimize mortality of ETP species.

SG 60	SG 80	SG 100
<p>There are <u>measures</u> in place that minimize mortality, and are expected to be highly likely to achieve national and international requirements for the protection of ETP species.</p> <p>The measures are <u>considered likely</u> to work, based on <u>plausible argument</u> (eg. general experience, theory or comparison with similar fisheries/species).</p>	<p>There is a <u>strategy</u> in place for managing the fishery's impact on ETP species, including measures to minimize mortality that is designed to be highly likely to achieve national and international requirements for the protection of ETP species.</p> <p>There is an <u>objective basis for confidence</u> that the strategy will work, based on <u>some information</u> directly about the fishery and/or the species involved.</p> <p>There is <u>evidence</u> that the strategy is being implemented successfully.</p>	<p>There is a <u>comprehensive strategy</u> in place for managing the fishery's impact on ETP species, including measures to minimize mortality that is designed to achieve <u>above</u> national and international requirements for the protection of ETP species.</p> <p>The strategy is mainly based on information directly about the fishery and/or species involved, and a <u>quantitative analysis</u> supports <u>high confidence</u> that the strategy will work.</p> <p>There is <u>clear evidence</u> that the strategy is being implemented successfully, and intended changes are occurring. There is evidence that the strategy is achieving its objective.</p>

2.3.2	Both gear types
Score	90

2.3.2 Scoring Rationale:

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 2009a, AFMA 2009b, AFMA 2009c, AFMA 2009d). There are also mitigation measures for marine mammals (DEWHA 2007). Interactions with marine mammals were not identified as an issue in the recent ecological risk analysis, and thus there was no explicit strategy for their mitigation in the risk management plans (AFMA 2009a, AFMA 2009b). However, the strategic assessment which is conducted to certify the fishery for export does provide some detail on a set of measures in place for reducing marine mammal impacts (DEWHA 2007). Finally, CCAMLR has developed conservation measures for seabirds and marine mammals (Conservation Measure: 24-02, 25-02 and special requirements: 41-08 for longline and 25-03 for trawl) 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 (for information on measures in force, click [here](#)). The HIMI toothfish fishery is required to comply with these measures by the management agency (AFMA) and there have been no reported issues with noncompliance (AFMA 2009e).

For seabirds, there is evidence that the mitigation measures are effective based on observer coverage, with low numbers of interactions (CCAMLR 2010). In 2003 the Sub-Antarctic Fur Seal and Southern Elephant Seal Recovery Team concluded that fishing was not having a significant effect on the recovery of these species (DEWHA 2007). There was some concern that a more recent increase in seal interactions with longlines might be an issue; however, industry is adopting additional measures to reduce these interactions and AFMA is actively monitoring the impacts and there have been no reported mortalities during the 2 most recent fishing seasons (DEWHA 2007, CCAMLR 2010). In summary CCAMLR conservation measures such as CM24-02, CM25-02, CM25-03 and CM41-08 together with domestic measures including the TAP and other relevant measures in place to report ETP species interactions provide comprehensive mitigation, reporting and review mechanisms.

The measures are being implemented successfully, and this can be verified based on complete coverage of commercial operations by observers (AFMA 2009e). There are specific procedures for observers to raise issues with compliance while at sea, along with ongoing reporting to the management agency. No issues of noncompliance were raised in the management agency's annual report for 2009, which covers not only the current year but provides a limited history of the fishery (AFMA 2009e).

The team determined that the fishery meets all of the components for the SG 60 and SG80. The fishery does not achieve the SG100 guidelines, as there is no assessment for seabirds or marine mammals caught in the fishery nor testing of the effectiveness of the strategies relative to management objectives. The fishery does meet the first and third element of the SG100 guidelines which merits a score of 90.

2.3.2 Trace References

AFMA (2009a), AFMA (2009b), AFMA (2009c), AFMA (2009d), AFMA (2009e), AFMA (2009f), CCAMLR 2010, DEWHA (2007)

2.3.3		
Relevant information is collected to support the management of fishery impacts on ETP species, including: <ul style="list-style-type: none"> - 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. 		
SG 60	SG 80	SG 100
Information is <u>adequate to broadly understand</u> the impact of the fishery on ETP species. Information is adequate to support <u>measures</u> to manage the impacts on ETP species <u>Information</u> is sufficient to <u>qualitatively</u> estimate the fishery related mortality of ETP species.	Information is <u>sufficient</u> to determine whether the fishery may be a threat to protection and recovery of the ETP species, and if so, to measure trends and support a <u>full strategy</u> to manage impacts. <u>Sufficient data</u> are available to allow fishery related mortality and the impact of fishing to be <u>quantitatively</u> estimated for ETP species.	Information is <u>sufficient to quantitatively</u> estimate outcome status with a high degree of certainty. Information is adequate to support a <u>comprehensive strategy</u> 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. <u>Accurate and verifiable information</u> is available on the magnitude of all impacts, mortalities and injuries and the consequences for the status of ETP species.

2.3.3	Both gear types
Score	90

2.3.3 Scoring Rationale:

Information on the impact of the fishery on ETP species is of very high quality in this fishery. 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. Quantitative estimates of the magnitude of the impact on the ETP species and reduction of that impact due to the management strategy can be made. Clearly the fishery meets all of the components for the SG 60 and SG80. In addition, the fishery meets the first 2 elements of the SG 100. The first element refers to the quality of the information in terms of being able to estimate the outcome status and is focused on estimating the magnitude of the threat. Given that there is 100% observer coverage and all ETP interactions are recorded, the team determined that this element is met. The second element refers to information to support the design and evaluation of the management strategy and there is adequate information for design and evaluation of the strategy. The third element requires “Accurate and verifiable information on the consequences for the status of ETP species”. The fishery does not meet this element because it is not possible to assess the consequences of ETP interactions for the status of the ETP species and populations as quantitative assessments of changes in population status due to fishing impacts are not publicly available at this time. The team is unaware of any analysis of the effects of the current bycatch levels on the status of the species. Therefore the fishery achieves a score of 90 for this indicator.

2.3.3 Trace References

AFMA (2009a), AFMA (2009b)

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

2.4.1	Both gear types
Score	100

2.4.1 Scoring Rationale:

All vessels in the fishery carry a vessel satellite monitoring system that reports all fishing locations in addition to comprehensive observer coverage (AFMA 2009a). The fishery operates in a region that has an extensive 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 (AAD 2005).

The fishery is excluded from these reserves, and thus while the demersal trawl gear may affect the habitat on a bioregional basis it has no effect in the area of the reserve. In the longline sector of the fishery the lines of baited hooks are deployed by the fishing vessel, which sink to the ocean floor where toothfish forage. They are generally considered “fixed gear” because compared to other gears such as trawling, they do not operate by moving along the seafloor. For that reason, bottom longline gear is generally thought to have substantially less impact on bottom habitat compared to mobile gear (Chuenpagdee et al. 2003). Despite its classification as “fixed gear”, the gear can move during soak time by ocean currents, and during gear retrieval. Work is currently underway to quantify the extent of such gear movement and any impacts on the seabed from other gear types such as trawl and pots.

However, there are significant areas (39% of the area that is less than 1,000 meters depth) that are protected in the HIMI region (AAD 2005). Moreover, effort in the fishery is concentrated in a relatively small portion of the region around Heard Island and McDonald Islands, and thus at present impacts are expected to be limited in spatial extent even within the fished area. Therefore the team took these as evidence that the fishery is highly unlikely to reduce habitat structure and function to a point where there would be serious or irreversible harm and therefore meets the SG 100.

2.4.1 Trace References

AAD (2005), AFMA (2009a), Chuenpagdee et al. 2003

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.		
SG 60	SG 80	SG 100
There are <u>measures</u> in place, if necessary, that are expected to achieve the Habitat Outcome 80 level of performance. The measures are considered <u>likely</u> to work, based on plausible argument (e.g general experience, theory or comparison with similar fisheries/habitats).	There is a <u>partial strategy</u> in place, if necessary, that is expected to achieve the Habitat Outcome 80 level of performance or above. There is some <u>objective basis for confidence</u> that the partial strategy will work, based on some information directly about the fishery and/or habitats involved. There is <u>some evidence</u> that the partial strategy is being implemented successfully.	There is a <u>strategy</u> in place for managing the impact of the fishery on habitat types. The strategy is mainly based on information directly about the fishery and/or habitats involved, and testing supports high confidence that the strategy will work. There is <u>clear evidence</u> that the strategy is being implemented successfully, and intended changes are occurring. There is some evidence that the strategy is achieving its objective.

2.4.2	Both gear types
Score	100

2.4.2 Scoring Rationale:

As discussed under 2.4.1 there is an extensive and well-designed reserve system that meets international standards for comprehensiveness, adequacy, and representativeness. Therefore there is a strategy in place for

managing the impact of the fishery on habitat types and meeting the first element of the SG 100. These standards are anticipated to result in reserve systems that provide reliable protection for habitats and the biodiversity they support, and this anticipation has been explored extensively in the international scientific literature. The reserves were designed based on empirical data collected from the fishery and other sources (AAD 2005) meeting the second element of the SG 100. Reductions in IUU fishing, compliance by operators with reserve boundaries, and complete observer and VMS coverage provide high confidence that the reserve system has been successfully implemented (AFMA 2009a, AFMA 2009b). In addition to this, there is an extensive cooperative research program underway between industry, AAD, AFMA funded by the Fisheries Research and Development Corporation to use underwater cameras to map and describe benthic habitats in the HIMI region, and impacts of fishing gear on the seabed. Therefore the first part of the third element in the SG 100 is clearly met and in addition there is evidence that the strategy is achieving its objective. The team determined that all elements of the SG 60, 80 and 100 are met.

2.4.2 Trace References

AAD (2005), AFMA (2009a), AFMA (2009b)

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.		
SG 60	SG 80	SG 100
There is a basic understanding of the types and distribution of main habitats in the area of the fishery. Information is adequate to broadly understand the main impacts of gear use on the main habitats, including spatial extent of interaction.	The nature, distribution and vulnerability of all main habitat types in the fishery area are known at a level of detail relevant to the scale and intensity of the fishery. 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, timing and location of use of the fishing gear. 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).	The distribution of habitat types is known over their range, with particular attention to the occurrence of vulnerable habitat types. Changes in habitat distributions over time are measured. The physical impacts of the gear on the habitat types have been quantified fully.

2.4.3 Score	Both gear types
	70

2.4.3 Scoring Rationale:

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 (AFMA 2009). 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). Therefore the fishery meets the first element of the SG 80.

Habitat impacts are the focus of an ongoing comprehensive research study, which is expected to improve the quality of knowledge of the impacts of the fishery (Constable 2006). However, at this time the study has not been completed and thus the precise nature of the impacts of the fishery on different types of habitats is not yet known. Once the impacts are known, for instance via the video systems that are being deployed on the gear at depth, then it will be possible to assess the damage that is caused to each category of habitat by overlaying the locations of that category of habitats with the locations of bottom trawling.

Additional research is underway by industry led by AAD, using benthic sled sampling techniques with an additional observer to the normal 2 being taken on the boat. These sled sampling techniques were undertaken by AAD as part of the program to assess habitats both inside and outside of the marine reserves. Data is also collected during the annual RSTS program. However, because the trawl gear used is designed to minimize impacts on the seabed, the data generated by this work needs to be considered with caution.

All data in the current benthic assessment program will be publicly available at conclusion of the project, which is scheduled for June 2012. Sufficient data are not yet available to allow the nature of the impacts of the fishery on habitat types to be identified and therefore the second element of the SG 80 is not fully met. There is however ongoing work to identify increase in risk and the third element of the 80 is met.

Upon completion of the studies referenced above, as required under the MSC fishery certification methodology, this PI will be rescored. It is noted, that this study will not only address the remaining element of the SG80, but will also address one of the SG100 element providing physical measures of the impact of the gear on the habitat.

2.4.3 Trace References

Constable (2006)

Condition 2.4.3: By the first annual surveillance audit, the client shall provide some 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 consider including the results of the ongoing study on habitat impacts in the region.

2.5.1		
The fishery does not cause serious or irreversible harm to the key elements of ecosystem structure and function.		
SG 60	SG 80	SG 100
The fishery is <u>unlikely</u> 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 <u>highly unlikely</u> to disrupt the key elements underlying ecosystem structure and function to a point where there would be a serious or irreversible harm.	There is <u>evidence</u> 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.

2.5.1	Both gear types
Score	80

2.5.1 Scoring Rationale:

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 reserve covers 65,000 km² on the plateau where fishing is prohibited (AFMA 2009b).

The effects of the fishery on key ecosystem components and processes are currently under study, with the research expected to be completed in 2011. Studies are underway by CCAMLR and AFMA/AAD investigating food web interactions in the fishery. A series of papers were presented at the 1st International Science Symposium on the Kerguelen Plateau in Concarneau, France, 14-16 April 2010 (Program Concarneau 2010). However, formal publications are not expected to be available until October 2011.

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 14 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. Therefore the fishery clearly meets the 60 and 80 scoring guidepost. However, the assessment team felt that in the absence of a directed investigation there was no evidence for that and scored at 80.

2.5.1 Trace References

AFMA (2009b), Sainsbury (2008)

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.

SG 60	SG 80	SG 100
<p>There are <u>measures</u> in place, if necessary, that take into account potential impacts of the fishery on key elements of the ecosystem.</p> <p>The measures are considered likely to work, based on <u>plausible argument</u> (eg, general experience, theory or comparison with similar fisheries/ ecosystems).</p>	<p>There is a <u>partial strategy</u> in place, if necessary, that 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.</p> <p>The partial strategy is considered likely to work, based on <u>plausible argument</u> (eg, general experience, theory or comparison with similar fisheries/ ecosystems).</p> <p>There is <u>some evidence</u> that the measures comprising the partial strategy are being implemented successfully</p>	<p>There is a <u>strategy</u> that consists of a <u>plan</u>, containing 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.</p> <p>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.</p> <p>The measures are considered likely to work based on <u>prior experience</u>, plausible argument or <u>information</u> directly from the fishery/ecosystems involved.</p> <p>There is <u>evidence</u> that the measures are being implemented successfully.</p>

2.5.2	Both gear types
Score	90

2.5.2 Scoring Rationale:

As discussed under 2.5.1 the fishery operates under the precautionary ecosystem-based principles. These are based on specific studies of the fishery also using detailed analysis of fisheries independent data. One of the three CCAMLR principles aims to maintain ecological relationships between the harvested, dependent and related species. Another one is to minimize the risk of ecosystem changes that are not potentially reversible in 20-30 yrs. The harvest strategy is designed to meet stock management objectives and uses the precautionary approach.

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 the strategy is likely to achieve its objective.

The team determined that therefore the fishery meets all elements of the 60 and 80 scoring guidepost and the last two elements of the 100 guidepost. Therefore the fishery was scored at 90.

2.5.3		
There is adequate knowledge of the impacts of the fishery on the ecosystem.		
SG 60	SG 80	SG 100
Information is adequate to <u>identify</u> the key elements of the ecosystem (e.g. trophic structure and function, community composition, productivity pattern and biodiversity).	Information is adequate to <u>broadly understand the functions</u> of the key elements of the ecosystem.	Information is adequate to <u>broadly understand the key elements</u> of the ecosystem.
Main impacts of the fishery on these key ecosystem elements can be inferred from existing information, but <u>have not been investigated in detail</u> .	Main impacts of the fishery on these key ecosystem elements can be inferred from existing information, but <u>may not have been investigated in detail</u> .	Main <u>interactions</u> between the fishery and these ecosystem elements can be inferred from existing information, and <u>have been investigated</u> .
	The main functions of the Components (i.e. target, Bycatch, Retained and ETP species and Habitats) in the ecosystem are <u>known</u> .	The impacts of the fishery on target, Bycatch, Retained and ETP species and Habitats are identified and the main functions of these Components in the ecosystem are <u>understood</u> .
	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 <u>and elements</u> to allow the main consequences for the ecosystem to be inferred.
	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.

2.5.3	Both gear types
Score	85

2.5.3 Scoring Rationale:

The main species involved in the system are known, and there is information on their density or abundance from either independent monitoring or fisheries data.

The information on the impact of the fishery, i.e. biomass of toothfish and bycatch species taken, is of high quality and able to support the understanding of the consequences of the take and interactions. The ERA and the residual risk assessment identified three skate species as being at high risk from the demersal trawl sector and one skate species in the longline sector at high risk. All other species were classed at medium or low risk from the HIMI toothfish fishery.

Data continue to be collected in an ongoing way, and would allow managers to assess any changes in risk if there was adequate knowledge to place those impacts in context. Thus all elements for SG80 are met. In addition the first element of the SG 100 is met because the information is adequate to broadly understand the key elements of the ecosystem. The last element of the SG 100 is also met because strategies to manage ecosystem impacts have been developed that are supported by sufficient information. However the team determined that elements 2, 3 and 4 are not fully met and therefore scored at 85.

10.3 MSC Principle 3

The fishery is subject to an effective management system that respects local, national and international laws and standards and incorporates institutional and operational frameworks that require use of the resource to be responsible and sustainable.

3.1.1

The management system exists within an appropriate and effective legal and/or customary framework which ensures that it:

- Is capable of delivering sustainable fisheries in accordance with MSC Principles 1 and 2;
- 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.

SG 60	SG 80	SG 100
<p>The management system is generally consistent with local, national or international laws or standards that are aimed at achieving sustainable fisheries in accordance with MSC Principles 1 and 2.</p> <p>The management system incorporates or is subject by law to a <u>mechanism</u> for the resolution of legal disputes arising within the system.</p> <p>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.</p> <p>The management system has a mechanism to <u>generally respect</u> 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.</p>	<p>The management system incorporates or is subject by law to a <u>transparent mechanism</u> for the resolution of legal disputes which is <u>considered to be effective</u> in dealing with most issues and that is appropriate to the context of the fishery.</p> <p>The management system or fishery is attempting to comply in a timely fashion with binding judicial decisions arising from any legal challenges.</p> <p>The management system has a mechanism to <u>observe</u> 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.</p>	<p>The management system incorporates or is subject by law to a <u>transparent mechanism</u> for the resolution of legal disputes that is appropriate to the context of the fishery and has been <u>tested and proven to be effective</u>.</p> <p>The management system or fishery acts proactively to avoid legal disputes or rapidly implements binding judicial decisions arising from legal challenges.</p> <p>The management system has a mechanism to <u>formally commit</u> to the legal rights created explicitly or established by custom on people dependent on fishing for food and livelihood in a manner consistent with the objectives of MSC Principles 1 and 2.</p>

Score: 90

3.1.1 Scoring Rationale:

As a fishery within Australia's EEZ and within the CCAMLR Area, the HIMI Toothfish Fishery is managed jointly by AFMA and the AAD (DSEWPaC) consistent with CCAMLR conservation measures. In addition, the management of the French Fishery on Kerguelen Island, which is considered to operate on the same stock as that fished by the HIMI Toothfish fishery also comprises part of the management system for the unit of certification. France is also a member of CCAMLR and France applies many of CCAMLR's requirements to

the Toothfish fishery around Kerguelen Island. The management system therefore comprises the Australian domestic management regime, the French management regime and that of CCAMLR.

Australian management system

AFMA operates as a Commission which reports to the Commonwealth Minister for Agriculture, Fisheries and Forestry while AAD reports to the Commonwealth Minister for Sustainability, Environment, Water, Population and Communities.

The main legislative instrument for management of the fishery is the *Heard Island and McDonald Islands Fishery Management Plan 2002* (the HIMI Management Plan which is available at: <http://www.comlaw.gov.au/comlaw/management.nsf/lookupindexpagesbyid/IP200508565?OpenDocument>).

The Plan is a statutory instrument established under the *FMA*. In addition, the fishery is subject to assessment against the *Guidelines for the Ecologically Sustainable Management of Fisheries* under the *EPBC Act*. Both Acts require the application of the precautionary approach and the adoption of measures to ensure ecologically sustainable development.

Australia's obligations under the CCAMLR Convention are implemented through the *Antarctic Marine Living Resources Conservation Act 1981* administered by DSEWPac.

The Australian management system has well established mechanisms for administrative and legal appeals of decisions taken in respect of the fishery. These mechanisms have been used and tested extensively but their use has not been required in the HIMI Toothfish Fishery.

French management system²

Conservation and management in the French sub-Antarctic islands are regulated by a series of laws and decrees. The central legislative instrument is the Code rural et de la Pêche maritime. The system is consistent with CCAMLR requirements. The French system has long-established mechanisms for appeals in relation to administrative decisions on fisheries management through an Administrative Tribunal.

CCAMLR

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:

- (i) 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.
- (ii) 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, 2010a)

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 Performance Review Panel, 2008). CCAMLR's dispute

² The assessment of the French management system under Pis 3.1-3.4, relies heavily on information provided by the assessment team conducting the MSC assessment of the SARPC Toothfish fishery, supplemented, where possible, by publicly available material.

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 not yet acted upon that recommendation.

Scientific evidence suggests that the Toothfish stock fished in the HIMI fishery is likely to be a shared stock with that in the French EEZ around Kerguelen. Australian and French scientists have been cooperating on complementary research for the Kerguelen Plateau on a range of issues including Patagonian toothfish. Australia and France held a Science Symposium in Concarneau, 14-16 April 2010 to discuss a broad range of issues relevant to the Kerguelen Plateau including toothfish biology and possible impacts of climate change on the marine living resources.

The United Nations Fish Stocks Agreement, to which Australia and France are each a Party, requires that such straddling stocks be managed cooperatively. As discussed under Principle 1, while the survey results for the Australian fishery will likely reflect the impact of the French Fishery, the stock assessment for the Australian fishery does not make any explicit allowance for the potential impact of the French fishery on the stock, and conditions have been developed to address this.

Australia and France have already demonstrated their preparedness to cooperate through their joint surveillance activities. In November 2003, the two countries signed the 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. The treaty provides for:

- cooperative surveillance of fishing vessels within the Area of Cooperation;
- the exchange of information on the location, movements and other details such as licensing of fishing vessels within the Area of Cooperation assistance, such as logistical support, for the 'hot pursuit' of vessels as requested by the pursuing state;
- cooperative scientific research on marine living resources;
- further agreements for cooperative surveillance and enforcement Missions

This Treaty has been complemented by the subsequent development in 2007 of a co-operative agreement on fisheries inspection and control between the French and Australian authorities. More recently, Australia and France have undertaken cooperative work analyzing catch, effort and other data to progress understanding of fish stocks and fishery dynamics for both the French zone around Kerguelen Islands and the Australian zone around HIMI. In the assessor's view cooperative or complementary management would be a logical extension of these activities.

Overall, the assessors are of the view that the management system in HIMI is generally consistent with both national and international laws and standards and with the achievement of sustainable fisheries as required by MSC principles 1 and 2. Element 1 of SG60 is therefore met. All components of the management system for the fishery have established transparent mechanisms for the resolution of disputes which are generally regarded as effective. The fishery therefore meets the first element of SG80. However, since CCAMLR's dispute resolution mechanism is untested and some parts have been identified as requiring improvement, the fishery does not meet all elements of the first scoring element of SG100. The management system acts proactively to avoid legal disputes and meets the third element of SG60 and the second elements of SG80 and SG100. Customary rights are not an issue in this fishery therefore the final element of SG60, SG80 and SG100 are not relevant. A score of 90 is therefore considered appropriate.

It is however, recommended that the client should actively encourage the responsible Australian agencies to continue bilateral talks with France with a view to extending the existing scientific, research and compliance cooperation between the two countries to include complementary management arrangements.

3.1.1 Trace References

CCAMLR (2010a), CCAMLR Performance Review Panel (2008)

3.1.2		
<p>The management system has effective consultation processes that are open to interested and affected parties.</p> <p>The roles and responsibilities of organizations and individuals who are involved in the management process are clear and understood by all relevant parties.</p>		
SG 60	SG 80	SG 100
<p>Organizations and individuals involved in the management process have been identified. Functions, roles and responsibilities are <u>generally understood</u>.</p> <p>The management system includes consultation processes that <u>obtain relevant information</u> from the main affected parties, including local knowledge, to inform the management system.</p>	<p>Organizations and individuals involved in the management process have been identified. Functions, roles and responsibilities are <u>explicitly defined and well understood</u> for <u>key areas</u> of responsibility and interaction.</p> <p>The management system includes consultation processes that <u>regularly seek and accept</u> relevant information, including local knowledge. The management system demonstrates consideration of the information obtained.</p> <p>The consultation process <u>provides opportunity</u> for all interested and affected parties to be involved.</p>	<p>Organizations and individuals involved in the management process have been identified. Functions, roles and responsibilities are <u>explicitly defined and well understood</u> for <u>all areas</u> of responsibility and interaction.</p> <p>The management system includes consultation processes that <u>regularly seek and accept</u> relevant information, including local knowledge. The management system demonstrates consideration of the information and <u>explains how it is used or not used</u>.</p> <p>The consultation process <u>provides opportunity and encouragement</u> for all interested and affected parties to be involved, and <u>facilitates</u> their effective engagement.</p>

Score: 75

3.1.2 Scoring Rationale:

Organizations and bodies involved in the management system are:

- AFMA;
- AAD;
- An Interdepartmental Committee;
- SouthMAC;
- SARAG;
- CCAMLR Consultative Forum;

- HIMI Stakeholder Group;
- The Terres Australes et Antarctiques Francaises (TAAF), attached to the French Ministry of Overseas Territories;
- The Museum National d'Histoire Naturelle;
- CCAMLR; and
- CCAMLR committees including the Scientific Committee, WGFSA, Working Group on Ecosystem Monitoring and Management, the Working Group on Statistics, Assessment and Modelling (WGSAM) and the Standing Committee on Implementation and Compliance (SCIC).

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 determined through consultation within the Interdepartmental Committee (which includes AAD, AFMA, DAFF, the Department of Foreign Affairs and Trade and the Attorney General's Department, Australian Customs and Border Protection Service and the CCAMLR Consultative Forum (which includes government organisations, industry and non-government conservation agencies). Australia is well represented at CCAMLR in both the Commission and in its various subsidiary bodies. There is an industry representative on the Australian delegation. Another industry representative attends CCAMLR as a member of the Coalition of Legal Toothfish Operators (COLTO). AFMA is responsible for implementation of measures agreed by CCAMLR and achieves this through the inclusion of CCAMLR Conservation Measures in the *Fisheries Management (Heard Island and McDonald Islands Fishery) Regulations 2002* or as conditions on the statutory fishing rights (SFRs) allocated to participants in the HIMI Toothfish Fishery.

SouthMAC 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. The functions and roles of the MAC and the RAG are defined in the *Fisheries Management Act 1991* and in AFMA policy documents (AFMA, 2005; AFMA, 2009a). The RAG and MAC provide advice to the Commission on management and research for the HIMI Toothfish Fishery.

The Australian management system provides regular and extensive opportunities for all stakeholder groups to provide input to the management of the fishery. The CCAMLR Consultative Forum meets three times each year. These meetings are formally recorded and records distributed to participants. However, some of the information discussed is considered confidential and the meeting records are not made more publicly available. In addition, ad hoc meetings between industry and AAD and AFMA are held 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.

A HIMI Stakeholder Group provides input on the assessment of the HIMI Conservation Zones around Heard Island and McDonald Islands and their possible inclusion in the existing Marine Reserve. Outcomes of the annual CCAMLR meeting are discussed with stakeholders and SouthMAC prior to development of advice to AFMA.

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 and well understood. 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 functions of the CCAMLR Scientific Committee are established by the CCAMLR Convention and CCAMLR has established clear terms of reference for the WGFS and SCIC. 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.

Decisions of the AFMA Commission are published regularly through the *AFMA Update* which is distributed to interested stakeholders and available on the AFMA web site. However minimal information is provided on the issues considered in reaching these decisions. CCAMLR publishes reports of the Commission and its subsidiary bodies and copies of its Conservation Measures on its web site. Some information on the web site is available only to CCAMLR members.

Overall, the legislative, administrative and consultation process in place across the management system are very effective. Functions, roles and responsibilities are explicitly defined and well understood by the participants. The first elements of SG 60, 80 and 100 are therefore considered to be met by all parts of the management system. All parts of the management system are considered to meet the second scoring element at the SG60, 80 and 100 levels. There are extensive consultation processes in place in the Australian system and the CCAMLR system is also facilitates engagement by stakeholders. The feedback processes in place are transparent and the management system accepts relevant information and local knowledge and demonstrates how this information is used or not used. As a result the Australian and CCAMLR consultation processes are considered to meet the third element of SG 80 and 100.

However, the information available to the assessment team did not confirm that the consultation process in the French management system provides opportunity for all interested and affected parties to be involved at the level of SG80. The assessment team noted the existence and role of CCAMLR with all its various committee structures provided a positive overarching management framework. The team also noted the less formal nature of cooperation and management between Australia and France outside of CCAMLR on science and compliance, but recommended that the framework may require greater formalisation in the future to ensure all participants can be involved in the consultation processes.

Accordingly the management system in its entirety is not considered to meet SG80. A condition is therefore required.

Condition 3.1.2:

By the third annual surveillance audit the client shall provide information that demonstrates consultation processes in all the management systems provide opportunity for all interested and affected parties to be involved.

3.1.2 Trace References

AFMA (2005), AFMA (2009a)

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.

SG 60	SG 80	SG 100
Long-term objectives to guide decision-making, consistent with MSC Principles and Criteria and the precautionary approach, are <u>implicit</u> within management policy.	<u>Clear</u> long-term objectives that guide decision-making, consistent with MSC Principles and Criteria and the precautionary approach, are <u>explicit</u> within management policy.	<u>Clear</u> long-term objectives that guide decision-making, consistent with MSC Principles and Criteria and the precautionary approach, are <u>explicit</u> within <u>and required by</u> management policy

Score: 95

3.1.3 Scoring Rationale:

The HIMI Management Plan specifies the long term 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 Australian fishing Zone (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.

The Common Fisheries Policy (CFP) of the European Union applies to the management of the French toothfish fishery. The objectives of the CFP are set out in Council Regulation (EC) No.237/202 of 20 December 2002 (available at: <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2002:358:0059:0080:EN:PDF>) as follows:

1. The Common Fisheries Policy shall ensure exploitation of living aquatic resources that provides sustainable economic, environmental and social conditions. For this purpose, the Community shall apply the precautionary approach in taking measures designed to protect and conserve living aquatic resources, to provide for their sustainable exploitation and to minimise the impact of fishing activities on marine eco-systems. It shall aim at a progressive implementation. It shall aim to contribute to efficient fishing activities within an economically viable and competitive fisheries and aquaculture industry, providing a fair standard of living for those who depend on fishing activities and taking into account the interests of consumers.
2. The Common Fisheries Policy shall be guided by the following principles of good governance:
 - a) clear definition of responsibilities at the Community, national and local levels;
 - b) a decision-making process based on sound scientific advice which delivers timely results;

- c) broad involvement of stakeholders at all stages of the policy from conception to implementation;
- d) consistence with other Community policies, in particular with environmental, social, regional, development, health and consumer protection policies.

These objectives provide clear guidance for decision-making, consistent with MSC Principles and Criteria and the precautionary approach and are explicit within by management policy. France is in the process of developing a Maritime Strategy that will be incorporated into French legislation. Enactment of that legislation will, through a management plan for the TAAF, require the objectives to be pursued in relation to the Kerguelen fishery.

The CFP is also undergoing a reform process. A package of proposals is being submitted to the European Parliament and Council for adoption under the ordinary legislative procedure (co-decision). The Commission aims for adoption and entry into force of the new framework by 1 January 2013. The proposals aim to provide more effective protection for the marine environment. Under the proposals EU fisheries will be managed by multi-annual plans and governed by the ecosystem approach and the precautionary principle. Scientific data on the state of the stocks will be more reliable, and the fishing industry will have a better and more stable basis for long-term planning and investment. This will safeguard resources and maximise long-term yields (EC Maritime Affairs and Fisheries, 2011).

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 principles encompass both ecosystem-based and precautionary management. CCAMLR's performance review noted that CCAMLR has a strong record in the application of the precautionary approach.

The long-term objectives of the Australian and CCAMLR components of the management system for the fishery are clear and explicit within, and required by management policy. They are consistent with MSC Principles and Criteria and the precautionary approach and meet the requirements of SG100. The French regime has clear and explicit long term objectives and therefore meets SG 60 and SG80 and the first element of SG100 but does not, until incorporation of the Maritime Strategy into legislation, meet the second element. Overall a score of 95 is considered appropriate.

3.1.3 Trace References

Fisheries Management Act 1991, *Convention for the Conservation of Antarctic Marine Living Resources*

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.		
SG 60	SG 80	SG 100
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 negative 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 <u>explicitly considers</u> incentives in a <u>regular review</u> of management policy or procedures to ensure that they do not contribute to unsustainable fishing practices.

Score: 90

3.1.4 Scoring Rationale:

The CCAMLR system sets TACs for fisheries/sub-areas, including for the HIMI Toothfish Fishery in CCAMLR Statistical Division 58.5.2 but does not make national allocations.. Australian vessels in the Toothfish Fishery are subject to CCAMLR's Conservation Measures for Toothfish, non-target species and ecosystem impacts, as well as additional requirements imposed by AFMA.

Australia allocates the TAC as SFRs, in the form of individual transferable quotas (ITQs) to the fishing companies under the HIMI Management Plan. . ITQs are the Australian Government's preferred fisheries management mechanism, a policy position that was reviewed and reiterated in 2003 (DAFF, 2003). SFRs provide security of access to fishers, promote stewardship of the resource and provide a platform for the maximisation of economic efficiency of fishing operationsThe HIMI Management Plan requires that "AFMA and SouthMAC 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)". Each year SouthMAC conducts a review of progress against each of the performance measures, including economic efficiency, contained in the Management Plan and reports this to the AFMA Commission. The results of this assessment are provided on the AFMA web site.

The management arrangements are reviewed periodically under the provisions of Section 10 of the EPBC Act. ABARES also reports on economic efficiency of the HIMI Fishery annually in the Fisheries Status Reports (see for example, Patterson *et al.*, 2010). The latest report notes that there is a low level of latency of quota in the HIMI Toothfish Fishery suggesting that the net economic returns are positive. Overall, the economic performance of the HIMI Fishery, of which the Toothfish Fishery is one component, is considered to be positive. This annual review of ecological sustainability and economic efficiency constitutes an explicit review of incentives in the management policy.

Currently, a maximum of three vessels are allowed in the fishery at any time, so capacity and effort are limited. Draft amendments to the HIMI Management Plan were released in November 2011. These amendments

propose remove the limit on the number of vessels operating in the fishery and, in particular, to provide for more of the Toothfish catch to be taken by non-trawl methods, mainly longline. Amendments to the Plan will be discussed in SouthMAC and with other relevant agencies such as SEWPAC, and subject to a mandatory period of public consultation before they can proceed.

The annual TAC and allocation of ITQs provide positive incentives for sustainable fishing of the target stock. As noted above, management of broader ecosystem impacts are applied through the HIMI Fishery Regulations and/or through conditions placed on SFRs.

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 (CRIS) (AFMA, 2010a). The CRIS was revised in 2010 and the revisions have seen an increased contribution to management costs by industry and a decline in the government contribution. The CRIS specifies that industry contributes 100% of the costs associated with:

- management of domestic commercial fisheries, including MACs;
- data collection and management (data management, logbooks, observers, compliance data collection); 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 industry and government depending on the flow of benefits to the industry and the broader community. Government contributes 100% of research commissioned by AFMA that results in significant benefits to the Australian community and to sectors outside the domestic Commonwealth commercial fishing industry.

The Australian Government implemented a government funded structural adjustment program in 2005, however the HIMI Toothfish Fishery was not a beneficiary of that program.

France currently licences six fishing companies (seven vessels) to operate in the Kerguelen Toothfish fishery. There is no statutory limit on the number of licences that could be issued, however, the number has been stable for around 10 years and there is no indication that the number is likely to be increased. Despite this, the lack of a formal cap on the level of access to the fishery diminishes the certainty attaching to the fishing rights. France sets the TAC for the fishery annually and allocates this across the authorised vessels. The initial allocation was based on the history of fishing in the fishery but was subsequently revised to reflect the inclusion of one additional vessel. While operators have certainty in the proportion of the TAC they will receive from year to year, this is not reflected in the form of an ongoing right. Allocations are non-transferable. There is no cost recovery per se however operators pay an annual licence fee to cover administrative costs. The fishery does not receive any specific subsidies.

The Australian and French management systems fishery provides incentives that are consistent with achieving the outcomes expressed by MSC Principles 1 and 2. The performance of the Australian management system fishery is subject to regular review which ensures that it is not encouraging unsustainable fishing practices. As such, the Australian management system is considered to meet all requirements of SG100. The assessment team did not receive any information that confirmed the nature and extent of review of management policy in

the French management system. Overall, the fishery is considered to meet the first requirement of SG100 but not the second. A score of 90 is considered appropriate.

3.1.4 Trace References

DAFF (2003); Department of Finance and Deregulation (2005); AFMA (2010a). Patterson *et al.*, (2010)

3.2.1		
The fishery has clear, specific objectives designed to achieve the outcomes expressed by MSC's Principles 1 and 2.		
SG 60	SG 80	SG 100
Objectives, which are broadly consistent with achieving the outcomes expressed by MSC's Principles 1 and 2, are <u>implicit</u> within the fishery management system.	<u>Short and long term objectives</u> , which are consistent with achieving the outcomes expressed by MSC's Principles 1 and 2, are <u>explicit</u> within the fishery management system.	<u>Well defined and measurable short and long term objectives</u> , which are demonstrably consistent with achieving the outcomes expressed by MSC's Principles 1 and 2, are <u>explicit</u> within the fishery management system.

Score: 90

3.2.1 Scoring Rationale:

The long-term objectives are specified in the HIMI Management Plan and by the CCAMLR Convention. These have been described in the discussion of Indicator 3.1.3 above. While short-term objectives for the fishery are not specified as explicitly as the long term objectives they are clearly identifiable for target, non-target and ETP species.

With respect to the target species, AFMA states that the assessment of the HIMI Toothfish stock is undertaken in accordance with CCAMLR's precautionary approach to management 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 resources for the needs of dependent species (usually predators) (AFMA, 2010b).

These objectives are reflected in the decision rules for the fishery (see discussion under 1.2.1 and 1.2.2) and are well-defined and measureable.

There are TACs in place for a range of non-target species and species groups including Unicorn Icefish, Grey Rockcod, Macrourus spp., skates and rays and each other species. These TACs comprise short-term management objectives for these species in that they identify the upper level of the impact that the fishery is prepared to accept. A bycatch action plan was developed for the Fishery in 2003 but this plan has effectively been superseded by the development of the Ecological Risk Management (ERM) Reports for the Fishery based on ecological risk assessments for the trawl and longline sectors of the Fishery. Reporting on bycatch and interactions with protected species is included in the fishery's annual status report to SEWPAC. AFMA's ERM reports for longline and demersal trawl gears (AFMA 2009b and 2009c respectively) concluded that there are no target, bycatch, byproduct or protected species considered to be at high risk from the effects of fishing given the suite of management and conservation initiatives that are in place in the fishery. The SAFE level 3 ERA

report for the demersal trawl section of the Fishery does, identify three species of skates as priority species “on which AFMA will focus ERM efforts” but fails to specify any objectives or actions with respect to mitigating the impact of the fishery on these species. The ERM reports do not contain specific objectives with respect to minimising the benthic impact.

Overall, the objectives of the fishery can be regarded as being consistent with achieving the outcomes of MSC Principles 1 and 2. However, the score for the Fishery against this indicator could be increased through a more explicit enunciation of its short-term objectives and how achievement of those objectives will be monitored over time, particularly in respect of Principle 2 issues and especially with respect to objectives for management of high-risk bycatch species and habitats. As a result the fishery is considered to meet the requirement of SG80 but does not fully meet the requirement of SG100. It is considered that a score of 90 is appropriate.

3.2.1 Trace References

AFMA 2010b; AFMA 2009b; AFMA 2009c.

3.2.2		
The fishery-specific management system includes effective decision-making processes that result in measures and strategies to achieve the objectives.		
SG 60	SG 80	SG 100
<p>There are <u>informal</u> decision-making processes that result in measures and strategies to achieve the fishery-specific objectives.</p> <p>Decision-making processes respond to <u>serious issues</u> identified in relevant research, monitoring, evaluation and consultation, in a transparent, timely and adaptive manner and take <u>some</u> account of the wider implications of decisions.</p>	<p>There are <u>established</u> decision-making processes that result in measures and strategies to achieve the fishery-specific objectives.</p> <p>Decision-making processes respond to <u>serious and other important issues</u> identified in relevant research, monitoring, evaluation and consultation, in a transparent, timely and adaptive manner and take account of the wider implications of decisions.</p> <p>Decision-making processes use the precautionary approach and are based on best available information. <u>Explanations</u> are provided for any actions or lack of action associated with findings and relevant recommendations emerging from research, monitoring, evaluation and review activity.</p>	<p>Decision-making processes respond to <u>all issues</u> identified in relevant research, monitoring, evaluation and consultation, in a transparent, timely and adaptive manner and take account of the wider implications of decisions.</p> <p>Decision-making processes use the precautionary approach and are based on best available information.</p> <p><u>Formal reporting</u> to all interested stakeholders describes how the management system responded to findings and relevant recommendations emerging from research, monitoring, evaluation and review activity.</p>

Score: 100

3.2.2 Scoring Rationale:

The AFMA Commission receives advice from SouthMAC and SARAG. The advice provided to the Commission and the Commission's decisions must be in accord with AFMA's legislative objectives, which are reflected in the HIMI Management Plan. SouthMAC and SARAG's advice is formed taking into account the decisions of CCAMLR on issues such as TAC setting and other relevant Conservation Measures. There is an extensive consultation process in place to ensure transparency and feedback mechanisms for stakeholders (see discussion under indicator 3.1.2).

The AFMA advisory and decision making processes and the CCAMLR/AAD processes are well established and clearly linked to objectives and to the application of the precautionary approach, including the use of the best available information. Reports of CCAMLR and its subsidiary bodies are publicly available and the AFMA Commission's decisions are made public on a timely basis.

There are established decision-making processes that deliver strategies to achieve fishery-specific objectives. The first element of SG80 is therefore met. The decision-making framework responds in a transparent and timely manner to all issues identified through research, monitoring and consultation. The decision-making processes are well established in all components of the management system. Those processes require the application of the precautionary approach, including the use of the best available information. The decisions making processes incorporate established, formal, reporting mechanisms for dissemination of decisions on management responses to these issues. The fishery meets each scoring element of SG100. A score of 100 is considered appropriate.

3.2.3		
Monitoring, control and surveillance mechanisms ensure the fishery's management measures are enforced and complied with.		
SG 60	SG 80	SG 100
Monitoring, control and surveillance <u>mechanisms</u> exist, are implemented in the fishery under assessment and there is a reasonable expectation that they are effective.	A monitoring, control and surveillance <u>system</u> has been implemented in the fishery under assessment and has demonstrated an ability to enforce relevant management measures, strategies and/or rules.	A <u>comprehensive</u> 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.
Sanctions to deal with non-compliance exist and there is some evidence that they are applied.	Sanctions to deal with non-compliance exist, <u>are consistently applied</u> and thought to provide effective deterrence.	Sanctions to deal with non-compliance exist, are consistently applied and <u>demonstrably</u> provide effective deterrence.
Fishers are <u>generally thought</u> 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.	<u>Some evidence exists</u> 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 no evidence of systematic non-compliance.	There is a <u>high degree of confidence</u> that fishers comply with the management system under assessment, including, providing information of importance to the effective management of the fishery.

Score: 100

3.2.3 Scoring Rationale:

Compliance in the HIMI Toothfish Fishery is conducted in accordance with AFMA's Domestic Compliance and Enforcement Policy (AFMA, 2010c). AFMA conducts an annual Compliance Risk Assessment for the HIMI Fishery as a whole, rather than specifically for the Toothfish Fishery.

No domestic compliance risks specific to the Toothfish Fishery have been identified but common fisheries compliance risks including non-reporting from the vessel monitoring system (VMS), non-compliance with size limits and misreporting on logbooks apply to the Fishery.

The monitoring control and surveillance system in place in the Toothfish Fishery comprises:

- an integrated Computerised VMS;
 - both Australian companies operating in the fishery carry two VMS so as to provide a backup in case of failure of one system
 - CCAMLR requires the use of VMS while operating in the CCAMLR area and in order to supply toothfish to the US market a VMS must be used from port of departure to port of landing of the product
- 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) on board each vessel for the purposes of ensuring compliance with management arrangements such as closed areas, minimum size limits, bycatch limits and collection of data
 - data collection officers do not have the official capacity of the AFMA observer, are not authorised to collect data on protected species interactions and are not subject to the same training and AAD induction/education processes as AFMA observers;
 - the assessment team was advised that the AFMA observer and the data collection officer work flexibly to ensure that the AFMA observer is on duty when interactions with protected species are most likely to occur;
 - the assessment team notes that the observer arrangements on HIMI Toothfish Fishery vessels exceeds the CCAMLR requirements, i.e. a single observer, and provide for significantly enhanced monitoring activity in managed fisheries .
- in port monitoring of unloads by an AFMA authorised officer to ensure compliance with catch limits
 - All unloadings of Australian Toothfish vessels are scrutinised and a 'port access letter' confirming that the product has been taken legally and in compliance with CCAMLR conservation measures is provided to the Port State
- completion of the Toothfish 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 *FMA* provides for penalties and sanctions in the event that fishers do not comply with the management measures in the fishery. There is no evidence of systematic non-compliance in the fishery.

The main compliance risk to the HIMI Toothfish Fishery is the threat of foreign illegal, unreported and unregulated (IUU) fishing for Toothfish. In the past there has been a significant threat for the Toothfish stock fished in the HIMI Fishery. Since 2003 Australia has protected its sovereign interests in the Southern Ocean with armed patrols of its fishing zones in order to combat IUU fishing. In addition, there is a year round presence of at least one fishing vessel in the Australian EEZ around HIMI and AAD's Antarctic station re-

supply vessels are briefed on detection of IUU fishing. These measures act as a further deterrent to, and increase the likelihood of detection of, IUU fishing.

These measures form part of a broader Australian strategy against IUU fishing which includes cooperating with other countries on enforcement and surveillance patrols, working with other countries to stop the trade and landing of IUU catches and applying diplomatic pressure on countries aiding IUU activity. In particular, under treaty arrangements between Australia and France, cooperative surveillance activities in the adjacent EEZs surrounding HIMI and Îles Kerguelen are in place that provide for French vessels to undertake surveillance patrols in the HIMI EEZ. Australia has recently amended the *FMA* to strengthen the arrangements to combat illegal fishing in its sub-Antarctic territories. The amendments will implement the international agreement with France, allowing cooperative fisheries law enforcement activities in Australian and French Southern Ocean maritime zones. The cooperative enforcement activities will greatly improve Australian and French efforts to prevent illegal fishing activities. Enforcement activities may include the boarding, inspection, hot pursuit, apprehension, seizure and investigation of fishing vessels believed to have violated applicable fisheries laws. The amendments will also grant French officers civil and criminal immunity from the jurisdiction of Australian courts, in accordance with the provisions in the enforcement agreement for acts performed in the course of carrying out cooperative enforcement activities. Similarly, Australian officers acting consistently with the enforcement agreement are indemnified under French law. Together, these amendments will strengthen border security and help deter illegal fishing in Australia.

While IUU fishing for Toothfish continues in CCAMLR waters, CCAMLR's estimates of IUU catch in subdivision 58.5.2 were zero between 2006/07 and 2009/10. Most IUU activity in CCAMLR waters is now believed to be unreported fishing prosecuted by gillnetting and in 2009/10 all IUU fishing activity identified by CCAMLR was reported in Subarea 58.4, particularly in Divisions 58.4.1 and 58.4.2 (CCAMLR, 2010b). While there remains an ongoing, underlying risk of IUU fishing in the HIMI Toothfish Fishery, evidence suggests that the current surveillance strategy is effective.

The industry has an excellent record of participation in the collection and submission of data and information relating to the Toothfish Fishery and the ecosystem in which it operates. The annual Fisheries Assessment Plan formalises the nature and extent of the industry's participation in the annual trawl survey.

There is a comprehensive monitoring, control and surveillance system in place that has demonstrated its ability to enforce management measures. Sanctions for non-compliance are available if required and since there but there is no evidence of systematic non-compliance they are considered to provide a demonstrably effective deterrent. Managers and industry are confident that there is good compliance with the management systems and the industry collaborates with researchers and managers to provide information required for effective management of the fishery. The fishery is considered to meet each of the scoring elements of SG100.

3.2.3 Trace References

AFMA (2010c); CCAMLR 2010b.

3.2.4		
The fishery has a research plan that addresses the information needs of management.		
SG 60	SG 80	SG 100
Research is undertaken, as required, to achieve the objectives consistent with	A research plan provides the management system with a strategic approach to research	A comprehensive research plan provides the management system with a coherent and strategic approach to research across

MSC's Principles 1 and 2. Research results are available to interested parties.	and <u>reliable and timely information</u> sufficient to achieve the objectives consistent with MSC's Principles 1 and 2. Research results are <u>disseminated</u> to all interested parties in a <u>timely</u> fashion.	P1, P2 and P3, and <u>reliable and timely information</u> sufficient to achieve the objectives consistent with MSC's Principles 1 and 2. Research <u>plan</u> and results are <u>disseminated</u> to all interested parties in a <u>timely</u> fashion and are <u>widely and publicly available</u> .
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Score: 100

3.2.4 Scoring Rationale:

The HIMI 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 strategic research plan is the *Antarctic Fisheries Strategic Research Plan 2010-2014* which is developed and reviewed annually by SARAG (SARAG, 2011). 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 and economic aspects of the fishery. The following projects relevant to the Toothfish Fishery are currently underway and funded under the Strategic Research Plan:

- CCAMLR stock assessment
- Joint Kerguelen Plateau toothfish assessment with France
- Random stratified trawl surveys;
- Conventional tagging work to contribute to a better understanding of the spatial stock structure and movement dynamics of toothfish)
- Age-specific tag recapture rates to investigate the natural mortality of toothfish
- Development of management strategy evaluation (MSE) model for HIMI
- Otolith collection, otolith reading/age analysis
- Collection and analysis of catch and effort data
- Design and evaluation of observer data in terms of their benefit in environment/bycatch assessment of sub-Antarctic fisheries
- AFMA surveillance and operations of the Coalition of Legal Toothfish operators (COLTO) for the purposes of quantifying the level of illegal and non-reported catches of toothfish and ecologically related species
- Ecology of the HIMI marine ecosystem (AAD study to address predator prey interactions, benthic ecology and biological oceanography)
- Observer monitoring
- Benthic habitat project (comparative study of MPA regions)
- Effects of trawling on benthic ecosystems
- Effects of longline fishing on benthic ecosystems

- Tagging programs for skates and rays
- Bycatch monitoring (ongoing through observers)
- Monitoring of interactions with birds and mammals (ongoing through observer program)

This research is variously funded by Government, AFMA, AAD and industry. The AAD's research in the Southern Oceans is directed by the *Australian Antarctic Science Strategic Plan 2011-12 to 2020-21* (AAD, 2010).

Research in the HIMI Toothfish Fishery is characterised by formal collaboration between industry and research providers. The details of this collaboration are specified in the annual Fisheries Assessment Plan (AFMA, 2009d) required under the HIMI Management Plan. A copy of the 2009/10 Fisheries Assessment Plan is available on the AFMA web site. The Fisheries Assessment Plan aims 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. In 2009/10 the Fisheries Assessment Plan required industry to conduct 17 days of research and monitoring in the HIMI fishery. Of this, approximately 13 days were dedicated to the Toothfish Fishery. Industry's contribution to research includes direct financial contributions, provision of vessel time and crew expertise and cooperation with the observer program.

Research results are provided to SARAG and SouthMAC 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.

The HIMI Toothfish Fishery has a comprehensive research plan that is updated annually to reflect emerging priorities. The plan delivers reliable and timely information to achieve the objectives of MSC Principles 1 and 2. The plan is readily available on AFMA's website and research reports are available through the research providers and/or funders. The fishery is considered to meet both scoring elements of SG100.

3.2.4 Trace References

SARAG (2011); AAD (2010); AFMA (2009d)

3.2.5		
There is a system for 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.		
SG 60	SG 80	SG 100
The fishery has in place mechanisms to evaluate <u>some</u> parts of the management system and is subject to <u>occasional internal</u> review.	The fishery has in place mechanisms to evaluate <u>key</u> parts of the management system and is subject to <u>regular internal</u> and <u>occasional external</u> review.	The fishery has in place mechanisms to evaluate <u>all</u> parts of the management system and is subject to <u>regular internal</u> and <u>external</u> review.

Score: 100

3.2.5 Scoring Rationale:

The HIMI Management Plan includes performance criteria against which the Fishery must be assessed and requires that:

- each year, SouthMAC assess the extent to which those performance criteria have been met in that year;
- AFMA include in its annual report for a financial year a statement of the extent to which those performance criteria were met in the year; and
- AFMA and SouthMAC, 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 those performance criteria.

In accordance with the requirements of the Management Plan, SouthMAC conducts an annual assessment of the performance of the Fishery against the performance criteria contained in the Plan (AFMA, 2010d). This is provided to the AFMA Commission for consideration. AFMA relies on this assessment to meet the requirement of reporting in its Annual Report on the extent to which the performance criteria are met and the assessment is publicly available on the AFMA web site.

The HIMI Management Plan was implemented in 2002 and an assessment of its effectiveness would have been due by 2007 at the latest. A review of SouthMAC minutes and AFMA's annual reports since that time revealed no reference to such an assessment being conducted. Some amendments to the Management Plan are now being made but there is no indication that these reflect the findings of a full assessment. SouthMAC's annual assessment of performance states that the DEWHA (now SEWPAC) strategic assessment of the fishery conducted in 2007 constituted the five year review of effectiveness required by the HIMI Management Plan. The assessment team is of the view that the DEWHA assessment, which is conducted against specific ESD guidelines, does not meet the review requirements of the HIMI Management Plan, since it does not address all of the objectives of the Management Plan or the performance criteria specified in the Plan.

The performance of the fishery is subject to scrutiny by SouthMAC and SARAG, AFMA, AAD and other government agencies, the CCAMLR Scientific Committee and CCAMLR and a range of stakeholders. AFMA's performance in managing fisheries, including the Toothfish Fishery, is also reviewed through:

- annual reports by the Bureau of Rural Sciences (BRS) on the status of AFMA-managed fish stocks;
- five-yearly (or more frequently if required) assessments of ecological sustainability by DEWHA;
- periodic audits conducted by the Australian National Audit Office.

In addition, AFMA has conducted specific studies such as ecological risk assessments to identify high risk impacts of demersal trawl and longline fisheries for Toothfish.

The HIMI Toothfish stock assessment is subject to internal review through SARAG and external review through CCAMLR's WGSAM and WGFSa and through the periodic participation in these Working Groups of invited stock assessment experts. All aspects of CCAMLR's operations were subject to a performance review in 2008.

Overall, there is a wide range of review and monitoring mechanisms in place for this fishery. The assessment team considers that, taken together, these constitute regular internal and external evaluation of all parts of the management system. It is considered that the requirement of SG100 is met.

3.2.5 Trace References

AFMA (2010d)

11 CERTIFICATION RECOMMENDATIONS AND PERFORMANCE SCORES

The fishery achieved a normalized score of 80 or above on each of the three MSC Principles independently showing overall compliance (Principle 1 – 81.9, Principle 2 – 87.3, and Principle 3 – 91.5). Table 3 below shows the overall results of the evaluation for Principle 1, 2 and 3. However, the fishery's performances on 4 indicators (1.2.2, 1.2.4, 2.4.3 and 3.1.2) to be below the established compliance mark (an un-weighted score of 80). In these specific cases, the MSC requires that the Certification Body set 'Conditions for Continued Certification' that when met bring the level of compliance for the select indicator up to the 80-level score.

Table 3. Performance Indicator & Principle Scores

Principle	Component	Wt (L2)	PI No.	Performance Indicator (PI)	Wt (L3)	Weight in Principle		Score	Contribution to Principle Score		
One	Outcome	0.5	1.1.1	Stock status	0.5	0.25	0.333	0.1667	80	20.00	13.33
			1.1.2	Reference points	0.5	0.25	0.333	0.1667	90	22.50	15.00
			1.1.3	Stock rebuilding			0.333	0.1667			0.00
	Management	0.5	1.2.1	Harvest strategy	0.25	0.125			85	10.63	10.63
			1.2.2	Harvest control rules & tools	0.25	0.125			70	8.75	8.75
			1.2.3	Information & monitoring	0.25	0.125			90	11.25	11.25
			1.2.4	Assessment of stock status	0.25	0.125			70	11.25	11.25
	Two	Retained species	0.2	2.1.1	Outcome	0.333	0.0667			90	5.33
2.1.2				Management	0.333	0.0667			95	6.33	6.33
2.1.3				Information	0.333	0.0667			100	6.67	6.67
Bycatch species		0.2	2.2.1	Outcome	0.333	0.0667			80	5.33	5.33
			2.2.2	Management	0.333	0.0667			80	5.33	5.33
			2.2.3	Information	0.333	0.0667			80	5.33	5.33
ETP species		0.2	2.3.1	Outcome	0.333	0.0667			100	6.67	6.67
			2.3.2	Management	0.333	0.0667			90	6.00	6.00
			2.3.3	Information	0.333	0.0667			90	6.00	6.00
Habitats		0.2	2.4.1	Outcome	0.333	0.0667			100	6.67	6.67
			2.4.2	Management	0.333	0.0667			100	6.67	6.67
			2.4.3	Information	0.333	0.0667			70	4.67	4.67
Ecosystem		0.2	2.5.1	Outcome	0.333	0.0667			80	5.33	5.33
			2.5.2	Management	0.333	0.0667			80	6.00	6.00
			2.5.3	Information	0.333	0.0667			85	5.33	5.33
Three	Governance and policy	0.5	3.1.1	Legal & customary framework	0.25	0.125			90	11.25	11.25
				Consultation, roles & responsibilities	0.25	0.125			75	12.50	12.50
			3.1.3	Long term objectives	0.25	0.125			95	11.88	11.88
				Incentives for sustainable fishing	0.25	0.125			90	11.88	11.88
	Fishery specific management system	0.5	3.2.1	Fishery specific objectives	0.2	0.1			90	9.00	9.00
			3.2.2	Decision making processes	0.2	0.1			100	10.00	10.00
			3.2.3	Compliance & enforcement	0.2	0.1			100	10.00	10.00
			3.2.4	Research plan	0.2	0.1			100	10.00	10.00
				Management performance evaluation	0.2	0.1			100	9.50	9.50

Overall weighted Principle-level scores		Either
Principle 1 - Target species	Stock rebuilding PI not scored	81.9
Principle 2 - Ecosystem		87.3
Principle 3 - Management		92.8

12 ACTION PLAN FOR MEETING CONDITIONS

The Client for this fishery assessment and certification has submitted an Action Plan for meeting all conditions and requirements under the MSC program.

ACTION PLAN FOR MEETING THE CONDITIONS FOR CONTINUED CERTIFICATION

November 2011

Action Plan 1.2.2			
Conditional Requirement	How Meet	By Whom	When Completed
By the fourth 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 the French zones.	1) Continued development of research and scientific programs on toothfish stock status and toothfish interchanges across the Kerguelen plateau	AAD	Annual
	2) Development of alternative stock assessment approaches so that the application of the CCAMLR harvest strategy will take into account toothfish stock interchange across the Kerguelen Plateau, should this be shown to be significant, and if rapid implementation of joint international management arrangements are not feasible.	AAD	March 2015
	3) Investigation of cooperative management arrangements with France for identified interactions on stock(s) across the Plateau.	AAD	March 2016
	4) Research program completed on spawning stock definition for Australian side of the plateau	Industry/SARAG	March 2014
	5) Joint research projects for cross boundary toothfish investigations such as tagging, annual stock survey approaches, and stock assessment methodologies.	SARAG/AAD	Annual, March 2014

Action Plan 1.2.4			
Conditional Requirement	How Meet	By Whom	When Completed
By the fourth 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.	Stock assessment for Kerguelen Plateau incorporating known interactions and extent of toothfish stock boundaries prepared by Australia.	AAD	March 2016

Action Plan 2.4.3			
Conditional Requirement	How Meet	By Whom	When Completed
By the first annual surveillance audit, the client shall provide some evidence that the nature of the impacts of the fishery on different habitat types is known and that monitoring is ongoing to detect any increase in risk. The client shall consider including the results of the ongoing study on habitat impacts in the region.	Results of benthic impacts study presented publicly.	AAD	March 2013
	Incorporation of results in risk assessment program and in consideration of evaluation of existing Marine Protected Areas to ensure comprehensive, adequate and representative areas are set aside, and impacts on other regions are mitigated where feasible.	SARAG, SouthMAC, AFMA, AAD	March 2014

Action Plan 3.1.2			
Conditional Requirement	How Meet	By Whom	When Completed
By the third annual surveillance audit the client shall provide information that demonstrates consultation processes in all the management systems provide opportunity for all interested and affected parties to be involved.	Encouragement to organizers to ensure full opportunities for all interested and affected parties to be involved in national and international meetings.	Industry/ CCAMLR Consultative forum, SARAG, SouthMAC, AAD, AFMA	Ongoing, March 2015
	Provide information on existing consultation processes in all management systems to demonstrate opportunity for all interested and affected parties to be involved.	Australian and French Governments Industry	March 2015

13 PEER REVIEW, PUBLIC COMMENT AND OBJECTIONS

A peer review has been conducted by two peer reviewers. Their comments and the response to the comments by the team can be found in Appendix III. As required, scientists nominated as peer reviewers for this report are posted on the MSC web site for stakeholder comment. Also, a public comment period will be held, as well as a posting period for objections as required by the MSC.

14 MSC LOGO LICENSING RESPONSIBILITIES

As the “applicant” for certification of the fishery, Austral Fisheries Pty Ltd. is the only entity that has the right to apply for a license to use the MSC logo. It is also the case that Austral Fisheries Pty Ltd. has the right to approve the use of the logo for other quota holders in the fishery at its discretion and by a means that is considered fair and equitable (based on MSC requirements). The MSC as the logo license owner has the sole right and responsibility to review and enforce its requirements with regard to the fair and equitable sharing of access to the fishery certificate. SCS as the certification body does not have any obligations to review, approve, or enforce the MSC requirements in this regard.

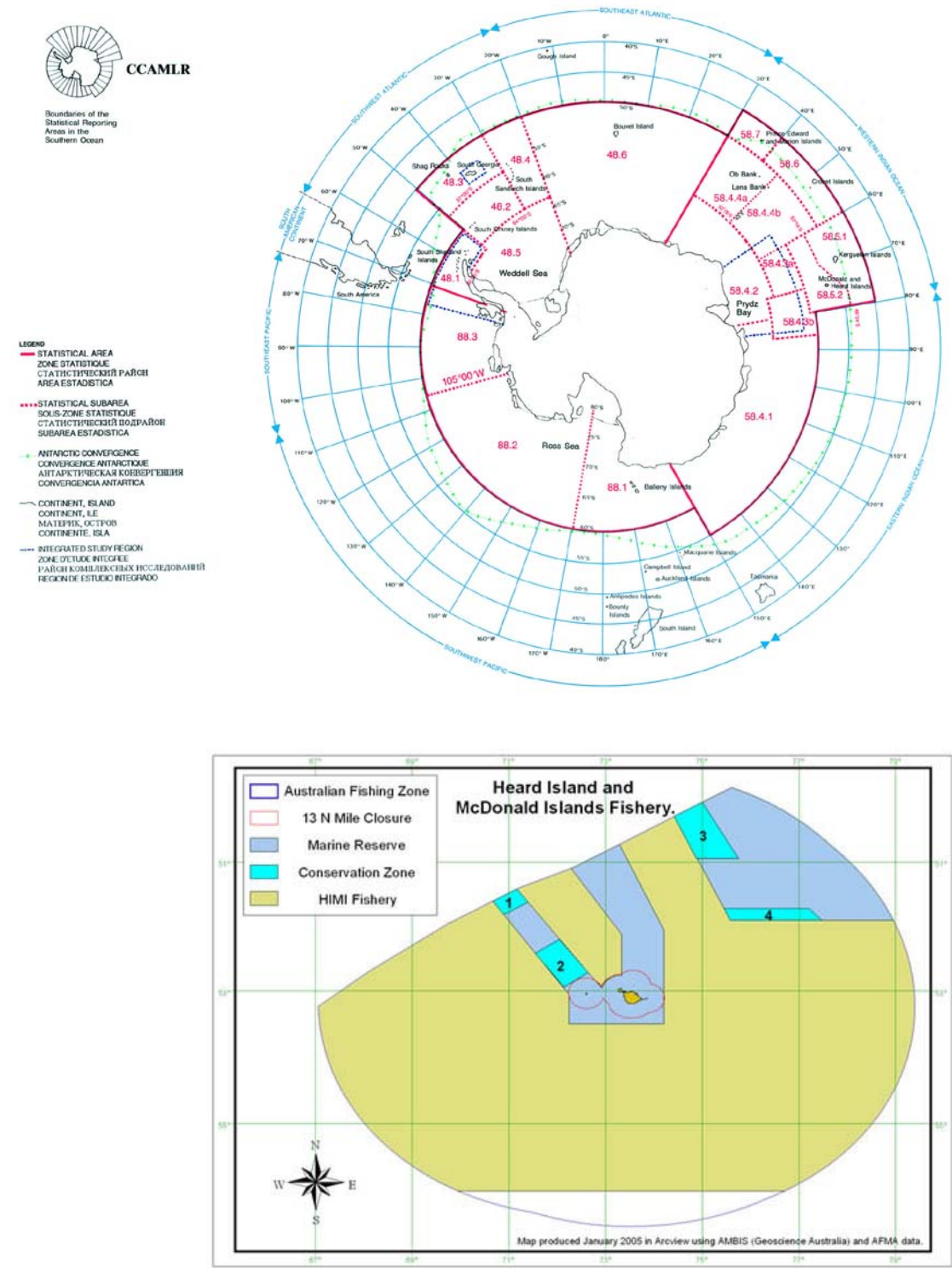
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APPENDIX I – GEOGRAPHIC LOCATION OF FISHERY



The HIMI Fishery including the Marine Reserve and Conservation Zones



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MSC Fisheries Assessment: Heard H& MacDonald Island

Toothfish Fishery Site Visit Comments

November 30, 2010

WWF's Antarctic & Southern Ocean Initiative (ASOI) was established to advocate the protection of the biodiversity of the Antarctic and Southern Ocean through an ecologically representative network of MPAs; sustainable management of legal fisheries and measures to address illegal, unregulated and unreported fishing; the stabilization of populations of Southern Ocean seabirds; and the improved resilience and adaptation ability of the system to the impacts of climate change. The Initiative is hosted by WWF Australia.

A number of WWF national offices directly contribute to the aims and objectives of WWF's ASOI program, including WWF Australia, WWF-New Zealand, WWF South Africa, WWF-UK, WWF-US, WWF Norway, WWF-International and associate Fundacion Vida Silvestre Argentina (FVSA). Other WWF offices engage in advocacy at a national level ahead of key political opportunities and decision-making meetings, such as the annual meetings of the Antarctic Treaty Consultative Parties and the Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR).

The WWF Network also works for the implementation of ecosystem based management in fisheries via the WWF Smart Fishing Initiative (SFI). Both Patagonian and Antarctic toothfish are priority whitefish species for focused areas of work under the SFI. The WWF Networks engagement in Marine Stewardship Council (MSC) proposed and certified fisheries is coordinated by SFI.

As a contribution to the both the ASOI and SFI programs work on sustainable legal fisheries, WWF is interested in the certification / recertification of any Southern Ocean fisheries, including the South Georgia and South Sandwich Islands Patagonian toothfish longline fishery, South Georgia icefish pelagic trawl fishery, Australian mackerel icefish fishery, Aker BioMarine Antarctic krill fishery, the Kerguelen & Crozet toothfish fishery and the Ross Sea toothfish longline fishery.

The proposed certification of the Heard & MacDonald Island (HIMI) Patagonian toothfish fishery is therefore of interest to WWFs ASOI and SFI programs.

Proposed Heard & MacDonald Island toothfish fishery certification

The ecosystems of the Southern Ocean are unique with the Kerguelen Plateau itself a physically and ecologically unique region of the Southern Ocean. It has a high benthic diversity and supports a range of other species of fish, marine mammals, seabird and penguins as well as commercially valuable fish populations.

The HIMI toothfish fishery appears to be well managed and there is limited capacity in the fishery. In this context, WWF would like to make the following comments.

Stock Assessment

While there is a CCAMLR peer reviewed stock assessment for the HIMI toothfish fishery an issue for consideration is determining the extent to which the Patagonian toothfish stocks across the Kerguelen Plateau are shared between the HIMI Fishery and the French fishery in the adjacent EEZ around Kerguelen Island. Scientists from both Australia and France have collaborated to undertake a joint assessment using all available data, but this has not yet been completed. It is also possible that the toothfish caught within the Australian and French fisheries over the Kerguelen plateau are part of a larger Southern Indian Ocean sector of the Southern Ocean meta-population of Patagonian toothfish. Should it be determined that the HIMI population is part of a larger Kerguelen Plateau population or Southern Indian Ocean meta-population then management responses should be considered.

Team Response: The potential for toothfish caught within the Australian fishery to be part of a larger Kerguelen Plateau population has been acknowledged in the assessment. It has been considered in scoring the relevant PIs and has led to the imposition of a specific condition in Principle 1 and 3. The assessment under Principle 3 has been amended to include management of the French fishery as part of the overall management system for the fishery under the governance and policy indicators (3.1.1-3.1.4).

Risk assessment for habitat structure & type

In addition to the robust management measures that focus on the target population as well as the HIMI Marine Reserve that protects a significant portion of the area where the fishery operates, the impact of the fishery on the wider ecosystem must be assessed in the most robust way possible. Due to the fact that all three fishing methods employed in the fishery have some level of impact on benthic species and assemblages risk assessments for habitat structure and type should be taken into account by the assessment team. WWF believes bottom fisheries should have a detailed independent habitat map developed with a recognised ecological risk assessment (such as the MSC Risk Based Framework or CSIRO ERAEF) in process by 2015. A further question for assessors to explore is why the CCAMLR vulnerable marine ecosystem regulations are not applied within the HIMI fishery.

Team Response: The assessment has taken into account the known or likely benthic impacts from the gear types employed in the fishery. A significant amount of work is currently conducted in regards to habitat impacts and a condition related to finalizing this work, has been imposed for a relevant Performance Indicator.

The team explored the question as to why the CCAMLR vulnerable marine ecosystem regulations are not applied within the HIMI fishery, with the responsible managers at AFMA. Australia has chosen to adopt a different approach to protecting the marine environment in waters around the Heard Island and McDonald Islands (HIMI) which pre dates the current CCAMLR approach for high seas areas. However the HIMI Marine Reserve is one of the world's largest protected marine reserves and provides representative ecosystem protection across the physiological classifications, setting aside over 39% of all waters shallower than 1000 metres in the EEZ. In addition, Australia is currently considering an assessment of the conservation values in the four Conservation Zones identified in the HIMI Marine Reserve Management Plan which may result in additional waters being added to the area of the Marine Reserve. The CCAMLR measures are for high seas, new and exploratory fisheries only, and not applicable to areas within National jurisdictions with established fisheries.

Illegal, Unregulated and Unreported Fishing

IUU fishing in the CCAMLR statistical subarea where the fishery operates has been estimated to be at 0 tonnes since 2006/2007. Joint patrols from both Australian and French governments appear to have minimised or

effectively eliminated IUU catch in this Southern Ocean region. CCAMLR has also had success at reducing the level of IUU impact in recent years and IUU fishers appear to focus their effort further south for Antarctic Toothfish. However it is thought that estimates of IUU catch issued from the CCAMLR Secretariat remain an underestimate of the true level of removals. Further, IUU activity has persisted in CCAMLR statistical to some degree in areas adjacent to subarea 58.5.2. A certified fishery will need to monitor the level of IUU impact as well as government actions to combat IUU and any changes in government action or IUU activity should be taken into account.

Team Response: CCAMLR continues to monitor IUU fishing in the Convention Area. The Australian and French Governments also continue to maintain high levels of coordinated surveillance and enforcement activity around HIMI. Any new evidence about the levels of previous or current IUU fishing, and the response from management and assessment perspectives, would be considered during future surveillance audits.

Conclusion

WWF appreciates the opportunity to engage directly on the proposed MSC certification of the HIMI toothfish fishery. Should you have any questions please contact:

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This briefing provides an overview of the issues and major areas of concern to WWF, further information and references are available if required.

Stakeholder submission for the full assessment of the HIMI Toothfish fishery

October 21, 2010

Nigel Brothers
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- No fishing activity should be permitted in any of the waters adjacent to Australia's sub-antarctic islands including Himi and Macquarie Island. These waters, not just the land masses themselves should have the highest protection status. In the instance of the toothfish fisheries here it would seem entirely inappropriate that only one or two fishing companies profit from exploitation of such potentially fragile and unique ecosystems.

- Just because a commercially viable resource has been found to occur it should not automatically be assumed that it should be exploited.

- Just about all the planet's oceans are subject to exploitation. Surely those potentially highly valuable and limited resources immediately adjacent to the sub-antarctic land masses should not be jeopardised considering we know so little about the relationship between the commercial resource and dependence on it by other marine life such as seals and cetaceans in this instance.

Team response: It is not the assessment team's role to determine whether the HIMI fishery should or should not be allowed as a matter of principle. The assessment has, however, examined the available information about the level of risk that the current fishery poses to the commercial resources and to the associated marine life and found that this risk is generally low. Conditions have been imposed, however, to reflect areas where additional work is warranted.

- Some marine species simply do not have life history traits that allow for any additional utilisation above that by the natural system. In this regard evidence of fishery impacts may already be apparent as indicated by changes in CPUE, length, weight, frequency of catch, or perhaps even sex ration within the catch.

Team response: The assessment team has examined the information available on the level of impacts of the fishery on the resource. Some changes to size and age structure of toothfish populations are inevitable when fishing occurs but the assessment team has concluded that the information currently available indicates that these are entirely reversible and do not pose a significant risk to the future viability of the fished population.

- Evidence from remote camera imagery in such regions suggests that benthic habitat may in fact be very sparse in these waters. This does not mean that quantities accounted for in fishing are a realistic measure of the extent of damage to the benthic cover that is there - this small amount of benthic cover can potentially be highly significant to the ecosystem.

Team response: The assessment has taken benthic habitat impacts into account. A significant amount of work is currently conducted in regards to habitat impacts and additional work on the risk assessment of habitat impacts is scheduled to be completed by 2015. A condition related to finalizing the benthic impact work, has been imposed for a relevant Performance Indicator.

- What of the genetic relationship between the Himi stocks and other stocks outside the region - over which Australia's fisheries management processes, have little control? Unless this situation is well understood then certifying a fishery which can only be partially managed would seem flawed.

Team Response: The potential for toothfish caught within the Australian fishery to be part of larger Kerguelen Plateau population has been acknowledged in the assessment. The assessment under Principle 3 has been amended to include management of the French fishery as part of the overall management system for the fishery under the governance and policy indicators (3.1.1-3.1.4). It has been considered in scoring the relevant PIs and has led to the imposition of a specific condition in Principle 1 and 3 as well as a recommendation under Principle 3.

APPENDIX III PEER REVIEW COMMENTS

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 (possibly)
Peer Reviewer Justification	I agree that the assessment team have arrived at the right conclusion for this fishery. However, I think that there are instances where the justification of the score requires more detailed information. I have highlighted these points in my specific comments under the criteria below.,	Overall, the supporting evidence is reviewed sufficiently to underpin the assessment. Like the assessment team, I have attempted to take a “weight of evidence approach”. There are some important areas where I disagree with the assessment team about specific issues, most of which I consider have been over-scored. I am of the opinion that Performance Indicator 1.1.1 is over-scored and probably should be at SG60. If this lowers the overall assessment to SG60 then so be it.
Certification Body Response	<p>PR1. Additional information has been added to the report to support the assigned scores where requested.</p> <p>PR 2. The response to the scoring of PI 1.1.1 is outlined below.</p>	
Do you think the condition(s) raised are appropriately written to achieve the SG80 outcome within the specified timeframe? (Yes/No)	The conditions identified for the specific criteria to achieve SG80 are appropriate and the timeframe are correct.	Yes
Peer Reviewer Justification	This is based on the knowledge that some work in support of these conditions are already underway,	<p>I am satisfied that the conditions broadly meet the needs for improvement. My main differences with the assessment team revolve around how 3 main issues have been scored. These issues are:</p> <p>(1) How they chose to deal with the undefined French portion of the stock;</p> <p>(2) High variance in the catches experienced within the bottom trawl surveys;</p>

		<p>(3) Long-term decline in CPUE</p> <p>Most of the conditions concern tackling the uncertainties in the status of the stock and, in my view, the main issues I have raised will be addressed by the additional work recommended under these conditions. However, I have suggested there should be an additional condition on gaining a better understanding of retained species, especially rays.</p>
Certification Body Response	<p>PR 2. The issues raised regarding the robustness of the stock assessment are dealt with below under PI 1.1.1.</p>	

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? (Y/N)		No
Peer Reviewer Justification		<p>I am not convinced that managing toothfish on the Kerguelen Plateau as separate stocks under different national jurisdictions is sensible or justified. This is, in all technical senses, a shared stock and it almost certainly needs to be managed as such. I do not think the Action Plan moves sufficiently in that direction. All the control rules and the overall management system is geared to managing a small part of the overall stock in isolation. As justification for this, the evidence of relatively localized movement of “adult” fish gains a higher weighting than genetics, and some other supporting evidence, of a single, freely-mixing population. (For example, the assessment indicates that it is not known where recruits to the HIMI section of the stock actually come from). I suspect the weighting in the use of evidence is driven in part by the expediency of not having to deal</p>

		with the inconvenience/difficulty associated with a management system involving a shared stock across two national jurisdictions. I suggest there are enough worrying signs in this stock – especially the declining CPUE (Figure 3) – to place a question of uncertainty over the basic assumptions used in the management of the fishery.
Certification Body Response	PR 2. The assessment team agrees that the available evidence supports the hypothesis that there is a single stock of toothfish over the whole of the Kerguelen Plateau. It is acknowledged that the assessment and management of this stock requires at least well-coordinated assessment and management measures by French and Australian authorities and those cooperative efforts are underway to develop them. Nevertheless, the assessment team is of the view that Conditions on the timing of their implementation are needed to ensure that the Australian fishery continues to meet MSC criteria for sustainability.	

Peer Reviewers General Comments

Peer Reviewer General Comments (optional)	
Peer Reviewer 1	Peer Reviewer 2
<p>The HIMI fishery is an important fishery for both Australia and CCAMLR both for economic and environmental purposes. The assessment team have done a good job of picking up all the key elements of the fisheries and the issues relating to the management of both the trawl and the longline fishery. As highlighted below, I think that there are very few criticism of the report but there are some specific comments and by addressing them either either more substantive explanations or referencing, the quality of the report will be enhanced. The justifications for the score should be more explicit. In some instances, there are comments such as ‘there is excellent data...’ and on the basis of these points key conclusions have been drawn. The expert reader will be aware of this information but for the purposes of this report, there should be more specificity. However, this is not the case for all criteria. For example, all criteria under Principle 3 contained detailed information to support the scores.</p> <p>As mentioned above, I agree that the team have</p>	<p>I accept that the MSC system attempts to avoid multiple jeopardy but the assessment starts to become unrealistic when there are substantial structural flaws that run through much of the fishery management system and that touch on multiple criteria. I thought that, due to the form of the assessment, the assessment team may have been forced in to finding ways of avoiding pointing to the “elephant in the room” (see my comments above about this being a shared stock) when assessing many of the criteria. This has resulted in an uneven approach to the assessment in some places involving inconsistencies in judgments about how different forms of evidence should be weighted. As in all assessments of this type, it is very easy for those carry out the assessment subconsciously to apply different weighting to different lines of evidence based upon a perceived requirement for a specific outcome. Many of my comments are partly made to question whether the weighting of evidence has been correctly applied in all cases. While the assessment team is also bound by the structural elements of the assessment process as defined by the MSC, in some cases, there needs to be a more insightful analysis of whether the structure (i.e. the specific criteria used to score some indicators) are actually fit</p>

identified the right conditions for the fishery.	for purpose and the SG score needs to reflect this underlying uncertainty.
Certifying Body Response	
<p>PR 1. Some of the information relevant to the scoring, for example, details on the information collected on the fishery are outlined in the introductory sections. Commentary has been added to the scoring rationale for PI 1.2.3 to make reference to this information.</p> <p>PR2. The assessment team considers that it has applied a consistent and objective weighting to the evidence available to it. It has not avoided the issue of Patagonian toothfish being a shared stock between the French and Australian fisheries but has made this the subject of explicit Conditions under Principle 1 and a Recommendation under Principle 3. The French management system has been taken into considerations under PI 3.1.1-3.1.4 in accordance with MSC guidelines.</p>	

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)	<p>The HIMI fishery is an important fishery for both Australia and CCAMLR both for economic and environmental purposes. The assessment team have done a good job of picking up all the key elements of the fisheries and the issues relating to the management of both the trawl and the longline fishery. As highlighted below, I think that there are very few criticism of the report but there are some specific comments and by addressing them either either more substantive explanations or referencing, the quality of the report will be enhanced. The justifications for the score should be more explicit. In some instances, there are comments such as ‘there is excellent data...’ and on the basis of these points key conclusions have been drawn. The expert reader will be aware of this information but for the purposes of this report, there should be more specificity. However, this is not the case for all criteria. For example, all criteria under Principle 3 contained detailed information to support the scores.</p>	No

Does the information and/or rationale used to score this indicator support the given score? (yes/no)		No
Will the condition(s) raised improve the fishery's performance to the SG80 level? (yes/no/NA)	As mentioned above, I agree that the team have identified the right conditions for the fishery.	N/A
Peer Reviewer Justification		<p>(1) In para. 2, I could not equate the percentages quoted to Figure 1. Some clarification may be needed.</p> <p>(2) Zhou et al. (2009) is not in the reference list. I thought the justification for ignoring this assessment was weak. Is it possible to be more specific?</p> <p>(3) The large variance in the RSTS results is not entirely surprising given the unknown factors that can influence trawl surveys, but is worrying when one considers the life history of the species and the assumed spatial stability of the stock, and also when one considers the apparent weight being given to these data in the stock assessment.</p> <p>(4) I am not sure that the overall narrative about movement is really being objective. It is, perhaps unintentionally, placing different weight on different forms of evidence. For example, I could just as easily criticize the tag data of "adult" toothfish as not being very relevant because the fishery focuses on juveniles (I assume based upon length distribution). Juveniles could be highly mobile for all we know. For example, have juveniles been tagged and</p>

		<p>recovered?</p> <p>(5) Although mentioned elsewhere, the fit of the CASAL model to the CPUE is very poor. What is very clear from this is that CPUE has been declining and I suggest this is not something that can be ignored. It has some not very pleasant resonance with the experiences of past collapses in fisheries. This criterion has only been used in the judgement about whether the stock complies with SG100. Why?</p> <p>(6) The difference between the definition of “likely” and “highly likely” in the SG assessment is quite vague and a matter of opinion. However, given the points made above, I would say the evidence here complies more closely to SG60 than SG80. In general fisheries science makes the mistake of over-estimating its levels of certainty and I suggest this error is being made here.</p>
<p>Certification Body Response</p>		<p>PR2 (1). The wrong figure was included in the draft report and this has now been corrected.</p> <p>PR2 (2). The Zhou et al. (2009) reference has been added to the list and additional commentary added to the text to justify the decision not to use this assessment. It is relevant that the authors of this report themselves defer to findings of the integrated assessment over those obtained using their own method.</p> <p>PR2 (3). It is unclear whether the Peer Reviewer is referring to year-to-year variation in survey estimates or the coefficients of variation (CVs) around estimates for particular years. Both, however, are used during the model fitting process.</p> <p>PR2 (4). The narrative about movement has been reviewed and some additional information provided (in Section 4.5) on numbers of toothfish tagged around HIMI that have been recaptured on the</p>

	<p>Kerguelen Plateau. The size and age range of fish tagged (and recaptured) is reflective of the selectivity of the fishing gear. The age composition of fish caught in the fishery varies with gear type and the shift to longlining as the main fishing method means that most fish caught are now over 10 years old. Males mature at 7-10 years of age and females at 10-12 years. Movement of very young fish may indeed be much more prevalent than of adult fish, hence the comment under PI 1.1.1 about the need to understand the linkages between the Australian HIMI fishery and the French fishery on the Kerguelen Plateau and the sources of recruitment and hence also the Condition under PI 1.2.4 that requires the assessment to consider the entire stock.</p> <p>PR2 (5). The fits to the CPUE from the commercial fishery and its declining trend are factored into the stock assessment and projections and have also been considered by the assessors in their judgment about the level of certainty over the current stock levels (as noted in one of the second group of dot points under PI 1.1.1). CPUE is, however, only one of the indicators of stock status in the assessment, and is likely to be a less robust one than the abundance estimates obtained from the RSTS. These also suggest a decline in recent years, but not to the extent of the commercial CPUE. Additional commentary on this point has been added to the report under PI 1.1.1.</p> <p>PR2 (6).The difference between the terms ‘likely’ and ‘highly likely’ is precisely defined in the FAM-2. Their application in this context is a judgment call by the assessment team but is supported by the probabilistic and precautionary aspects of the decision rules used to set the TACs, which are noted in the text. This approach provides a buffer against the potential for over confidence in the science, but not to the extent that the assessors were willing to assign a score higher than 80.</p>
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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, all relevant information used to score the indicator.	Yes
Does the information and/or rationale used to score this indicator support the given score? (yes/no)	Yes, however, information could be better referenced. Only one reference given from 2000.	Yes
Will the condition(s) raised improve the fishery's performance to the SG80 level? (yes/no/NA)	NA	N/A

Peer Reviewer Justification		
Certification Body Response	Additional references have been cited in support of the scoring.	

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

Will the condition(s) raised improve the fishery's performance to the SG80 level? (yes/no/NA)	Yes. To add some more information....re timing and the need for cooperation with the French...	Yes
Peer Reviewer Justification		I do not think the evidence currently supports the view that the "RSTS provides a robust measure of the current size of the toothfish population". The variance in the RSTS catches appears too great and also the selectivity of such trawl surveys is unknown. I have raised the issue of lack of knowledge of the French fishery under 1.1.1 and the assessment team has also done so here and scored the Indicator down as a result. However, I suggest that this continues to be a major shortcoming and the harvest control rule really means little while the definition of the stock to which that control rule is being applied is so poorly known. The assessment team appears to have taken an optimistic view that this issue is not likely to be a problem; I am less certain of this.
Certification Body Response	<p>Commentary on the variation in the RSTS results is provided above. The report says that the RSTS is considered to provide "a robust measure of the current size of the toothfish population available to the trawl fishery within the Australian zone". It had previously been acknowledged under PI 1.1.1. that its restriction to waters less than 1000 m deep and its confinement to the Australian EEZ reduces the ability of the RSTS to provide a robust measure of the status of the stock as a whole.</p> <p>The assessment team does not think that they have taken an optimistic view of this problem. Instead they have chosen to impose a condition under this PI because of its seriousness.</p>	

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)	The report highlights that reports from AFMA, #AAD and CCAMLR provided the basis for their scoring of the indicator.	Yes

	Some references should be cited.	
Does the information and/or rationale used to score this indicator support the given score? (yes/no)	Scoring rationale adequate to justify the score.	No
Will the condition(s) raised improve the fishery's performance to the SG80 level? (yes/no/NA)	NA	N/A
Peer Reviewer Justification	NA	It is quite difficult to understand how this can score 90 when so much information that has potential relevance to the harvest control rule lies within the French sector. I guess this depends very much on how much you <i>believe</i> this might be a problem. My view is that there is insufficient information, based upon the evidence provided, to deviate from a precautionary position at this stage. The reality is that the French removals are either unknown or not taken in to account in this assessment.
Certification Body Response	It had already been noted in the report that the scoring of this PI has been based on the level of information collected in support of the current harvest strategy and not the proposed revised one. This has now been made part of a separate paragraph for emphasis with additional sentences added to note that this scoring should be re-visited when the harvest strategy and assessment have been revised, as specified in Conditions, to consider that portion of the stock and fishery based outside the Australian EEZ.	

Performance Indicator 1.2.4		
	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. However, recent references to WGFS (2010) and other information from the Kerguelen Plateau Conference hosted by the French in 2010 should be included.	No
Will the condition(s) raised improve the fishery's performance to the SG80 level?	Yes	Yes

(yes/no/NA)		
Peer Reviewer Justification	The uncertainties over the state of the stock due to the xx of the fishery between HIMI and the Kerguelen Plateau have already been highlighted in the assessment report. These uncertainties need to be address and the proposed actions listed under this condition would improve both the scientific assessments and the management decisions taken in relation to the HIMI fishery.	The CASAL model seems, based upon evidence presented here, not a very good fit to some of the data. Also, the statement at the end of the first paragraph on p39 seems to be a way of avoiding one of the central issues when assessing this indicator.
Certification Body Response	<p>PR 1. More recent information from assessments was presented at CCAMLR in 2010 but this has not been used to develop management advice, and does not differ substantially from the 2009 assessment which was used to set the current TAC.</p> <p>Outcomes from the 2010 joint meeting of French and Australian scientists are not yet publicly available and can therefore not be used in the current assessment.</p> <p>PR 2. The inability of models such as is used for HIMI toothfish to provide a good fit to all of the data sources is not unusual nor does it preclude it being useful for management purposes.</p> <p>The statement at the end of first paragraph on p39 is intended to explain the principle behind the reasoning applied. This principle, however, did not obviate the need for a condition under this PI.</p>	

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)	No, I am not sure that the information provides enough evidence that the first element of SG100 is met. I think that additional information must be provided in support of this decision on the score.	No
Will the condition(s) raised improve the fishery's performance to the SG80 level?	NA	N/A

(yes/no/NA)		
Peer Reviewer Justification	NA	<p>There may be some over-optimism concerning the potential impacts upon rays, which can be especially vulnerable to trawl fisheries. It may be that there are relevant life history data for the rays and I have under-appreciated the current level of knowledge about these species, but one needs to recognize that in the long-term there is likely to be an irreversible impact of any mixed fishery, not just this one, on other species. Consequently, my feeling is that this has been over-scored because I suggest it would be reasonable to place a condition on the fishery to continue to increase the understanding of impacts upon retained species.</p> <p>I found the issue of thresholds for defining “main” species etc. somewhat surreal. While I appreciate that some form of practical solution is needed, I wonder if anybody has considered whether the “main” species are those that have some robustness to fishing and that, in this case, those that do not have this robustness have already been extirpated. Up to a point, the really vulnerable species might be those that are seen within bycatch only very rarely (<i>sensu</i> black-browed albatrosses). In a general sense these are likely to be mobile species that gain little protection from the closed areas, with long generation times. Does the ecological risk assessment manage to capture this possibility?</p>
Certification Body Response		<p>PR2: Rays are considered under “bycatch” PI 2.2.1-2.2.3 and are not part of the retained catch. Very rare species that are listed as endangered, threatened or protected (like albatrosses that PR2 mentioned) are covered under PI 2.3.1-2.3.3. However, the MSC guidelines suggest that particularly vulnerable species can be considered under the indicators for bycatch or retained species even if they do not meet the arbitrary 5% threshold. The guidance was</p>

	<p>considered by the assessment team and clearly explained in the background section. However the specific guidance did not need to be applied for bycatch or retained species in this fishery because none of these species could be regarded as particularly vulnerable.</p> <p>As explained in the report a release procedure is in place for rays because they have a high chance of survival. The ecological risk assessment certainly captures life history traits like generation times.</p> <p>Results of the annual Random Stratified Trawl Surveys do not show any decline in rays. In addition, the fishery is currently shifting efforts from trawl to lonline, therefore the vulnerability of rays to trawling is reduced and will eventually no longer be relevant.</p>
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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, in part.	Yes
Does the information and/or rationale used to score this indicator support the given score? (yes/no)	Additional information to support the score on 95 is required. The information does not support the second and third elements of SG100.	Yes
Will the condition(s) raised improve the fishery's performance to the SG80 level? (yes/no/NA)	NA	N/A
Peer Reviewer Justification	NA	
Certification Body Response	<p>Additional explanation has been added to support the first, third and fourth element of the SG 100 (the second element has not been met because management strategy evaluation or a similar has not occurred as yet).</p> <p>Observers do not report that there are any variations from the specified conditions of the strategy and the TACs have not been exceeded in recent years, thus the implementation of the strategy appears to be successful and it is achieving its objective of avoiding a decline in the retained species.</p>	

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)	In part. I do not agree that the information provided on the second element of SG 100 is provided and this does not	Yes

	therefore correlate to the score.	
Will the condition(s) raised improve the fishery's performance to the SG80 level? (yes/no/NA)	NA	N/A
Peer Reviewer Justification		
Certification Body Response	Additional explanation has been added to justify the second element of the SG 100.	

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	N/A
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	N/A
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	N/A
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	N/A
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? (yes/no/NA)	NA	N/A
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	Yes, although feel that there are some broad conclusions drawn	Yes

indicator? (yes/no)	from the information.	
Does the information and/or rationale used to score this indicator support the given score? (yes/no)	The information provided is enough to justify the score. Based on the description of the uncertainties associated with element three of SG100, the score of 90 seems unjustified.	Yes
Will the condition(s) raised improve the fishery's performance to the SG80 level? (yes/no/NA)	NA	N/A
Peer Reviewer Justification		
Certification Body Response	The first and second elements of the SG100 are met because they deal with the information available about ETP interactions. As stated in the first sentence of the rational "Information on the impact of the fishery on ETP species is of very high quality". The third element is not met because the actual analysis has not been published and therefore the second half of that element is not met. However, there is no doubt that there is accurate and verifiable information on ETP interaction.	

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

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)	Yes	Yes

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

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)	Yes	Yes
Peer Reviewer Justification	Some of the work has already started on monitoring the impacts of the fishery on the habitat and therefore it is reasonable that this information would be forthcoming within the time specified	
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. The report says that "the effects of the fishery on key ecosystem components and processes are currently under study and with results expected in 2011 and in the final paragraph, it says that the management system and the operating evidence, it is highly unlikely that the fishery will cause serious or	No

	irreversible harm to the ecosystem". 80 due to the lack of a directed investigation is appropriate.	
Will the condition(s) raised improve the fishery's performance to the SG80 level? (yes/no/NA)	NA	N/A
Peer Reviewer Justification		<p>I find this a very hard one to score and I suggest that we really do not know enough about ecosystem dynamics to know whether fishing on this scale will cause irreversible change. First, the criterion assumes that there is an equilibrium state for the "key elements" of the ecosystem (i.e. it assumes there is logic to the idea of things being reversible) and I am not sure this is true. Second, we actually do not know what the state of this ecosystem was before fishing started so, even if there is an equilibrium state, there is no base line against which to make an assessment of current or future deviation. Consequently, the assessment team may have done what they can with this but I don't understand how it can be scored in any rational way. Certainly a score of 90 does not adequately reflect the huge uncertainties that exist within our knowledge of ecosystem dynamics. I also appreciate that the idea of reversible change is planted within CCAMLR but I suggest this was built on a now outdated mindset that suggested marine ecosystems had equilibrium states (even though it is still retained within some ecosystem models). I suggest that none of the substantial body of evidence collected on marine ecosystems since this idea was set in motion within CCAMLR supports this view of the world.</p>

		While I suspect the certification body's response will be that it must operate within the parameters set out within its brief, if those parameters are not well-founded then this needs to be taken in to consideration.
Certification Body Response	<p>The assessment team agrees that the ecosystem indicators can indeed be hard to score. However there are measures in place for this fishery (e.g. CCAMLR precautionary approach, large marine protected areas) that provided the assessment team with vital information to support the score. The assessment team is confident that the fishery has been assessed correctly and the score is justified. The most important factors are:</p> <ol style="list-style-type: none"> 1. In line with the CCAMLR precautionary approach very low level of fishing is permitted. Fishing effort is only allowed to increase as sufficient data and knowledge are gained to adequately assess the likely risks. 2. The monitoring program that is in place for this fishery is regarded sufficient to detect any substantial changes to the relative abundance of most species. Results from this program provide reliable evidence and do not indicate any causes for concern. 3. The HIMI region has one of the largest Marine Protected Areas in the world. These areas are expected to mitigate the impacts of fishing on the broader ecosystem and do not rely on a detailed understanding of the dynamics of the marine ecosystem or whether or not they have an equilibrium state. <p>PR2 comment reads like it is more directed towards the standard and performance indicators than the rationale for the score. Therefore this comment may be directed to the MSC for comments.</p>	

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 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	N/A
Peer Reviewer Justification		See 2.5.1

Certification Body Response	No response required
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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	No
Will the condition(s) raised improve the fishery's performance to the SG80 level? (yes/no/NA)	NA	N/A
Peer Reviewer Justification		See 2.5.1. I am not sure that within systems that have complex non-linear dynamics we can, by definition, ever have “adequate knowledge” to understand how a fishery interacts with an ecosystem. We need to accept that the ecosystem will change; the problem is by how much, whether this is biologically significant and how we can assess whether this is a positive or negative response. The latter can only really be achieved by applying some form of societal value judgement. Societal value judgements on this matter shift, so there are no absolute measures of acceptable levels of interaction (or “adequate” knowledge) between ecosystems and fisheries. Therefore, I suspect that the scoring in this area has been generous. If the assessment team has been formed to reflect a societal perspective on this then I think the scoring is acceptable. Otherwise, it needs to be questioned, perhaps through a more robust process of societal engagement.
Certification Body Response	PR2. The MSC standard does not include social component. A separate process to capture social perception is beyond the scope of	

	<p>the MSC assessment. Stakeholders, that include anybody with an interest in this fishery, have been actively engaged in the process and had significant opportunities to bring forward any concerns or point of views relates to the fisheries impact. The assessment was announced in media outlets and through the MSC website and in this specific case some stakeholders have come forward. The team met with these stakeholders at the onsite meetings and their comments have been taken into account in the assessment. Again the comment seems to be more about the standard and how to improve it than whether the assessment team has correctly assessed the fishery against this existing Performance Indicators.</p>
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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 (possibly)
Will the condition(s) raised improve the fishery's performance to the SG80 level? (yes/no/NA)	NA	N/A
Peer Reviewer Justification		Given the problems with the alignment with the adjoining management system used by the French, I thought this was scored generously.
Certification Body Response	<p>In response to the Peer Reviewer's comment, the assessment team sought clarification from the MSC as to the extent to which the French management system should be considered in assessment of P3 indicators. On the basis of the advice received, the assessment of the Governance and Policy indicators (3.1.1-3.1.4) has been revised to include consideration of the management of the French fishery.</p>	

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. The information presented is current and detailed. In addition, this section is well referenced.	Yes
Will the condition(s) raised improve the fishery's performance to the SG80 level? (yes/no/NA)	NA	N/A
Peer Reviewer Justification		
Certification Body Response	Not 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	N/A
Peer Reviewer Justification		
Certification Body Response	Not 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 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	N/A
Peer Reviewer Justification		
Certification Body Response	Not 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	N/A
Peer Reviewer Justification		
Certification Body Response	Not 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 performance to the SG80 level? (yes/no/NA)	NA	N/A
Peer Reviewer Justification		
Certification Body Response	Not 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	N/A
Peer Reviewer Justification		

Certification Body Response	Not required
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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	N/A
Peer Reviewer Justification		
Certification Body Response	Not 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 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	N/A
Peer Reviewer Justification		
Certification Body Response	Not required	

Any Other Comments (optional)		
	Peer Reviewer 1	Peer Reviewer 2
	-	-
Certification Body Response	-	