



10A Victory Park
Victory Road
Derby
DE24 8ZF
UK

Intertek Fisheries Certification (IFC)

www.intertek.com/food/msc-certification

Third Annual Surveillance Report
***Pandalus borealis* SFA 7 Fishery**

Certificate No.: MML-F-105

Intertek Fisheries Certification Ltd
December 2014

Authors:
Don Aldous, Howard Powles

1.0 GENERAL INFORMATION

Scope against which the surveillance is undertaken: MSC Principles and Criteria for Sustainable Fishing as applied to the *Pandalus borealis* SFA 7 Fishery

Species: Northern Shrimp (*Pandalus borealis*)

Area: Shrimp Fishing Area (SFA) 7

Method of capture: Trawl

| | | | | |
|---|--|-----------------|-----------------------------------|-----------------|
| Date of Surveillance Visit: | November 27, 2014 | | | |
| Initial Certification | Date: 20 March 2012 | | Certificate Ref: MML-F-105 | |
| Surveillance stage | 1 st | 2 nd | 3 rd | 4 th |
| Surveillance team: | Lead Assessor: Don Aldous Assessor: Howard Powles | | | |
| Company Name: Address: | Northern Coalition, Fogo Island Coop, Association of Seafood Producers and the Canadian Association of Prawn Producers as the lead organization. c/o 1362 Revell Drive Manotick, Ontario K4M 1K8 Canada | | | |
| Contact: | Bruce Chapman | | | |
| Tel No: | 613 692 8249 | | | |
| E-mail address: | bchapman@sympatico.ca | | | |

2.0 RESULTS, CONCLUSIONS AND RECOMMENDATIONS

This report contains the findings of the **third** surveillance cycle in relation to this fishery.

The client's response to the Conditions of Certification was set out in a Client Action Plan (CAP), which was appended to the Public Certification Report. Progress associated with the actions set forth in the CAP was examined as a part of this surveillance audit. For each Condition, the report sets out progress to date. This progress has been evaluated by the Intertek Fisheries Certification (IFC) Audit Team (set out below as 'Observations' and 'Conclusion') against the commitments made in the CAP. This assessment includes a re-evaluation of the scoring allocated to the relevant Performance Indicators (PIs) in the original MSC assessment. Where the requirements of a Condition are met, the PI is re-scored at 80 or more and the Condition is "closed out".

The surveillance audit process and methodology as defined in the current version of the MSC Certification Requirements is followed in this audit and so the MSC criteria for determining the level of surveillance audit that the fishery requires is followed (see Annex 3).

Information Sources:

Meetings

All stakeholders from the full assessment were contacted by email prior to the surveillance audit and a notice of the pending audit was placed on msc.org on November 6, 2014. There were no requests from stakeholders for meetings during the site visit.

During the site visit, meetings were held as follows:

- November 27, 2014 with the client;
- November 27, 2014 with the client and DFO

Reports etc

ASMFC 2014. Northern shrimp. <http://www.asmfc.org/species/northern-shrimp>. Consulted November 30, 2014

DFO 2010. Integrated Fishery Management Plan – Northern Shrimp – Shrimp Fishing Areas (SFAs) 0-7 and Flemish Cap. Resource Management Operations, Fisheries and Oceans Canada. Available at <http://www.dfo-mpo.gc.ca/fm-gp/peches-fisheries/ifmp-gmp/shrimp-crevette/shrimp-crevette-2007-eng.htm>. Consulted November 17, 2014.

DFO 2013. Ecological risk assessment framework (ERAF) for coldwater corals and sponge dominated communities. Available at <http://www.dfo-mpo.gc.ca/fm-gp/peches-fisheries/fish-ren-peche/sff-cpd/risk-ecolo-risque-eng.htm>, consulted November 30, 2014.

DFO 2013b. Oceanographic conditions in the Atlantic zone in 2012. Can. Sci. Adv. Sec. Sci. Adv. Rep. 2013/057 : 18 pp.

DFO 2014c. Short-term stock prospects for cod, crab and shrimp in the Newfoundland and Labrador Region (Divisions 2J3KL). CSAS Sci. Resp. 2014/049: 18 pp.

Jorde, P. E., G. Sjøvik, J.-I. Westgaard, D. Orr, G. Han, D. Stansbury, and K. E. Jørstad. 2014. Genetic population structure of northern shrimp, *Pandalus borealis*, in the Northwest Atlantic. Can. Tech. Rep. Fish. Aquat. Sci. 3046: iv + 27 p.

Kenchington, E., C. Lirette, A. Cogswell, D. Archambault, P. Archambault, H. Benoit, D. Bernier, B. Brodie, S. Fuller, K. Gilkinson, M. Lévesque, D. Power, T. Siferd, M. Treble, and V. Wareham. 2010. Delineating Coral and Sponge Concentrations in the Biogeographic Regions of the East Coast of Canada Using Spatial Analyses. CSAS Res. Doc. 2010/041: 208 pp.

Knudby, A., E. Kenchington and F. J. Murillo. 2013. Modeling the distribution of *Geodia* sponges and sponge grounds in the Northwest Atlantic. PLOS One 8(12) e82306, 20 pp.
doi:10.1371/journal.pone.0082306.

NAFO 2014a. NAFO/ICES *Pandalus* assessment group meeting, 10-17 September 2014, Greenland Institute of Natural Resources, Nuuk, Greenland. NAFO SCS Doc 14/18 Serial No. N6365. 83 pp.

NAFO 2014b. NAFO Scientific Council September Meeting – 2014 – 10-17 September 2014. Serial No. N6366. 29 pp.

Standards and Guidelines used:

1. MSC Principles and Criteria
2. MSC Certification Requirements v1.3
3. Guidance to the MSC Certification Requirements, v 1.3

| Update on Stock Status | <p>Shrimp stocks in SFA 7 (NAFO 3LNO) are managed by NAFO. Canada is allocated 83% of the TAC, the remaining 17% being available to other contracting parties to the NAFO Convention. Most of the fishery occurs in NAFO 3L.</p> <p>Scientific advice on stock status is provided by NAFO Scientific Council, based on assessments done by the NAFO-ICES <i>Pandalus</i> Assessment Group (NIPAG). The most recent assessment was done by NIPAG in September 2014 (NAFO 2014a) and advice provided by NAFO Scientific Council, also in September 2014 (NAFO 2014b).</p> <p>Recent TACs and catches have been declining rapidly and the TAC has not been taken since 2009 (Table 1). NAFO Scientific Council had recommended no directed fishery for 2014 in September 2013 and the NAFO Fisheries Commission decided on a 50% TAC reduction for 2014.</p> <p><i>Table 1. Recent catches and TACs (t) for shrimp in Div. 3LNO Source: NAFO (2014a).</i></p> <table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr> <th></th> <th>2005</th> <th>2006</th> <th>2007</th> <th>2008</th> <th>2009</th> <th>2010</th> <th>2011</th> <th>2012</th> <th>2013</th> <th>2014</th> </tr> </thead> <tbody> <tr> <td>TAC¹</td> <td>14056</td> <td>23784</td> <td>23784</td> <td>26718</td> <td>32438</td> <td>30396</td> <td>20557</td> <td>12975</td> <td>9297</td> <td>4300</td> </tr> <tr> <td>STANTLANT 21</td> <td>13574</td> <td>21284</td> <td>21140</td> <td>24855</td> <td>25609</td> <td>17575</td> <td>12598</td> <td>9994</td> <td>8197</td> <td></td> </tr> <tr> <td>NIPAG²</td> <td>14775</td> <td>25689</td> <td>23570</td> <td>25407</td> <td>25900</td> <td>20536</td> <td>12900</td> <td>10108</td> <td>8647</td> <td>1688³</td> </tr> </tbody> </table> <p>¹ Includes autonomous TAC as set by Denmark. ² NIPAG catch estimates have been updated using various data sources (see p. 13, SCR. 14/048). ³ Provisional catches up to August 25, 2014</p> <p>NAFO Scientific Council again recommended no directed fishery for 2015 at its September 2014 meeting (NAFO 2014b) and the Fisheries Commission decided on no directed fishery for 2015.</p> <p>The stock is assessed by examining trends in key indicators and comparing values to precautionary reference values. NIPAG provided the following summary of stock status at its September 2014 meeting (NAFO 2014a):</p> <p style="padding-left: 40px;"><i>Recruitment.</i> Recruitment indices have decreased since 2008 and are now among the lowest observed values.</p> <p style="padding-left: 40px;"><i>Biomass.</i> Spring and autumn biomass indices have decreased considerably since 2007.</p> <p style="padding-left: 40px;"><i>Exploitation.</i> The index of exploitation generally increased over the 1997 – 2014 period.</p> <p style="padding-left: 40px;"><i>State of the Stock.</i> The stock has declined since 2007, and in 2013 the risk of being below <i>Blim</i> is greater than 95%.</p> <p>Given expectations of poor recruitment and relatively high fishing mortality, the stock is not predicted to increase in the near future.</p> <p>NAFO (2014a) compared shrimp stock abundance to a limit reference level of 19,300t (where a valid index of stock size has declined to 15% of its highest observed value) used as a proxy limit reference point in the absence of a population model relating stock to recruitment. The 2013 autumn female biomass index was 11,780 t, and in 2013 the risk of being below the NAFO <i>Blim</i> was greater than 95%. The Canadian IFMP, using a different protocol for setting a proxy limit reference point (30% of average annual biomass values over a productive period, 1996-2003), sets <i>Blim</i> at 9,000 t.</p> <p>A 0 TAC was established by NAFO for the 2015 season.</p> | | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | TAC ¹ | 14056 | 23784 | 23784 | 26718 | 32438 | 30396 | 20557 | 12975 | 9297 | 4300 | STANTLANT 21 | 13574 | 21284 | 21140 | 24855 | 25609 | 17575 | 12598 | 9994 | 8197 | | NIPAG ² | 14775 | 25689 | 23570 | 25407 | 25900 | 20536 | 12900 | 10108 | 8647 | 1688 ³ |
|-------------------------------|--|-------|-------|-------|-------|-------|-------|-------|------|-------------------|------|------|------------------|-------|-------|-------|-------|-------|-------|-------|-------|------|------|--------------|-------|-------|-------|-------|-------|-------|-------|------|------|--|--------------------|-------|-------|-------|-------|-------|-------|-------|-------|------|-------------------|
| | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| TAC ¹ | 14056 | 23784 | 23784 | 26718 | 32438 | 30396 | 20557 | 12975 | 9297 | 4300 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| STANTLANT 21 | 13574 | 21284 | 21140 | 24855 | 25609 | 17575 | 12598 | 9994 | 8197 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| NIPAG ² | 14775 | 25689 | 23570 | 25407 | 25900 | 20536 | 12900 | 10108 | 8647 | 1688 ³ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

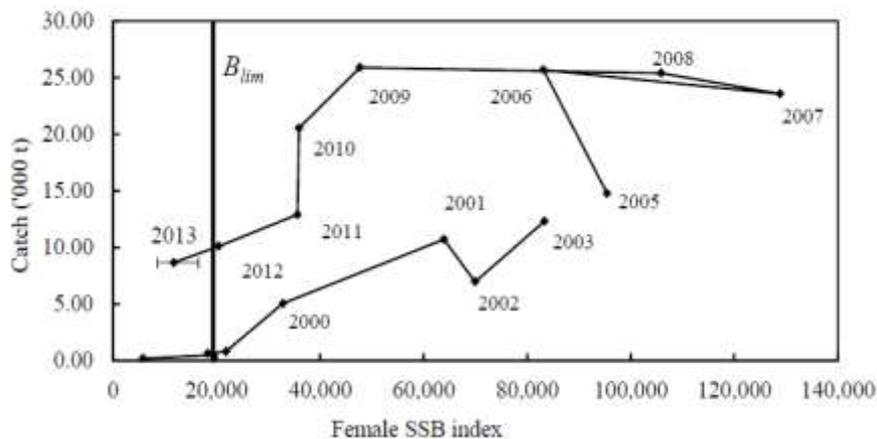


Figure 2. Catch against female SSB index from Canadian autumn survey. Line denoting B_{lim} (approximately 19 300) is drawn where female biomass index is 15% of the maximum estimate over the time series. Source: NAFO (2014a)

Total Allowable Catch (TAC) in most recent fishing year

The Canadian TAC for 2013-2014 fishing year for SFA 7 is 3,582.

Unit of Certification share of TAC

100%

Client share of TAC

The client share (including Fogo Island and the Association of Seafood Producers of Newfoundland & Labrador) of the TAC is 100%.

Green Weight¹ of catch taken by client group

The total green weight taken by the client group during the 2013-14 fishing year was 1,742 t. See Table 2.

Table 2: Catch of Northern Shrimp by area and species 2013-14

| Species | SFA 2,3,4 | SFA1 | SFA 5,6 | SFA 7 | All areas |
|--------------------|-----------|------|---------|-------|-----------|
| <i>P. montagui</i> | 875 | | 3 | | 878 |
| <i>P. borealis</i> | 5,530 | 0 | 37,260 | 1,742 | 44,532 |

Table 3: Catch of Northern Shrimp by area and species 2012-13

| Species | SFA 2,3,4 | SFA1 | SFA 5,6 | SFA 7 | All areas |
|--------------------|-----------|------|---------|-------|-----------|
| <i>P. montagui</i> | 4,909 | | 312 | | 5,221 |
| <i>P. borealis</i> | 20,447 | 5 | 82,864 | 8,019 | 111,335 |

¹ The weight of a catch prior to processing

| | |
|---|---|
| Condition 1 PI 1.2.2 Score: 70 | <p>The client is required to demonstrate by the fourth annual audit that well-defined harvest control rules are in place that are consistent with the harvest strategy and ensure that the exploitation rate is reduced as limit reference points are approached.</p> |
| Client Action Plan | <p>CAPP and NC will collaborate with other stakeholders and the Department of Fisheries & Oceans Canada (DFO), to refine domestic decision rules as appropriate and to promote NAFO's formal adoption of compatible reference points and harvest control rules, and to provide evidence of such.</p> |
| 2012 Client Progress Report | <p>Annex I of the IFMP includes a suite of harvest control rules linked directly to RV survey results, which for SFA7 are to guide the Canadian Delegation to NAFO during its process to set the 3L shrimp TAC.</p> <p>Annex I is under a review by a working group of NSAC, with the intention to streamline and clarify all harvest control rules contained within Annex I. This review is likely to be completed, with amendments likely to be made to Annex I in 2013.</p> <p>Parallel with this process, Canadian scientists are in the process of evaluating the potential application of an assessment model for shrimp stocks in areas 5-7. This evaluation/development is likely to be completed in 2013 or 2014.</p> <p>There has been a single Annual Meeting of NAFO since the certification of this fishery, i.e. in September 2012. Given the aforementioned processes, the Canadian Delegation was not in a position to table or promote the adoption of specific harvest control rules by NAFO's Fisheries Commission in 2012. It is likely that the Canadian Delegation will be in a position to table and promote such rules in 2014, though it may be possible to initiate this process in 2013.</p> <p>In the meantime, it is noteworthy that the spawning stock biomass in this area has been declining from its 2007 peak, and while still in the "Healthy Zone" as defined by the Canadian IFMP, the decline has warranted strong management action in the form of significant TAC reductions. Guided by the advice of the Scientific Council and HCRs within Canada's IFMP, Canada has promoted/supported 3L shrimp TAC reductions from the 30,000t level in 2010, to 19,200t in 2011, to 12,000t in 2012, to 8,600t in 2013; TAC levels that are compatible with the requirements of Canada's harvest control rules.</p> |
| 2012 Observations | <p>For SFA 7, the management of the shrimp stock is based on a NAFO assessment and NAFO advice for shrimp in NAFO Divisions 3LNO. The stock of shrimp in this area is distributed round the Grand Banks mainly in Division 3L. The fishery began in 1993 and came under TAC control in 2000, when fishing was restricted to Division 3L.</p> <p>The Audit Team has reviewed the latest stock assessment for shrimp in Div. 3LNO (NAFO 2012a) which makes it clear that stock decline is still of concern, as described in the stock status section above.</p> <p>The Team has also reviewed the precautionary framework and harvest control rules that are either in place (the NAFO rule for Div. 3LNO) or have been proposed for this stock (the provisional DFO rule for SFA7 described in Annex I of the IFMP, DFO 2010b). In the absence of an effective stock assessment model for this shrimp stock reference points and rules are based on empirical evaluation of stock trends.</p> <p><u>In the NAFO rule</u> the exploitation rate (catch / previous year's fishable biomass) should not exceed a value of 15% of the fishable biomass, and the current advice is that exploitation rate should be below a guideline 14% (the average for 2006-2009</p> |

during which major stock decline occurred). B_{lim} is set at 15% of the maximum observed biomass, giving a value of 19 330t. NAFO has not so far defined a target reference point or safe zone for this stock. The Scientific Council has, however, called for improvements to the reference point framework for shrimp in this area (NAFO 2012a, page 3), specifically to identify F_{msy} , B_{msy} , and an upper reference point for biomass (B_{buf}). This requires application of an agreed appropriate stock assessment model.

In the provisional DFO rule, the lower limit reference point is set at 30% of the 1996-2003 spawning stock biomass (SSB), which is 9 000t. The upper stock reference point is set at 80% of the 1996-2003 SSB, which is 23 000t. These reference point boundaries define healthy, cautious and critical zones, within which specific harvest options apply as outlined in the Canadian IFMP (DFO 2010b) or in Section 5.3.3 of the MSC Public Certification Report for SFA7 (Moody Marine Ltd. 2011d).

It is clear that these frameworks would potentially lead to differing advice and outcomes, and that the provision of the more rigorous harvest control rules needed to satisfy this Condition requires some appropriate resolution of this problem. The Client Progress Report implies that this will be a two or possibly three step process, step 1 being the current review within the Northern Shrimp Advisory Committee (NSAC) of the provisional DFO harvest rules for Canadian shrimp fishing areas in Annex I of the Canadian IFMP, scheduled to be completed in 2013. Step 2 will then involve the Canadian Delegation proposing NSAC-approved Canadian harvest control rules at an Annual Meeting of NAFO in either 2013 or 2014. Step three will likely involve the development and potential application of an assessment model to shrimp stocks in Areas 5-7. It would appear from the site visit that the most likely candidates for such a model could be a version of the Bayesian stock production model, or an ADAP Virtual Population Analysis model presumably scheduled for 2013 in order to facilitate the negotiations with NAFO..

References:

DFO 2010b
Intertek Moody Marine Ltd. 2011d
NAFO 2012a

| | |
|------------------------------------|--|
| 2012 Conclusions | <p>The Audit Team concludes that whilst it is difficult to foresee the precise outcome of the above processes and steps, they nevertheless provide evidence that there is a potentially effective plan in place to achieve the required outcome of this Condition by the fourth annual audit.</p> <p>The words ‘potentially effective’ are used because it is uncertain whether appropriate integration, or resolution of the differences, between the existing NAFO and the provisional DFO frameworks and rules will necessarily emerge within the required timescale. The time-scales involved in both the negotiations with NAFO, and the development of the assessment model, could quite conceivably be optimistic. This perception may reflect the fact that the Action Plan is devoid of the step-wise annual milestones that would make it easier for an assessment team to judge the likelihood and effectiveness of progress in the future. The team is prepared to accept that there is a plan, and that some actions have begun, sufficient to say that the client is on track, but it is strongly recommended that the steps listed in the Client Progress Report be broken down into appropriate milestones for the second, third and fourth annual audits, and that they provide sufficient internal detail to enable future audits to make a more realistic evaluation of progress against these milestones. One additional step that might be helpful is to see if the assessment model could be developed to make stock projections capable of exploring the relative performance of the two precautionary frameworks. That might show how similar or far apart they actually are.</p> <p>Despite this concern, the Team is satisfied that progress on the action plan is on track to meet the terms of this condition.</p> |
| 2013 Client Progress report | <p>At the May 2013 meeting of NSAC’s MSC Working Group, the existing HCR in the domestic plan were discussed relative to the need to promote the adoption of HCR by NAFO. It was agreed that DFO representatives would table the issue at a July 9-11/13 meeting of NAFO’s Working Group of Fishery Managers and Scientists on Conservation Plans and Rebuilding Strategies (WG-RBMS). Page 6 of the Report of this meeting (see attached) states “Concerning 3L Shrimp, the WG recommends FC to consider requested the WG- RBMS to start developing a management strategy, including HCR.” NAFO’s Fisheries Commission accepted this recommendation at its Annual Meeting held in September 2013.</p> |
| 2013 Observations | <p>The team noted that the NAFO Working Group of Fishery Managers and Scientists on Conservation Plans and Rebuilding Strategies (WG-RBMS), meeting in July 2013, had recommended the development of a management strategy, including harvest control rules, for this shrimp stock, and that this recommendation had been accepted by the NAFO Fisheries Commission in September 2013. This represents significant progress toward meeting the condition and as such, although no specific annual milestones are identified for this condition, progress toward meeting the condition is considered to be on track.</p> <p>As described in the Year 1 audit report, the limit reference point for this stock under the NAFO precautionary approach framework (19,330 t) is higher (more cautious) than the LRP which would be established based on the DFO precautionary approach framework (9,000 t). The differences are due to differing approaches to identifying proxy abundance levels at which the risk of recruitment failure could become unacceptably high.</p> <p>As also noted in the Year 1 audit report, it is difficult to predict whether NAFO and Canadian approaches to the limit reference point can be harmonised or integrated within the 4-year time scale. However if NAFO develops acceptable HCRs for</p> |

| | |
|------------------------------------|---|
| | <p>this stock which are acceptably cautious, the condition would be met – harmonisation of the NAFO and Canadian approaches to LRPs would not necessarily be required.</p> <p>Rate of progress toward developing HCRs for this stock within the NAFO framework is outside the control of the client, who can use best offices to promote this within NAFO, but who cannot determine when the process would be complete.</p> <p>If the recent rapid decline in this stock continues, there may be a requirement for very restrictive fishery management measures, including a rebuilding plan, in the future.</p> |
| 2013 Conclusions | The team concludes that progress is on track to meet this condition in year 4 as required. |
| 2014 Client Progress Report | DFO's October 3/14 letter provides a progress report. In essence, in September 2013, NAFO's Working Group on Risk-Based Management Strategies placed the development of HCRs for this stock on their agenda, however no work has taken place since that time. It is noteworthy that in light of the biomass index being below its Limit Reference Point (LRP), NAFO has determined there will be no directed fishing for 3LNO shrimp in 2015. This decision is compatible with Canada's Harvest Control Rules. It remains to be seen whether the biomass will continue its decline, which is largely anticipated even with no fishing mortality, or whether the biomass will rebound to a point above the LRP in the near future. |
| 2014 Observations | <p>The Team took note of the DFO letter of October 3, 2014 and its report on NAFO's Working Group on Risk-Based Management Strategies. We were advised that this WG was expected to meet in 2015 to consider management strategies for the SFA 7 stock. The WG may consider a rebuilding strategy for the stock, among other options.</p> <p>We also noted that NAFO Fisheries Commission has decided that there will be no directed fishing on this stock in 2015, in response to NAFO Scientific Council advice. SSB is below the Blim level determined by NAFO, although it is above the LRP determined in the DFO IFMP. Implications for rescoring PI 1.1.1 in light of the current situation are covered under "Any other significant changes in scientific knowledge" below .</p> |
| 2014 Conclusions | Although no Year Three milestone was identified for this PI, we conclude that the Client and DFO continue to work to harmonise Canadian and NAFO harvest control rules for this stock, and as such progress is on target for meeting this condition by Year Four as required. The timeline for harmonising HCRs is uncertain. For the present, we note that the NAFO limit reference point/harvest control rule is more conservative than those in the Canadian IFMP and has resulted in a decision of no directed fishing for the coming season, such that the disconnect between the two sets of HCRs has not been prejudicial to stock status nor to respecting the MSC standard. |

| | |
|--|---|
| Condition 2 PI 2.4.1 (Score 60) | <p>The client is required to provide evidence by the fourth annual audit that the fishery is highly unlikely to disrupt benthic communities structure and function to a point where there would be a serious or irreversible harm.</p> |
| Condition 3 PI 2.4.2 (Score 60) | <p>The client is required to provide evidence by the fourth annual audit that:</p> <p>A partial strategy is in place such that the fishery is expected to be highly unlikely to reduce habitat structure and function to a point where there would be serious or irreversible harm.</p> <p>There is some objective basis for confidence that the partial strategy will work, based on some information directly about the fishery and/or habitats involved.</p> <p>There is some evidence that the partial strategy is being implemented successfully.</p> |
| Condition 4 PI 2.4.3 (Score 70) | <p>The client is required to provide evidence by the fourth annual audit that:</p> <p>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).</p> |
| Condition 5 PI 2.5.1 (Score 70) | <p>The client is required to provide evidence by the fourth annual audit that the fishery is highly unlikely to disrupt benthic communities structure and function to a point where there would be a serious or irreversible harm.</p> |
| Condition 6 PI 2.5.2 (Score 70) | <p>The client is required to provide evidence by the fourth annual audit that:</p> <p>There is a partial strategy in place, if necessary, that takes into account available information and is expected to restrain impacts of the fishery on the ecosystem – in particular the non-catch impacts on benthic communities - to achieve the Ecosystem Outcome 80 level of performance.</p> <p>The partial strategy is considered likely to work, based on plausible argument (e.g., general experience, theory or comparison with similar fisheries/ ecosystems).</p> <p>There is some evidence that the measures comprising the partial strategy are being implemented successfully.</p> |
| Condition 7 PI 2.5.3 (Score 70) | <p>The client is required to provide evidence by the fourth annual audit that:</p> <p>Sufficient information is available on the impacts of the fishery on benthic communities to allow some of the main consequences for the ecosystem to be inferred.</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 measures).</p> |

| | |
|------------------------------------|---|
| Client Action Plan | <p>The client has set out their actions and expected outcomes for this performance indicator in a logical step wise approach in association with Conditions 2 and 3, both of which relate to performance indicators for habitat:</p> <p>CAPP and NC will collaborate with other stakeholders and the Department of Fisheries & Oceans Canada (DFO), towards development of a program (a) to enhance the collection of information, and (b) to conduct an evaluation of the nature and distribution of habitat types, their vulnerability, and the related impact of otter trawl fishing for shrimp in this area. A “project team” will be assembled for this purpose, which more generally will also ensure implementation of DFO’s Sustainable Fisheries Framework Policies, including with respect to Sensitive Benthic Areas as it applies to the conduct of shrimp fishing in this area.</p> <p>By the first annual audit there will documented evidence that a plan for the assembly of available information and a program for evaluation has been developed by the “project team”, and data collection and assembly for this purpose has commenced.</p> <p>By the second annual audit there will documented evidence showing the information that has been assembled and the results of analysis to date.</p> <p>By the third annual audit there will be documented evidence showing that at least a provisional evaluation has been completed.</p> <p>By the fourth annual audit there will be documented evidence that at least a partial strategy is in place, and incremental mitigation measures have been identified and are being implemented as appropriate for this fishing activity.</p> |
| 2012 Client Progress Report | <p>The Northern Shrimp Advisory Committee (NSAC) has formed an MSC Working Group, which functions as the “project team”. The Project Team reviewed and generally endorsed a draft plan at its meeting held May 15/12 (draft minutes are attached) and subsequently reviewed/accepted minor adjustments that are reflected in the attached plan. Data collection has commenced.</p> |
| 2012 Observations | <p>The Audit Team reviewed the “Elements of a Strategy to evaluate, manage & monitor the impact of the Northern Shrimp Fishery on Habitats and Ecosystems within the respective certification units” discussed by the NSAC MSC Working Group on November 1, 2012. This outlines a stepwise approach to assembling information, assessing impacts, and putting in place additional measures to manage impact of the fishery on habitats and ecosystems, if necessary.</p> <p>The team sought clarification on several elements of the strategy.</p> <p>With respect to the Ecological Risk Assessment Framework (ERAF) to be used in assessing risk of serious or irreversible harm to coral and sponge areas, the team reviewed a draft of this Framework that is being developed by DFO (DFO 2012c). The approach is consistent with other ecological risk approaches including the SICO approach used by MSC and as such appears to be appropriate for use in this fishery. The team noted that the Framework applies to “significant benthic areas”, and that limited guidance is provided on identifying these.</p> <p>The team noted that assessment and management actions for benthic habitats and ecosystems would be triggered if analyses of the fisheries footprint indicated that 10% of sensitive habitats or 30% of less sensitive habitats were affected by the fishery, and questioned the source of the 10%/30% thresholds. The client advised that the 30% threshold (assessment and management action would be triggered if analyses determined that the fishery impacts more than 30% of less sensitive habitats for more than 100 days) was based on the MSC guideline for determining</p> |

| | |
|--|--|
| | <p>whether it was “highly likely” that the fishery was not causing serious or irreversible to habitats and ecosystems (MSC Certification Requirements Table CB18 p. C88) – there should be no more than a 30% probability that the true status of the component is within the range where there is risk of serious or irreversible harm. While noting that the two contexts were different (probability of harm vs proportion of habitat impacted by the fishery) the team agreed that this was a reasonable threshold for the client strategy. The client advised that the 10% threshold for assessment and management action on sensitive habitats was a judgment based on the fact that a higher level of caution should be applied to sensitive than to non-sensitive habitats. The team agreed that this was reasonable; although not based on modeling or analysis, this threshold seems a reasonable judgment-based level to guide action.</p> <p>While concurring that the 10%/30% guidelines were appropriate thresholds for action, the team noted that it would be critical to clearly define “of what” 10% and 30% were being taken – these percentages should be applied to habitats within the depth range or general area of operation of the fishery, not, for example, to all continental shelf areas.</p> <p>The team was advised that data assembly had begun as indicated in the client action plan and in the “Elements of a Strategy”. With respect to the footprint of the fishery, information on distribution of offshore fishing effort has been compiled, and information on distribution of effort by the inshore fleet will be compiled in the near future. Information on distribution of bottom habitats will be available from DFO and other sources. A consultant with prior experience on mapping fishery footprints has been engaged to do the data mapping. A template and analytical approach which have been used by the client to assess habitat and ecosystem impacts in other fisheries will be used in this analysis. The client has compiled a bibliography of studies on impacts of shrimp fisheries on habitats and ecosystems.</p> <p>DFO is not directly involved in implementing the Strategy but will be providing information (fishery distribution, habitat distribution) and will be contributing to oversight of the work through their participation on the NSAC.</p> <p>In addition to the Strategy to be implemented by the client, the team was advised of the continuing development of a strategy for protection of sponge-coral areas in Newfoundland-Labrador Region of DFO. This will be part of DFO’s Coral and Sponge Conservation Strategy for Eastern Canadian Waters. In 2010/11 DFO’s Newfoundland and Labrador and Central and Arctic Regions consulted with stakeholders (governments, Aboriginal, fishing industry, oil and gas, ENGOs) on elements to be included in the strategy. One outcome of these consultations was specific targets and actions to achieve conservation, management and research objectives. Subsequently development of the strategy was expanded to cover all Atlantic and eastern Arctic areas. Once consultations and definition of targets and actions in the remaining areas (Maritimes, Gulf, Québec Regions) have been completed, further consultations on a draft strategy will be undertaken. Consultations on the draft strategy are expected to be complete by March 31, 2013. The strategy will be finalised and implemented following this date.</p> <p>Development of this strategy follows from a series of policy and science initiatives related to impacts of fishing in benthic environments in recent years, including, for example:</p> <ul style="list-style-type: none"> • Development of a Policy on Managing the Impacts of Fishing on Sensitive Benthic Areas (DFO 2009) • Mapping of coral and sponge areas, based on available information, in all |
|--|--|

| | |
|------------------------------------|--|
| | <p>Atlantic Canadian ocean areas, and establishing thresholds for protecting these areas (Kenchington et al 2010; DFO 2010a)</p> <ul style="list-style-type: none"> • Development of science advice on encounter protocols for fishing gear which may impact corals and sponges (DFO 2011b) <p>References DFO 2009 DFO 2010a DFO 2011b DFO 2012c Kenchington, <i>et al</i> 2010</p> |
| 2012 Conclusion | <p>The Audit Team concludes that progress is on track toward meeting the condition in Year 4 of the certification, and that milestones set for the first annual audit in the Client Action Plan have been met. In particular, a project team has been established to carry through work required, a draft strategy has been prepared to address the conditions, and data assembly has begun.</p> <p>The Team considers that the “Elements of a Strategy” outlined by the project provide an appropriate framework for meeting the Condition by Year 4 of the certification. We note that with respect to the 10% and 30% thresholds for action on sensitive and non-sensitive habitats, it would be important to clarify that these percentages apply to habitats within the general area where the fishery operates (for example within the depth range in which the fishery operates).</p> <p>The Team notes that the strategy will address both sensitive and less sensitive habitats and ecosystems, a broader scope than the recent DFO initiatives, which focus on protecting coral-sponge areas.</p> |
| 2013 Client Progress Report | <p>With the help of contracted experts we have assembled information in relation to the elements and function of the habitat and ecosystems (Section A), and the fishery footprints of the inshore and offshore fleets in total and separately for both sensitive and less sensitive habitat/ecosystems (Sections B, C and F).</p> <p>Analyses have been provided in relation to the spatial and temporal profile of catch/effort as the case may be. Results of analysis indicates:</p> <p>The maximum theoretical footprint ranges from a low of 0.14% to 6.82 in the respective units of certification, with the actual footprint (due to overlapping tow tracked) likely to be about 2/3 of these values on average.</p> <p>The most intensive 1/3 of catch/effort occurs in about 4-6% of the cells that are actually fished, and 2/3 of the catch/effort occurs in <19% of the cells that are actually fished.</p> <p>84-100% of the respective units of certification are fished for <10 days annually; only 2 units of certification have cells with fishing >50 days per year - 6 cells (0.1% of total cells) in SFAs 5-6 and 1 cell (0.06% of total cells) in SFA7); no cell in any SFA is fished >100 days.</p> <p>With respect to sensitive areas (high concentrations of corals and sponge), while the two data sets portray a similar profile, observer data has not yet been fully reconciled with logbook data. Based on observer data:</p> <p>Only 35 sets of 56,300 (0.06%) occurred within the designated sponge areas and no sponge bycatch was taken.</p> |

| | |
|---------------------------------|--|
| | <p>There are two designated coral areas where significant fishing occurs. Over the period 2008-2012 there were 3247 sets in area C84 with only 2 (0.06%) of these sets containing coral bycatch; there were 1607 sets in area C70 of which 16 sets (1%) contained coral bycatch. Virtually all coral bycatch consisted of soft coral species (<i>Gersemia spp.</i>, <i>Duva florida</i>, <i>Nephtheid</i>).</p> <p>This data has not yet been evaluated in relation to the risk of serious or irreversible harm (Sections D and G)</p> <p>The approach to fishing mortality and the question of mitigation measures (Section E) requires the yet-to-be completed evaluation referenced above.</p> <p>Changes to the fishery footprints (Section H) and to the main predator/prey species of shrimp (Section I) are not applicable at this time.</p> |
| <p>2013 Observations</p> | <p>The audit team was impressed with the work carried out since the year 1 audit. Comprehensive data compilation and analysis has been carried out on :</p> <ul style="list-style-type: none"> • description of key ecosystem elements in the fishery area, focusing on benthic communities and trophic relationships, covering recent studies conducted since the certification report was finalised in 2011 • analysis of the fishery footprint in the various SFAs, and of the % of bottom habitat impacted by trawling • analysis of overlap of the fishery with sensitive habitats, as defined by presence of coral and sponge concentrations • analysis of overlap of the fishery with less sensitive habitats as determined by maps of bottom sediments <p>In light of the work done on compiling and analysing relevant information, progress is consistent with the year 2 milestone for the habitat and ecosystem conditions. The analyses conducted to date should provide a good basis for doing the risk analyses which are required to meet the year 3 milestones.</p> <p>With respect to the percentage of bottom habitat impacted by the shrimp fishery, the team again notes (as in the year 1 audit) that this depends on how the « total potential habitat » is determined – the larger the potential habitat, the smaller the percentage of this represented by the habitat impacted. This is critical since the strategy for assessing impacts depends on the percentage of habitat affected – for example if more than 10% of sensitive habitats are impacted, an analysis of whether there is significant harm would be required.</p> <p>The analyses presented used all continental shelf habitat at depths less than 600m as the potential habitat, which appears to the team overly expansive. The team suggested that restricting the “potential habitat” to depths at which shrimp might occur (eg 100-600m) might be more appropriate. In any case, since the methods for calculating percentages of habitat impacted are clearly described it is possible to explore alternative analyses. Even if values for potential habitat lower by 50% were used to determine the percentages affected by the fishery, these would be very low. Also, because overlaps in tows cannot be incorporated in the analysis, the percentages of habitat impacted in the reports provided are probably overestimated by a fairly significant proportion. The general conclusion, that a low proportion of potential habitat is impacted by shrimp trawling, appears to be justified.</p> <p>The analyses of overlap with sensitive and non-sensitive habitats appear to be sound and show quite low overlap in most areas. In a few areas there appear to be overlaps with coral concentrations although bycatches in these areas have been</p> |

| | |
|------------------------------------|---|
| | <p>very low.</p> <p>The audit team was informed of progress on ongoing initiatives in DFO to address impacts of trawling on benthic habitats and communities (several such initiatives were also noted in the year 1 audit report).</p> <p>Newfoundland and Labrador Region of DFO has been developing a sponge-coral strategy which will be going out for consultation very soon; the goal is to complete consultations in January 2014 and to approve the strategy by March 2014.</p> <p>The ERAF has been finalized and is available on-line with corals and sponges being the first thing to which it will be applied. There was a national workshop in October 2013 (FAM, Oceans, P&E, Science) on implementing the ERAF.</p> <p>DFO has recently reported on a series of ecosystem studies done over the past 4-5 years, including a study of benthic species and communities of the Grand Banks based on grab sampling during spring multispecies survey cruises (DFO 2013d; Gilkinson 2012). Although the latter study was mainly outside of the shrimp fishery area in SFA 7, given the relatively limited information available on benthic communities on the Newfoundland-Labrador shelf, this is a significant contribution.</p> <p>DFO has also published a Science Advisory Report on Ecologically and Biologically Significant Areas (EBSAs) in the Newfoundland-Labrador shelf bioregion off Newfoundland and Labrador (DFO 2013e). While not directly relevant to assessing shrimp trawling impacts this is a contribution to assessing and managing ecosystem impacts of fishing and other marine activities generally.</p> |
| 2013 Conclusions | <p>The team concludes that the year 2 milestone has been met for this PI and that progress is on target to meet the condition by year 4 as required.</p> |
| 2014 Client Progress Report | <p>The provisional evaluation has been completed for the period 2008-2011 and is shown in Section D of the draft (Partial) Habitat & Ecosystem Strategy for the Northern Shrimp Fishery.</p> <p>The fishery footprint within less sensitive main habitat types, as reported in section F above, ranged from a low of 0.01% to a high of 9.74%. Only 7 cells were fished for an average of more than 50 days per year, and none were fished for more than 100 days per year. This is well below the threshold of 30% being fished for greater than 100 days a year.</p> <p>The fishery footprint within designated areas of high sponge concentrations, range from 0.0% to 0.8% in the respective areas of certification, in no case above the threshold of 10% that would require a more comprehensive evaluation.</p> <p>The fishery footprint within designated areas of high coral concentrations ranged from 0.1% to 32.0% in the respective areas of certification. The fishery had significant overlap in two designated areas, i.e. 3 of 13 coral locations (23%) within C84 (SFA4), and 1 of 12 coral locations (8%) within C70 (SFA7). Our evaluation indicates that the coral locations within these designated areas are generally at greater depths than the shrimp fishery, with the overlap occurring only at points where the designated areas extend into more shallow depths. For C70, “the overlap between the shrimp fishery and coral locations is less than the 10% threshold stipulated in the Action Plan, and it may be reasonably concluded that the fishery is highly unlikely to disrupt the structure and function to the point where there would be serious or irreversible harm to the gorgonian locations within this sensitive area.” For C84, “further evaluation would be required to determine whether the fishery in the vicinity of these 3 gorgonian locations is highly unlikely</p> |

| | |
|---------------------------------|---|
| | <p>to disrupt the structure and function to a point where there would be serious or irreversible harm to the overall coral community within C84; alternatively, small, targeted area closures might be considered to protect some or all of these 3 gorgonian locations”</p> |
| <p>2014 Observations</p> | <p>Once again the Team was impressed with the work that had been done during the past year toward meeting this condition. We reviewed the updated version of the document “Draft Partial Habitat and Ecosystem Strategy” which has been updated in successive years to address milestones toward meeting the Conditions. In addition to the provisional evaluation described in the Client Progress Report (Section D of the draft Partial Habitat and Ecosystem Strategy), Section C (“mapping and quantifying the footprint of the fishery”) has been modified over the past year to take into account the Team’s suggestion at the last audit that the total potential shrimp habitat to be considered be 100-600 m depth rather than 0-600 m depth.</p> <p>The Team considers that the provisional evaluation (Section D) followed a reasonable approach and used the best information publicly available on distribution of sensitive (and other) habitats in the fishery area.</p> <p>The information on distribution of sensitive habitats (from Kenchington et al 2010) is recognised as being incomplete and imprecise (since it is primarily based on bycatch of corals and sponges on research trawl surveys and in bycatch from trawl fisheries), but provides the best picture available of distribution of sponges and corals which are indicators of sensitive habitats.</p> <p>The provisional risk assessment for vulnerable bottom habitats follows the approach outlined in DFO’s Ecological Risk Assessment Framework (ERAF) for coldwater corals and sponge dominated communities (DFO 2013). In addition, the approach outlined in the Client Action Plan uses a threshold of 10% of bottom habitat potentially impacted - if less than this proportion of bottom habitat is impacted it is considered that harm is not serious or irreversible. Where area potentially impacted is greater than 10% of total bottom habitat of the fishery, a more detailed risk assessment is done based on a likelihood/consequence matrix. The provisional assessment outlines options for voluntary management measures to reduce risk, should these be found to be necessary.</p> <p>The provisional assessment also examines potential impacts on less sensitive (essentially all) habitats impacted by the gear, based on % of habitat impacted and using a 30% threshold.</p> <p>The current version of the draft Partial Habitat and Ecosystem Strategy, with the provisional evaluation in Section D, was tabled for discussion at the NSAC MSC Working Group (with representatives from DFO Management and Science, the Provincial government, industry and the FFAW) on October 29, 2014. The WG acknowledged that the document was a reasonable provisional evaluation considering the narrow focus on coral and sponge concentrations.</p> <p>The Team enquired whether this draft Partial Strategy would eventually be made public, since MSC certification should be based on documents that are publicly available. We were advised that the intent was to table the document at the full NSAC meeting in March 2015 and that, if approved at that meeting, the Strategy could become available either as an addendum to the IFMP or as a document available on request or referenced in the IFMP or complementary records, such as NSAC minutes that are publicly available.</p> <p>On enquiring about the status of the coral/sponge strategy for Atlantic Canada on which Newfoundland/Labrador is leading development, we were advised that the</p> |

| | |
|-------------------------|--|
| | <p>document has been submitted to DFO authorities for formal approval. It is hoped that the document will receive this approval before the end of the year.</p> <p>The team was also provided with a recent publication on modeling distribution of large sponges using environmental information in combination with bycatch information (Knudby et al. 2013). This approach may help to fill in the necessarily partial distributions based on trawl bycatch information by predicting likely locations for sponges.</p> |
| 2014 Conclusions | <p>Given that a provisional evaluation of potential risk to bottom habitats and ecosystems from the fishery has been completed, and that this has been discussed in the MSC WG of the NSAC, we conclude that the Year 3 milestone - “documented evidence showing that at least a provisional evaluation has been completed” - has been attained and these conditions are on target to be met by the 4th audit.</p> |

| | |
|---|---|
| Condition 8 PI 3.2.1 (Score: 60) | <p>The client is required to present evidence by the first annual audit that short and long term objectives, which are consistent with achieving the outcomes expressed by MSC's Principles 1 and 2, are explicit within the fishery's management system.</p> |
| Client Action Plan | <p>CAPP and NC will collaborate with other stakeholders and the Department of Fisheries & Oceans Canada (DFO), to amend the IFMP with explicit references to the precautionary approach being applicable to managing the impact of fishing on sensitive habitat, species and the ecosystem.</p> |
| 2012 Client Progress Report | <p>“Fishery Objectives” are contained in section 1.1 of the Integrated Fishery Management Plan (IFMP) for shrimp fishing areas (SFAs) 0-7 and the Flemish Cap. This section of the IFMP has been amended to include umbrella references to the Precautionary Approach for the Strategies and Management Measures, and special reference to the precautionary approach when setting exploitation rates for the directed fishery. The revised “Fishery Objectives” may be viewed at the following link: http://www.dfo-mpo.gc.ca/fm-gp/peches-fisheries/ifmp-gmp/shrimp-crevette/shrimp-crevette-2007-eng.htm#n1.1.</p> <p>Any proposal for the adoption of specific stock management objectives by NAFO's Fisheries Commission has been deferred pending the determination of whether a stock assessment model is likely to be utilized for this stock, and the completion of NSAC's review of Annex I of the IFMP. Proposed objectives with respect to the target stock will likely be submitted for potential adoption by NAFO in 2014. P2 issues are not relevant in a NAFO context, as the certified Canadian fishery occurs within the Canadian zone and is managed by DFO.</p> |
| 2012 Observations | <p>The Audit Team confirmed that an expanded set of objectives, strategies and management measures has been added to section 1.1 of the IFMP at the request of the MSC Working Group of the Northern Shrimp Advisory Committee. Long-term objectives related to mitigating impacts on habitats, protecting biodiversity and ecosystem structure and function, and explicitly recognizing the role of shrimp as a forage species in setting TACs have been added, along with strategies and management measures related to these.</p> <p>As such, the suite of long-range objectives outlined in the IFMP now covers the range of P1 and P2 issues as required in the MSC assessment tree.</p> <p>Although the IFMP does not include a section entitled “short-term objectives”, the Team considers that the strategies and management measures outlined in section 1.1 of the IFMP (along with the long-term objectives), constitute medium- and short-term objectives for management of the fishery consistent with the MSC requirements. The Team also noted that “Fisheries Management Decisions” are published annually at the start of the fishing year, outlining TACs for the year and any other management changes (DFO 2012d, DFO 2012e); these are considered to represent publication of short-term (annual) objectives for the fishery.</p> <p>The Team notes that although these new objectives were added to the IFMP during 2012, the date of the IFMP on the DFO internet site remains May 19, 2010. As such, the recommendation from the certification report that a version tracking system be added to the IFMP has not yet been addressed.</p> <p>With respect to the final paragraph of the Client Progress report, the Team understands that adoption of formal long and short term management objectives by NAFO presents particular challenges; however given that such objectives have</p> |

| | |
|------------------------|---|
| | <p>been adopted by Canada for management, the Canadian portion of the NAFO TACs is considered by the Audit team to meet the condition. Our understanding is that catches entering the MSC Chain of Custody are from the Canadian portion of the NAFO stock area (Canadian SFA 7), subject to DFO management of impacts on habitats and ecosystems, which is the basis for the statement that “P2 issues are not relevant in a NAFO context”; our understanding is that any Canadian catches from outside the Canadian EEZ (in the NAFO Regulatory Area) would not enter the MSC Chain of Custody.</p> <p>References DFO 2012d. Fisheries Management Decisions. Northern shrimp in Shrimp Fishing Areas 0, 1 and 7 http://www.dfo-mpo.gc.ca/decisions/fm-2012-gp/atl-030-eng.htm</p> DFO 2012e. Fisheries Management Decisions. Northern Shrimp in Shrimp Fishing Areas 2-6 http://www.dfo-mpo.gc.ca/decisions/fm-2012-gp/atl-031-eng.htm |
| 2012 Conclusion | The Team concludes that this condition has been met. This PI has been re-scored to 80 and the condition has been closed out. |

| | |
|--|---|
| Condition 9 PI 3.2.4 (Score 75) | The client is required to present a research plan by the fourth annual audit that assembles current activity, identifies gaps, and provides the management system with a strategic approach to research including reliable and timely information sufficient to achieve the objectives consistent with MSC’s Principles 1 and 2. |
| Client Action Plan | <p>CAPP and NC will collaborate with other stakeholders and the Department of Fisheries & Oceans Canada (DFO), in assembling a working group to codify existing activity and develop a Research Plan for the short-to-mid term, that are linked to the objectives established for the fishery and for MSC Principles 1 and 2.</p> <p>By the first annual audit there will be documented evidence that a plan to conduct gap analysis has been developed by the working group.</p> <p>By the second annual audit there will be documented evidence that a gap analysis has been completed.</p> <p>By the fourth annual audit there will be documented evidence that a research plan is in place</p> |
| Client Progress 2012 | The following “plan to conduct a gap analysis” has been developed for the working group. "DFO conducts an annual internal audit ("The Fishery Checklist") of various functions/activities within the Department, that also identifies gaps in research and stock assessment activities. The assembly of this checklist occurs annually during the October through March period, with a consolidated "checklist" being completed soon thereafter. In the late Spring of 2013, NSAC's MSC Working Group will review information from the updated checklist as it pertains to shrimp in SFAs 1-7, categorize research issues/activities into what may be “needed vs simply desirable”, what may be cost-effective to achieve in the short-to-medium-to-long term, and prioritize these where possible. The result of this analysis will be vetted through the subsequent Regional Assessment Process (RAP), likely to occur in 2015. The final result of this process, i.e. the Research |

| | |
|------------------------------------|---|
| | Plan, will be forwarded to NSAC and the Regional Director of Science. |
| 2012 Observations | The Audit Team noted the Client Progress report and considers that the milestone outlined in the Action Plan has been met. The milestones in the Client Action Plan represent a rigorous approach to defining research priorities and should result in a sound research plan by Year 4 of the certification. |
| 2012 Conclusion | The Audit team concludes that progress on the action plan is on track to meet the Condition by Year 4 of the certification period. |
| 2013 Client Progress report | At the May 2013 meeting of NSAC's MSC Working Group, it was agreed that scientists would review their respective input to DFO's internal Checklist process, and would forward appropriate research issues to B. Chapman, who in turn would assemble a consolidated draft Northern Shrimp Research Plan. The attached August 9/13 draft was produced and will be considered at the next meeting of the MSC Working Group. |
| 2013 Observations | The client submitted a draft research plan being considered by the MSC working Group. The draft includes a gap analysis of ongoing research and potential future research to consider in development of the research plan. |
| 2013 Conclusions | The Audit team concludes that the milestone for the second annual surveillance audit has been met and progress on the action plan is on track to meet the Condition by Year 4 of the certification period. |
| 2014 Client Progress Report | At the May 2013 meeting of the NSAC MSC Working Group, participants from DFO Science undertook to review respective checklist data (gap analysis) and develop a list of on-going research. This Working Group met by Conference Call on October 29/14, at which time it was agreed that the draft Research Plan would be recommended for adoption at the 2015 meeting of NSAC. Minutes of the October 29/14 meeting will be forwarded prior to the November 27 th site visit. |
| 2014 Observations | <p>The Team noted the progress report above and was also provided with a copy of the minutes of the October 29, 2014 meeting of the NSAC MSC WG which considered the research plan among other issues. We also reviewed the latest draft of the research plan dated November 9, 2014. This provides a list of research activities identified as priorities, based on input from DFO science and the NSAC WG, based on an analysis of gaps in knowledge which need to be filled.</p> <p>The team was advised that the research plan will be revised in light of comments from the October 29, 2014 NSAC MSC WG meeting and will be tabled for consideration and adoption at the NSAC meeting planned for March 2015.</p> |
| 2014 Conclusions | No specific milestone was identified for Year 3 in the Client Action Plan. However, the Team concludes that progress is on target to meeting this condition in Year 4 as required. |

Any complaints against the certified operation; recorded, reviewed and actioned.

There were no complaints against the certified fishery since that last surveillance audit. Enforcement officials reported minor issues dealing with the implementation of a new reporting requirement but no charges were laid.

Any relevant changes to legislation or regulation.

There have been no changes to legislation or regulation since the last surveillance audit.

Any relevant changes to management regime.

The Department of Fisheries and Oceans indicated in a letter dated September 18, 2014 to Bruce Chapman, that there had been no changes to the fisheries management regime other than modifications to the northern boundaries of some SFAs to be consistent with land claim settlement areas and to better match coverage of the research vessel surveys. The management framework and harvest control rules remain unchanged.

The letter also indicated that the Shrimp Fishery Integrated Fishery Management Plan (IFMP) is undergoing substantive revisions and that it is hoped that this would be complete by the time of the next NSAC meeting in March 2015. The team was advised that the intent of this revision is to bring the IFMP into compliance with a new standard format for IFMPs within DFO.

Any other significant changes in scientific knowledge relating to the fishery (other than accounted for above).*Environmental conditions and shrimp abundance*

It has been recognised for many years that abundance of pandalid shrimp is determined to a large extent by environmental conditions. Stock-recruitment relationships are not apparent for northern shrimp in some stocks including Newfoundland shrimp stocks (e.g. DFO 2013b). Environmental conditions affect recruitment to stocks of all exploited species, but because of the short life cycle the environmental influence seems particularly important for shrimp.

There has been increased interest in examining the relationships between physico-chemical conditions, predator-prey relationships, and spawning stock biomass in determining shrimp abundance. NAFO (2014a) provides environmental overviews for SFAs 1 and 7, and notes for SFA 7 that environmental conditions and predator abundance are probably influencing shrimp abundance, although the mechanisms are not clear at present. Oceanographic monitoring programs are providing long time series of a range of environmental factors which can be related to recruitment and abundance of shrimp and other species. Exploration of environmental factors affecting shrimp abundance is a priority topic in the draft research plan for this stock (see Condition on PI 3.2.4 below).

Following up on a request from fisheries managers, a science review of short-term prospects (5 yr) for Atlantic cod, snow crab and northern shrimp in relation to environmental conditions was recently conducted (DFO 2014c). For northern shrimp, the review noted that stocks on the Newfoundland-Labrador shelf had been declining and were collectively at the lowest level since 1995 (the beginning of the time series examined) (Fig. 2), and that surplus production had been declining. Reduced production rates were associated with a recent warming trend in ocean temperatures, early timing of the phytoplankton bloom (associated with early melting of sea ice), increasing biomass of predatory fishes, and fishing. Statistical relationships between shrimp production and these indices were best when the environmental indices were lagged 2-4 years; since environmental indices remain unfavorable, the current period of low or declining biomass may be extended.

Northern shrimp fisheries have recently been closed because of low stock abundance in areas peripheral to SFAs 1-7: the Flemish Cap (NAFO 3M) (NAFO 2014a) and the Gulf of Maine (ASMFC 2014). These stocks are apparently responding to unfavorable environmental conditions similar to those affecting Newfoundland-Labrador stocks.

The recent (since the late 1990s) period of high shrimp abundance followed a period of lower abundance

and relatively limited distribution of fishable concentrations. Recruitment from these small populations was the basis for the subsequent increase to very large population sizes, due to apparently positive productivity conditions. The precautionary frameworks currently in use for managing these resources are based on the recent positive productivity conditions.

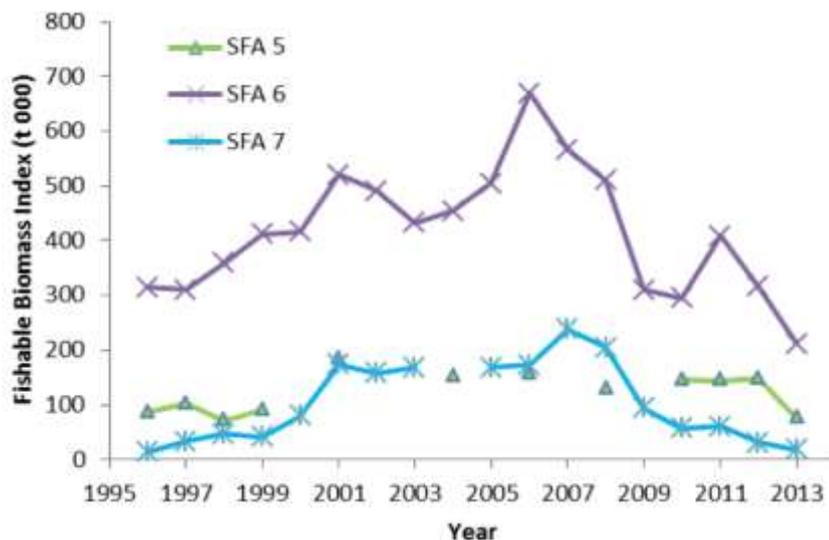


Figure 2. Northern Shrimp fishable biomass index within SFAs 5 – 7 from fall Canadian multi-species bottom trawl survey data, 1996-2013. Source: DFO (2014c).

Population structure study

A study of genetic variability patterns of northern shrimp (*P. borealis*) between Hudson Strait and the Gulf of Maine was published in 2014 (Jorde et al 2014). Shrimp in the Gulf of Maine and on the Flemish Cap were determined to be genetically distinct from those in other parts of the sampled range, so were considered to be separate populations. The Newfoundland/Labrador shelf areas were more homogeneous with respect to genetic characteristics of shrimp, consistent with population intermixing as a result of the Labrador Current.

Improvements to assessment models

The Northern Shrimp Research Foundation (NSRF), an industry-funded body, will be providing financial support for research on shrimp aging and population modelling over the next two years. Support will be provided to a post-doctoral fellow and to researchers at University of New Brunswick and Memorial University of Newfoundland, via a collaborative agreement in which DFO is also taking part.

Current stock and TAC status in relation to MSC standard

As noted above in the “Stock Status and Catch Data” section, NAFO Fisheries Commission decided in September 2014 that there would be no directed fishing on this stock for the 2015 season, based on the scientific assessment and advice. This led the team to consider whether this stock should be considered “depleted” and whether, in that case, PIs 1.1.1 and 1.1.3 should be rescoped.

NAFO has established a *Blim* for this stock at 19,300 t of female spawning stock biomass from the fall survey, following a NAFO protocol for identifying proxy reference points in the absence of a population model, with a view to identifying a biomass level at which recruitment might be affected (15% of the highest observed value in the series) (NAFO 2014a). NAFO does not identify a biomass target level for this stock. The Canadian Integrated Fishery Management Plan (IFMP) has established a Limit Reference Point (LRP) of 9,000t based on a different protocol (30% of average female SSB over a productive period, 1996-2003) and an Upper Stock Reference (USR - equivalent to a target reference point) of 23,000 t (based on 80% of the average values in the same productive period) (DFO 2010).

The original MSC assessment of this fishery considered the DFO reference points to be appropriate as part of the harvest strategy outlined in the IFMP, and set a condition requiring Canadian representatives to

NAFO to encourage adoption of the Canadian reference points in NAFO stock management. Progress is being made on this condition (see conditions, above).

The team concluded that this stock should not be considered “depleted” at this time and that accordingly there was not a requirement to rescore PI 1.1.1 from the 90 score established in the Certification Report. The reasons are as follows:

- although the stock has been declining since 2007, it is above the Limit Reference Point in the DFO IFMP which has been accepted as the standard for judging performance of this fishery against the MSC standard (Fig. 3). In addition, the stock has shown the capacity to build to a very high abundance level from the current level (Fig. 3 - note strong increase in biomass from low levels in the late 1990s). Accordingly, we conclude that there is a high degree of certainty that the stock is above the point where recruitment would be impaired, thus meeting the first SG at the 100 level in the Certification Requirements for 1.1.1.
- female SSB has been below the DFO Upper Stock Reference since 2012 (3 years), and prior to that had been consistently above the DFO USR since 2001 (12 years) (Fig. 3). Given this pattern, we consider that the stock continues to fluctuate around the DFO USR since it has recently dropped below this level and may increase in coming years. However NAFO has not yet established a Target Reference Point for this fishery. For the latter reason, the fishery was scored at 80 on this SG in the Certification Report. Accordingly, the scoring rationale described in the Certification Report is still valid and the fishery meets the second SG at the 80 level.
- overall, the fishery continues to score 90 for this PI.

This determination and the decision not to rescore PI 1.1.1 at this time does not prejudice stock status since, based on the more conservative *Blim* used in management by NAFO, there will be no directed fishing in the coming season, 2015. The objectives of the MSC standard are being met by this precautionary management measure.

As noted above (Condition 1, PI 1.2.2), Canada has requested NAFO to review the harvest strategy for this stock with a view to harmonising this with the harvest strategy outlined in the DFO IFMP. The NAFO Working Group responsible for this is expected to meet in 2015 and will consider options for management in light of the stock decline.

It should be reiterated that, as noted in the Certification Report for this fishery, shrimp are not taken as bycatch in other fisheries in this area. The other fisheries operating in this area target groundfish and use trawl mesh size too large to retain shrimp. Accordingly, with no directed fishery in 2015, there will be no source of fishing mortality on the stock.

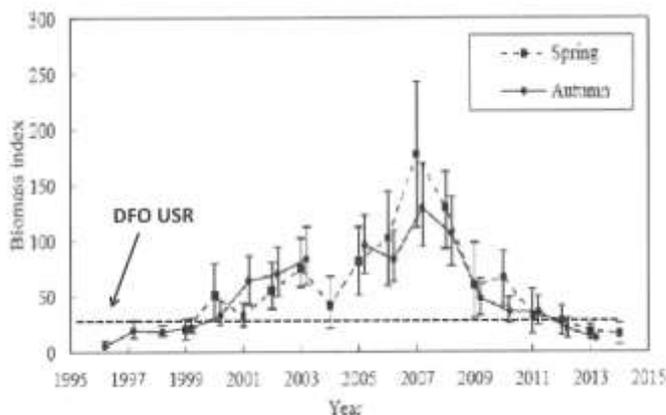


Figure 3. Female SSB indices from Canadian spring and autumn multi-species surveys (with 95% confidence intervals) and DFO Upper Stock Reference from IFMP. Sources: DFO (2010), NAFO (2014a).

Overall Conclusions.

No changes in management have taken place that would detrimentally affect the performance of this fishery against the MSC standard and the fishery continues to meet the requirements of the MSC Standard. It was verified during the site visit that no destructive fishing practices or controversial unilateral exemptions to an international agreement have been introduced.

MSC Certification should therefore continue with normal on-site annual audits according to the determination of Annex 3.

Annex 1**Written stakeholder submissions to the surveillance audit and IFC responses to points raised.**

There were no written submissions by stakeholders.

Annex 2**Notification of surveillance audit****Canadian Northern and Striped Shrimp Fishery****MSC Certification****Certification Body: Intertek Fisheries Certification****Surveillance Audit**

Following certification of this fishery, we are now continuing the process of annual surveillance audits of the fishery. These audits have two principal functions:

1. To review any changes in the management of the fishery, including regulations, key management or scientific staff, or stock evaluation
2. To evaluate the progress of the fishery against any Conditions of Certification raised during the Main Assessment

During the audit, or at separate meetings, we shall be speaking with representatives of the fishery and fishery management organisations. We expect to carry out meetings on **November 26-28, 2014**.

Meetings will be held at **St Johns, Newfoundland and Labrador** and attended by Audit Team members

| | | |
|----------------------|---------------------|----------------|
| Don Aldous | Lead Auditor | On site |
| Howard Powles | P2 | On site |

(see details of the team membership below).

Should you have any information on this fishery that you feel should be considered in the assessment, please advise the undersigned by November 10, 2014. We may be available to meet with stakeholders as appropriate. If you would like to arrange a meeting, please advise us of:

- a) your name and contact details
- b) your association with the fishery
- c) the issues you would like to discuss (in order for us to arrange appropriate representation)
- d) where and when you would like to meet

Don Aldous
Lead Assessor
Oct 26, 2014

E-mail: d.aldous@me.com

Audit Team Members:**Don Aldous**

Don is considered a P3 expert for Marine Stewardship Council (MSC) assessments and has been involved with Intertek Moody Marine as an Associate Auditor since 2009 as an editor, project coordinator, P3 expert and team leader. Don was the coordinator of the original assessment of this fishery and led the first and second surveillance audit in 2012.

Howard Powles

Howard Powles has worked in fishery science, stock assessment, and conservation and management of fishery resources since the mid-1960's, as a working scientist, science manager, program manager, and consultant, with a recurrent focus on crustacean resources. With respect to Canada's Atlantic shrimp resources, he was a member of the NAFO Working Group on the shrimp resource in NAFO Areas 0 and 1 in 1996-2000, participating in annual assessment meetings with scientists from Canada, Denmark, Greenland and the USA to develop and peer review scientific advice. He also participated in Canadian assessment meetings on the shrimp resource in shrimp fishing areas off Labrador and eastern Newfoundland in the same period. As Director of Fisheries Science and of Biodiversity Science (1998-2004) at Department of Fisheries and Oceans (DFO) Headquarters he was active in developing ecosystem-based approaches to ocean management, in particular approaches based on defining ecosystem objectives and indicators. Howard was involved as a P2 expert in the original assessment of this fishery and was an author for the first surveillance audit in 2012.

Full CVs of the team members are available on request from INTERTEK

Annex 3**Determination of surveillance level**

A surveillance audit may be conducted as either an “on-site” or “offsite audit”. This is determined by using criteria set out by the MSC:

| Criteria | Surveillance Score | Insert name of fishery and complete scores |
|--------------------------------------|--------------------|--|
| 1. Default Assessment Tree | | |
| Yes | 0 | 0 |
| No | 2 | 0 |
| 2. Number of Conditions | | |
| Zero Conditions | 0 | 0 |
| 1-5 Conditions | 1 | 1 |
| >5 Conditions | 2 | 0 |
| 3. Principle Level Scores | | |
| ≥ 85 | 0 | 0 |
| <85 | 2 | 2 |
| 4. Conditions on outcome PIs? | | |
| Yes | 2 | 2 |
| No | 0 | 0 |
| Total | | 5 |

The score for the fishery is used to determine the surveillance level appropriate to the fishery using the table below:

| Surveillance score | Surveillance level | Years after certification or re-certification | | | | |
|--------------------|----------------------|---|-----------------------------|-----------------------------|--|--|
| | | Year 1 | Year 2 | Year 3 | Year 4 | |
| 2 or more | Normal surveillance | On-site surveillance audit | On-site surveillance audit | On-site surveillance audit | On-site surveillance audit & recertification visit | |
| 1 | Remote surveillance | Option 1 | Off-site surveillance audit | On-site surveillance audit | Off-site surveillance audit | On-site surveillance audit & recertification visit |
| | | Option 2 | On-site surveillance audit | Off-site surveillance audit | On-site surveillance audit | |
| 0 | Reduced surveillance | Review new information | On-site surveillance audit | Review new information | On-site surveillance audit & recertification visit | |

The *Pandalus borealis* SFA 7 Fishery scores 5 since 2 Conditions remain open and the Principle 2 score is <85, and so will require an on-site audit next year.