

**Mackerel Icefish Fishery
Heard & McDonald Islands
Australia**

**2008 Annual Surveillance Report
As Required Under the Marine Stewardship Council Program**

Prepared for:
Austral Fisheries PTY. LTD.

Prepared by:
Chet Chaffee, Ph.D., Scientific Certification Systems

General Information

Certified Fishery	HIMI Mackerel Icefish Fishery	Australia
Fishery Agency	Australia Antarctic Division of The Australian Fisheries Management Authority and CCAMLR (Commission for Conservation of Antarctic Marine Living Resources)	Australia
Species	<i>Champsocephalus gunnari</i>	
MSC Registration No.	SCS-MFCP-F-0016	
Certification Date	31 March 2006	
Certification Expiration Date	31 March 2011	
Certification Body	Scientific Certification Systems, Inc. (SCS)	2200 Powell St., Suite 725, Emeryville, CA 94608
Certificate Holder	Austral Fisheries Pty. Ltd.	14 Neil Street, Osborne Park, WA 6007
Surveillance Team	Chet Chaffee, Ph.D. (SCS)	Project Leader
Surveillance Stage	2nd Annual Surveillance	2008

Preface

All facts in this report were provided to SCS by Austral Fisheries Pty. Ltd.. However, the interpretation, opinions, and assertions made in this report as to the compliance of the fishery with MSC requirements are the sole responsibility of Scientific Certification Systems, Inc.

Executive Summary

This is the 2nd Annual Surveillance Report (2008) prepared by SCS to meet the requirements of the MSC for annual audits of certified fisheries. It is SCS's view that Australia's Heard and McDonald Island (HIMI) fishery for Mackerel Icefish continues to meet the standards of the MSC and to comply with the 'Requirements for Continued Certification'. SCS recommends the continued use of the MSC certificate through to the next annual surveillance audit with no additional corrective action requests other than those from the original assessment.

Background

The HIMI Mackerel Icefish fishery in Australia Antarctic waters was originally certified on 31 March 2006 by Scientific Certification Systems, Inc. The requirements of the Marine Stewardship Council (MSC) are that each certified fishery must undergo at a minimum an annual surveillance to ensure the basis of certification is still in place and that the fishery is meeting any conditional requirements from the original certification. Should a fishery fail the surveillance audit, and cannot address identified deficiencies in a reasonable period of time, then the use of the certificate and the MSC logo can be revoked by the certifier.

This report represents the first annual surveillance since the fishery was certified. The issues for the certifier are whether the fishery has sufficiently acted on the required conditions set forth in the original certification report, and whether a random check on the performance of the fishery verifies continued compliance with the MSC standards.

2nd Annual Surveillance

The annual surveillance audit process (as always) is comprised of four general parts:

1. The certification body provides questions around areas of inquiry to determine if the fishery is maintaining the level of management observed during the original certification. In addition, the surveillance team requires that the client provide evidence that the fishery management system has taken the necessary actions to meet all conditions placed on the fishery during the initial certification assessment or any previous surveillance audits.
2. The surveillance/assessment team meets with the client fishery to allow the client to present the information gathered in answer to the questions asked by the surveillance team. The surveillance team can then ask questions about the information provided to ensure its full understanding of how well the fishery management system is functioning and if the fishery management system is continuing to meet the MSC standards.
3. The surveillance team presents its findings to the client fishery at the end of the site visit. The results outline the assessment team's understanding of the information presented and its conclusion regarding the fishery management system's continued compliance with MSC standards. Where indicated, the surveillance team may provide the client fishery with additional time to supplement the information provided if the surveillance team finds that there are still issues requiring clarification.

4. Where appropriate, the client fishery submits final information to the surveillance/assessment team for consideration in the surveillance findings and report. The surveillance team then reviews the final information and submits a final report to the client fishery and the MSC for posting on the MSC website. If there are continued compliance concerns, these are presented as non-conformances that require further action and audits as specified in the surveillance report.

Surveillance Meetings

The surveillance audit for 2008 comprised 4 parts:

1. An exchange of information indicating to the client the areas of inquiry by SCS for the surveillance audit. SCS provided a list of questions to the client.
2. A meeting in Perth, Australia with Martin Exel and David Carter of Austral Fisheries Pty. Ltd. to discuss and exchange information needed to complete the surveillance audit. The discussion included a review of ongoing activities associated with the “Conditions” placed on the fishery by the original assessment was conducted.
3. An exchange of documents from the client to SCS through April 2007, in follow up to inquiries made during the meeting in Perth, Australia.

Results

Data Submitted to Assessment Team

Austral Fisheries answered questions put forward by SCS both in discussion and in the form of submitted documents. The documents compiled and submitted to SCS are listed under References by number.

1. Stock Status

The first two questions raised by SCS in the surveillance audit are whether the monitoring and assessment to determine the status of the stocks are still being conducted consistent to what was provided to the assessment team in the original assessment, and whether the status of the stock was still consistent with pre-determined reference points.

The indicators in the original assessment that cover monitoring were 1.1.2.1, and 1.1.2.2, 1.1.2.3, 1.1.2.4, 1.1.2.6, 1.1.2.8, and 1.3.1. The performance indicators associated with understanding the status of the stock were 1.1.3.1, 1.1.3.2, 1.1.4.1, 1.1.4.2, 1.1.5.1, and 1.1.5.2. The performance indicator associated with assessing the harvest strategy was 1.1.6.1.

Australian Antarctic Division (AAD) scientists undertake stock assessments each year as part of their core work. Upon completion of assessments, findings are subject to

independent peer review and review by Sub Antarctic Fisheries Assessment Group (SAFAG).

The Australian delegation to CCAMLR then submits assessments to the CCAMLR WG-FSA (CCAMLR Working Group on Fish Stock Assessment), where they are open to international scrutiny and discussion.

WG-FSA then recommends to the Commission, via the CCAMLR Scientific Committee, TACs (Total Allowable Catch) for Statistical Division 58.5.2. Once approved by CCAMLR, TACs and other measures are then set out in Conservation Measures for the coming season.

CCAMLR agreed TACs are further considered by SouthMAC (Sub-Antarctic Fisheries Management Advisory Committee). The AFMA (Australian Fisheries Management Authority) Board then formally endorses the TAC (at or below the TAC set by CCAMLR) before the fishing season commences on 1 December.

Table 1 below is taken directly from the report on the 26th Meeting of CCAMLR¹ showing the catch limits determined by CCAMLR and AFMA for the HIMI Fishery. The allowable catch for Mackerel Icefish is significantly up from the previous year, allowing for decent recruitment to the fishery over 2006/2007. According to CCAMLR and AFMS, the next few years are expected have significant increases in available catch due to the 2006/2007 nrecruitment.

Table 1 Hear and MacDonal Island Catch Limits for 2007/2008

Target species	2007/2008 limits (tonnes)	2006/2007 limits (tonnes)
Patagonian toothfish	2,500	2,427
Mackerel icefish	220	42
By-catch species		
Skates and Rays	120	120
<i>Macrourus</i> spp.	360	360
Unicorn icefish	150	150
Grey rockcod	80	80
Each other species	50	50

Table taken directly from Report on the 26th meeting of CCAMLR¹

The survey work to determine ABCs and TACs was the same in 2007 as in previous years.⁵ The assessment methods used were the same as those used in 2006⁶. The full assessment plan and the assignments by quota holder for research vessel time and catch are outlined in the 2007/2008 Fisheries Assessment plan⁷. No significant changes have occurred, and the assessment plan covers the same needs and requirements as in previous years.

2. Ecosystem Impacts from Fishing

SCS asked for evidence that the fishery management system is still functioning to keep ecosystem based impacts from fishing at acceptable levels.

The indicators in the original assessment that cover ecosystem impacts were 2.1.1.1, 2.1.1.2, 2.1.2.1, 2.1.2.2, 2.1.3.1, 2.1.3.2, 2.1.3.3, 2.1.5.1, 2.1.5.2, 2.1.5.3, 2.2.1.1, 2.2.1.2, 2.2.2.1, 2.2.3.1, 2.2.5.1, and 2.2.5.2.

Based on the evidence presented, SCS is satisfied that the same level of work, or greater, is still occurring with regard to understanding and managing for acceptable levels of impact in the Australian Mackerel Icefish fishery.

Again, the reports provided by Austral Fisheries Pty Ltd provided sufficient evidence that the management authorities responsible for the fishery are maintaining the same level of management and science that was present during the initial certification.

Ecological Risk Assessments were completed for the HIMI fishery, as well as additional residual risk assessments to better understand the identified risks in the HIMI fisheries⁸. The preliminary results of the residual risk assessment were presented to SARAG (Sub-Antarctic Resource Assessment Group) in November 2007. In general, the residual risk assessment lowered the risks for all gear types, but each still retained some high and medium risk categories. SARAG is in the process of providing comments back to the assessors so the residual risk assessments can be revised and finalized. The results will then be sent to SouthMAC for consideration in deliberations about ecological risk management requirements.

The preliminary residual risk results⁸ can be summarized as follows:

HIMI Demersal Longline Sub-fishery

Of the 19 species assessed at Level 2, there are 14 species at high risk from the fishery's activities. Following the application of the residual risk guidelines to these high risk species, 3 remain at high risk, 7 have been reduced to medium risk and 4 to low risk.

HIMI Demersal Trawl Sub-fishery

Of the 87 species assessed at Level 2, there are 52 species at high risk from the fishery's activities. Following the application of the residual risk guidelines to these high risk species, 18 remain at high risk, 28 have been reduced to medium risk and 6 to low risk.

HIMI Midwater Trawl Sub-fishery

Of the 106 species assessed at Level 2, there are 17 species at high risk from the fishery's activities. Following the application of the residual risk guidelines to these high risk species, 3 remain at high risk, 11 have been reduced to medium risk and 3 to low risk.

In reading through the findings, it appears that many of the species at high risk were invertebrates where a sufficient lack of information was available to reduce the risk

ranking. Skates and rays were also identified in the medium risk category, with very few telolosts receiving rankings above low.

The assessment team will be monitoring the SouthMAC decisions regarding the appropriate measures to take to manage the identified risks.

Seal and Seabird Interactions

The interactions between the fishery and seabirds and marine mammals was low¹. Table 2 shows the report incidents with seabirds and marine mammals.

Table 2. Incidental mortality and interactions with Seabirds and Marine Mammals in the HIMI Trawl Fishery

two seabirds were killed in the HIMI Fishery.
six seabirds were observed killed and another 3 released alive in the icefish fishery in sub-area 48.3 (South Georgia).
no mortalities for marine mammals reported in trawl fishing operations (for finfish and krill) in the Convention area.

Benthic Impacts

There continues to be work on benthic impacts from fishing gear as noted by the Draft Report of the Fourth Meeting of the Project Advisory Committee². The committee advising the project to examine benthic impacts reports that movement on video capture of benthic impacts during trawling is progressing nicely. Camera systems were developed and deployed with success, capturing video of gear moving along the bottom. Two peer reviews^{3,4}, Dr. Colin Buxton and Dr. Roland Pitcher, found progress acceptable and recommended commencing with the project to the next phase.

Progress on Conditions for Continued Certification

In addition to the random audit of the management system, SCS checked on the progress toward completing the Action Plan for meeting the Conditions for Continued Certification as stated in the original assessment Report.

Indicator 1.1.1.3	Action Plan	Date	Progress
<p>Condition 1.1</p> <p>The client should provide evidence to the certification body contracted for surveillance reports that the current stock designations used for the Icefish assessments are the best choice for conservation and more precautionary than alternative stock designations. One approach might be a re-assessment under the alternative assumption that there is a single stock for the Indian Ocean region. This could be used to demonstrate that the management strategies that are currently used under the assumption of separate stocks are robust and ultimately more precautionary than alternative assumptions regarding stock structure. Other approaches may also be used, such as evidence from studies designed to further elucidate stock structure/distribution.</p>	<p>Austral, on behalf of the HIMI industry, to provide copies of papers, and organise meeting/communication between the certification body for surveillance reports and AAD scientists, to demonstrate that current stock designations for icefish are both more precautionary than alternative designations, and are the best choice for conservation and management of the stocks.</p>	<p>December 2007</p>	<p>Progress is sufficient, but SCS is not closing this Condition out as there are further results anticipated that are expected to help elucidate the answer to this Condition in the latter part of 2008. Therefore, the date for completion of this Condition is being extended to September 2008, as a new assessment is expected to be available at that time.</p> <p>For this surveillance report, the client provided a paper it commissioned on the historical aspects of the icefish fishery to provide an over view of the icefish stocks and the relationship between the stock being fished and the stock once fished in the Kerguelen area. The paper is provided as Appendix 1 to this report. According to the author, the information suggests a very weak link, if any, between the stocks, suggesting that the current management arrangements are correct and precautionary. This addresses the concern expressed by the assessment team requiring extra assurance that the stocks are separate and that managing as such is precautionary.</p>
<p>Indicator 1.1.2.8</p>	<p>Action Plan</p>	<p>Date</p>	<p>Progress</p>

<p><u>Condition 1.2</u></p> <p>The client should provide evidence that the fishery assessments meet the first bullet point under the 80 scoring guidepost – “Impacts of inter-annual variability on stock abundance have been studied and are taken into account in the assessment”. For example, analyses could be provided that show how the fishery assessments factor in uncertainty in growth, mortality, size at first maturity and fecundity, and the influence of the environment on these variables.</p>	<p>A variety of activities by the managing authorities, and with participation by the client, are underway that specifically address this condition.</p> <p>Specifically, the client will provide to the certification body the finalisation and presentation of the ecosystem model currently under development as part of the HIMI Marine ecosystem study undertaken by AAD in 2004.</p> <p>This model will be used to explore the dynamics of mackerel icefish and its role in the foodwebs of the region. It will also be used to evaluate management strategies for icefish with the aim being to determine an alternative, ecologically sustainable, management strategy.</p> <p>Such a strategy will identify reference points, assessment methods (including indicators) and harvest rules based on outcomes.</p>	<p>Estimated times for completion:</p> <p>A number of relevant reports will be provided along the way to a final completion date of December 2010.</p> <p>The progress reports are:</p> <ol style="list-style-type: none"> 1. Progress reports in annual reports of the AFMA Sub-Antarctic Resources Assessment Group (SARAG) 2. CCAMLR paper (estimated to be available November 2008) 3. SARAG final report estimated to be available by September 2009 <p>The client will provide copies of each study within 30 days of its completion.</p> <p>If further clarification is requested by the certification body, the client will facilitate a meeting between the certification body, the client, and the management authorities to discuss the outcomes and implications of these studies.</p> <p>Also, if the planned studies are not going to be completed on time, the client will advise the</p>	<p>SCS’s determination is that the client is currently satisfying the Action Plan approved by SCS and is making acceptable progress to meeting the Condition for this performance indicator.</p> <p>All studies are progressing as expected. Reports provided to date to the assessment team include the SARAG reports for 2007/08 meetings, which illustrate how the management of the fishery is currently dealing with stock variability. Also the CCAMLR stock assessment reports.</p>
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		certification body as to any additional time required. The client notes that it does not have control over the estimated timeframes for completion of the identified work, and can only be responsible for submitting the work upon its completion.	
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Indicator 1.1.3.1	Action Plan	Date	Progress
<p>Condition 1.3</p> <p>The client should provide evidence that a comprehensive review has been or is being undertaken regarding appropriate Limit Reference Points for the Icefish fishery. Evidence should be provided that the LRPs used meet the AFMA requirements (are appropriate for maintaining both ecologically viable stocks of the target species and an ecologically sustainable fishery), are appropriate for the biology of the icefish stock and takes into account available knowledge of fishery impacts on non-target species and the ecosystem, and ensure with high probability that the spawning biomass of the icefish stock does not fall below a specified minimum level and that fishing mortality does not exceed a specified maximum level. The results of this review should be published.</p>	<p>The client will, as under Condition 1.2, deliver to the certification body the results of work being conducted by the managing authorities to develop a new model that incorporates ecosystem functions more fully into the assessment of icefish. In addition, the client will provide the results of the Management Strategy Evaluation work that will result from using the model to demonstrate the applicability of the chosen Limit Reference Points being used for ecologically sustainable management of the icefish fishery in the HIMI region.</p>	<p>Same as for Condition 1.2</p>	<p>The Condition references the scoring guidepost for 80, which is:</p> <p>“LRPs for target stocks are justified based on stock biology and take into account available knowledge of fishery impacts on non-target species and the ecosystem.”</p> <p>As indicated in the previous Condition for 1.1.2.8, the work being conducted by AAD scientists in conjunction with CCAMLR and AFMA is set to review stock dynamics, including food web interactions, and then review and where necessary revise harvest control rules. This should quite directly address the 80 scoring guidepost as the LRP will be directly reviewed by this work.</p> <p>The client reviewed with SCS the progress being made to date on the promised reports from CCAMLR and AAD, and it shows that all the work is progressing as anticipated, so adequate progress is being made on the Action Plan toward the goal of providing finalized information by 2010.</p>

Indicator: 1.1.3.2	Action	Completion Date	Progress
<p>Condition 1.4</p> <p>1. A review should be provided about what target reference points, which are based on the biology of the icefish stock and take into account available knowledge of fishery impacts on non-target species and the ecosystem, should be specified for the icefish fishery. The analysis should examine how target reference points considered are more precautionary than the corresponding limit reference points and how they ensure with high probability that the spawning biomass of the icefish stock does not fall below a specified minimum level and that fishing mortality does not exceed a specified maximum level.</p> <p>2. The review provided should discuss how the target reference points used or proposed for use by AFMA for the icefish fishery compare with those specified or applied by CCAMLR.</p>	<p>1. The review required will be provided through the MSE work being undertaken, as outlined in Conditions 1.2 and 1.3 above.</p> <p>In addition, the client will provide evidence to the certification body that the Target Reference Points are and will continue to be more precautionary than the Limit Reference Points.</p> <p>2. The AFMA reference points currently used for the icefish fishery, are those reference points specified and used by CCAMLR, as shown in all CCAMLR documentation including WGFSR reports, Scientific Committee recommendations, and Commission Conservation Measures adopted.</p> <p>The client will also provide details on how</p>	<p>Same as for Condition 1.2.</p> <p>The timeline for completion of this work is also December 2010.</p>	<p>The 80 scoring guidepost for Indicator 1.1.3.2 states, “TRPs for target stocks are justified based on stock biology and take into account available knowledge of fishery impacts on non-target species and the ecosystem.”</p> <p>Again, the stipulation for this Condition is to review the TRP for Icefish and then discuss how the AFMA reference point relates to the CCAMLR proposed TRP</p> <p>As provided by the client, existing documentation provides that AFMA is currently using the CCAMLR Reference points for both LRP and TRP. This answers in part the second part of the Condition. However, it does not answer how well these account for the stock biology, including food web dynamics.</p> <p>The studies in progress by AAD, AFMA, and CCAMLR) as previously described) are designed to fully review the stock dynamics of icefish as well as review the harvest control rules – and all of this to include food web dynamics.</p> <p>When completed, it is anticipated by the client that these reports will answer the Condition directly. These studies are all on track to be completed as designated in the Action Plan, and there</p>

	<p>any changes to these reference points will be incorporated by CCAMLR and AFMA in future.</p>		<p>is no evidence to suggest otherwise. Therefore, SCS believes that satisfactory progress is till being made on meeting this Condition by 2010.</p>
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Indicator 1.1.4.2	Action	Completion Date	Progress
<p><u>Condition 1.5</u></p> <p>The approach that is used in determining the recommended TAC should be investigated relative to uncertainty in the estimate of natural mortality, the imprecision in the estimates of the parameters of the mixture of components of the length composition data and the uncertainty in the parameters of the growth curve, and alternative stock structures. There should be an explicit report demonstrating the precautionary nature of the approach and how additional information on these parameters is being incorporated.</p>	<p>The client will provide the certification body with the same information as in Condition 1.2 and 1.3. In addition, the client will ensure that the information includes a review of the methods for setting the TAC. The finalisation of the report on Management Strategy Evaluation will explicitly deal with the precautionary nature of the approach and how additional information on the parameters is being incorporated.</p>	<p>Same as for Condition 1.2.</p> <p>The Timeline for completion of this work is also December 2010.</p>	<p>The 80 scoring guideposts for Indicator 1.1.4.2 state,</p> <p>“The assessment takes into account major uncertainties in the data and functional relationships.”</p> <p>“The robustness of the management advice to sensitivities in the assessment has been investigated.”</p> <p>The Condition for this indicator requires a review of the TAC setting process to see how sensitive it is to the known uncertainties in stock dynamics.</p> <p>As indicated earlier, the studies underway by AAD, AFMA, and CCAMLR will fully review stock dynamics, food web interactions, and the the harvest control rules that utilliuze this information. Progress on completing these studies appears adequate to meet the 2010 deadline for submission to the assessment team.</p> <p>A review of the TAC setting process cannot be completed until these studies are finished, so there is nothing to review at this time.</p> <p>SCS has determined that, as with previous Conditions, the progress made toward this Condition is adequate at</p>

			<p>this time.</p> <p>The client, Austral Fisheries, has indicated that even though there is a TAC of note for 2008, it is anticipated that they will not be taking advantage of it as they believe that better economic gains will be derived by delaying fishing on the stock for one more year. If this occurs, it provides additional precautions as far as available catch, and will allow another year of recruitment to be determined to ensure the available stock.</p>
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Indicator 1.1.5.1	Action	Completion Date	Progress
<p>Condition 1.6</p> <p>Meet Condition 1.3. In meeting Condition 1.3, ensure that there is an assessment that shows the probability that the current spawning biomass lies above the chosen limit reference point for the icefish stocks at HIMI. This report should be reviewed by AFMA, AAD, and CCAMLR.</p>	<p>The client will provide the same information as submitted under Conditions 1.2, 1.3, 1.4 and 1.5. Again, it is anticipated that the MSE report in 2008/09 will specifically address the relationship between survey indicators of Spawning Stock Biomass, and the actual (modelled) level of SSB, and how well the management strategies perform against the survey results and indicators.</p>	<p>Same as for Conditions 1.2 and 1.3.</p> <p>The Timeline for completion of this work is also December 2010.</p>	<p>The 80 scoring guideposts for Indicator 1.1.5.5 states,</p> <p>“Stock assessments show that there is a greater than 80% probability that the stock is above the LRP.”</p> <p>The Condition for this indicator requires a review of the stock status.</p> <p>Given the current status of the fishery, no TAC for directed fishing other than for scientific surveys, a review of the status of the stock does not appear to be necessary this year.</p> <p>As indicated earlier, the studies underway by AAD, AFMA, and CCAMLR will fully review stock dynamics, food web interactions, and the harvest control rules that utilize this information. Progress on completing these studies appears adequate to meet the 2010 deadline for submission to the assessment team.</p> <p>SCS has determined that, as with previous Conditions, the progress made toward this Condition is adequate at this time.</p>

Indicator 1.1.5.2	Action	Completion Date	Progress
<p>Condition 1.7</p> <p>Meet Condition 1.3. In addition, show with what probability subsequent survey estimates of the biomass of the residual spawning stock exceeded the levels predicted over recent years.</p>	<ol style="list-style-type: none"> 1. Meet condition 1.3, as outlined above. 2. Include the feedback mechanisms described in review of the management measures being evaluated under the MSE outlined above. 3. Determine if the assessment needs to encompass a time series of surveys as part of the MSE work. 	<p>Same as for Condition 1.3.</p> <p>The timeline for completion of this work is December 2010.</p> <p>Papers that are relevant include, but may not be limited to:</p> <ol style="list-style-type: none"> 1. SARAG paper September 2009 2. WGFSa paper October 2007 on age specific mortality rates 3. MSE survey requirements by SARAG September 2008. 	<p>The 80 scoring guideposts for Indicator 1.1.5.5 states,</p> <p>“Stock assessments show that there is a greater than 80% probability that the current exploitation rate is below the LRP.”</p> <p>The Condition for this indicator requires a review of the stock status as in 1.1.5.1.</p> <p>The studies underway by AAD, AFMA, and CCAMLR are addressing this issue by reviewing the status of the stock and the applicability of the harvest control rules.</p> <p>In addition, a study of age specific mortality rates is being completed in 2007 and being delivered to the assessment team.</p> <p>SCS has determined that adequate progress is being made to provide a full review of the stock dynamics in the fishery and the harvest control rules that are applied.</p>

Indicator 1.1.6.1	Action	Completion Date	Progress
<p><u>Condition 1.8</u></p> <p>Carry out appropriate simulation testing to consider the harvest strategy in relation to the characteristics of the icefish stock to evaluate the robustness of the reference points and the fishery management model.</p>	<p>The client will provide the same information as required under Conditions 1.2 and 1.3 as it will answer the question about the appropriate management strategy, under the MSE approach being taken for condition 1.2 above.</p>	<p>Same as for Condition 1.2.</p> <p>The timeline for completion of this work is December 2010.</p>	<p>The 80 scoring guideposts for Indicator 1.1.6.1 state,</p> <ul style="list-style-type: none"> • The harvest control rule has been simulation tested and shown to be effective with respect to the uncertainty concerning the biology of the stock and the uncertainties associated with stock assessment. • Decisions about catch limits follow the agreed strategy. <p>The Condition for this indicator requires simulation testing of the harvest strategy to evaluate the robustness of the reference points.</p> <p>The studies underway by AAD, AFMA, and CCAMLR are addressing this issue by reviewing the status of the stock and the applicability of the harvest control rules. The outcomes of these studies will be made available to SCS as completed.</p> <p>SCS has determined that adequate progress is being made to provide a full review of the stock dynamics in the fishery and the harvest control rules that are applied.</p>

Indicator 1.2.1	Action	Completion Date	Progress
<p>Condition 1.9</p> <p>The client only needs to develop and abide by a condition for this indicator if it plans to begin fishing in areas previously described as depleted (i.e. Pike, Discovery, and Shell Banks). Before commercial harvesting is permitted to recommence on these populations/stocks, the fishery management system would have to:</p> <ol style="list-style-type: none"> 1. Provide an explicit specification of the conditions that require that the recovery strategy is invoked. 2. Specify precisely how the harvest is to be controlled as the stock recovers, the time period expected for recovery, and the conditions that signal that the stock has recovered. 3. Provide a simulation study that demonstrates that there is a high probability that the stock will recover if the recovery strategy is invoked. 	<p>The client will submit to the certification body information that shows how assessments will be done before areas now closed to fishing are opened for future fishing. The specific information to be submitted includes:</p> <ol style="list-style-type: none"> 1. Completion of food web model to determine likelihood of food depletion in recovery phase given natural variation in stock abundances 2. Where stock depletion is evident, maintain commercial harvest levels at zero, and maintain annual surveys of population(s) for assessment purposes 3. MSE work to be completed to derive appropriate indicators for recovery and options for harvesting zregimes, where applicable. 	<ul style="list-style-type: none"> - Annual reports to SARAG (September each year) - CCAMLR paper November 2008 - SARAG final report by September 2009 	<p>The Condition for this indicator is only applicable if fishing is to begin in areas now closed to fishing. There are currently no plans to fish in currently closed areas. However, in compliance with the MSC requirements, the client has agreed to provide the background necessary to meet the Condition.</p> <p>Given no new fishing area openings, SCS is satisfied that the client is continuing to meet the progress agreed toward fulfilling this Condition.</p>

Indicator: 1.3.2	Action	Completion Date	Progress
<p><u>Condition 1.10</u></p> <p>Estimate the expected changes in size and age at maturity, age composition, and fecundity and establish a routine comparison of observed data with these expected values to ensure that unexpected changes might be detected.</p>	<p>Identify suitable indicators and estimate changes in parameters identified, as part of the MSE program identified in Condition 1.2</p>	<p>Same timeline as for Condition 1.2.</p>	<p>The 80 scoring guidepost for this indicator states:</p> <p>“The extent to which trends in age, sex, genetic structure, recruitment and spawning stock might deviate from the expected trends, allowing for both natural variability and uncertainty, has been specified. The values of the variables remain within these specified, acceptable ranges.”</p> <p>Studies on food web dynamics are underway by AFMA, AAD, and CCAMLR. These studies will be made available as soon as possible. According to the client, there is good progress on getting these studies completed. The client has already engaged in discussions with AAD and AFMA regarding the need for better data on age composition, age at maturity, and fecundity.</p> <p>Although this Condition is not due to be closed until 2010, SCS is satisfied that the client has made acceptable progress toward meeting this Condition by engaging with the scientists and managers in the icefish fishery about collecting and analysing better data on a number of life history parameters.</p>

Indicator: 2.1.3.1	Action	Completion Date	Progress
<p>Condition 2.1</p> <p>The fishery must complete a comprehensive scientifically robust assessment of the ecological risks of the fishery (such as the one started by CSIRO), including potential impacts on benthic systems, key land-based marine predators, and sharks, skates and rays, that is already underway. The report should be sure to include the range of stakeholder views/inputs and meet peer review standards for scientific assessments.</p>	<ol style="list-style-type: none"> 1. Upon completion of Ecological Risk Assessment (ERA) project by CSIRO for AFMA, identifying potential impacts of the fishery on the ecosystem and ecologically related species, the client will submit this to the certification body within 30 days of its completion, along with any peer reviews or commentaries on this report. 2. Seek funding for benthic habitat impact study from FRDC and other research providers 3. Conclude report on benthic habitat impacts of the icefish fishery 	<p>Completion dates are:</p> <ol style="list-style-type: none"> 1. ERA report due for completion and presentation to SARAG meetings in 2007. 2. Initial funding approval July 2006 3. Milestone reports on benthic study annually at SARAG; final report Sept 2010. <p>Studies were completed in March 2008.</p>	<p>The 80 Scoring Guidepost for this indicator states,</p> <ul style="list-style-type: none"> • The potential effects of the fishery have been determined by detailed, scientifically defensible and peer reviewed analysis of risks using existing data, and based on comparative studies between fished and non-fished but otherwise comparable ecosystems, considering space and time scales that are relevant to the scale of the fishery • The potential impacts of the fishery are established in consultation with stakeholders and a range of relevant experts • Causes and effects in the fishery are broadly known and include the range of habitats in the fishery and use ecologically relevant attributes and statistically robust designs. • A program of research targeting the main ecological risks posed by the fishery is underway. <p>To meet the 80 scoring guideposts, the fishery must complete the ERA identified during the assessment process.</p> <p>An ERA report was finalised in early 2008. In addition, preliminary Residual</p>

			<p>Risk Assessments were completed and are under review by SouthMAC. The risk reductions are outlined above under ecological impacts from fishing. Management of the risks will commence once the residual risk assessments are finalized.</p> <p>In addition, the fishery has completed the preliminary work to examine benthic impacts of trawling by testing cameras set up on fishing gear to capture live video of benthic interactions. The tests were successful and further survey work is now commencing.</p> <p>SCS is satisfied that adequate progress is being made on meeting this Condition.</p>
<p><u>Condition 2.2</u></p> <p>Should any risks identified under the risk assessment be rated as moderate or high, the fishery would have to provide data and/or information showing what measures are being taken to mitigate the risks and analyses of why the measures are sufficient.</p>	<p>1. Participate fully with AFMA and other government agencies to achieve appropriate management responses to identified risks, and mitigation measures required (or to be developed).</p> <p>2. Submit to the certification body evidence showing what measures are being taken by the managing authorities.</p>	<p>Timelines for submission of information are:</p> <ul style="list-style-type: none"> - Strategic review of HIMI fishery due for completion in 2010 - Annual reports of SARAG and SouthMAC - ERA report final Sept 2007 	<p>As under Condition 2.1 above, the client has provided SCS with information on schedule. Once all scientific analyses are completed, SCS will seek evidence that the management authorities are taking the results of the analyses into consideration in reformulating management processes.</p> <p>In addition, the industry requested a revised stock assessment for all rayus and skates since the residual risk assessments still consider the risks to these species medium to</p>

			<p>high in many cases. The request is now unnecessary, as there is a scheduled Interbational Assessment for 2009 for all skates and rays in CCAMLR waters.</p> <p>SCS is satisfied that adequate progress is being made to date on meeting this Condition under Indicator 2.1.3.1.</p>
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Indicator: 2.1.3.3	Action	Completion Date	Progress
<p>Condition 2.3</p> <p>Conditions 2.1 and 2.2 apply.</p>	As above	As above	As above

Indicator: 2.1.5.1	Action	Completion Date	Progress
<p>Condition 2.4</p> <p>Conditions 2.1 and 2.2 apply.</p>	As above	As above	As above

Indicator: 2.2.1.2	Action	Completion Date	Progress
<p><u>Condition 2.5</u></p> <p>The client should provide evidence that AAD research on the trophic role of icefish in predator diets either has been or is being conducted. The AAD research should be properly peer reviewed and published. Once available, this information should be used in Condition 2.1.</p>	<p>Trophic interaction research started in 2004 to be completed, with full review by peer-reviewed journals, SARAG and CCAMLR. Use information for Condition 2.1 above.</p>	<p>Timelines for submission of information are:</p> <ul style="list-style-type: none"> - Annual reports to SARAG on progress - CCAMLR paper October 2008 - SARAG final report Sept 2009 	<p>The 80 Scoring guideposts for this indicator state:</p> <ul style="list-style-type: none"> • The basic structure of the regional foodwebs have been determined • There is a good basic knowledge of the trophic relationships and requirements of the main threatened, protected, or ‘icon’ species • The trophic role of the target species at each of its main life stages is broadly understood in relation to the trophic requirements of the main threatened, protected, or ‘icon’ species. • There is an ongoing research program designed to evaluate the natural dynamics and productivity in regional foodwebs, and to model and assess the impacts of the fishery on the trophic requirements of the main threatened, protected, or ‘icon’ species. <p>SCS was provided with the ERA report and the preliminary residual risk assessments. This meets c part of the Condition.</p> <p>Studies underway by CCAMLR and AFMA/AAD are looking at the food web interactions in the fishery. These</p>

			<p>studies will inform the fishery managers and are expected to be published upon their completion in 2008 and 2009.</p> <p>The client provided information that these studies are ongoing as originally identified.</p> <p>SCS believes that adequate progress is being made to meeting this Condition based on the ongoing work on the ERA and on food web interactions.</p>
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<u>Indicator: 2.2.3.1</u>	Action	Completion Date	Progress
<p><u>Condition 2.6</u></p> <p>Condition 2.1 applies.</p>	As above for 2.1	As above for 2.1	As above

Indicator: 3.2.1.4	Action	Completion Date	Progress
<p><u>Condition 3.1</u></p> <p>The management system must be improved to contain criteria for assessing when a stock within the fishery is overfished, the strategies to be adopted when the stock is classified as overfished, and the conditions under which an overfished (stock or) fishery is considered to have recovered. This is considered in more detail under Principle 1. To the extent possible, this condition should be informed by or be coincident with conditions in Principle 1.</p>	<p>Implement actions as identified under Principle 1, Condition 1.2.</p>	<p>Same as for Condition 1.2 – Sept 2009 SARAG report</p>	<p>The 80 Scoring Guideposts state:</p> <p>The management system has effective provisions for achieving targets for rebuilding and recovery of overfished stocks within a specified time frame.</p> <p>The studies to date on stock dynamics and harvest control rules are progressing as expected are expected to inform management as to any additional measures that may need to be enacted to maintain or recover the icefish stock. This will include an evaluation of when the stock is considered depleted, and what type of recover plan may be required to rebuild the stock. However, this work is not scheduled to be completed until 2009/2010.</p> <p>SCS finds the work to date by AAD/AFMA and CCAMLR to be adequate in terms of making progress toward meeting the specific Condition under this performance indicator.</p>

Indicator: 3.2.1.7	Action	Completion Date	Progress
<p>Condition 3.2</p> <p>Meet Conditions 2.1 and 2.2. In addition, provide evidence to the certifier that there is</p>	<ul style="list-style-type: none"> - Finalise benthic habitat impacts study - Maintain consistent, appropriate, observer coverage 	<p>Timelines for completion are:</p> <ul style="list-style-type: none"> - FRDC report final due Sept 2010. 	<p>The 80 Scoring Guidepost for this performance indicator states:</p> <p>Specific actions have been taken to</p>

<p>some process in place to provide an ongoing, although periodic, process to identify, document, assess, reduce and ameliorate risks to habitat resulting from fishing practices. This process should meet requirements set out in the Management Plan.</p>	<p>on all operations</p> <ul style="list-style-type: none"> - Report annually to SARAG on bycatch species, quantities and profiles for evaluation and risk reduction strategies to be developed - Maintain shot-by-shot recording of fishing operations including benthic bycatch - Evaluate alternative fishing methods to reduce risks of habitat damage <p>The client notes that the process of the Ecological Risk Assessment is an ongoing one. The AFMA requirements for ERA reporting have increased dramatically with a series of recent Ministerial Directions to AFMA, that outline major changes in the way Australian fisheries are to be managed. Aside from this, there are also direct requirements under the Environment Protection and Biodiversity Convention Act, which require formal review every 5 years, for any Commonwealth fishery, as well as any fishery in Australia that wishes to export product.</p>	<ul style="list-style-type: none"> - Annual reports to SARAG - Monitoring and observers on a constant basis - EPBC Act review due December 2009 has now been completed. 	<p>restrict fishing gear and fishing practices to prevent, mitigate, or minimize actual or potential impacts on habitat caused by fishing.</p> <p>To meet this Condition, the client has agreed to maintain all relevant activities that are now in practice such as bycatch reporting, evaluation of gear, and maintenance of observer coverage to assure adequate data collection on bycatch and benthic habitat disturbance.</p> <p>In addition, the client is working with AAD/AFMA and CCMLR to complete the benthic studies on the effects of bottom trawling through an FRDC funded research project. Also, the Ecological Risk Assessment started by CSIRO is now completed and a preliminary Residual Risk Assessment is under review by SouthMAC.</p> <p>Additional actions that have been taken that are applicable to meeting this Condition have been:</p> <ul style="list-style-type: none"> - voluntary measures for bird bycatch mitigation have been implemented including no midwater trawling for icefish during peak seabird foraging months, and no daytime midwater trawling at other times. <p>- revised permit conditions.</p>
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			SCS finds that the combined efforts are adequate to show progress toward meeting the required Condition.
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Summary

Overall, SCS finds that the HIMI Mackerel Icefish fishery management system is still in general compliance with the MSC standards and that all work to meet the Conditions placed on the certificate are being adequately addressed and moving toward completion.

References

1. Report on the Key Outcomes of the Twenty-Sixth Meeting of the Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR XXVI)
2. 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. Draft Report of the Fourth Meeting of the Project Advisory Committee, 9am Tuesday 27th November, 2007, Mawson Conference Room 2, Australian Antarctic Division, Kingston, Tasmania
3. Email from Roland Pitcher to Dirk Welsford 23 November 2007.
4. Email from Colin Buxton to Andrew Constable 3 December 2007.
5. Report on a Random Stratified Trawl Survey to Estimate Distribution and Abundance of *Dissostichus Eleginoides* and *Champscephalus Gunnaro* Conducted in the Heard Island Region (Division 58.5.2), May – June 2007.
6. Preliminary Assessment of Mackerel Icefish (*CHAMPSOCEPHALUS GUNNARI*) in the Vicinity of Heard and MacDonal Islands (Division 58.5.2), Based on a survey in July 2007 using the Generalized Yield model.
7. Heard Island and MacDonal Islands Fishery 2007/2008 Season Fisheries Assessment Plan.
8. SARAG - Agenda item number: 9, Agenda item title: Residual Risk Assessment for Antarctic Fisheries

Appendix 1 - History of fishing for *Champsocephalus gunnari* on the Kerguelen Plateau

History of fishing for *Champsocephalus gunnari* on the Kerguelen Plateau

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Unregulated fishing on the Kerguelen Plateau, 1971-1978

Fishing targeting the mackerel icefish, *Champsocephalus gunnari*, on the Kerguelen Plateau is first recorded from 1971, when unregulated trawling for the species (primarily by vessels from the former Eastern Bloc and the Soviet Union) focussed in the shelf region around the Iles Kerguelen and on Skif Bank, in what is now the French EEZ, as well as banks on the northern part of the Plateau in the Australian EEZ. Catches showed a strong triannual cycle throughout the 1970s, with large catches (upwards of 40,000 tonnes) recorded in 1972, 1975 and 1978, reflecting the fact that the population contains a strong cohort every three years, and that icefish in the region apparently do not live beyond 5 years old^{2,4}.

Fishing in the French EEZ 1978-present

With the declaration of the EEZ around Iles Kerguelen in 1978, French authorities imposed total allowable catches and a minimum landing size of 25 cm. research in the latter part of the 1980s indicated that fish found at Skif Bank and on the shelf around Iles Kerguelen had sufficiently different population characteristics (e.g. asynchronous recruitment) to be considered separate stocks¹. By 1992 stocks were depleted to the point where catches were negligible. France excluded foreign trawlers at this time, and Patagonian toothfish (*Dissostichus eleginoides*) became the primary target species of French vessels operating the fishery. All trawling in the French EEZ ceased in 2003, with longline now used exclusively to target toothfish².

A recent research survey indicated that, while the numbers of other fishes severely depleted by trawling in the 1980s were showing some signs of recovery, numbers of *C. gunnari*, both on Skif Bank and on the islands shelf showed no sign of rebuilding, and France does not consider them able to support a fishery any time in the near future³

Fishing in the Australian EEZ 1979-Present

Following the declaration of the Australian EEZ around Heard Island and the McDonald Islands in 1979, no commercial fishing occurred throughout the 1980s. Surveys conducted by a joint Soviet-Australian expedition in 1987, and Australian Antarctic Division in the early 1990s⁵, indicated the potential for a limited fishery, targeting *C. gunnari* and *D. eleginoides*, which were the two most abundant demersal fish species sampled. These surveys also identified two distinct areas where icefish were concentrated; on Shell Bank, a distinct bank in the east of the EEZ, and Gunnari Ridge, on the plateau adjacent to the Heard and McDonald Islands.

In 1997, Australian commercial fishing vessels were licensed to target both species. Analysis of the population characteristics of the Shell Bank and Gunnari Ridge populations from commercial and research survey data indicated that they had distinct

population characteristics, with different growth rates and cohort structures⁶. Annual research surveys in the early 2000s indicated poor recruitment to the Shell Bank population, and Shell Bank was closed to commercial fishing in 2004. The fishery targeting icefish on the plateau continues, relying on strong recruitment events which occur every 3-4 years. The survey conducted in 2007 indicated a large number of 1+ fish, indicating the recruitment of the largest cohort recorded since the 2002 survey.

Relationships between the French and Australian Stocks

The fact that the Heard and McDonald Island icefish fisheries do not overlap in time, and the Kerguelen stock had effectively collapsed several years before the current fishery in the Australian zone developed, as well as the fact that strong recruitment events seen in the Australian zone do not seem to be reflected at Kerguelen in recent survey data suggests that the links between these populations are weak. The current management scheme, which assumes that the Australian and French stocks are independent therefore seems justified. If in future a fishery were to develop once again in the French zone, and/or future data indicated a relationship between the stocks, this management arrangement should be reviewed.

- 1 Duhamel G (1991) The biological and demographic peculiarities of the icefish *Chamsocephalus gunnari* Lönnberg, 1905 from the Kerguelen Plateau. In di Prisco G, Maresca B, Tota B, eds. *Biology of Antarctic Fishes*. Berlin, Springer-Verlag. pp. 292
- 2 Duhamel G, Gasco N, Davaine P (2005) *Poissons des îles Kerguelen et Crozet. Guide régional de l'océan Austral*. Paris, Publications Scientifiques du Museum national d'Histoire naturelle. 419 pp.
- 3 Duhamel G, Hautecoeur M (in press) Biomass abundance and distribution of fish in the Kerguelen Islands zone (Division 58-5-1). CCAMLR Science
- 4 Kock K-H (1992) *Antarctic fish and fisheries*. Cambridge, Cambridge University Press. 359 pp.
- 5 Williams R, de la Mare WK (1995) Fish distribution and biomass in the Heard Island zone (Division 58.5.2). CCAMLR Science 2:1-20
- 6 Williams R, van Wijk E, Constable A, Lamb T (2001) The fishery for *Chamsocephalus gunnari* and its biology at Heard Island (Division 58.5.2). CCAMLR WAMI 01/04