Surveillance Report
***Pandalus borealis* SFA 1 Fishery**

Certificate No.: **MML-F-107**

Intertek Moody Marine
December 2013

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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 1 Fishery

Species: Northern Shrimp (*Pandalus borealis*)

Area: Shrimp Fishing Area (SFA) 1

Method of capture: Trawl

Date of Surveillance Visit:	**November 7, 2013**			
Initial Certification	**Date: 20 March 2012**		**Certificate Ref: MML-F-107**	
Surveillance stage	**1st**	**2nd**	**3rd**	**4th**
Surveillance team:	**Lead Assessor: Don Aldous** **Assessor: Howard Powles**			
Company Name: **Address:**	Canadian Association of Prawn Producers 1362 Revell Drive Manotick, Ontario K4M 1K8 Canada Northern Coalition 238 Mt. Scio Road, St John's, NL A1C 1B4 Canada			
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2.0 RESULTS, CONCLUSIONS AND RECOMMENDATIONS

This report contains the findings of the second 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 Moody Marine (IMM) 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 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 October 3, 2013. Only the Newfoundland and Labrador provincial department of Fisheries and Aquaculture requested a meeting.
During the site visit, meetings were held as follows:

- November 7, 2013 with the client;
- November 7, 2013 with the client and DFO; and
- November 8, 2013 with the Newfoundland and Labrador provincial department of Fisheries Aquaculture.

Reports

DFO 2012c. Ecological risk assessment framework (ERAF) for cold water corals and sponge dominated communities. Draft August 24, 2012. 18 pp.

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

DFO 2013d. Results and recommendations from the ecosystem research initiative – Newfoundland and Labrador's expanded research on ecosystem relevant but under-surveyed splicers. Can. Sci. Adv. Sec. Sci. Adv. Rep. 2012/058 : 15 pp.

DFO 2013e. Identification of additional ecologically and biologically significant areas (EGSAs) within the Newfoundland and Labrador shelves bioregion. Can. Sci. Adv. Sec. Sci. Adv. Rep. 2013/048: 26 pp.

DFO 2013f. Ecological Risk Assessment Framework (ERAF) for coldwater corals and sponge dominated communities. http://www.dfo-mpo.gc.ca/fm-gp/peches-fisheries/fish-ren-peche/sff-cpd/risk-ecolo-risque-eng.htm, consulted November 15, 2013.

Gilkinson 2012. Recent DFO (Newfoundland and Labrador Region) studies of the Grand Banks benthos at small and large spatial scales. CSAS Res. Doc. 2012/114 : 34 pp.

NAFO 2012a. Scientific Council Meeting 27 August-7 September 2012. NAFO SCS Doc 12/20 Serial No N6077 13p.

NAFO 2012b. Scientific Council Meeting 17-24 October 2012. NAFO Scientific Council Reports 2012, January 2013. Part D, pp 227-237.

NAFO/ICES 2012 Report of the NAFO/ICES Pandalus Assessment Group 17-24 October 2012. NAFO SCS Doc.12/23; ICES CM 2012/ACOM:14; 84pp

NAFO 2013a. NAFO/ICES Pandalus Assessment Group Meeting, 12-19 September 2013. NAFO SCS Doc. 13/19, Ser. No. N6235, 75 pp.

NAFO 2013c. Report of the Fisheries Commission Working Group of Fishery Managers and Scientists on Conservation Plans and Rebuilding Strategies (WGFMS-CPRS). 9-11 July 2013. NAFO FC Doc. 13/5 : 17 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

Scientific advice on stock status to the states exploiting this stock, Canada and Greenland, is provided by the NAFO-ICES *Pandalus* Assessment Group (NIPAG). The following summary is based on the most recent assessment of the stock conducted by NIPAG in September 2013 (NAFO 2013a).

The shrimp stock off West Greenland is distributed mainly in NAFO Subarea 1 (Greenland EEZ), but a small part of the habitat and the stock intrude into the eastern edge of Div. 0A (Canadian EEZ). Greenland and Canada exploit portions of the stock found in their respective EEZs.

TACs and catches for the total stock have been declining since reaching a maximum in 2005-2007 (Table). Canadian catches have fluctuated substantially in recent years and since 2008 have generally been low, with the exception of 2010 (5882 t). Low Canadian catches in this area are a result of higher operating costs than in SFAs further south.

Recent catches, projected catches for 2013 and recommended and enacted TACs (t) for Northern Shrimp in Div. 0A east of 60°30'W and in Subarea 1 are as follows (Source: NAFO 2013a).

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
TAC										
Advised	130 000	130 000	130 000	130 000	110 000	110 000	110 000	120 000	90 000	80 000
Enacted[3]	149 519	152 452	152 380	152 417	145 717	132 987	132 987	142 597	118 596	102 767
Catches (NIPAG)										
SA 1	142 311	149 978	153 188	142 245	153 889	135 029	128 108	122 655	115 975	*100 000*[1]
Div. 0A (SFA 1)	7021	6921	4127	1945	0	429	5882	1 330	0	0
TOTAL SA 1–Div. 0A	149 332	156 899	157 315	144 190	153 889	135 458	133 990	123 985	115 975	*100 000*[1]
STATLANT 21										
SA 1	142 311	149 978	153 188	142 245	148 550	133 561	123 973	122 061	114 958[2]	
Div. 0A	6861	6410	3788	1878	0	429	5206	1134	12[2]	

[1] Total catches for the year as predicted by industry observers.
[2] Provisional
[3] Canada and Greenland set independent autonomous TACs.

Canada and Greenland set separate TACs for their fisheries on this stock. As noted by NIPAG (NAFO 2013a): "For 2012, Greenland enacted a TAC of 101 675 t for Subarea 1. Of this, 4000 t was allocated (by contract) to the EU, 55 675 t to the Greenland sea-going fleet and 42 000 t to the coastal fleet. Canada enacted a TAC of 16 921 t for SFA 1. Further deterioration of the assessed status of the stock in 2012 induced a yet lower advised TAC of 80 000 t for 2013: Greenland enacted a TAC of 87 263 t, with quota allocations of 3400, 47 802 and 36 061 t, and Canada of 15 504 t."

	Canadian TACs are set by DFO with input from stakeholders, based on a claim of 17% of the offshore portion of the total TAC (5/6ths) recommended by NIPAG. The 2013 TAC was set in early 2013 based on this formula. For 2014 an interim TAC may be set by DFO early in the year, to be adjusted following the annual NSAC meeting in March 2014. The whole stock is assessed by a Bayesian stock production model that uses combined catch data from both fisheries, fishery and survey CPUE, survey estimates of abundance and recruitment, and estimates of cod biomass and cod consumption. The model produces estimates of biomass, Bmsy, Z and Zmsy. The stock indicators and catch projection results are expressed probabilistically. A precautionary limit reference point Blim is 30% of the model estimate of Bmsy. A proxy upper limit reference point for Z (including cod predation) is Zmsy. Distribution of the stock and fishery has changed over time. Prior to 1988 the fishery in Greenland waters concentrated in NAFO 1B (west Greenland, adjacent to the Canadian grounds). Subsequently the fishery expanded southward and maximum catches were taken in NAFO 1C-1D off southwest Greenland. Since 1996 there has been a return to the earlier distribution, as catches and effort off southwest Greenland have continually decreased. NIPAG provided the following summary of stock status (NAFO 2013a p. 22): *"Recruitment*. Pre-recruits at CL 14–16.5 mm are few and have been so since 2008 in absolute terms, so short-term recruitment is expected to be low. The number at age 2 in 2013 is 50% above the 2012 value, but that was the lowest ever, so medium-term recruitment is still expected to be poor. *Biomass*. A stock-dynamic model showed a maximum biomass in 2004 with a continuing decline since. However, the probability that biomass will be below Bmsy at end 2013 with projected catches at 100 000 t was estimated at 37%; of its being below Blim at 1%. *Mortality*. In 2013, the mortality caused by fishing and cod predation (Z) is estimated to have stayed below the limit reference (Zmsy) from 1996 to 2011, but is now estimated to have been about 10% over in 2012. With catches projected at 100 000 t the risk that total mortality in 2013 will exceed Zmsy is estimated at about 44%. Atlantic cod is, in 2013, concentrated in southerly areas where shrimps are now scarce, but its biomass is high and predation is also expected to be high. *State of the Stock*. Biomass is estimated to have been declining since 2004, but at the end of 2013 is projected to be about 10% above Bmsy. Total mortality in 2013 is not projected to exceed Zmsy. But

the stock comprises a high proportion of females, so fishing will risk removing much of the spawning-stock biomass, and recruitment to both the fishable and the spawning stocks in both short and medium terms are all expected to remain low."

NIPAG (NAFO 2013a p 22) also summarized stock status relative to a precautionary approach framework. In summary, "recent increases in the cod stock coupled with high catches have been associated with higher mortalities and continuing decline in the modeled biomass, although the biomass is still estimated to be above Bmsy".

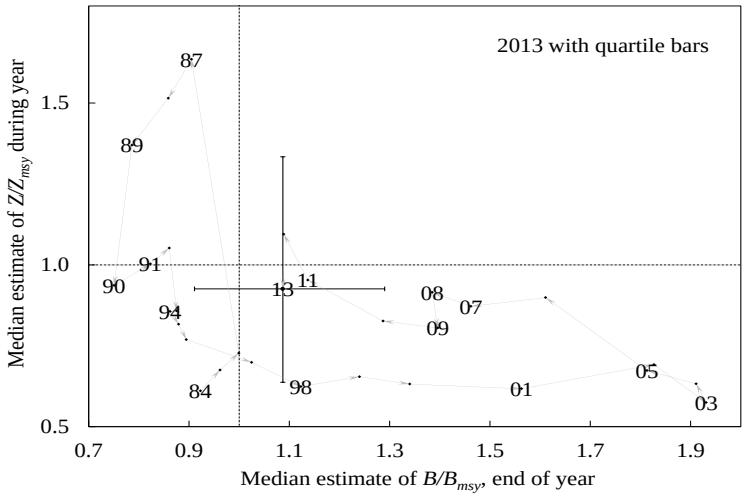

Figure 1: Stock Status Shrimp in SFA.2013 (NAFO 2013a)

NIPAG (NAFO 2013a p. 22-23) also provided a detailed analysis of probabilities of transgressing precautionary reference points in 2013 and 2014 under different scenarios of catch and cod predation. In summary, "in the medium term, with a 40 000 t effective biomass of cod, model results estimate that catches of 80 000 t/yr could be associated with a slowly increasing stock more than 10% above Bmsy (Fig. 3.10). For larger catches estimates of biomass risk increase with projections into the future."

<table>
<tr><td>Total Allowable Catch (TAC) in most recent fishing year</td><td>The Canadian TAC for 2012-2013 fishing year for SFA 1 is 13,600, 17% of 80,000t, .</td></tr>
<tr><td>Unit of Certification share of TAC</td><td>100%</td></tr>
<tr><td>Client share of TAC</td><td>The client share of the TAC is 100%.</td></tr>
<tr><td>Green Weight[1] of catch taken by client group</td><td>Table 3: Catch of Northern Shrimp by area and species 2012-13
<table>
<tr><th>Species</th><th>SFA 2,3,4</th><th>SFA1</th><th>SFA 5,6</th><th>SFA 7</th><th>All areas</th></tr>
<tr><td>P. montagui</td><td>4,909</td><td></td><td>312</td><td></td><td>5,221</td></tr>
<tr><td>P. Borealis</td><td>20,447</td><td>5</td><td>82,864</td><td>8,019</td><td>111,335</td></tr>
</table>
Table 4: Catch of Northern Shrimp by area and species 2011-12
<table>
<tr><th>Species</th><th>SFA 2,3,4</th><th>SFA1</th><th>SFA 5,6</th><th>SFA 7</th><th>All areas</th></tr>
<tr><td>P. montagui</td><td>600</td><td></td><td></td><td></td><td>600</td></tr>
<tr><td>P. Borealis</td><td>16,446</td><td>1,172</td><td>84,949</td><td>8,919</td><td>111,486</td></tr>
</table></td></tr>
</table>

[1] The weight of a catch prior to processing

Condition 1 **PI 1.2.1**	The client is required to present evidence by the fourth annual audit that the elements of the harvest strategy work together towards achieving management objectives reflected in the target and limit reference points
Client Action Plan	CAPP and NC will collaborate with other stakeholders and the Department of Fisheries & Oceans (DFO) to draft harvest strategy relative to reference points established for the stock, and to collaborate with Greenland as appropriate to avoid the stock declining below the limit reference point. • By the first annual audit, evidence will be provided that a draft strategy has been prepared and circulated to stakeholders for consideration. • By the second annual audit, evidence will be provided that feedback from stakeholders has been considered, and that an amended draft strategy has been tabled for consideration if required. • By the third annual audit, evidence will be provided on the status of formal discussions between DFO and Greenland. • By the fourth annual audit a strategy will be adopted in the IFMP.
Client Progress 2012	The attached draft harvest strategy has been prepared by CAPP/NC and circulated to stakeholders (as represented on NSAC's PA Working Group and MSC Working Group) for consideration.
Observations 2012	To assess the suitability of the proposed Canadian harvest strategy the Audit Team first reviewed the management background and the historical performance of the management systems in place. <u>Management Background</u> The shrimp stock off West Greenland is distributed mainly in NAFO Subarea 1 (Greenland EEZ, fished by Greenland and the EU), but a small part of the habitat and the stock intrude into the eastern edge of Div. 0A (Canadian EEZ, fished by Canada). Canadian SFA 1 is that part of Div. 0A lying east of 60°30'W. Canadian shrimp management decisions for SFA1 take into account the NAFO advice for shrimp for the whole of Subareas 0 and 1, assessed as a single population. NAFO advises a single TAC, but Canada and Greenland set TACs independently. The latest assessment of stock status was carried out in October 2012 by the Joint NAFO-ICES *Pandalus* Assessment Group, NIPAG, (NAFO/ICES 2012) whose Draft report was reviewed by the Team after downloading from the ICES website. The corresponding NAFO document is not yet uploaded. The 2012 NAFO advice (NAFO 2012b, page 3) was seen in a DRAFT made available at the site visit. <u>Historical performance of the management systems in place</u> The following table extracted from page 15 of the DRAFT NIPAG report (NAFO/ICES 2012) shows the performance of the management system and the fishery relative to the NAFO advice from 2003 up to 2012.

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
TAC										
Advised	100 000	130 000	130 000	130 000	130 000	110 000	110 000	110 000	120 000	90 000
Enacted[4]	115 167	149 519	152 452	152 380	152 417	145 717	132 987	132 987	142 597	118 596
Catches (NIPAG)										
SA 1	123 036[1]	142 311	149 978	153 188	142 245	153 889	135 029	128 108	122 655	*110 000*[2]
Div. 0A (SFA 1)	7137	7021	6921	4127	1945	0	429	5882	1 330	*0*
TOTAL SA1–Div.0A	130 173	149 332	156 899	157 315	144 190	152 749	135 458	133 990	123 985	*110 000*[2]
STATLANT 21										
SA 1	78 436	142 311	149 978	153 188	142 245	148 550	133 561	123 973[3]	121 207[3]	
Div. 0A	2170	6861	6410	3788	1878	0	429	5206[3]	859[3]	

[1] Catches before 2004 corrected for underreporting
[2] Total catches for the year as predicted by industry observers.
[3] Provisional
[4] Canada and Greenland set independent autonomous TACs.

Source: NAFO/ICES 2012 : ICES CM 2012/ACOM:xx, p 15.

The table shows that the whole-stock TAC advised by NAFO has been exceeded throughout by the combined TAC. Up to 2009, the catches in Subarea 1, and the total catch from both Subarea 1 and Div OA (SFA1), also exceeded the combined TAC, although in 2010 they were close to the TAC, and in 2011 and 2012 they will likely undershoot the combined TAC, based on current projections. The 2012 assessment described in the stock status section shows that there is a 51% probability that the latest biomass will be below B_{msy}, and a 56% probability that Z_{2012} will be above Z_{msy}, but that there is a very low probability (1-2%) that biomass is below B_{lim}.

In SFA1 the TAC set independently by Canada is based on the claim that 17% of the stock is located there. This TAC has ranged from 9 350t (2001) up to 18 957t (2011) before being reduced to 12 750t (2012). The Canadian catch (entered at line 4 in the above table) has never exceeded 7 137 (2003), and has in some years been zero (2008) or very low (2009). It has therefore always been much lower than the Canadian TAC, and must make a correspondingly small contribution to total mortality.

<u>The proposed harvest strategy.</u>

The harvest strategy required by Condition1 for SFA1 is being developed. In fulfilment of the first milestone, the client provided documentary evidence that a draft strategy for SFA1 has been prepared and is being circulated to stakeholders for their consideration. The evidence was a copy of the informal Discussion Paper that has been sent to stakeholders, and that the Audit Team has reviewed.

The Discussion Paper describes the following elements:

- The management background
- The assessment and current stock status for the whole stock
- Recent Canadian TACs for SFA 1, and their basis
- A new management strategy for SFA1 specifying the harvest objectives (control rules)
- The Canadian Integrated Fishery Management Plan (IFMP) and the Northern Shrimp Advisory Committee
- The management tools and measures implemented for the Canadian fishery
- Appendix A, summarizing the Greenland harvest strategy, and the procedure adopted by Greenland in 2012 when setting the Greenland TAC for Subarea1, taking into account a catch share by Canada in SFA1.

The key element in the above list is the following section quoted (in italics) from Pages 1-3 of the Discussion Paper as follows:

"*Canada continues to claim 17% of 5/6th (offshore component) of this stock, and in recent years has generally followed a policy of applying this claim against*

	NIPAG's recommended TAC level. Canada's share of the total catch has averaged about 3% over time, due in part to there being better fishing opportunities in more southern areas, and in part to fluctuating availability of high concentrations of biomass in SFA1. Annual TACs adopted by Canada since 2007: • *2007: 18,417t in relation to TAC advice of 130,000t* • *2008: 18,417t in relation to TAC advice of 110,000t* • *2009: 15,583t in relation to TAC advice of 110,000t* • *2010: 15,583t in relation to TAC advice of 110,000t* • *2011: 15,583t in relation to TAC advice of 120,000t* • *2012: 12,750t in relation to TAC advice of 90,000t* *Until there is an agreement between the two coastal states, it is likely that the combined total of Canada's and Greenland's TACs will continue to exceed advice provided by NIPAC. However, it is the combined catch rather than the combined TAC that will influence the resource, and especially given that Canada does not fully harvest its TAC, it seems appropriate to describe how elements of a Canadian harvest strategy work together towards achieving management objectives reflected in the target and limit reference points. As an input to this thought process, it is informative to review Greenland's approach, elements of which are included in Appendix A (of the Discussion Paper)* *It is acknowledged that fishing mortality is only one component of total mortality, and fluctuations in the shrimp resource may be driven to a significant extent by natural mortality and productivity. Given this reality, while an objective is to maintain the biomass at or above Bmsy, this objective is not to be embraced at all costs. To illustrate this point, if the biomass is 85% of Bmsy, but Bmsy cannot be achieved without draconian cuts to the fishery, then it would be reasonable to accept such limitations, with the focus being to avoid or mitigate further biomass declines, while promoting growth where practical. Within the framework outlined above, Canada's strategy for management of this resource includes consideration of the following elements, and future requests to the NIPAG will ask that a range of catch options be provided without expressing a specific recommendation, to support decision-making around the following milestones:* • *Where achievable without TAC declines that are greater than 10% of the previous year's TAC, biomass should be maintained at or above Bmsy with >50% probability* • *The biomass should be maintained above 80% of Bmsy with >50% probability* • *When the biomass is above Blim but below 80% of Bmsy, TACs should be set at levels to promote growth over a 3-year period, with >75% probability* • *Biomass decline below Blim should be avoided with at least 90% probability.* • *The risk of exceeding Zmsy should be <50%* *Canada is prepared to enter into discussions with Greenland to determine whether common resource management objectives and a common TAC-setting strategy can be developed, regardless of differences with respect to quota sharing. To the extent action may be required to avoid precipitous decline in the biomass, especially when approaching Blim, Canada will seek to take cooperative corrective action with Greenland and in any event will be prepared to take corrective action unilaterally "* It is clear that the prospective harvest strategy has identified objectives for TAC setting that are analogous to the precautionary framework and decision rules

	specified by Canada for other shrimp fishing areas under the Northern Shrimp IFMP (DFO 2010b). Each rule is associated with a probability criterion, but the precise rationale for these is not explained in the Paper. The Discussion Paper refers to the current practice whereby the stock assessment and the NAFO advice refer to the whole stock, but TACs are set independently for Canadian SFA1 and NAFO Subarea 1, using independent judgments about stock sharing. The text acknowledges the problem that could arise with this arrangement should it become necessary to avoid precipitous decline in biomass, and it includes a commitment to seek a cooperative solution should that become necessary. References: NAFO 2012b NAFO/ICES 2012

Conclusion 2012	The Audit Team concludes that the client Discussion Paper describes in DRAFT form all the principal elements that are required to meet the definition of a harvest strategy for SFA1, including new prospective control rules that are analogous to those used in other shrimp fishing areas under the Northern Shrimp IFMP. The Paper acknowledges the problem posed by the independent setting of TACs in the two fishery zones should there be a precipitous decline in biomass, and it contains a commitment to seek a cooperative solution should that become necessary. The Paper is being circulated to stakeholders for comment. The assessment team therefore concludes that the content of the Paper is largely in line with what is required to meet MSC standards for Principle 1, and that the requirements of Milestone 1 have been achieved successfully. Progress on the action plan is therefore on track to meet the terms of this condition. Regarding the potential cooperation over joint management of the whole stock in the event of a future crisis, the Audit Team welcomes the commitment to seek cooperation, but it does have concerns about the wait that is implied by the phrase 'should that become necessary'. The inherent risk in waiting for the crisis is that it is not a foregone conclusion that appropriate joint action would necessarily be agreed in time to secure the required timely action. The Team suggests that to be properly precautionary, it is more appropriate to develop and define a joint strategy in advance of a crisis. This would conform more closely to the requirement that a harvest strategy and control rule should embody a pre-agreed response for all critical eventualities under the two management systems responsible for a joint stock. The client is asked to consider this point in time for the second annual audit.
Client progress 2013	On November 8, 2012 a draft harvest strategy as prepared by CAPP/NC was circulated to stakeholders (represented on NSAC's PA Working Group and MSC Working Group for consideration. The only feedback received from members of these Working Groups relates to the section on Draft Harvest Control Rules (HCR). Revised HCR were subsequently developed and circulated for feedback (see the Progress Report for PI 1.2.2 below), and until these are finalized there is no need to table an amended draft harvest strategy.
Observations 2013	The draft harvest strategy (developed as a Discussion Paper as noted in the year 1 audit report) was submitted for feedback from stakeholders through the NSAC and its Working Groups, as required by the year 2 milestone. The only substantive comments received from this consultation process were on the harvest control rules and these are considered under Condition 2 (PI 1.2.2). As such, the year 2 milestone for this condition can be considered to have been met. During the Year 1 audit, the audit team noted the desirability of developing cooperation with Greenland on harvest strategies, in particular potential actions to be taken in the case of severe stock decline. Since then DFO staff have had contacts with Greenland authorities in the margins of international meetings, and there appears to be potential for bilateral discussions on fisheries management matters to take place in the coming year. The client and DFO are aware of the most recent MSC Certification Requirements (V 1.3, January 2013) as they apply to bilateral arrangements for management of shared stocks (PI 3.1.1).
Conclusions 2013	The team concludes that the year 2 milestone has been met for this PI and that progress is on track to meet the condition by year 4 as required.

Condition 2 **PI 1.2.2**	The client is required to provide evidence by the fourth annual audit that well defined harvest control rules are in place that are consistent with the harvest strategy and that incorporates the requirement to reduce the exploitation rate as the limit reference point is approached.
Client Action Plan	CAPP and NC will collaborate with other stakeholders and the Department of Fisheries & Oceans Canada (DFO) to include explicit harvest control rules for the Canadian fishery in the Integrated Fisheries Management Plan. • By the first annual audit, evidence will be provided that draft harvest control rules have been prepared and circulated to stakeholders for consideration • By the second annual audit, evidence will be provided that feedback from stakeholders has been considered, and that an amended HCR has been tabled for consideration if required. • By the third annual audit, evidence will be provided on the status of formal discussions between DFO and Nunavut. • By the fourth annual audit, a suite of harvest control rules will be adopted in the IFMP.
Client Progress 2012	The attached draft Harvest Control Rules have been prepared and circulated to stakeholders for consideration.
Observations 2012	As noted under PI 1.2.1, a Discussion Paper describing the proposed harvest strategy for SFA1 has been drafted and circulated to stakeholders for comment. The Paper contains the following section describing the harvest control rules that are being proposed. *"It is acknowledged that fishing mortality is only one component of total mortality, and fluctuations in the shrimp resource may be driven to a significant extent by natural mortality and productivity. Given this reality, while an objective is to maintain the biomass at or above Bmsy, this objective is not to be embraced at all costs. To illustrate this point, if the biomass is 85% of Bmsy, but Bmsy cannot be achieved without draconian cuts to the fishery, then it would be reasonable to accept such limitations, with the focus being to avoid or mitigate further biomass declines, while promoting growth where practical. Within the framework outlined above, Canada's strategy for management of this resource includes consideration of the following elements, and future requests to the NIPAG will ask that a range of catch options be provided without expressing a specific recommendation, to support decision-making around the following milestones:* • *Where achievable without TAC declines that are greater than 10% of the previous year's TAC, biomass should be maintained at or above Bmsy with >50% probability* • *The biomass should be maintained above 80% of Bmsy with >50% probability* • *When the biomass is above Blim but below 80% of Bmsy, TACs should be set at levels to promote growth over a 3-year period, with >75% probability* • *Biomass decline below Blim should be avoided with at least 90% probability.* • *The risk of exceeding Zmsy should be <50%"* These draft rules are analogous to the precautionary framework and decision rules specified by Canada for other shrimp fishing areas under the Northern Shrimp IFMP (DFO 2010b), and they are also analogous to, but not identical with, rules that have been adopted by Greenland for Subarea 1 (described in Annex A of the Discussion Paper, and in the West Greenland shrimp trawl fishery management

	plan (Annex C of Interek Moody Marine Ltd.2012, pages 179-180). References: DFO 2010b Intertek Moody Marine Ltd., 2012
Conclusion 2012	The Audit Team has reviewed these draft rules, which include both obligatory and discretionary components that are in principle consistent with achieving precautionary management of the shrimp stock in SFA1. The rules contain probability criteria, and therefore take into account the uncertainty in the stock assessment, although the rationale for the particular values chosen is not described. The draft rules are being circulated to stakeholders for comment. The Team is therefore satisfied that the requirements of Milestone 1 have been achieved successfully and that progress on the action plan is on track to meet the terms of this condition. The Audit Team suggests that it would be helpful if the rationale for the chosen values of the probability criteria could be included in any future draft of the harvest control rule, say by the second annual audit. In anticipation of the problems that might be encountered when trying to develop a cooperative approach to the joint management of this stock with Greenland, should that become necessary, it would also be helpful to consider how the likely effectiveness of these rules could be modelled using, say, trial stock projections made by the Bayesian stock production model that is used to assess the joint stock.
Client progress 2013	Based on initial feedback to the draft HCR circulated in November 2012, an ad hoc working group was appointed to produce a revised draft for further consideration. After a number of iterations, a revised draft was circulated to stakeholders (represented on NSAC's PA Working Group) on October 10/13 .
Observations 2013	The audit team reviewed the draft Harvest Control Rules which had been circulated in October 2013, following a process of consultation through NSAC and its PA Working Group. The draft HCRs follow a similar approach to those used in setting TACs in the Greenland fishery. The team was informed that there may be further revisions to the HCRs in the coming year. As such, the progress made is consistent with the Year 2 milestone for this condition.
Conclusions 2013	The team concludes that the year 2 milestone has been met for this PI and that progress is on track to meet the condition by year 4 as required.

Condition 3 **PI 2.4.1 (60)**	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.
Condition 4 **PI 2.4.2 (70)**	The client is required to provide evidence by the fourth annual audit that: 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. 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. There is some evidence that the partial strategy is being implemented successfully.
Condition 5 **PI 2.4.3 (70)**	The client is required to provide evidence by the fourth annual audit that: 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).
Condition 6 **PI 2.5.1 (70)**	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.
Condition 7 **PI 2.5.2 (70)**	The client is required to provide evidence by the fourth annual audit that: 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. The partial strategy is considered likely to work, based on plausible argument (e.g., general experience, theory or comparison with similar fisheries/ ecosystems). There is some evidence that the measures comprising the partial strategy are being implemented successfully.
Condition 8 **PI 2.5.3 (70)**	The client is required to provide evidence by the fourth annual audit that: 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. 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).

Client Action Plan	The client has set out their actions and expected outcomes for these performance indicators in a logical step wise approach in association with Conditions 3-8, all of which relate to performance indicators for habitat and ecosystems: 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. 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. By the second annual audit there will documented evidence showing the information that has been assembled and the results of analysis to date. By the third annual audit there will be documented evidence showing that at least a provisional evaluation has been completed. 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.
Client Progress 2012	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.
Observations 2012	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. The team sought clarification on several elements of the strategy. 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. 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 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. 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. 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. 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. 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. 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: • 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 Atlantic Canadian ocean areas, and establishing thresholds for protecting these areas (Kenchington et al 2010; DFO 2010a) • Development of science advice on encounter protocols for fishing gear which may impact corals and sponges (DFO 2011b) References DFO 2009, DFO 2010a, DFO 2011b, DFO 2012c, Kenchington, *et al* 2010
Conclusion 2012	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. 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). 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.
Client Progress 2013	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). Analyses have been provided in relation to the spatial and temporal profile of catch/effort as the case may be. Results of analysis indicates: 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. 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. 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. 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: Only 35 sets of 56,300 (0.06%) occurred within the designated sponge areas and no sponge bycatch was taken. 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 (Gersemia *spp., Duva florida, Nephtheid).* This data has not yet been evaluated in relation to the risk of serious or irreversible harm (Sections D and G) The approach to fishing mortality and the question of mitigation measures (Section E) requires the yet-to-be completed evaluation referenced above. Changes to the fishery footprints (Section H) and to the main predator/prey species of shrimp (Section I) are not applicable at this time.
Observations 2013	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 : • 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 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. 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. 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. 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 very low. 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). • 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. • The ERAF has been finalized and is available on-line (DFO 2013f) 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. • 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. • 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.
Conclusions 2013	The team concludes that the year 2 milestone, "*...there will documented evidence showing the information that has been assembled and the results of analysis to date*" has been met and that progress is on track to meet conditions 3-8 by year 4 as required.

Condition 9 **PI 3.2.1**	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.
Client Action Plan	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.
Client Progress 2012	"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
Observations 2012	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. 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. 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. 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. 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 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
Conclusion 2012	The Audit Team concludes that this condition has been met. This PI has been re-scored to 80 and the condition has been closed out.

Condition 10 **PI 3.2.4**	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	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. By the first annual audit there will be documented evidence that a plan to conduct gap analysis has been developed by the working group. By the second annual audit there will be documented evidence that a gap analysis has been completed. By the fourth annual audit there will be documented evidence that a research plan is in place.
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."
Observations 2012	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.
Conclusion 2012	The Audit team concludes that progress on the action plan is on track to meet the Condition by Year 4 of the certification period.
Client progress 2013	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 Fisheries Management 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.
Observations 2013	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.
Conclusions 2013	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.

Any complaints against the certified operation; recorded, reviewed and actioned.
During the site visit DFO reported on some minor enforcement issues in the shrimp fishery dealing with the inshore area fishery, not in SFA1. These were resolved administratively using a revised license condition and no legal action was taken.

Any relevant changes to management, legislation or regulation.
Canada and Greenland resumed regular bilateral dialogue in 2012 with a meeting of officials in Copenhagen. This meeting featured discussions on the range of bilateral fisheries and marine mammals issues shared by Canada and Greenland, including Northern shrimp in NAFO Subareas 0A+1AB. This dialogue continued with a high-level meeting in June 2013 between Greenland's Minister of Fisheries, Hunting, and Agriculture, Mr. Karl Lyberth, and Mr. Randy Kamp, Canada's Parliamentary Secretary to the Minister of Fisheries and Oceans. The shared Northern shrimp stock was once again discussed at this meeting. Canada and Greenland plan to continue their dialogue on Northern shrimp in NAFO Subareas 0A+1AB early in 2014 in an effort to improve cooperation on the stock.

Any significant changes in scientific knowledge relating to the fishery.
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 other 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 (2013a) 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 (eg DFO 2013c) 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). Work on incorporating environmental factors into precautionary frameworks is under way in NAFO for some finfish stocks (NAFO 2013c). During the site visit, the team was shown a number of analyses of predator-prey relationships in recent years for species in Newfoundland fisheries, which are to be presented to a meeting on this topic. Results of studies on the specific relationships between environmental factors and shrimp abundance are probably some years in the future, but could ultimately influence precautionary frameworks for management of these stocks.

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.

MSC Certification should therefore continue with annual audits.

Annex 1

There were no written stakeholder submissions to the surveillance audit team.

Annex 2

Notification of surveillance audit

Canadian Northern and Striped Shrimp Fishery

MSC Certification
Certification Body: Intertek Moody Marine

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 7-8, 2013.**

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 1, 2013. 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 5, 2013

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 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 he 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 IMM

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	*Pandalus borealis SFA 1*
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:

			Years after certification or re-certification			
Surveillance score	**Surveillance level**		**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 1 Fishery scores 5 since 4 Conditions remain open and the Principle 2 score is <85, and so will require an on-site audit next year.