Marine Stewardship Council 2nd Surveillance Report

For The

Bay of Fundy, Scotian Shelf and Southern Gulf of St Lawrence lobster trap fishery

Facilitated By the

Nova Scotia and New Brunswick Lobster Eco-Certification Society

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1 Executive Summary

This report contains the findings of the 2nd surveillance audit in relation to the Nova Scotia and New Brunswick (NS-NB) Eco-Certification Society certificate of the Bay of Fundy, Scotian Shelf and Southern Gulf of St Lawrence Lobster Trap Fishery.

The 2nd surveillance audit focused on the changes to the fishery and its management since the 1st surveillance audit and monitoring continued compliance with the MSC Principles and Criteria. Also, the assessment team evaluated progress against the 5 conditions (PI 1.2.2 Harvest Control Rules, PI 2.1.1 Retained Species Outcome, PI 2.1.2 Retained Species Management Strategy, PI 2.2.3 Bycatch Species Information, and PI 3.2.4 Research Plan).

SAI Global determines that:

- **The Bay of Fundy, Scotian Shelf and Southern Gulf of St Lawrence Lobster Trap Fishery continues to operate a well-managed and sustainable fishery and therefore, continued certification to the MSC Principles and Criteria for Sustainable Fishing is awarded.**

Table 1 summarizes conditions status, Performance Indicator (PI) and Principle (P) score changes. Re-scored PI 3.2.4 and PI 2.1.2 evaluation tables are presented in Appendix 1.

Table 1. Summary of Assessment Conditions at surveillance audit 2.

Unit of Assessment 1 (UoA 1) – Southern Gulf of St Lawrence

Condition number	PI	Status	PI original score	PI revised score	Principle revised score
1	1.2.2	**Open-on target**	70	Not revised	P1: not revised
2	2.1.1	**Open- ahead target**	60	Not revised	P2: revised from 85.3 to **86** at surveillance 2
3	2.1.2	**Open- ahead target**	60	**70** at surveillance 2	
4	2.2.3	**Open- ahead target**	70	Not revised	
5	3.2.4	**Closed-ahead target**	70	**90** at surveillance 1	P3: revised from 90.8 to **92.8** at surveillance 1

Unit of Assessment 2, 3 and 4 - Maritimes

Condition number	PI	Status	PI original score	PI revised score	Principle revised score
1	1.2.2	**Open-on target**	70	Not revised	P1: not revised
2	2.1.1	**Open- ahead target**	60	Not revised	P2: revised from 82.3 to **83** at surveillance 2
3	2.1.2	**Open- ahead target**	60	**70** at surveillance 2	
4	2.2.3	**Open- on target**	70	Not revised	
5	3.2.4	**Open-on target**	70	Not revised	P3 not revised

On behalf of the MSC client, the Nova Scotia and New Brunswick Eco-Certification Society, SAI Global would like to extend thanks to the management organisations and stakeholders of the Bay of Fundy, Scotian Shelf and Southern Gulf of St Lawrence Lobster Trap Fishery who took part in this surveillance audit.

• Lead Assessor: Dr. Géraldine Criquet manages technical functions of SAI Global's MSC Fishery Program and is an approved MSC Fishery Team Leader.
• Assessor: Dr. Jean-Claude Brêthes is a contractor for SAI Global with an extensive experience in shellfish and groundfish stock assessment and fisheries in Atlantic Canada.

Both Géraldine and Jean-Claude were part of the initial full assessment team as well as the 1st surveillance team. Skills and experience are summarized below.

Dr. Géraldine Criquet (Lead Assessor)
Géraldine is an MSC approved Fisheries Team Leader for SAI Global - experienced fishery scientist in both Finfish and Shellfish fisheries, and ecosystems considerations. Géraldine holds a PhD in Marine Ecology (École Pratique des Hautes Études, France) which focused on coral reef fisheries management, Marine Protected Areas and fish ecology. She has also been involved during 2 years in stock assessments of pelagic resources in the Biscay Gulf, collaborating with IFREMER. She worked 2 years for the Institut de Recherche pour le Développement (IRD) at Reunion Island for studying fish target species growth and connectivity between fish populations in the Indian Ocean using otolith analysis. She served as Consultant for FAO on a Mediterranean Fisheries Program (COPEMED) and developed and implemented during 2 years a monitoring program of catches and fishing effort in the Marine Natural Reserve of Cerbère-Banyuls (France). Géraldine is an experienced full time MSC Lead Assessor with SAI Global, successfully leading MSC certifications and assessment teams and acting as Principle 2 expert for multiple MSC Pre, Full and Surveillance audits.

Dr. Jean-Claude Brêthes (Assessor)
Jean-Claude is a fisheries biology professional at the Institut des Sciences de la Mer at the Université du Québec a Rimouski. Previously he has held positions at Board, Chair and Director level for University undergraduate and post graduate fishery science/marine/oceanography courses, scientific advisory councils and committees for various government organizations such as the Canadian Atlantic Fisheries Advisory Council. His key experiences have been focused upon the dynamics and ecology of exploited species. In particular, Jean- Claude has conducted various projects on the ecology of snow crab, lobster and cod in locations in Atlantic Canada. He has published and presented several scientific papers in lobster fisheries in key journals and science fora and has also taken part in several MSC and related studies including lobster fisheries in this and other regions.

2 General Information

Fishery name	Bay of Fundy, Scotian Shelf and Southern Gulf of St Lawrence Lobster Trap Fishery		
Unit(s) of assessment	**UoA 1** **Species:** *Homarus americanus*, American lobster **Geographical Area**: Canada Atlantic coast, Lobster Fishing Areas LFA 23, 25, 26A and 26B, Southern Gulf of St Lawrence (SGSL), FAO Statistical Area 21 **Method of Capture**: Baited trap **Client group:** Nova Scotia and New Brunswick Eco-Certification Society **Other eligible fishers:** there are other eligible fishers from Prince Edward Island (PEI) who fish lobster in LFAs 25 and 26A and are covered by the PEI lobster trap fishery client certificate. **UoA 2** **Species:** *Homarus americanus*, American lobster **Geographical Area**: Canada Atlantic coast, Lobster Fishing Areas LFA 27-33, Eastern Scotia, FAO Statistical Area 21 **Method of Capture**: Baited trap **Client group:** Nova Scotia and New Brunswick Eco-Certification Society **Other eligible fishers:** there are no other eligible fishers. All the fishers entitled to fish lobster in LFAs 27-33 are members of the client group. **UoA 3** **Species:** *Homarus americanus*, American lobster **Geographical Area**: Canada Atlantic coast, Lobster Fishing Area LFA 34, Southwestern Nova Scotia, FAO Statistical Area 21 **Method of Capture**: Baited trap **Client group:** Nova Scotia and New Brunswick Eco-Certification Society **Other eligible fishers:** there are no other eligible fishers. All the fishers entitled to fish lobster in LFA 34 are members of the client group. **UoA 4** **Species:** *Homarus americanus*, American lobster **Geographical Area**: Canada Atlantic coast, Lobster Fishing Areas LFA 35-38, Bay of Fundy, FAO Statistical Area 21 **Method of Capture**: Baited trap **Client group:** Nova Scotia and New Brunswick Eco-Certification Society **Other eligible fishers:** there are no other eligible fishers. All the fishers entitled to fish lobster in LFAs 35-38 are members of the client group.		
Date certified	26th May 2015	**Date of expiry**	25th May 2020
Surveillance level and type	Surveillance level 6 (Default Surveillance), on-site surveillance audit.		
Date of surveillance audit	6th and 7th April 2017		
Surveillance stage (tick one)	**1st Surveillance**	13th April 2016	
	2nd Surveillance	X	
	3rd Surveillance		
	4th Surveillance		
	Other (expedited etc.)		
Surveillance team	Lead assessor: Dr. Géraldine Criquet Assessor: Dr. Jean-Claude Brêthes		

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3 Introduction

This report sets out the results of the 2nd surveillance audit in relation to the Nova Scotia and New Brunswick Eco-Certification Society certificate of the Bay of Fundy, Scotian Shelf and Southern Gulf of St Lawrence Lobster Trap Fishery.

To be awarded an MSC certificate for the fishery, the applicants agreed in a written contract to develop an action plan for meeting the required 'Conditions' against the performance indicators that scored below 80% in the initial assessment. Action Plans for each Condition were submitted by the fishery client and these were approved by SAI Global as the certification body of record.

The applicant also agreed in a written contract to be financially and technically responsible for surveillance visits by an MSC accredited certification body, which would occur at a minimum of once a year, or more often at the discretion of the certification body (based on the applicant's action plan or by previous findings by the certification body from annual surveillance audits or other sources of information).

Announcement of Surveillance Audit
An announcement of the surveillance site visit was published on the MSC website on the 2nd March 2017 to provide an opportunity to stakeholders to meet with or submit information on the fishery to the assessment team. Additionally, written notification was sent to the list of stakeholders representing the consultation plan during the initial assessment of this fishery and in many cases follow up mails were also made to ensure that stakeholders had been provided with sufficient opportunity to participate in consultation.

Table 26 provides a list of the stakeholders and management organizations engaged in the process either through meetings, conference call or submission of information. These consultations focused on the questions and evidence that demonstrates the performance of the fishery throughout the year and measures that supported the fulfilment of the Conditions of Certification placed upon the Nova Scotia and New Brunswick Eco-Certification Society at the initial certification decision.

Meetings were held with the following management and scientific organizations responsible for the Bay of Fundy, Scotian Shelf and Southern Gulf of St Lawrence Lobster Trap Fishery:

- **Fisheries and Oceans Canada (DFO), Gulf Region.**
- **Fisheries and Oceans Canada (DFO), Maritimes Region.**

A number of scientific and meeting reports were also examined by the surveillance team in producing this report, as detailed in the information sources section.

4 Background

4.1 Fishery Observations

4.1.1 Landings

The fishery is not TAC managed.

Table 2 shows the NS-NB total lobster landings. Table 3-6 details lobster landings per UoA and per LFA, 2015 and 2016 landings are preliminary (p). In 2015, lobster landings in NS and NB represented approximately 71% of lobster total landings in the Canada Atlantic. Overall, landings increased from 2015 to 2016 except in the SGSL.

Table 2. Total landings (mt) of lobster in NS-NB for 2015 and 2016 (p).

TAC	**Year**	N/A	**Amount**	N/A
UoA share of TAC	**Year**	N/A	**Amount**	N/A
UoC share of TAC	**Year**	N/A	**Amount**	N/A
Total green weight catch by UoC	**Year (most recent)**	2016 (p)	**Amount**	**71,748**
	Year (second most recent)	2015 (p)	**Amount**	**64,554**

Table 3. Lobster landings (mt) in the SGSL by NS-NB harvesters (UoA 1), 2015-2016. Source: DFO Gulf, provided before and after the site visit.

LFA	2015	2016 (p)
23	5,690.5	4,844.8
25	3,192.5	3,302.7
26A	2,121.5	1,641.2
26B	1,592.6	1,544.2
TOTAL	**12,597.1**	**11,332.9**

Table 4. Lobster landings in the Eastern Scotia (UoA 2), 2014-2016 (p). Source: DFO Maritimes, at surveillance audit.

Year	LFA 27	LFA 8, 29, 30, 31A & 31A*	LFA 31B	LFA 32	LFA 33	TOTAL
2014-2015 (p)	3,649	1,915.4	1,036.2	1,087.4	7,068.7	**14,756.7**
2015-2016 (p)	3,418.4	1,856.7	1,065.6	1,236.6	10,048.8	**17,626.1**

*Catch data combined to maintain participant confidentiality.

Table 5. Lobster landings (mt) in the Southwest Nova Scotia (UoA 3), 2014-2016 (p). Source: DFO Maritimes, at surveillance audit.

Fishing season	Landings
2014-2015 (p)	24,141.2
2015-2016 (p)	29,150.6

Table 6. Lobster landings (mt) in the Bay of Fundy (UoA 4). Source: DFO Maritimes, at surveillance audit.

Season	LFA 35	LFA 36	LFA 38-38B	TOTAL
2014-2015 (p)	3,723.6	3,524	5,811.4	**13,059**
2015-2016 (p)	3,482.4	3,673.2	6,482.8	**13,638.4**

4.1.2 Number of licences

The number of licences is stable in the SGSL (Table 7).

Table 7. Number of licences in the SGSL (UoA 1) per LFA, 2013-2015. Source: DFO Gulf, provided before the surveillance audit.

LFA	Lobster Licence Category		2015	2016
23	Commercial Communal	Category A	61	61
		Temporary	4	4
	Commercial	Category A	572	572
		Category B	30	30
		Partnership A	2	2
	Total 23		**669**	**669**
25	Commercial Communal	Category A	85	84
	Commercial	Category A	384	383
		Category B	5	5
		Partnership A	12	14
	Total 25		**486**	**486**
26A	Commercial Communal	Category A	22	22
	Commercial	Category A	300	300
		Category B	4	4
		Partnership A	2	2
	Total 26A		**328**	**328**
26B	Commercial Communal	Category A	9	6
	Commercial	Category A	198	203
		Category B	3	3
		Partnership A	16	14
	Total 26B		**226**	**226**
TOTAL UoC 1			**1,709**	**1,709**

The number of licences decreased in Eastern Scotia (UoA 2) with the most significant reduction in LFA 33 (Table 8).

Table 8. Number of licences in Eastern Scotia (UoA 2), 2015 and 2016. Source: Client, provided before the surveillance audit.

LFA	2015	2016
27	482	483
28	14	14
29	63	63
30	20	20
31A	72	72
31B	71	71
32	159	157
33	701	695
Total UoC 2	**1,582**	**1,575**

The number of licences is stable in Southwest Nova Scotia (UoA 3) and in the Bay of Fundy (UoA 4), Table 9 and 10, respectively.

Table 9. Number of licences in Southwest Nova Scotia (UoA 3), 2015-2016. CC: Commercial communal. Source: Client, provided before the surveillance audit.

LFA	Lobster Licence Category		2015	2016
34	CC vessel based limit	Category A	29	31
		Partnership A	2	1
	Vessel based limit	Category A	838	841
		Partnership A	110	106
	Total 34/UoC 3		**979**	**979**

Table 10. Number of licences in the Bay of Fundy (UoA 4), 2013-14 and 2014-15. CC: Commercial communal. Source: DFO, at surveillance audit.

LFA	2015	2016
35	95	95
36	178	177
38	136	136
Total UoC 4	**409**	**408**

4.1.3 Fishing season

There are two distinct lobster fishing seasons in the SGSL, a spring fishery (LFAs 23, 26A and 26B) and a summer/fall fishery (LFA 25) (Table 11).

Table 11. 2015 and 2016 fishing season per sub-areas in the SGSL (UoA 1). Source: DFO 2016a.

	LFA 23	LFA 26A2	LFA 26A3	LFA25	LFA 26B North	LFA 26B South
2015**	May 8-July 4	May 11-July 4	May 11-July 4	August 11-October 12	May 14-July 9	May 11-July 4
2016	April 30-Jun 30	April 30-Jun 30	April 30-Jun 30	August 9-October 10	May 6-July 6	April 30-Jun 30

*** 2015 was an exceptional year for ice condition in the Southern Gulf, forcing delays in opening of fishing season.*

They are two distinct lobster fishing seasons in Eastern Scotia, a spring fishery (LFA 27-32) and a winter/spring fishery (LFA 33) (Table 12).

Table 12. 2016 fishing season per LFA in Eastern Scotia (UoA 2). Source: Client, provided before the surveillance audit.

LFA	Fishing season
27	May 14 – July 14
28	April 30 – June 30
29	April 30 – June 30
30	May 19 – July 20
31A	April 29 – June 30
31B	April 19 – June 30
32	April 29 – June 30
33	Last Monday of November – May 31

The lobster fishery in Southwest Nova Scotia (LFA 34, UoA 3) is a winter/spring fishery with a season similar to LFA 33, from the last Monday of November through to May 31 (Client, provided before the surveillance audit).

The lobster fishery in the Bay of Fundy is a fall/winter/spring fishery (Table 13).

Table 13. 2015-16 fishing season per LFA in the Bay of Fundy (UoA 4). Source: Client, before the surveillance audit.

LFA	Fishing season
35	Fall: Oct 14 – Dec 31 Spring: Last day of Feb – July 31
36	Fall: 2nd Tuesday in Nov. – Dec 31 Spring: March 31 – June 29
38	2nd Tuesday in Nov – June 29

4.1.4 Management measures

Lobster fisheries are managed by input controls including a limited number of licences, minimum legal size (MLS), prohibition on landings of egg-bearing, prohibition of landing V-notched females (except in UoA 1), limited seasons and traps limits. Fishing seasons (see 4.1.3.), traps limits and MLS differ among LFAs (Table 14-17). Other management measures include the requirement of vents to allow sublegal sized lobster and small individuals of non-target species to escape and biodegradable trap mechanisms to mitigate ghost fishing by lost traps.

In the SGSL the MLS was increased in 2016 in LFA 23D, 23C, and 26A2. Further increase is scheduled in 2017 and 2018 (DF0 2016a, b, c). It has been discussed during consultation meetings with First Nations, aboriginal organizations, industry, provincial governments and processors from PEI, New Brunswick (NB) and Nova Scotia (NS). The main objective is to increase egg production by allowing more female lobsters to reproduce.

There were no changes in management measures in UoC 2 (Eastern Scotia), in UoC 3 (Southwestern Nova Scotia) and the UoC 4 (Bay of Fundy) in 2016.

Table 14. Management measures for 2016 fishing season in the SGSL (UoA 1). Source: DFO Gulf, provided before the surveillance audit and DFO 2016a, b and c. *Commercial licence holders will be fishing 255 traps/Some Communal Commercial licence holders remains at 275.

	LFA 23				LFA 25	LFA 26A			LFA 26B	
	23A	**23B**	**23C**	**23D**		**26A1**	**26A2**	**26A3**	**North**	**South**
2016 number of traps per licence A	300				NS: 225 NB: 250	280	255 and 275*	250	250	
2016 traps per line	na	na	3 (in a portion of the LFA)		na	5	6	2	5	na
2016 trap overall dimensions (cm)	Length=125, Width=90, Height=50									
Rectangular escape mechanism height and width (mm) in parlor section of trap	Dimensions adapted to the minimum legal carapace size in effect									
Biodegradable mechanism in parlor section	Dimensions of unobstructed opening not less than 89 mm in H and 148 mm in W									
Maximum size of entrance (mm)	152	152	152	152	152	na	152	na	152	na
MLS (mm)	76	76	76	75	73	72	76	76	81	82.5
Female size restriction (mm)	115-129				≥ 114	115-129			na	

Table 15. Management measures in Eastern Scotia (UoA 2) as of December 31, 2016. Source: Client, provided before surveillance audit.

LFA	Trap limits[1]	MLS (mm)	Other measures
27	275	82.5	-
28	250	84	Max. hoop size – 153 mm
29	250	84	Max. hoop size – 153 mm
30	250	82.5	Max. carapace length - 135 mm for females
31A	250	82.5	Closed window, 114-124 mm
31B	250	82.5	V-notching and release of 110 lb of mature females/licence
32	250	82.5	V-notching and release of 110 lb of mature females/licence
33	250	82.5	-

[1]*Trap limit is for category A licence holder only.*

Table 16. Management measures in Southwestern Nova Scotia (UoA 3) as of December 31, 2016. Source: Client, provided before surveillance audit.

MLS (mm)	82.5
Trap limits per licence A	375: 1st day of season – March 31 400: April 1 – May 31
Trap limits per partnership A	563: 1st day of season – March 31 600: April 1 – May 31

Table 17. Management measures in the Bay of Fundy (UoA 4) as of December 31, 2016. Source: Client, provided before surveillance audit.

LFA	Trap limits	MLS (mm)
35	300	82.5
36	300	82.5
38	375	82.5

4.2 Stock status observations

There is no direct measurement of lobster biomass (empirical or analytical). The lobster stock assessment is based on the analysis of trends of relative abundance, fishing pressure and production.

4.2.1 UoA 1 – Southern Gulf of St Lawrence (SGSL)

The fishery-dependent data include:

- DFO official catch statistics
- At-sea sampling activities
- Voluntary recruitment-index logbook program

The fishery-independent data consist of:

- A trawl survey conducted in LFA 25 and part of LFA 26A
- SCUBA survey indices from LFAs 25 and 26A
- Bio-collectors

Table 18 presents sampling and surveys carried out in 2014-2016 in the SGSL.

Table 18. Sampling and surveys carried out in 2014-2016 in the SGSL. Source: DFO Gulf, provided before the site visit.

	At-sea sampling activities: number of berried female (b), male and non-berried female (M&F) measured, port visited, number of samples and traps sampled.									
	LFA 23BC					LFA 23G				
	B	M&F	Port	Samples	Traps	B	M&F	Port	Samples	Traps
2014	1,643	7,872	1	7	1,730	633	8,976	2	12	3,133
2015	Bycatch project					Bycatch project				

	LFA 25N					LFA 25S				
	B	M&F	Port	Samples	Traps	B	M&F	Port	Samples	Traps
2014	526	7,045	4	6	1,379	247	3,086	3	5	834
2015	1,030	6,966	4	5	1,239	174	1,052	1	1	246

	LFA 26ANS					LFA 26AD				
	B	M&F	Port	Samples	Traps	B	M&F	Port	Samples	Traps
2014	No data					1,033	3,612	3	9	2,267
2015						836	2,891	2	6	1,596

LFA 26B				
B	M&F	Port	Samples	Traps
1,033	3,612	3	9	2,267
No data				

Details of the sampling activities within the recruitment-index program, 2014-2016.							
Sub-region	Year	Number of participants	Lobster measured Modified	Modified traps sampled	Lobster measured Regular	Regular traps sampled	Total Lobsters
25N	2014	12	17,865	1,568	7,340	1,568	25,205
	2015	11	21,093	1,507	8,497	1,507	29,590
25S	2014	3	2,932	398	1,588	398	4,520
	2015	3	3,820	400	1,749	400	5,569
26AD	2014	9	2,347	1,104	2,030	1,104	4,377
	2015	6	1,734	773	1,526	774	3,260
	2016	4	1,939	504	1,162	504	3,101
26ANS	2014	10	5,547	1,443	4,545	1,443	10,092
	2016	6	3,499	831	2,456	831	5,955
26B	2014	10	6,869	1,177	4,889	1,165	11,758
	2015	4	4,238	512	2,606	493	6,844
	2016	7	5,973	891	4,145	891	10,118

SCUBA survey number of lines done, 2013-2015				
Site	LFA	2014	2015	2016
Pointe-Verte	23BC	2	5	4
Grande-Anse	23BC	No longer surveyed		
Caraquet	23G	25	25	25
Neguac	23G	3	3	0
Richibucto	25N	9	7	6
Cocagne	25N	12	9	9
Shediac	25S	12	9	9
Robichaud	25S	No longer surveyed		

Murray Corner (new site)	25S	3	0	3
Fox Harbour	26AD	6	4	0
Pictou	26AD	6	6	4

Site	LFA	2014	2015	2016
Alberton	24	6.3	8.5	na*
Covehead	24	3.2	1.9	1.1
Skinners Pond	25N	8.3	2.8	2.5
Egmont Bay	25S	0.2	0.1	0.0
Nine Mile Creek	26AD	0.1	0.0	0.0
Murray Harbor	26APEI	0.3	0.0	0.0
Fortune	26APEI	1.1	0.2	0.4

* Collectors in Alberton and Murray Harbour were all filled with sand (unusable)

The trawl survey was carried out in LFA 25 and 26A in 2015 and 2016 using the same design and trawl as described in the Public Certification Report (PCR).

The most recent stock assessment was completed in 2013 and the results were presented into the PCR. An update of the stock status indicators was requested by DFO Gulf Region in preparation for the December 2016 Lobster Advisory Committee meeting (DFO 2016d), the results of this update are presented in this report. The next complete assessment is scheduled for 2018.

4.2.1.1 Fishing pressure

Fishing pressure indicators include the proportion of empty traps, and trends in nominal effort, expressed in terms of licences or traps. Since 2012, the percentage of empty traps has continued to decrease almost everywhere. In sub-region 26AD, the percentage of empty traps is still slightly higher than 20% but values have decrease steadily from 2011 (47%) to its lowest point in 2016 at 23% (from the recruit-index program data). Compared to the last assessment, the percentage of empty traps in LFA 26B has remained almost stable with a value of 28% in 2016 from the recruit-index program data. The stock update mentioned that while a significant number of licences were removed from the fishery prior to the last assessment, virtually no change occurred recently for both the number of licences and traps allocations. The total number of licences in the SGSL (combined PEI, NB and NS) decreased of 1% from 2012 to 2016, and there was no change in trap allocation since 2012. The effect of these reductions in nominal effort on lobster stocks and the fishery cannot be quantified but any release in fishing pressure is deemed beneficial for the stock.

4.2.1.2 Abundance

Abundance indicators include the two fishery-dependent indices (landings and catch per unit effort (CPUE)) and two fishery-independent indices (trawl and SCUBA surveys).

Landings

Preliminary landings in 2015 in the SGSL were 2.5 times above the long-term median value observed between 1947 and 2011. The recent increase in landings is believed to be the result of an increased egg production combined with favorable environmental factors that have boosted recruitment success which has resulted in very high catches in the SGSL. Landings reported since the last assessment are significantly higher than the Upper Stock Reference (USR) value. The stock is therefore positioned in the healthy zone in the context of the precautionary approach.

Lobster landings from NS and NS are still well above the long-term (19457 to 2011) and the mid-term (1968-2011) median values (Figure 1).

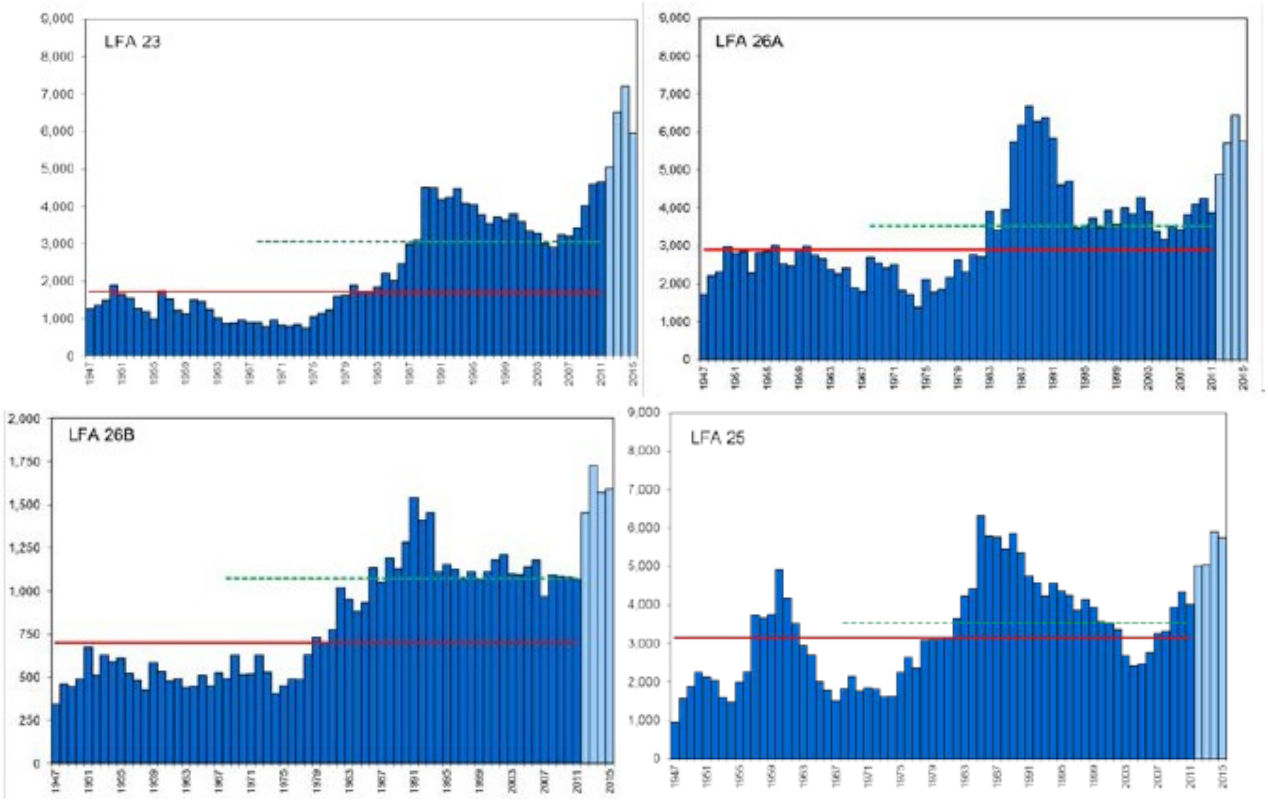

Figure 1. Reported lobster landings (t) by LFA (23, 25, 26A and 26B) in the SGSL, 1947 to 2015. The solid horizontal line is the median value for 1947 to 2011 (long-term) and the dashed horizontal line is the median value for 1968 to 2011 (mid-term). Data added since the last assessment are in light colour. Data for 2015 are preliminary. Source; DF0 2016d.

CPUE

Trends in average CPUE from both the at-sea sampling (kg per trap) and the recruitment-index programs (number per trap, regular traps only) remain similar with higher values in recent years for most sub-regions when compared to the last assessment.

Increasing trends in abundance are observed in the bottom trawl survey in the three sub-regions covered by the survey (Figure 2). The mean lobster weight in kg per standardized tow increased by 1.9, 3.3, and 7.5-fold for sub-regions 25N, 25S, and 26AD respectively.

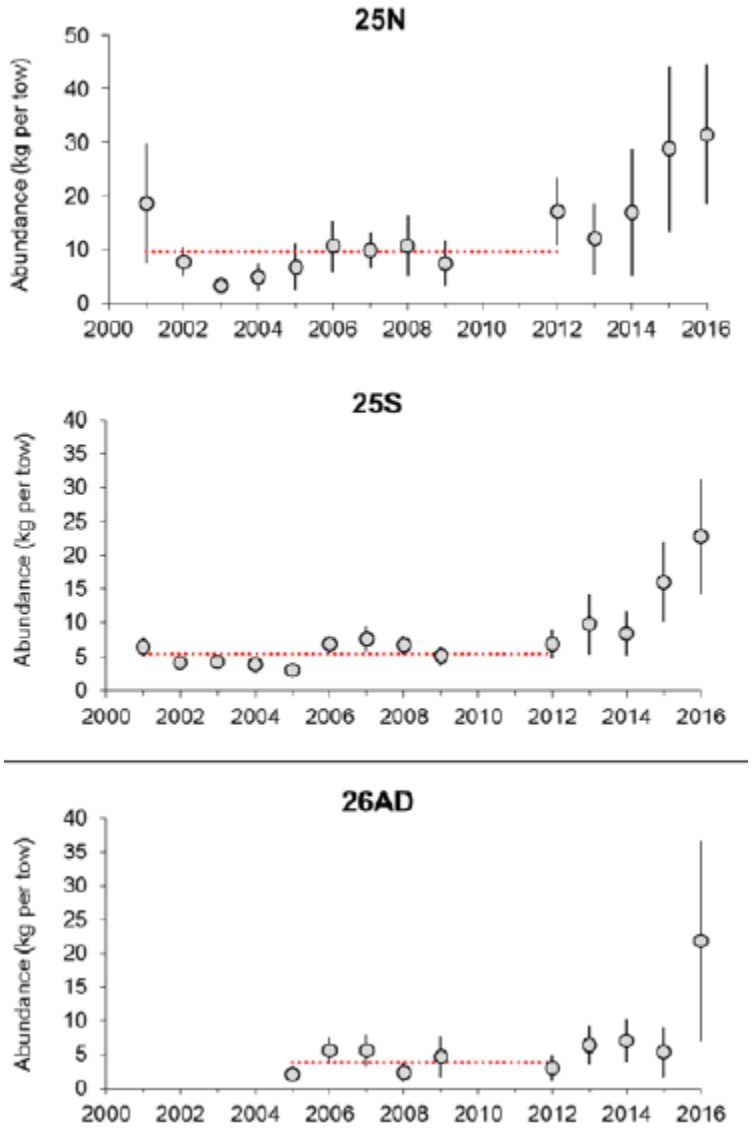

Figure 2. Trends in the abundance indicator (kg per standardized tow, mean and 95% confidence interval) for all lobster sizes in sub-regions 25N (upper panel), 25S (middle panel) and 26AD (bottom panel) from the bottom trawl survey for 2001 to 2009, and 2012 to 2016. The horizontal lines are the mean values for the time series presented at the last lobster stock status; 2001 to 2012 except for sub-region 26AD (2005 to 2012). Source: DFO 2016d.

Abundance from SCUBA survey

The standardized abundance of all-size groups of lobster has increased steadily and significantly from 2003 to 2016 (Figure 3). From 2012 to 2016, the mean abundance increased more than 3.7-fold, from 12.1 to 44.4 lobsters per 100 m².

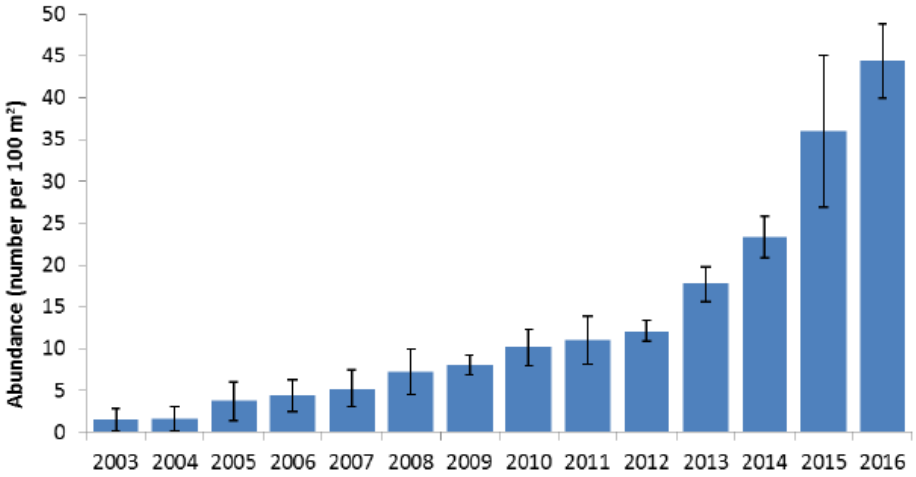

Figure 3. Standardized mean abundance (number of lobsters per 100 m²) from SCUBA surveys between 2003 and 2016, averaged over sites and cohorts from the Bayesian model. Also shown are 95% credibility intervals from the posterior distributions of the model fits. Source: DF0 2016cd

4.2.1.3 Production

Catch rates of pre-fishery recruit size lobsters in modified traps from the recruitment-index program were used as a fishery-dependent indicator of pre-fishery recruitment. Since the last assessment, CPUE have increased markedly in all areas (Figure 4). The sharp increase of this indicator for 25S might indicate a recent pulse of pre-fishery recruits in an area that has been showing very little positive production indicators in the last two assessments.

Abundances of 1-year old lobsters assessed by SCUBA surveys between 2003 and 2016 have significantly increased in all sub-regions except 26AD (Figure 5). Increasing trends and high values were observed between 2012 and 2016 for sites outside central Northumberland Strait (Figure 5). In contrast with the last assessment, significant increases were also observed for sites within the sub-region 25S; 11.0, 11.4 and 69.1-fold increases in Shediac, Cocagne and Murray Corner, respectively. However, the abundances in these sites remain lower compared to those outside the Strait (Figure 5).

The abundance of settlers (young-of-the-year per m²) estimated from the industry-led monitoring of bio-collectors showed extremely high lobster settlement in sub-region 25N reaching record high abundances (approximately 8 settlers per m²) within the entire geographical range of the American lobster (DFO 2016d). High abundances of lobster settlement are considered approximately 2 settlers per m² throughout the lobster's range. Between 2012 and 2015, the abundances of settlers increased 1.9, 3.0 and 4.4-fold in Covehead, Alberton, and Skinners Pond, respectively. In comparison, abundances in the United States waters are at their lowest, at or near zero, since 2012 (DFO 2016d).

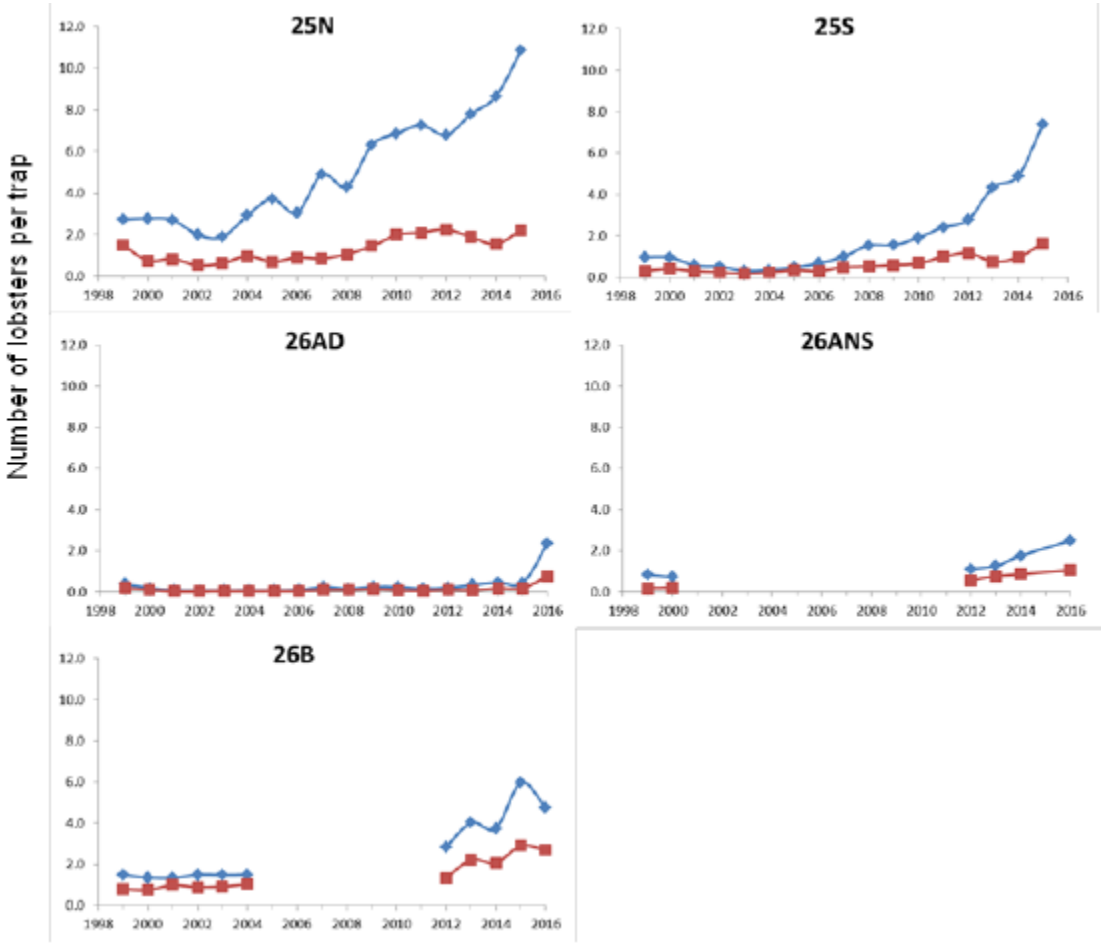

Figure 4. Annual catch per unit effort (number of lobsters per trap) for pre-fishery recruit size (bin sizes 1-4) male and non-berried-female lobsters in regular (square symbols) and modified (diamond symbols) traps from the recruitment-index program 1999 to 2015 or to 2016 according to data availability. Source: DFO 2016d.

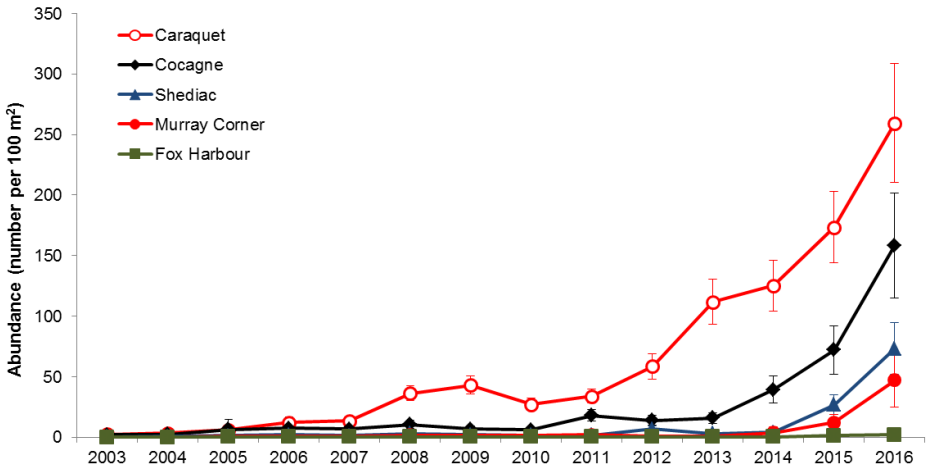

Figure 5. Standardized mean abundance (number of lobsters per 100 m²) from SCUBA surveys for 1-year old lobsters for Caraquet (23BC), Cocagne (25S), Shediac (25S), Murray Corner (25S), and Fox Harbour (26AD) derived from the Bayesian model for the years 2003 to 2016. Also shown are 95% credibility intervals from the posterior distributions of the model fits. Source: DFO 2016d.

4.2.1.4 Conclusions

Based on the updated fishery-dependent and independent indices (DF0 2016d), lobsters in the SGSL continue to be in high abundance and recruitment signs are positive everywhere except, in sub-region 26AD (eastern end of central Northumberland Strait). Recent landings are either above long-term medians or the highest of the time series. The 2015 preliminary landings are well above the precautionary approach's USR, therefore positioning the SGSL lobster stocks in the healthy zone.

While increased landings reflect a high abundance of commercially exploitable lobsters, fishery-independent recruitment indicators are also showing significant increases since the last assessment. Other production indicators based on fishery-dependent data are also positive with CPUE of berried females and pre-fishery recruits in their highest range.

4.2.2 UoA 2 – Eastern Nova-Scotia

The lobster stock assessment is based on the analysis of trends of stock indicators. They are primarily fishery-dependent data which consist of landings and effort data from the fishery, port and at-sea samples of the commercial catch and data from standard traps maintained by Fishermen and Scientist Research Society (FSRS) study participants. Landing levels are a function of abundance and a wide range of other factors but are still thought to be indicative of general trends and patterns of abundance. Catch rates (CPUE) are also affected by factors other than abundance. Commercial CPUE for LFAs 27-33 comes from two sources: mandatory logs and voluntary logs.

A cluster analysis of historical lobster landings (1947-2009) for Statistical District (SD) was used to group LFAs for assessment purposes.

Cluster groups resulting provided three assessment units

1. Northeastern Cape Breton (LFA 27);
2. Southeastern-Cape Breton, Chedabucto Bay and Eastern Shore (LFA 28-32);
3. South Shore (LFA 33)

The status of the Eastern Scotia lobster stock was updated in February 2017. The report was not published at the time of the surveillance audit but DFO informed the assessment team that the stock status has not changed and lobster stock in Eastern Nova-Scotia remains healthy.

4.2.3 UoA 3 – Southern Nova-Scotia

There is no direct measurement of lobster biomass (empirical or analytical). The lobster stock assessment is based on the analysis of trends of stock indicators. They are fishery-dependent and fishery independent. Fishery dependent data consist of landings and effort data from the fishery, port and at sea samples of the commercial catch and data from standard traps maintained by FSRS study participants. Landing levels are a function of abundance and a wide range of other factors but are still thought to be indicative of general trends and patterns of abundance. CPUEs are also affected by factors other than abundance. Fishery independent data are the regular summer DFO research survey, a trawl survey carried on by the industry ("ITQ survey"), and the scallop survey, which records lobster catches.

The ITQ survey in LFA 34 had the same 32 fixed stations sampled annually since 1997. There have been a number of exploratory tows and changing protocols outside of those core 32 stations over the last 3 years. In 2016, DFO Maritimes Lobster research team are focusing on building upon the core 32 stations and developing a standard protocol and survey design for continuing the trawl survey into the future (DFO *pers. comm*.).

The status of the lobster stock in Southwest Nova Scotia was updated in 2016 (DFO 2016e), the results of this update are presented in this report.

4.2.3.1 Landings

Landings for 2014-2015 were the second highest on record (Figure 6). The USR for the biomass of legal lobsters based on landings (8,867 t) was defined as 80% of the median for the period 1984-85 to 2008-09. For the season ending 2014-15, the 3-year running mean landings was 24,111 t, which was above the USR.

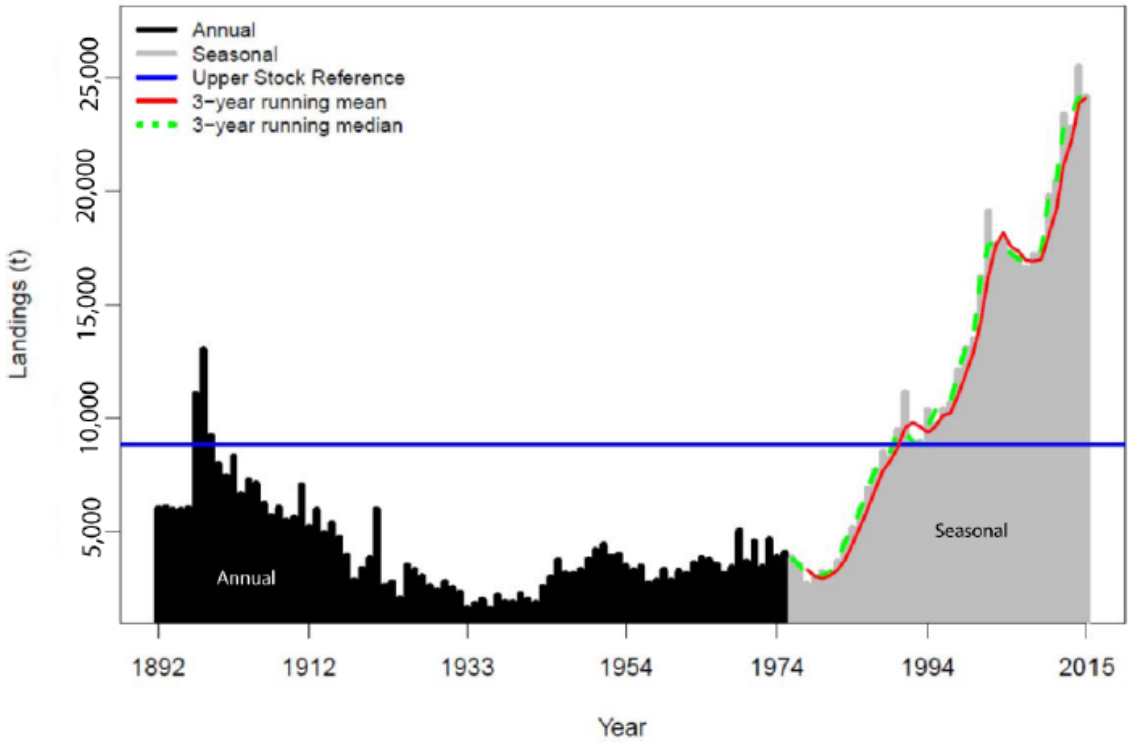

Figure 6. Annual lobster landings by the commercial fishery in LFA 34, 1892 to 1975 (black bars) and seasonal commercial landings (grey bars) from 1976 to 2015 (where 2015 represents the 2014-2015 season). The Upper Stock Reference defined as 80% of the median of landings in the period of 1985 to 2009 is shown as the horizontal blue line. The 3-year running mean of landings is shown as the solid red line. The 3-year running median is the dashed green line. Source: DFO 2016e.

4.2.3.2 Commercial Catch Rate

The commercial catch-per-unit-effort (CPUE, in kg/trap haul) has increased substantially since 1999-2000, and the 2013-2014 and 2014-2015 values of 1.25 kg/trap haul were the highest on record. The USR for the biomass of legal size lobsters based on the CPUE (0.62 kg/trap haul) was defined as 80% of the median for the reference period 1998-1999 to 2008-2009. The current 3-year running mean is 1.23 kg/trap haul, which is above the USR (Figure 7).

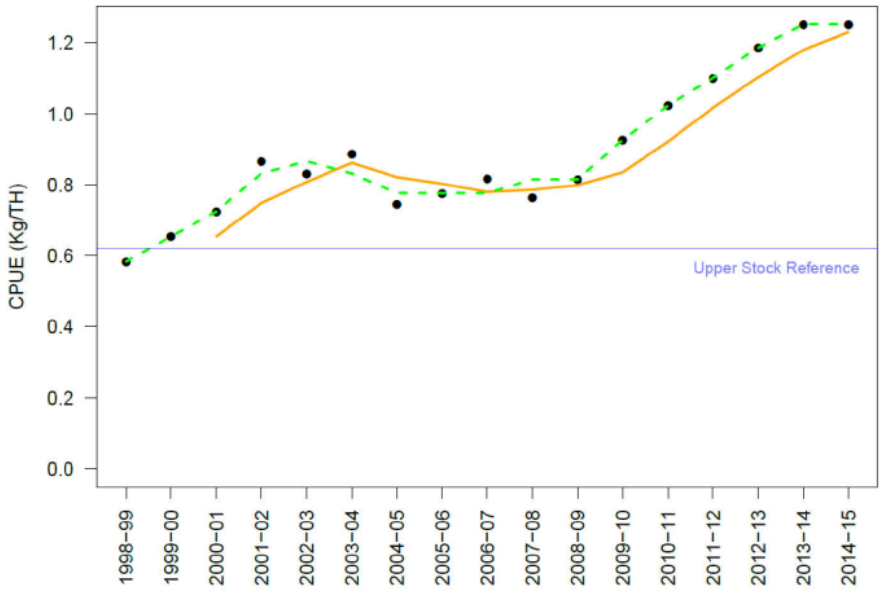

Figure 7. Trend in commercial CPUE (total weight landed (kg)/total trap hauls) for available time period together with the Upper Stock Reference (USR) (horizontal line at 0.62 kg/trap haul). The USR is based on 80% of the median CPUE from 1998-1999 to 2008-2009. The solid orange line is the 3-year running mean (1.23 after 2014-2015 season). The dashed green line is the 3-year running median. Source: DFO 2016e.

4.2.3.3 Fishery-Independent Survey

The fishery independent indicator in the last assessment (2013) was based on the catch rate (number of lobsters/tow) from the ILTS. This survey was historically designed for other species but also sampled lobsters. The USR for total (legal and sublegal) lobster abundance based on this survey was 80% of the median catch rate for the period 1996-2009. Figure 8 shows that the 3-year running mean after the 2015 survey was above the USR and has been relatively stable for the past 4 years.

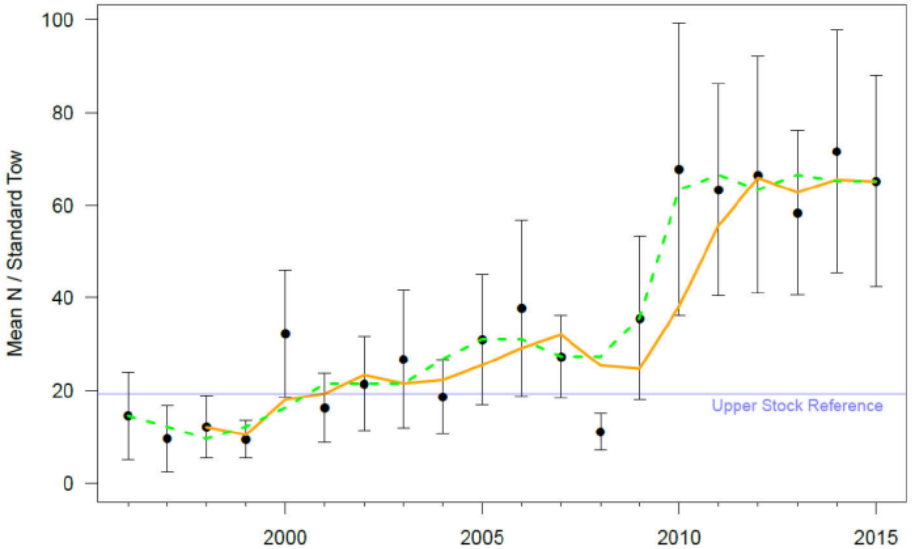

Figure 8. Trend in mean number of lobsters per standard tow from the ILTS (formerly ITQ) survey with a reduced number of stations (n=32) (DFO 2015) to adjust for changes to the survey in 2013. Standard error bars are shown for each year. An adjusted Upper Stock Reference (horizontal line at 19.3 lobsters/standard tow) was calculated by taking 80% of the median number per standard tow for the reduced number of stations. The solid orange line is the 3-year running mean. The dashed green line is the 3-year running median. Source: DFO 2016e.

4.2.3.4 Conclusion

At the end of the 2014-2015 season, the lobster stock in LFA 34 was considered to be in the healthy zone based on three indicators (landings, commercial catch rate and trawl survey catch rate). The 3-year running mean of each indicator is above the respective USRs.

Each of the indicators has strengths and weaknesses that were outlined in the previous assessment. Given that all three are providing similar signals, there is confidence that the stock abundance and biomass remains high relative to the 1985-2009 period.

4.2.4 UoA 4 – Bay of Fundy

Three abundance indicators were regarded as primary, and associated reference points were tabled. The first abundance indicator was based on landings. Landings-based reference points are part of the current Inshore Lobster Integrated Fishery Management Plan for LFAs 27-38. It was recognized that using landings as the sole indicator of abundance for lobster stocks has risks, and one of the goals of the 2013 assessment was to provide potential alternatives. Two additional abundance indicators and associated reference points were proposed. One was based on commercial catch rate calculated as total landings per total trap hauls in LFAs 35-38 from complete records of the fishermen logbooks. The second was based on the stratified mean of number of lobsters per tow in a fishery-independent trawl survey (summer Research Vessel (RV) Survey). There were no changes to the summer RV survey design since 1970.

The status of the Bay of Fundy lobster stock was not updated since the 1st surveillance audit, the last update was done in 2015. At that time, landings which are considered as the first abundance indicator, were well above the USR.

4.3 Ecosystem observations

4.3.1 UoA 1 – SGSL

4.3.1.1 Retained species

Under licence conditions, rock crab (*Cancer irroratus*), cunner (*Tautogolabrus adspersus*) and sculpin (*Myoxocephalus octodecemspinocus*) are allowed to be landed. It is required to record the amount of rock crab, sculpin and cunner landed in lobster logbooks (implemented in 2014).

Rock crab

Table 19 presents rock crab landings during the lobster fishery and rock crab directed fishery. The rock crab directed fishery is carried out at a different time that the lobster fishery.

A sharp decrease was observed in rock crab landings between 2012 and 2014. Landings are stable between 2014 and 2015.

Table 19. Rock crab landings (mt) during the lobster fishery. Source: DFO Gulf, provided before the site visit.

	Rock crab landings during lobster fishery (mt)						Total landed during rock crab directed fishery (mt)	% of total rock crab landings coming from the lobster fishery
	23	24	25	26A	26B	Total		
2014	*	*	16.4	56.3	*	**73.3**	3,263	**2.2%**
2015	*	*	11.7	63.8	*	**75.7**	3,061	**2.47%**

**Confidential: landings from than 5 harvesters*

There is no estimate of total biomass of rock crab in the SGSL, in term of male biomass available to the fishery or estimates of exploitation rates. The last rock crab stock assessment report was published in 2013.

An update of the rock crab fishery status indicator was requested by DFO Gulf Region and a Science Response report was published in January 2017 (DFO 2017a). The next complete stock assessment is scheduled for 2018. The stock status update was mostly based on fishery-dependent indicators including landings, catch per unit effort, and the percentage of licence holders reaching their individual allocation based on information recorded in logbook reports, dockside monitoring program records, and licence type statistics. Since the last assessment, no trawl or trap survey was conducted to gather fishery-independent data. The only available fishery-independent indicator is the industry-led bio-collectors study around Prince Edward Island from which a rock crab settlement index was derived for the years 2008 and 2016. Although the bio-collectors were originally designed to monitor lobster settlement, they were also efficient in collecting rock crab settlers and provided the only data for early rock crab benthic stages.

Landings of rock crab from the directed fishery have decreased between 2011 and 2015, consistent with the decrease in the number of fishing trips. Catch rates varied in recent years according to the LFA, with high values in 2015 for LFAs 23 and 25 but in the lower range for LFAs 24 and 26A. Contrasting patterns have been observed from the rock crab settlement index, with very low abundance values in the highly fished areas (LFAs 25 and 26A) and the highest values in LFA 24 where directed fishing activities are marginal and catch rates are at their lowest.
Adjustments of escape mechanisms in lobster traps have most likely reduced the amount of rock crab retained and this could explain the decrease in recorded bycatch landings. The effect of this measure may vary among LFAs and is not quantified.
Observed variations in these indicators may not reflect changes in the rock crab abundance because catch and effort trends could have been influenced by management decisions and market demands. Landings are unlikely a proxy of biomass because of individual allocations.

Cunner and sculpin
Table 20 presents the estimated amount of cunner and sculpin landed from lobster logbooks in 2015.

There is neither a formal monitoring or cunner and sculpin populations nor a stock assessment. During the full assessment, the Assessment team has been told that decrease of abundance or size has not been observed and that there is no concern about both species. No concern was raised during the surveillance audit neither.

Table 20. Amount (lbs) of cunner and sculpin landed estimated from lobster logbooks, 2015. Source: DFO Gulf, provided before the site visit.

2015 lobster fishing season - Cunner		Licensed Fishing Area 23	25	26A	26B
Estimated weight of cunner (X1000 lbs)		40	33	34	26
Number of reported harvester-days	With cunners landed or used as bait	3,771	3,922	7,117	2,422
	Without reported cunners	25,206	19,055	19,338	5,831
	Total number of harvester-days	28,977	22,977	26,455	8,253
2015 lobster fishing season - Sculpin		Licensed Fishing Area 23	25	26A	26b
Estimated weight of scuplin (x1000 lbs)		13	10	17	14
Number of reported harvester-days at sea	With sculpins landed or used as bait	2,759	3,756	7,928	3,539
	Without reported sculpins	26,218	19,221	18,527	4,714
	Total number of harvester-days	28,977	22,977	26,455	8,253

Species used as bait

During the full assessment, it was determined that main species used as bait are Atlantic mackerel and SGSL fall herring.

Two conditions related to the use of mackerel as bait and its stock status have been raised during the initial assessment. Progress against these conditions are presented in section 6.

The surveillance team discussed by conference call with Thomas Doniol-Valcroze, a DFO mackerel scientist, during the surveillance audit for the Gaspésie lobster fishery (same conditions were raised on this fishery) surveillance audit held on Tuesday 4th April 2017. The Atlantic mackerel stock assessment was carried out in March 2017 but the stock assessment report has not been published yet. However, T. Doniol-Valcroze provided the surveillance team with a summary of the stock assessment outcomes. The issue of unreported catches has been investigated and shows that total catches can reach 150% to 200% of declared catches depending of the region (Van Beveren *et al* 2017). A new population dynamics model was developed to allow to include sources of uncertainties including estimated unrecorded catches and calculate reliable reference points (DFO 2017b). According to this statistical catch-at-age model, calibrated with the abundance index from the egg survey and taking into account the uncertainty due to unrecorded catches, the 2016 mackerel abundance was about 40% of the limit reference point.

The last stock assessment for the SGSL fall herring was published in September 2016 (DFO 2016f). The fall spawner component trajectory with respect to spawning stock biomass (SSB) and fishing mortality levels is shown in Figure 9. Although the median estimate of the SSB has generally been in the healthy zone (SSB > 172,000 t) over its history, the SSB shows a recent decline (since 2009) with the median estimate of SSB being at 165,000 t in 2016, which is slightly below the Upper Stock Reference. It can be concluded that the SGSL fall herring is still highly likely within biologically based limits.

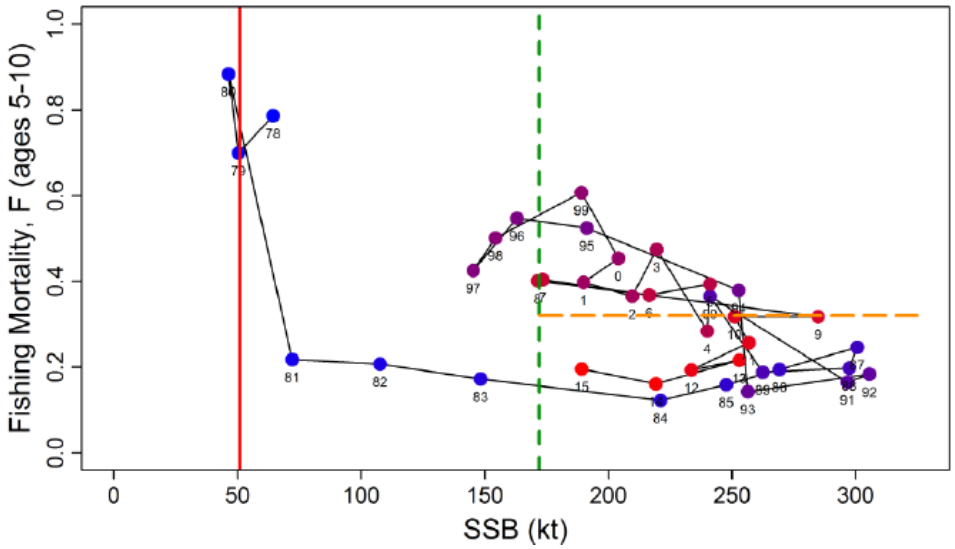

Figure 9. The southern Gulf of St. Lawrence Atlantic herring fall spawner component trajectory in relation to spawning stock biomass (SSB, kt = thousand t) and fishing mortality reference levels. The solid red vertical line is the LRP (51,000 t), the green dashed vertical line is the Upper Stock Reference (USR = 172,000 t), and the dashed horizontal line is the removal rate reference value (F0.1 = 0.32). Point labels are years (83 = 1983, 0 = 2000). Colour coding is from blue in the 1970s and early 1980s to red in the 2000s. Source: DFO 2016f.

4.3.1.2 Bycatch species

Although cunner and sculpin are allowed to be landed, an important amount is returned to the sea in a manner that causes the least harm. During the full assessment Risk Based Framework meeting, these species have been identified as main bycatch species, and it was again confirmed during the surveillance audit.

A condition related to the bycatch monitoring has been raised during the full assessment. Progress against these conditions are presented in section 6.

4.3.1.3 Endangered Threatened and Protected (ETP) species

Since the 2015 fishing season, logbooks for Species at Risk (SAR) interactions require a nil response and must be returned; in the past if no interaction occurred a logbook was not required to be submitted.
The assessment team determined that there is no change to the risk level to ETP species and the fishery continues to not hinder the recovery of ETP species including large whales. Updated information about the interactions between the lobster fishery and the North Atlantic right whale is provided in Appendix 2.

The surveillance team has been provided with the data from the Species at Risk Act (SARA) logbooks for 2015 and 2016 (Table 21). All the interactions reported, the species condition was described as released alive.

Table 21. Number of SARA logbooks returned, nil and with interactions. Source: DFO, information provided before the site visit.

	Logbooks returned	Nil logbooks	Logbooks with interactions
2015	68	66	2 with interactions with Northern wolffish
2016	119	113	6 with interactions: - 1 logbook reported interactions with spotted and Northern wolffish and leatherback turtle - 2 logbooks reported interactions with Northern wolffish - 3 logbooks reported interactions with spotted wolffish

DFO pointed out that these data should be considered with caution as the spotted and Northern wolffish are not species inhabiting the area where the PEI lobster fishery operates (Figure 10 and 11). DFO and the client consider that the spotted and Northern wolffishes have potentially been confused with the ocean pout (*Zoarces americanus*), a non-ETP species with very similar external characteristics and very abundant in the region.
Given the importance of a correct identification of species, the surveillance team raised a recommendation.

Recommendation

A recommendation is not obligatory and does not require a client action plan as for a condition. It means that it does not have to be implemented to maintain the certification. But the client is encourage to act upon within the spirit of the MSC certification.

Although a booklet which aims to help for wolffish species identification has been issued by DFO[1] and provided to fishermen associations of all Atlantic provinces, the surveillance team recommends that an fishermen awareness and education campaign being implemented to improve identification of wolffish species in bycatches.

[1] http://waves-vagues.dfo-mpo.gc.ca/Library/366349.pdf

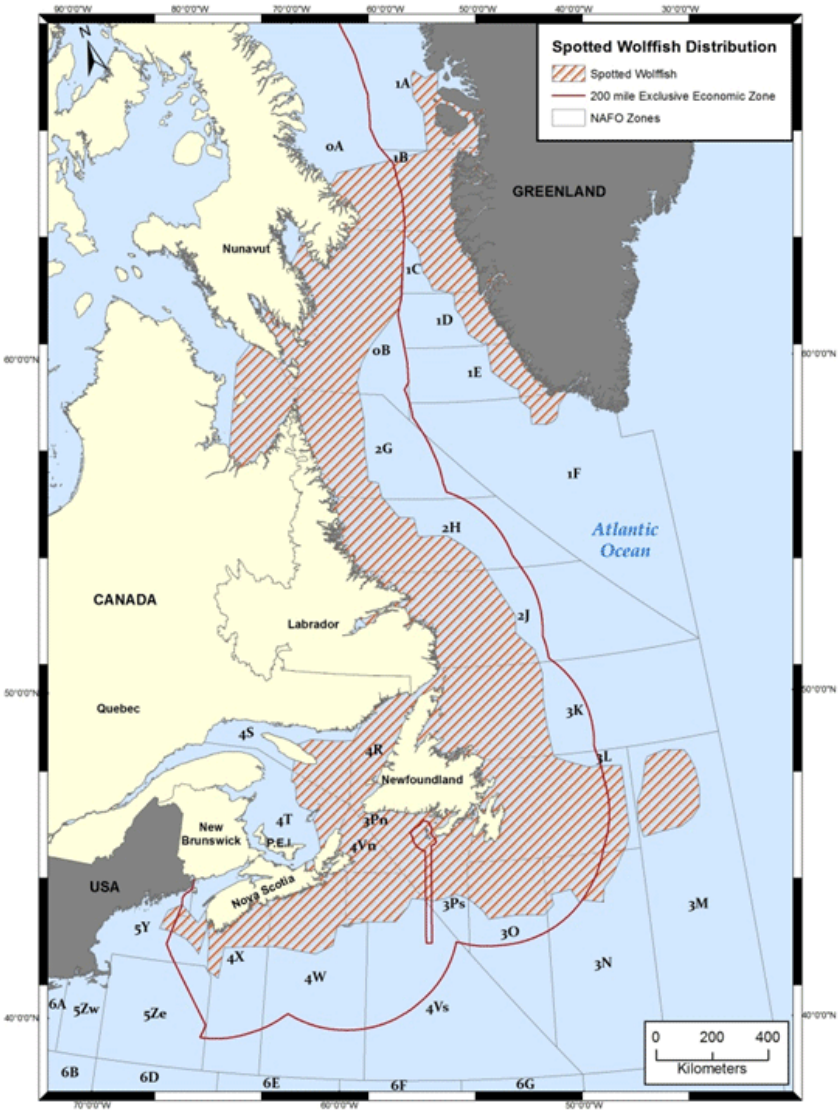

Figure 10. Spotted wolffish distribution. Source: http://www.dfo-mpo.gc.ca/species-especes/profiles-profils/spottedwolf-louptachete-eng.html

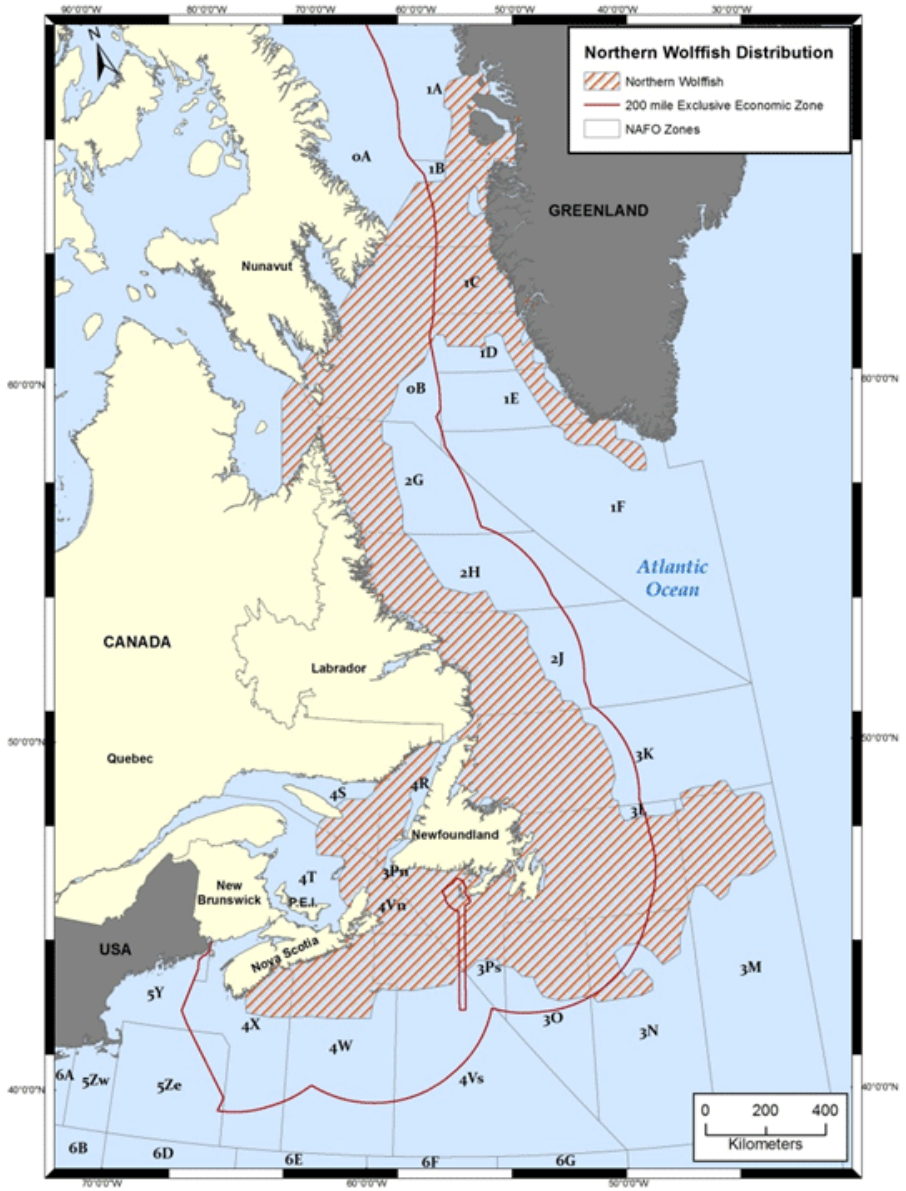

Figure 11. Northern wolffish distribution. Source: http://www.dfo-mpo.gc.ca/species-especes/profiles-profils/northernwolffish-loupatetelarge-eng.html

4.3.2 UoAs 2, 3 and 4 - Maritimes

4.3.2.1 Retained species

By licence condition, all inshore Lobster harvesters in LFAs 27-38 are authorized to retain green crab (*Carcinus maenas*), rock crab (*Cancer irroratus*), and sculpin (*Myoxocephalus octodecemspinocus*). In addition, harvesters in LFAs 34-38 are authorized to retain Jonah crab (*Cancer borealis*) that is ≥ 130 mm in length. However, in actual fishing practices, sculpin is not retained.

The surveillance team was provided with crab landings for all Maritimes LFAs combined (Table 22).

Table 22. Rock crab and Jonah crab landings (kg), 2014-2016. Source: DFO, at surveillance audit**.**

Season	Rock Crab	Jonah crab
2014-2015	201.631	190.211
2015-2016	128.135	241.358

There is no stock assessment for inshore rock crab and Jonah crab. During the full assessment, it was determined that the level of exploitation does not appear to have an impact on crab resources given the protection of brood stock provided by the MLS and the mandatory release of female crabs. No concerns was raised about crab species status during the surveillance audit.

Species used as bait

During the full assessment, it was determined that main species used as bait are Atlantic mackerel (primarily) and local herring. Lobster harvesters in LFA 27 have been authorized to retain cunner and use it as bait on a pilot basis. The LFA 27 Management Board has agreed to collect data on cunner and report the impact the fishery is having on this species. The assessment team has been informed that lobster harvesters in LFA 31A and 31B have requested to also retained cunner, the request is currently under consideration (DFO Maritimes *pers. comm.* during site visit).

The 4VWX herring stock was updated in 2016 (DFO 2016g). The 3-year moving average for the acoustic surveys estimate (Scots Bay and German Bank combined) is above the LRP point by 13 % and 12 % in 2014 and 2015, respectively (Figure 12). Although the 2015 acoustic surveys estimate (461,600t) increased, the 3-year moving average (420,500t) decreased slightly from the 2014 estimate resulting in little change in the last two years.

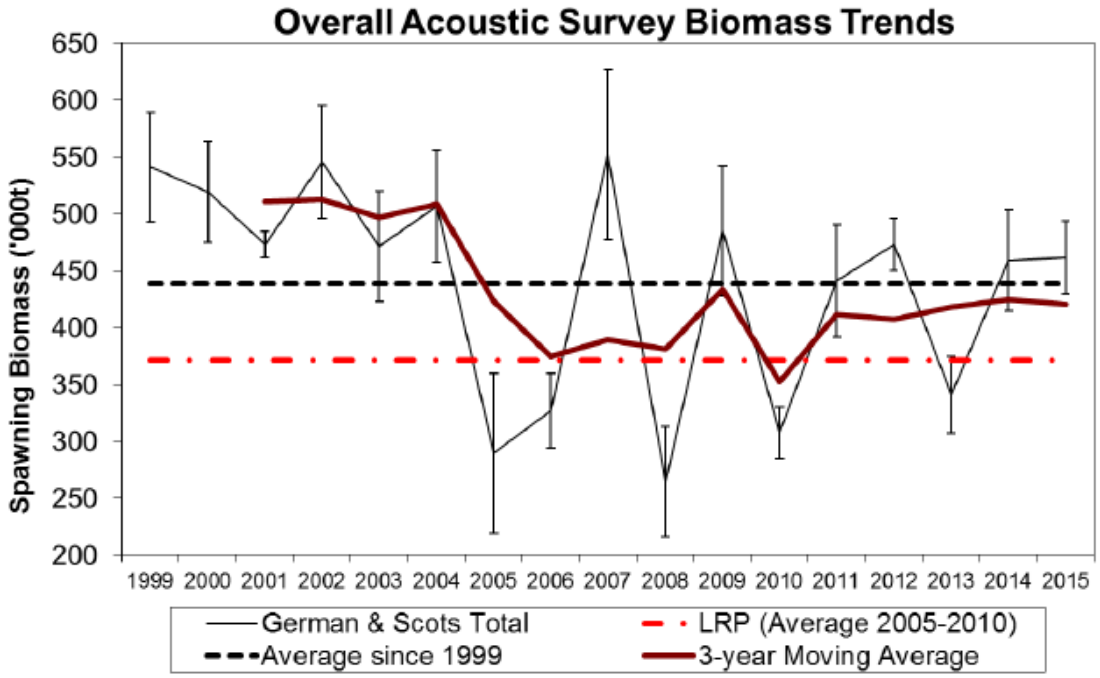

Figure 12. Relative spawning stock biomass index (with 95% standard errors), the calculated 3-year moving average, the average since 1999, and the limit reference point (LRP) for the Southwest Nova Scotia/Bay of Fundy spawning component (German Bank and Scots Bay). Source: DFO 2016g.

Two conditions related to the use of mackerel as bait and its stock status have been raised during the initial assessment. Progress against these conditions are presented in section 6. For an update on Atlantic mackerel stock, refer to section 4.3.1.1.

There is no formal stock assessment for cunner. During the full assessment, the assessment team has been told that decrease of abundance or size has not been observed and that there is no concern about this species. The use of cunner as bait is implemented with cautious, a MLS is in place and LFA 27 Management Board put forward a proposal to evaluate/monitor the impact of the use of cunner as bait on cunner population.

4.3.2.2 Bycatch species

Based on the information available during the initial assessment, it was determined that the level of bycatch is very low. However, due to their vulnerability, cod and cusk were considered as main bycatch species.

Cusk is currently under consideration for *Species At Risk Act* listing, and the recommendation of listing or not is scheduled to be published 2017. An update of cusk stock in 4VWX5Z was published in April 2017 (DFO 2017d). The 3-year geometric mean (2014-2016) of the Halibut Survey biomass index for Cusk remains above the LRP at 15.1 kg (Figure 13).

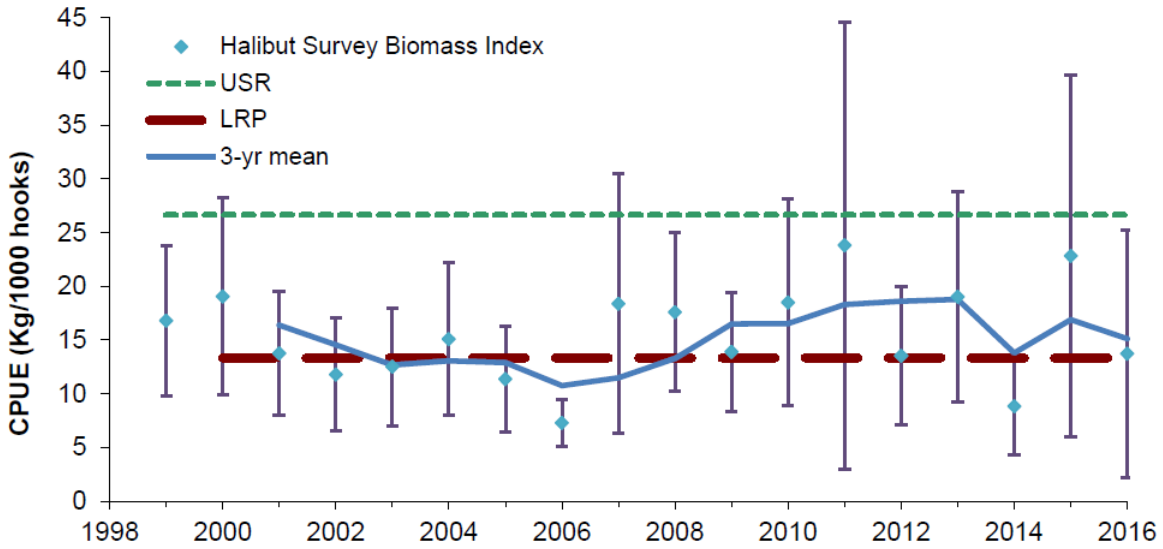

Figure 13. The green dashed reference line represents the Upper Stock Reference (USR) point, the red dotted reference line represents the Limit Reference Point (LRP), the blue diamonds represent the biomass index for Cusk in the Halibut Survey, including the 95% confidence interval, and the solid blue line represents the 3-year geometric mean of the index. Source: DFO 2017d.

A condition related to the bycatch monitoring has been raised during the initial assessment. Progress against these conditions are presented in section 6.

4.3.2.3 Endangered Threatened and Protected (ETP) species

During the full assessment, the assessment team evaluated that it is highly likely that the Bay of Fundy and Scotian Shelf trap fisheries do not pose a risk of serious or irreversible harm to ETP species and do not hinder recovery of ETP species. The surveillance team determined that there is no change to the risk level to ETP species and lobster fisheries continue not to pose a risk of serious or irreversible harm to ETP species.

The licence holders are now required to submit SARA logs on a monthly basis as opposed to once at the end of the fishing season.

Based on the information from SARA logbooks for 2014-2016, with, encounters with SAR species are most often interactions with wolffish (Table 23) that are return alive to the sea.

Table 23. Recorded interactions with ETP species, 2014-2016. Source: DFO Maritimes, information provided during the site visit.

Season	LFA	Species	Species count	Number of occurrences
2014-2015	31A	Spotted wolffish Northern wolffish	2 1	2 1
2014-2015	27	Northern wolffish	8	1
2014-2015	33	Northern wolffish	2	2
2015-2016	28-31A	Spotted wolffish Northern wolffis	2 1	2 1
2015-2016	27	Northern wolffish	5	4

4.3.2.4 Habitats

The Jordan Basin and Corsair/Georges Canyons conservation areas off Nova Scotia (Figure 14) have been closed to bottom-contact fishing gear to protect cold-water corals and sponges. The lobster fishery in LFA 34 is affected by the Jordan Basin closure.

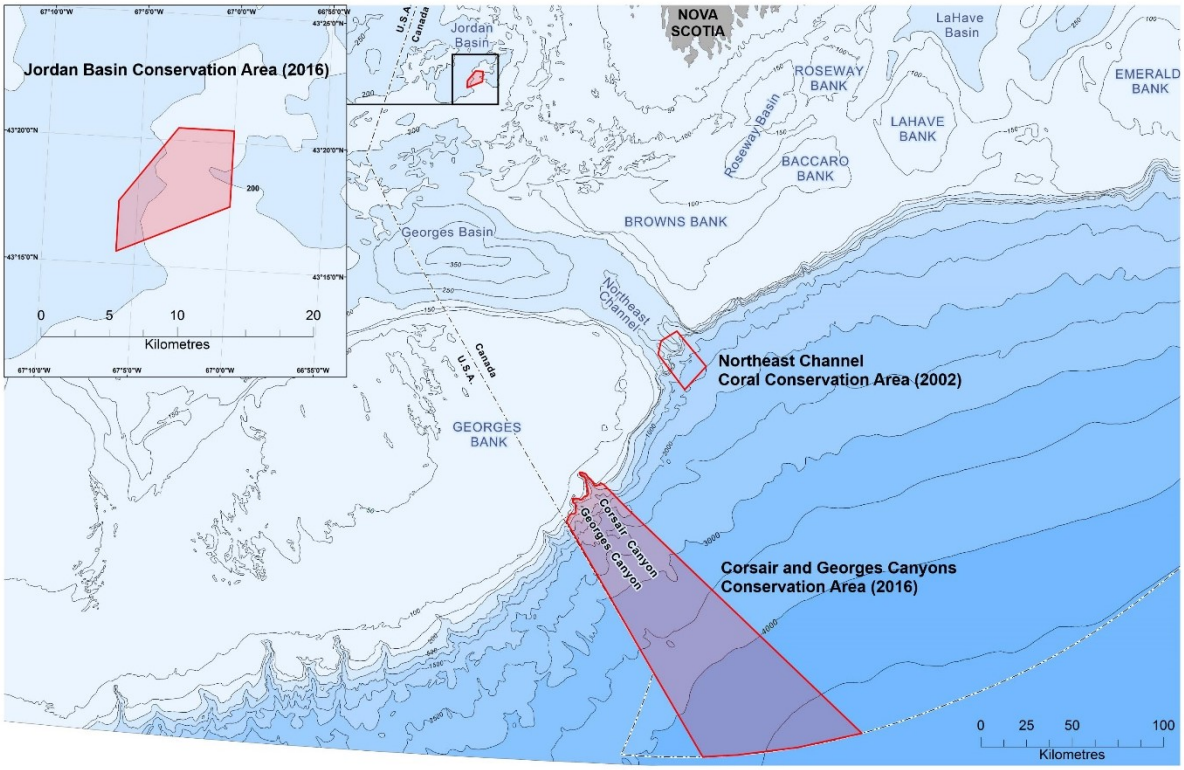

Figure 14. Jordan Basin and Corsair and Georges Canyons Conservation Areas. Source: http://www.dfo-mpo.gc.ca/oceans/publications/backgrounder-fiche/index-eng.html

4.4 Management System

4.1.1. Relevant changes to Legislation and Regulations

There were no major changes to the legislation and/or regulations that governs the Bay of Fundy, Scotian Shelf and Southern Gulf of St Lawrence Lobster Trap Fishery.

The MLS has been increased in several LFA in the SGSL (section 4.1.)

4.1.2. Relevant changes to the Management Regime

There have been no changes to the management regime of the Bay of Fundy, Scotian Shelf and Southern Gulf of St Lawrence Lobster Trap Fishery since the full assessment and the 1st surveillance audit that have a bearing on the performance of the fisheries against the MSC Standard.

4.1.3. Changes to personnel in science and management

UoA 1 (SGSL)

There were changes in DFO Gulf Management since 2015:

- Senior Regional Fisheries and Aquaculture (FAM) Officer: Dan McLaughlin: 2015-February 2016; Vacant (covered by manager) Feb 2016-April 2016; Josiane Massiéra April 1 2016-Present.

- Regional FAM Manager – Shellfish : Réjean Hébert until June 2015; Marc LeCouffe: June 2015-Novembre 2015; Isabelle Frenette: November 2015-June 2016; Carole LeBlanc: November 2016-present

There were no changes in DFO Science staff.

UoAs 2, 3, and 4 (Maritimes)

There were no changes in DFO Maritimes lobster Management and Science since the 1st surveillance audit.

4.1.4. Compliance and enforcement

A comprehensive monitoring, control and surveillance system continues to be implemented in lobster fisheries both in the SGSL and the Maritimes. Compliance to regulations remains very high with a level of recidivism in the fishery to be extremely low (Conservation and Protection staff *per. comm*).

4.1.4.1. UoA 1 - SGSL

Table 24 shows enforcement activities and outcome for 2016 in the SGSL. More effort at-sea have been done last year. There are new fisheries officers.

Table 24. DFO Gulf Conservation & Protection enforcement activities and outcomes in 2016. Source: DFO Gulf, provided before the site visit.

2016 Enforcement Activity	LFA 23	LFA 25	LFA 26A	LFA 26B
Total Patrols	756	295	250	169
Total Patrol Hours	3,675	1,726	1,195	641
Total Fishery Officers Hours (on patrol)	4,203	1,770	1,225	791
Total Fishery Officer Effort (Hours)	7,736	3,017	1,934	1,193
Vessels Checked	471	277	722	293
Vehicles Checked	58	30	11	7
Persons Checked	704	213	930	444
Gear Checked	20,567	6,668	24,256	15,775
Sites Checked	1,411	594	329	239

2016 Enforcement Actions Taken	LFA 23	LFA 25	LFA 26 A&B	Total
Charges Laid	71	4	20	**95**
Charges Pending	38	17	24	**79**
Seizures	1	0	0	**1**
Warnings	19	40	91	**150**
Total	**129**	**61**	**135**	**325**

4.1.4.2. UoAs 2, 3, 4 - Maritimes

Table 25 shows enforcement activities and outcome in the Maritimes. Focus was on checking logbooks as a decrease on information accuracy and information gaps were observed in previous years.

Table 25. DFO Maritimes Conservation & Protection enforcement activities and outcomes. Source: DFO Maritimes, provided during the site visit.

Distribution of Work Effort	2013	2014	2015	2016
Total Fishery Officer Enforcement Hours expended on the Inshore Lobster Fishery. This number includes patrol hours.	30,147	29,288	28,390	28,373
Total Fishery Officers Patrol Hours (included in the totals above)	12,466	12,187	10,372	10,943

Air and At-Sea Surveillance Platform Hours	2013	2014	2015	2016
Air Surveillance Hours for the Inshore Lobster Fishery (SIS)	136	181	170	183
At-Sea Patrols (Large Patrol Vessels) hours for the Lobster Fishery. This number includes Inshore and Offshore as they cannot be separated. (VUTS)	134	532	323	507

Charge Information	2014	2015	2016	TOTAL
UoC 2: Eastern Scotian Shelf - LFA 27-33				
Area/Time	16	15	14	45
Assault/Obstruct	1	3	2	6
Illegal Gear/Used Illegally	26	44	11	81
Gear Conflict	1	0	0	1
Illegal Buy/Sell/Possess	65	44	15	124
Registration/Licence	39	41	6	86
Reporting	47	12	25	84
Species/Size Limit	14	15	6	35
Other Legislation	1	2	0	3
Total	**210**	**176**	**79**	**465**

Charge Information	2014	2015	2016	TOTAL
UoC 3: LFA 34				
Area/Time	20	30	4	54
Assault/Obstruct	1	1	1	3
Illegal Gear/Used Illegally	19	31	13	63
Gear Conflict	0	3	0	3
Illegal Buy/Sell/Possess	75	43	19	137
Illegal Transportation	0	1	0	1
Inspection	0	2	0	2
Registration/Licence	14	26	8	48
Reporting	6	6	0	12
Species/Size Limit	15	9	17	41
Other Legislation	0	1	1	2
Total	**150**	**153**	**63**	**366**
Charge Information	**2014**	**2015**	**2016**	**TOTAL**
UoC 4: LFA 35-38				
Area/Time	20	19	8	47
Assault/Obstruct	1	2	0	3
Illegal Gear/Used Illegally	6	9	3	18
Gear Conflict	0	2	0	2
Illegal Buy/Sell/Possess	44	41	1	86
Registration/Licence	7	38	7	52
Reporting	3	4	0	7
Species/Size Limit	4	9	0	13
Foreign – Unauthorized Entry/Fishing	3	0	0	3
Other Legislation	0	2	0	2
Total	**88**	**103**	**19**	**233**

4.5 The General Conditions of Certification

The general 'Conditions' set out for the Nova Scotia and New Brunswick Lobster Eco-Certification Society as the certificate holder at initial full assessment were as follows:

- The Client must recognize that MSC standards require regular monitoring inspections at least once a year, focusing on compliance with the 'Conditions' set forth in this report (as outlined below) and continued conformity with the standards of certification;

- The Client must agree by contract to be responsible financially and technically for compliance with required surveillance audits by an accredited MSC certification body, and a contract must be signed and verified by SAI Global prior to certification being awarded;

- The Client must recognize that MSC standards require a full re-evaluation for certification (as opposed to yearly monitoring for update purposes) every five years;

- Prior to receiving final certification, the Clients fulfilled the requirement to document an 'Action Plan' for Meeting the Conditions for Continued Certification' and have these approved by SAI Global; and

- The Client must provide a list of all the entities eligible for certification under the certificate. This list must be updated annually prior to each annual surveillance audit activity.

Fulfilment of General Conditions – Surveillance Audit 2:

- An Action Plan was submitted and accepted prior to the initial certification of the Bay of Fundy, Scotian Shelf and Southern Gulf of St Lawrence Lobster Trap Fishery and actions undertaken against the milestones of each Condition in the intervening period are reported upon in the next following sections.

- An up-dated list of client group members during for the 2017 fishery. This list was provided to SAI Global.

4.6 The Specific Conditions of Certification

During the initial assessment of the Bay of Fundy, Scotian Shelf and Southern Gulf of St Lawrence Lobster Trap Fishery, a conditional score was allocated for PI 1.2.2 Harvest Control Rules, PI 2.1.1 Retained Species Outcome, PI 2.1.2 Retained Species Management Strategy, PI 2.2.3 Bycatch species monitoring and PI 3.2.4 Research Plan.

Table 26 summarizes the status of each condition at surveillance 2.

Table 26. Summary of Assessment Conditions at surveillance audit 2.

Unit of Assessment 1 (UoA 1) – Southern Gulf of St Lawrence

Condition number	PI	Status	PI original score	PI revised score	Principle revised score
1	1.2.2	**Open-on target**	70	Not revised	P1: not revised
2	2.1.1	**Open- ahead target**	60	Not revised	P2: revised from 85.3 to **86** at surveillance 2
3	2.1.2	**Open- ahead target**	60	**70** at surveillance 2	
4	2.2.3	**Open- ahead target**	70	Not revised	
5	3.2.4	**Closed-ahead target**	70	**90** at surveillance 1	P3: revised from 90.8 to **92.8** at surveillance 1

Unit of Assessment 2, 3 and 4 - Maritimes

Condition number	PI	Status	PI original score	PI revised score	Principle revised score
1	1.2.2	**Open-on target**	70	Not revised	P1: not revised
2	2.1.1	**Open- ahead target**	60	Not revised	P2: revised from 82.3 to **83** at surveillance 2
3	2.1.2	**Open- ahead target**	60	**70** at surveillance 2	
4	2.2.3	**Open- on target**	70	Not revised	
5	3.2.4	**Open-on target**	70	Not revised	P3 not revised

5 Assessment Process

The Surveillance Audit followed the current version of MSC procedures implemented by SAI Global's accredited MSC Procedures (QP).

MSC Scheme Document	Issue Date	Implementation
MSC Certification Requirements v1.3	January 14th, 2013	Standard
MSC FCR and Guidance v2.0	October 1st, 2014	Process
General Certification Requirements v.2.1	February 20th, 2015	Process
Surveillance Reporting Template v1.0	October 8th, 2014	Process

Table 5.3. Fishery Surveillance Program.

Surveillance Level	Year 1	Year 2	Year 3	Year 4
Level 6	On-site surveillance audit	On-site surveillance audit	On-site surveillance audit	On-site surveillance audit & re-certification site visit.

The surveillance audit was conducted as a normal onsite audit.

The Surveillance Audit was comprised in general of:

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.
3. To review any developments or changes within the fishery which impact traceability and the ability to segregate MSC from non-MSC products.
4. To review any other significant changes in the fishery.

The surveillance audit consisted of the announcement to stakeholders and interested parties as required through the MSC website and more direct stakeholder contact with the original stakeholders that took part in the initial assessment and management organizations that comprise the management system and regime for the PEI Lobster Trap Fishery. Through this process, a stakeholder consultation plan was developed as part of the on-site assessment.

Emails and information on objectives of the surveillance audit were sent to stakeholders and management agencies. From this, a surveillance on-site meeting plan was organized and appointments for each individual meeting set. Due to the nature of the management of the Bay of Fundy, Scotian Shelf and Southern Gulf of St Lawrence Lobster Trap Fishery, and the geographic location of the respective client and stakeholders, the on-site audit meeting was proposed to be in Moncton (New Brunswick) and Bedford and Halifax (Nova Scotia).

- On site Surveillance Audit date was 6th and 7th April 217.
- On-site audits were performed by Dr. Géraldine Criquet (Lead Auditor), and Dr. Jean-Claude Brêthes (Auditor).

The surveillance audit meeting was informed by a pre-determined agenda. The agenda was set out so as to allow specific stakeholder interests and concerns to be covered through a structured approach.

Information and notes from the consultation phase of the assessment were combined with a review of formal documentation from science and management agencies, regulatory amendments and the direct evidence collected during each of the client consultation meetings.

5.1 Summary of stakeholder and client meetings

Arising out of the stakeholder consultation plan preparation a considerable number of stakeholders were contacted directly by e-mail and a final direct consultation plan for the audit was prepared. Table 27 details the dates, meeting locations and organisations that were consulted through direct meetings or conference calls during the on-site surveillance assessment.

All meetings were conducted by the Surveillance Team Assessors.

5.2 Harmonization

The UoA 1 of the Bay of Fundy, Scotian Shelf and Southern Gulf of St Lawrence lobster fishery and the PEI lobster fishery overlap. PEI lobster was certified in November 2014. Scores of all Performance Indicators and overall score of Principles were harmonized and the same conditions were raised on both fisheries during the full assessment. The 2nd surveillance audit for both fisheries were combined and both client groups joint meetings were held during the surveillance audit site visit (see section 5.1).

The outcome and conclusion on conditions from the 2nd surveillance audit, presented in section 6, are the same for both fisheries.

Table 27. Consultation Meetings during the On Site Surveillance Assessment of the the Bay of Fundy, Scotian Shelf and Southern Gulf of St Lawrence Lobster Trap Fishery.

Organisation	Present at Meetings	Location	Venue	Date/Time	Topics discussed
DFO Gulf Region	**SAI Global** surveillance team **DFO**: Manon Mallet, Michel Comeau, Dave Austin, Jonathan Breault, Ray Mac Isaac, Josiane Massiera, Diane Amirault-Langlzus, Fabioloa Akaishi, Lindsay Waddel. **PEI DFARD**: Bob Creed, **PEI client group**: Ian MacPherson, Melanie Griffin, Roddie Milton. **NB-NS client representative**: Peter Norsworthy	Moncton, New Brunswick	DFO Gulf offices	6th April 2017, 8.30-10.30 am	Lobster stock assessment and status, lobster landings in the SGSL, traps characteristics, lobster fleet, management measures, enforcement and compliance, bycatch monitoring program, harvest control rules, retained species, rock crab stock assessment, interactions with ETP species, changes in DFO management system, mackerel directed fisheries management measures
PEI and NS-NB client groups	**SAI Global** surveillance team **PEI client group:** Ian MacPherson, Melanie Griffin, Roddie Milton **NB-NS client representative**: Peter Norsworthy **PEI DFARD:** Bob Creed **DFO**: Manon Mallet	Moncton, New Brunswick	DFO Gulf offices	6th April 2017, 10.30-11.30 am	PEI and NB-NS client groups joint approach to address conditions on 2.1.1 and 2.1.2 related to the use of Atlantic mackerel as bait
DFO Maritimes Region	**SAI Global** surveillance team **DFO**: Colleen Smith, Scott Coffen-Smout, Shan D. Robertson, Noël d'Entremont, Chris Sperry, Adam Cook, Sara Quinley **NB-NS client representative**: Peter Norsworthy	Halifax, Nova Scotia	DFO Maritimes offices	7th April 2017, 9.00-11.00 am	Lobster stock assessment and status, research project on lobster in collaboration with US, lobster landings in the Maritimes, traps characteristics, lobster fleet, management measures, enforcement and compliance, bycatch monitoring, cusk, MPAs, closed conservation areas, harvest control rules, retained species, research plan,

					lobster advisory committee meetings, Scotia-Fundy industry roundtable
NS-NB client group	**SAI Global** surveillance team **Client group** representative: Peter Norsworthy, Geoff Irvine	Halifax, Nova Scotia	Lunch	7th April 2017, 11.30 am-12.30 pm	Wrap-up meeting

6 Results

6.1 Evaluation tables for Conditions during the 2nd surveillance Audit 2017

6.1.1 Condition 1 of 5

UoA 1 – Southern Gulf of St Lawrence

	PI number(s)	Scoring issue/ scoring guidepost text	Score
Performance Indicator(s) & Score(s)	**1.2.2 Harvest Control Rules**	**Scoring issue a and b** **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.** **The selection of the harvest control rules takes into account the main uncertainties.**	**65**
Condition	The client must provide evidence of implementation of well-defined harvest control rules, taking into account uncertainties, that reduce exploitation rates as the limit reference point is approached.		
Client action plan and agreed Milestones	**Action Plan** 1. The client shall immediately engage DFO to discuss options and next steps to enable the client to fulfil this condition. 2. The client shall support the acquiring of any additional information that may be required to support these activities. 3. The client will provide documentary evidence of the requests and support provided on this condition. 4. The client will provide all necessary support to DFO to ensure that all required milestones as prescribed are met. **Milestones** By Year 1: The Assessment team shall be provided with documentary evidence that consultation between relevant stakeholders about the harvest control rules have been scheduled (score remains unchanged). By Year 2: The Assessment team shall be provided with documentary evidence that consultation between relevant stakeholders occurred to discuss about the harvest control rules (score remains unchanged). By Year 3: The Assessment team shall be provided with documentary evidence that harvest control rules have been defined and approved (score remains unchanged). By Year 4: The Assessment team shall be provided with documentary evidence that harvest control rules have been implemented (score reaches 80).		
Conclusion and Outcome on Condition 1 from 1st surveillance audit	Consultation between relevant stakeholders occurred to discuss about the harvest control rules. The evidence presented during the 1st surveillance audit demonstrates that the client's actions have met the requirements of the Action Plan for the Year 1 and Year 2. The Condition is not closed out since the original score for this PI remains unchanged. The fishery will be assessed at the next surveillance audit with respect to further work on the development of HCRs.		

Progress on Condition (Year 1)	Consultation between relevant stakeholders occurred to discuss about HCRs. A decision rules working group that includes DFO (4), Aboriginal organizations (4) and the fishery sector including PEI (3), NB (3) and NS (3) was created in 2014 and first meeting was held on November 2014. The surveillance team was provided with the working group Terms of Reference (TOR) and the November 2014 working group meeting agenda and minutes. During this meeting, the TOR were reviewed and the role of the working group which is to develop one of multiple options of HCRs was explained. DFO Science summarized the concept of the Precautionary Approach (PA), the reference points and the stock status zones, and explained how the reference points were developed. Also, the working group listed a full inventory of tools available in the "tool box" that could be used to develop HCRs. A second working group meeting was held on January 2015. The surveillance team was provided with the January meeting agenda. During this meeting, November 2014 meeting minutes were reviewed and approved, the potential HCRs list was reviewed and possible HCRs for the critical, cautious and healthy zones were discussed. Next step is for DFO to review the PA of other species for comparison/examples and to provide list options to the group prior to the series of meetings, which are to be scheduled in fall/winter 2016. When available, the HCRs options could be submitted for review using the DFO Science peer review process. These HCRs would in turn be presented for approval at a future Southern Gulf Lobster Advisory Committee.
Evidence for Year 2	A Decision Rules Working Group meeting was held in December 2016. The agenda was provided to the assessment team and is presented in Appendix 4.1. The working group agreed on proposed HCR (see Appendix 4.1) that were presented during the Southern Gulf of St Lawrence Lobster Advisory Committee meeting held in January 2017 (Agenda is presented in Appendix 4.1.). There was no opposition from the industry on the proposed HCR which were approved.
Conclusion and Outcome on Condition 1 from 2nd surveillance audit	The evidence presented during the 2nd surveillance audit demonstrates that the client's actions have fully met the requirements of the Action Plan for the Year 2 milestone and partially meet the requirements of the Action Plan for Year 3 of Condition 1. Although the HCR were defined and approved, the assessment team has not been provided with the minutes of the January 2017 SGSL Lobster Advisory Committee meeting as not available yet at the time of the surveillance audit, the assessment team considering that documentary evidence for approval is not available yet. The Condition is not closed out since the original score for this PI remains unchanged. The fishery will be assessed at the next surveillance audit with respect to the approval of the HCRs.
Status of condition 1	**Status of condition 1: Open – On target**

UoA 2, 3 and 4 - Maritimes

	PI number(s)	Scoring issue/ scoring guidepost text	Score
Performance Indicator(s) & Score(s)	**1.2.2 Harvest Control Rules**	**Scoring issue a and b** **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.** **The selection of the harvest control rules takes into account the main uncertainties.**	**65**
Condition	The client must provide evidence of implementation of well-defined harvest control rules, taking into account uncertainties, that reduce exploitation rates as the limit reference point is approached.		
Client action plan and agreed Milestones	**Action Plan** 1. The client shall immediately engage DFO to discuss options and next steps to enable the client to fulfil this condition. 2. The client shall support the acquiring of any additional information that may be required to support these activities. 3. The client will provide documentary evidence of the requests and support provided on this condition. 4. The client will provide all necessary support to DFO to ensure that all required milestones as prescribed are met. **Milestones** By Year 1: The Assessment team shall be provided with documentary evidence that consultation between relevant stakeholders about the harvest control rules have been scheduled (score remains unchanged). By Year 2: The Assessment team shall be provided with documentary evidence that consultation between relevant stakeholders occurred to discuss about the harvest control rules (score remains unchanged). By Year 3: The Assessment team shall be provided with documentary evidence that harvest control rules have been defined and approved (score remains unchanged). By Year 4: The Assessment team shall be provided with documentary evidence that harvest control rules have been implemented (score reaches 80).		
Conclusion and Outcome on Condition 1 from 1st surveillance audit	Consultation between relevant stakeholders occurred to discuss about the harvest control rules. Therefore, the evidence presented during the 1st surveillance audit demonstrates that the client's actions have met the requirements of the Action Plan for the Year 1, and Year 2. The Condition is not closed out since the original score for this PI remains unchanged. The fishery will be assessed at the next surveillance audit with respect to further work on the development of HCRs.		

Progress on Condition (Year 1)	Consultation between relevant stakeholders occurred to discuss about HCRs. Consultation was held at the Maritimes Region Lobster Advisory Committee and during each LFA lobster Advisory Committee. The surveillance team was provided with meeting agenda and minutes. During the Maritimes Region Lobster Advisory Committee, DFO gave a presentation of DFO's role in developing HCRs which includes supporting the industry in meeting its conditions, and ensuring that any HCRs incorporated into the management plan are consistent with DFO policy. Examples of HCRs were presented and discussed. DFO's and industry's responsibilities were defined. Progress on developing candidate HCRs should happen over 2016/2017.
Evidence for Year 2	Consultation on HCR is still occuring. DFO gave presentations during 2016 lobster advisory committees meetings to encourage the discussion within each LFA to suggest and recommend HCRs. As the assessment framework is scheduled for fall 2017 for LFAs 27-33 and for fall 2018 for LFAs 34-38, the industry has been invited to identidy preferred HCRs in order to be considered.
Conclusion and Outcome on Condition 1 from 2nd surveillance audit	The evidence presented during the 2nd surveillance audit demonstrates that the client's actions have fully met the requirements of the Action Plan for the Year 2 milestone of Condition 1. The Condition is not closed out since the original score for this PI remains unchanged. The fishery will be assessed at the next surveillance audit with respect to the agreement and approval of the HCRs.
Status of condition 1	**Status of condition 1: Open – On target**

6.1.2 Condition 2 of 5

For all UoAs

	PI number(s)	**Scoring issue/ scoring guidepost text**	**Score**
Performance Indicator(s) & Score(s)	**2.1.1 Retained Species Outcome**	**Scoring issue c** **If main retained species are outside the limits, there is a partial strategy in place of demonstrably effective management measures in place such that the fishery does not hinder the recovery and rebuilding.**	**60**
Condition	The client must provide evidence that a partial strategy of demonstrably effective management measures is in place such that the Bay of Fundy, Scotian Shelf and Southern Gulf of St Lawrence lobster fishery does not hinder the recovery and rebuilding of the Atlantic mackerel stock.		
Client action plan and agreed Milestones	**Action Plan** 1. The client group shall immediately meet to discuss options to fulfil this condition. 2. The client will ensure participating parties define method(s) to reduce mackerel bait use. Further, the client will work jointly with all participating parties to define methods to collect adequate proxy information to benchmark and monitor mackerel bait use. 3. The client shall support the acquisition of any additional information that may be required to support these activities.		

	4. The client will provide documentary evidence of the requests and support provided on this condition. 5. The client will report on mackerel bait use as required to meet this condition **Milestones** By Year 1: The Assessment team shall be provided with documentary evidence that a partial strategy to reduce the use of Atlantic mackerel as bait has been discussed. Score remains unchanged. By Year 2: The Assessment team shall be provided with documentary evidence that a partial strategy to reduce the use of Atlantic mackerel as bait has been proposed and agreed. Score remains unchanged. By Year 3: T The Assessment team shall be provided with documentary evidence that a partial strategy to reduce the use of Atlantic mackerel as bait has been implemented. Score remains unchanged. By Year 4: The Assessment team shall be provided with documentary evidence the amount of Atlantic mackerel used as bait has been significantly reduced. Score reaches 80.
Conclusion and Outcome on Condition 2 from 1st surveillance audit	Several meetings were held to discuss a partial strategy to ensure lobster fisheries do not hinder the recovery and rebuilding of the Atlantic mackerel. The evidence presented during the 1st surveillance audit demonstrates that the client's actions have met the requirements of the Action Plan for the Year 1 milestone of Condition 2. The Condition is not closed out since the original score for this PI remains unchanged. The fishery will be assessed at the next surveillance audit with respect to further work on the partial strategy to ensure the fishery does not hinder the recovery and rebuilding of the Atlantic mackerel.
Progress on Condition (Year 1)	Both NB-NS and PEI client groups opted for a joint approach to address this condition. Several meetings were held to discuss a partial strategy to ensure lobster fisheries do not hinder the recovery and rebuilding of the Atlantic mackerel. A first meeting was held in August 2014 with stakeholders to discuss options for meeting the requirements of this condition. Stakeholder consultation meeting was also held in February 2016, the assessment team was provided with the meeting minutes. In addition, the client group participated to the mackerel advisory committee meeting in February 2016. Meetings were held between December 2015 and February 2016 with bait suppliers. Three axes were considered as part of a partial strategy to ensure that lobster fisheries do not hinder the recovery and rebuilding of the Canadian mackerel stock: 1) <u>Monitoring of the amount of mackerel used as bai</u> The client group solicited the bait suppliers participation to monitor the use of Atlantic mackerel for bait. Preliminary consultations with bait suppliers show that the availability of Atlantic mackerel has declined and the mackerel bait prices has significantly increased the last 5 years. The client group provided bait suppliers willing to participate with an Annual Bait Survey Form. This survey method of monitoring bait used in the lobster fishery will be tested in 2016 and will be used to confirm the decrease in the use of Atlantic mackerel as bait. 2) <u>Encourage and support improvements of the mackerel fisheries management and mackerel stock assessment</u> The client group strongly advocated the improvement of mackerel fisheries management and encourage DFO to carry out a new mackerel stock assessment. The client group. participated to the mackerel advisory committee meeting in February 2016. DFO has undertaken a number of activities to improve stock abundance and

	mackerel landings reporting : DFO reduced the TAC in 2015; DFO has re-engaged with U.S. counterparts, providing foundation for a more collaborative approach in science and management in future years; DFO has committed to complete a full assessment in 2017 and has undertaken research projects that provide alternative stock modeling methods to include missing information and will be developing recommendations for risk assessment. 3) Alternative to traditional bait It was highlighted that the decrease in the availability of main bait sources and the increase in bait prices leaded to issues in bait supply for lobster harvesters. For these reasons, Homarus Inc., the Research and Development sector of the Union des Pêcheurs des Maritimes, worked on the development of an alternative and ecological bait using the residues from fish transformation in processing plants. This alternative bait is in its commercialization phase.
Evidence for Year 2	Both NB-NS and PEI client groups opted for a joint approach to address this condition. Numerous meetings have been held following the certification award to discuss a strategy to ensure that lobster fisheries do not hinder the recovery rebuilding of the Atlantic mackerel. A strategy has been proposed, agreed and implemented and includes the following axes: 1) Monitoring of the amount of mackerel used as bait The client group solicited the bait suppliers participation to monitor the use of Atlantic mackerel for bait. The client group provided bait suppliers willing to participate with an Annual Bait Survey Form. Survey results of bait suppliers were inconclusive, and it has been determined that this proposed source of information is not reliable due to commercial trade concerns. A lobster harvesters survey was implemented in 2017 to inform bait use. 2) Encourage and support improvements of the mackerel fisheries management and mackerel stock assessment The client group strongly advocated the improvement of mackerel fisheries management and encourage DFO to carry out a new mackerel stock assessment. DFO has undertaken a number of activities to improve stock assessment methodology and management. The Atlantic mackerel stock assessment was carried out in March 2017 but the stock assessment report has not been published yet. However, the surveillance team was provided with a summary of the stock assessment outcomes. The issue of unreported catches has been investigated and shows that total catches can reach 150% to 200% of declared catches depending of the region (Van Beveren *et al* 2017). A new population dynamics model was developed to allow to include sources of uncertainties including estimated unrecorded catches and calculate reliable reference points (DFO 2017b). The client group attended the Regional Peer Review of the Assessment Framework for Atlantic mackerel held in Mont-Joli in January 2017. New management measures have been implemented in 2017 to improve monitoring and reporting of catches in mackerel fisheries. These measures include mandatory hail-in reporting estimated weight of catch for every fishing trip and 25% dockside monitoring coverage for landings (DFO 2017c). 3) Reduce the amount of mackerel use It was highlighted that the decrease in the availability of main bait sources and the increase in bait prices leaded to issues in bait supply for lobster harvesters. Preliminary consultations with bait suppliers show that the availability of Atlantic mackerel has declined and the mackerel bait prices has significantly increased the last 5 years, leading to a decrease in the use of mackerel. Also, Homarus Inc., the Research and Development sector of the Union des Pêcheurs des Maritimes, worked on the development of an

	alternative and ecological bait using the residues from fish transformation in processing plants. This alternative bait is in its commercialization phase.
Conclusion and Outcome on Condition 2 from 2nd surveillance audit	The evidence provided shows that a partial strategy to ensure the fishery does not hinder the recovery and rebuilding of the Atlantic mackerel is now in place. The evidence presented demonstrates that the client's actions have met the requirements of the Action Plan for the Year 2 and Year 3 milestones of Condition 2. The Condition is not closed out since the original score for this PI remains unchanged. The fishery will be assessed at the next surveillance audits with respect to the effectiveness of the partial strategy to ensure the fishery does not hinder the recovery and rebuilding of the Atlantic mackerel.
Status of condition 2	**Status of condition 2: Open – Ahead target**

6.1.3 Condition 3 of 5

For all UoAs

	PI number(s)	**Scoring issue/ scoring guidepost text**	**Score**
Performance Indicator(s) & Score(s)	**2.1.2 Retained Species Management Strategy**	**Scoring issue a, b, c** **There is a partial strategy in place, if necessary, that is expected to maintain the main retained species at levels which are highly likely to be within biologically based limits, or to ensure the fishery does not hinder their recovery and rebuilding.** **There is some objective basis for confidence that the partial strategy will work, based on some information directly about the fishery and/or species involved.** **There is some evidence that the partial strategy is being implemented successfully.**	**60**
Condition	The client must provide evidence that a partial strategy is in place to ensure the Bay of Fundy, Scotian Shelf and Southern Gulf of St Lawrence lobster fishery does not hinder the recovery and rebuilding of the Atlantic mackerel stock. Also, the client must provide some evidence that the partial strategy is being implemented successfully.		
Client action plan and agreed Milestones	**Action Plan** 1. The client group shall immediately meet to discuss options to fulfil this condition. 2. The client will ensure participating parties define method(s) to reduce mackerel bait use. Further, the client will work jointly with all participating parties to define methods to collect adequate proxy information to benchmark and monitor mackerel bait use. 3. The client shall support the acquisition of any additional information that may be required to support these activities. 4. The client will provide documentary evidence of the requests and support provided on this condition. 5. The client will report on mackerel bait use as required to meet this condition		

	Milestones By Year 1: The Assessment team shall be provided with documentary evidence that a partial strategy to reduce the use of Atlantic mackerel as bait has been discussed. Score remains unchanged. By Year 2: The Assessment team shall be provided with documentary evidence that a partial strategy to reduce the use of Atlantic mackerel as bait has been proposed and agreed. Score remains unchanged. By Year 3: T The Assessment team shall be provided with documentary evidence that a partial strategy to reduce the use of Atlantic mackerel as bait has been implemented. Score reaches 70. By Year 4: The Assessment team shall be provided with documentary evidence the amount of Atlantic mackerel used as bait has been significantly reduced. Score reaches 80.
Conclusion and Outcome on Condition 3 from 1st surveillance audit	Several meetings were held to discuss a partial strategy to ensure lobster fisheries do not hinder the recovery and rebuilding of the Atlantic mackerel. The evidence presented during the 1st surveillance audit demonstrates that the client's actions have met the requirements of the Action Plan for the Year 1 milestone of Condition 2. The Condition is not closed out since the original score for this PI remains unchanged. The fishery will be assessed at the next surveillance audit with respect to further work on the partial strategy to ensure the fishery does not hinder the recovery and rebuilding of the Atlantic mackerel.
Progress on Condition (Year 1)	Both NB-NS and PEI client groups opted for a joint approach to address this condition. Several meetings were held to discuss a partial strategy to ensure lobster fisheries do not hinder the recovery and rebuilding of the Atlantic mackerel. A first meeting was held in August 2014 with stakeholders to discuss options for meeting the requirements of this condition. Stakeholder consultation meeting was also held in February 2016, the assessment team was provided with the meeting minutes. In addition, the client group participated to the mackerel advisory committee meeting in February 2016. Meetings were held between December 2015 and February 2016 with bait suppliers. Three axes were considered as part of a partial strategy to ensure that lobster fisheries do not hinder the recovery and rebuilding of the Canadian mackerel stock: 4) <u>Monitoring of the amount of mackerel used as bai</u> The client group solicited the bait suppliers participation to monitor the use of Atlantic mackerel for bait. Preliminary consultations with bait suppliers show that the availability of Atlantic mackerel has declined and the mackerel bait prices has significantly increased the last 5 years. The client group provided bait suppliers willing to participate with an Annual Bait Survey Form. This survey method of monitoring bait used in the lobster fishery will be tested in 2016 and will be used to confirm the decrease in the use of Atlantic mackerel as bait. 5) <u>Encourage and support improvements of the mackerel fisheries management and mackerel stock assessment</u> The client group strongly advocated the improvement of mackerel fisheries management and encourage DFO to carry out a new mackerel stock assessment. The client group. participated to the mackerel advisory committee meeting in February 2016. DFO has undertaken a number of activities to improve stock abundance and mackerel landings reporting : DFO reduced the TAC in 2015; DFO has re-engaged with U.S. counterparts, providing foundation for a more collaborative approach in science and management in future years; DFO has committed to complete a full assessment in

	2017 and has undertaken research projects that provide alternative stock modeling methods to include missing information and will be developing recommendations for risk assessment. 6) <u>Alternative to traditional bait</u> It was highlighted that the decrease in the availability of main bait sources and the increase in bait prices leaded to issues in bait supply for lobster harvesters. For these reasons, Homarus Inc., the Research and Development sector of the Union des Pêcheurs des Maritimes, worked on the development of an alternative and ecological bait using the residues from fish transformation in processing plants. This alternative bait is in its commercialization phase.
Evidence for Year 2	Both NB-NS and PEI client groups opted for a joint approach to address this condition. Numerous meetings have been held following the certification award to discuss a strategy to ensure that lobster fisheries do not hinder the recovery rebuilding of the Atlantic mackerel. A strategy has been proposed, agreed and implemented and includes the following axes: 4) <u>Monitoring of the amount of mackerel used as bait</u> The client group solicited the bait suppliers participation to monitor the use of Atlantic mackerel for bait. The client group provided bait suppliers willing to participate with an Annual Bait Survey Form. Survey results of bait suppliers were inconclusive, and it has been determined that this proposed source of information is not reliable due to commercial trade concerns. A lobster harvesters survey was implemented in 2017 to inform bait use. 5) <u>Encourage and support improvements of the mackerel fisheries management and mackerel stock assessment</u> The client group strongly advocated the improvement of mackerel fisheries management and encourage DFO to carry out a new mackerel stock assessment. DFO has undertaken a number of activities to improve stock assessment methodology and management. The Atlantic mackerel stock assessment was carried out in March 2017 but the stock assessment report has not been published yet. However, the surveillance team was provided with a summary of the stock assessment outcomes. The issue of unreported catches has been investigated and shows that total catches can reach 150% to 200% of declared catches depending of the region (Van Beveren *et al* 2017). A new population dynamics model was developed to allow to include sources of uncertainties including estimated unrecorded catches and calculate reliable reference points (DFO 2017b). The client group attended the Regional Peer Review of the Assessment Framework for Atlantic mackerel held in Mont-Joli in January 2017. New management measures have been implemented in 2017 to improve monitoring and reporting of catches in mackerel fisheries. These measures include mandatory hail-in reporting estimated weight of catch for every fishing trip and 25% dockside monitoring coverage for landings (DFO 2017c). 6) <u>Reduce the amount of mackerel use</u> It was highlighted that the decrease in the availability of main bait sources and the increase in bait prices leaded to issues in bait supply for lobster harvesters. Preliminary consultations with bait suppliers show that the availability of Atlantic mackerel has declined and the mackerel bait prices has significantly increased the last 5 years, leading to a decrease in the use of mackerel. Also, Homarus Inc., the Research and Development sector of the Union des Pêcheurs des Maritimes, worked on the development of an alternative and ecological bait using the residues from fish transformation in processing plants. This alternative bait is in its commercialization phase.

Conclusion and Outcome on Condition 3 from 2nd surveillance audit	The evidence presented during the 2nd surveillance audit demonstrates that the client's actions have met the requirements of the Action Plan for the Year 2 and Year 3 milestones of Condition 3. The Condition is not closed out. However, the evidence provided shows that a partial strategy to ensure the fishery does not hinder the recovery and rebuilding of the Atlantic mackerel is now in place; 80a is now fully met and the score of 2.1.2 is revised. The re-scored evaluation table is in Appendix 1. The fishery will be assessed at the next surveillance audits with respect to the effectiveness of the partial strategy.
Status of condition 3	**Status of condition 3: Open – Ahead target**

6.1.4 Condition 4 of 5

UoA 1 - SGSL

	PI number(s)	**Scoring issue/ scoring guidepost text**	**Score**
Performance Indicator(s) & Score(s)	**2.2.3 Bycatch Species Information**	**Scoring issue c and d** **Information is adequate to support a partial strategy to manage main bycatch species.** **Sufficient data continue to be collected to detect any increase in risk to main bycatch species (e.g., due to changes in the outcome indicator scores or the operation of the fishery or the effectively of the strategy).**	**70**
Condition	Qualitative information and some quantitative information are available on the amount of main bycatch species. The client must provide evidence that accurate and sufficient data on the amount of main bycatch species affected by the fishery are collected to detect any increase in risk to main bycatch species.		
Client action plan and agreed Milestones	**Action Plan** 1. The client shall immediately request to meet with DFO to discuss the options available to fulfil this condition. 2. The client will acquire any additional information that may be required to support these activities. 3. The client will provide documentary evidence of the requests and support provided on this condition. 4. The client will consult with the DFO and other participating parties to define methods to collect adequate proxy information to reflect bycatch encounters in all LFA's. 5. The client will test bycatch data collection methods. 6. The client will ensure that information will be processed and reported regarding by catch data as required to meet the condition. **Milestones** By Year 1: The Assessment team shall be provided with documentary evidence that a system for bycatch data collection has been designed (score remains unchanged).		

	By Year 2: The Assessment team shall be provided with documentary evidence that a system for bycatch data collection has been agreed and tested (score remains unchanged). By Year 3: The Assessment team shall be provided with documentary evidence that a system for bycatch data collection has been implemented within the fishery management system (score remains unchanged). By Year 4: The Assessment team shall be provided with documentary evidence that there is an on-going system for bycatch data collection (score reaches 80.
Conclusion and Outcome on Condition 4 from 1st surveillance audit	The client provided evidence that a system for data collection has been designed, agreed and tested. The evidence presented during the 1st surveillance audit demonstrates that the client's actions have met the requirements of the Action Plan for the Year 1 and the Year 2 milestone of Condition 4. The Condition is not closed out since the original score for this PI remains unchanged. The fishery will be assessed at the next surveillance audit with respect to further work on the implementation of a bycatch monitoring system
Progress on Condition (Year 1)	The client group has engaged stakeholders and DFO in order to design a system for bycatch data collection. Stakeholder consultations were held during winter 2014 and spring 2015, and a system for bycatch collection was designed and agreed. As a result, DFO Gulf has initiated a collaborative research project "Bycatch composition and vitality assessment of species caught as bycatch during the lobster fishery in the SGSL" (see Appendix 4.2). A summary of the protocol is presented below. - Composition: identify all bycatch species; - Quantity: count and weight all bycatches; - Survival: note injuries and evaluate vitality every minute for 10 min for as many specimen as possible; - Air exposure: analyse videos of fishing activities to extract average duration of air exposure of bycatch species (sorting time). In May-June and August-October 2015, samplings were carrying out on-board fishing vessels by independent observers according to the established protocol. The preliminary results show that there is a limited quantity of bycatch, the most prevalent bycatch other than non-legal lobster are rock crab and cunner; no mortality was observed and the average sorting time for a trap is less than 1 minute. The completion of the analysis and a preliminary report is scheduled for the fall 2016, and results will be presented at the next lobster advisory committee. The results of this project will be used to plan the implementation of a bycatch monitoring system on a long-term basis.
Evidence for Year 2	A system for data collection has been designed, agreed and tested through a collaborative research project "Bycatch composition and vitality assessment of species caught as bycatch during the lobster fishery in the SGSL" led by DFO. A summary of the protocol is presented in Appendix 4.2. Data collection was carried out on-board lobster fishing vessel in May-June and August-October 2015, and preliminary results have been presented during the 1st surveillance audit. The results have been presented during the Southern Gulf of St Lawrence Lobster Advisory Committee meeting held in January 2017 (Agenda is presented in Appendix 4.1.). DFO is currently finalizing the project report to be presented at the 11th International Conference & Workshop on Lobster Biology and Management that will be held in Portland in Maine in June 2017. Based on the results of the 2015 bycatch data

	collection, a bycatch monitoring plan has been adopted and implemented. The attributes of the bycatch monitoring program includes: - Given the low bycatch level and the low risk of harm in bycatches, data collection will be carried out every 5 years with the next one scheduled for a year before the MSC re-assessment; - If new species are encountered and are deemed to be at risk, a survivability survey will be carried out; - The timeline may be revised if major changed in fishing practices occurred.
Conclusion and Outcome on Condition 4 from 2nd surveillance audit	The client provided evidence that a system for data collection has been designed, agreed, tested and implemented. The evidence presented during the 2nd surveillance audit demonstrates that the client's actions have met the requirements of the Action Plan for the Year 2 and the Year 3 milestone of Condition 4. The Condition is not closed out since the original score for this PI remains unchanged. The fishery will be assessed at the next surveillance audits with respect to the on-going aspect of the bycatch monitoring system.
Status of condition 4	**Status of condition 4: Open – Ahead target**

UoAs 2, 3 and 4 – Maritimes

	PI number(s)	**Scoring issue/ scoring guidepost text**	**Score**
Performance Indicator(s) & Score(s)	**2.2.3 Bycatch Species Information**	**Scoring issue d** **Sufficient data continue to be collected to detect any increase in risk to main bycatch species (e.g., due to changes in the outcome indicator scores or the operation of the fishery or the effectively of the strategy).**	**75**
Condition	The client must provide evidence that accurate and sufficient data on the amount of main bycatch species affected by the fisheries are collected to detect any increase in risk to main bycatch species.		
Client action plan and agreed Milestones	**Action Plan** 1. The client shall immediately request to meet with DFO to discuss the options available to fulfil this condition. 2. The client will acquire any additional information that may be required to support these activities. 3. The client will provide documentary evidence of the requests and support provided on this condition. 4. The client will consult with the DFO and other participating parties to define methods to collect adequate proxy information to reflect bycatch encounters in all LFA's. 5. The client will test bycatch data collection methods. 6. The client will ensure that information will be processed and reported regarding by catch data as required to meet the condition. **Milestones** By Year 1: The Assessment team shall be provided with documentary evidence that a system for bycatch data collection has been designed (score remains unchanged).		

	By Year 2: The Assessment team shall be provided with documentary evidence that a system for bycatch data collection has been agreed and tested (score remains unchanged). By Year 3: The Assessment team shall be provided with documentary evidence that a system for bycatch data collection has been implemented within the fishery management system (score remains unchanged). By Year 4: The Assessment team shall be provided with documentary evidence that there is an on-going system for bycatch data collection (score reaches 80)
Conclusion and Outcome on Condition 4 from 1st surveillance audit	The client provided evidence that a system for data collection has been designed and agreed. However, it cannot be said that the system has been tested in all LFAs yet. The evidence presented during the 1st surveillance audit demonstrates that the client's actions have met the requirements of the Action Plan for the Year 1 Condition 4. The Condition is not closed out since the original score for this PI remains unchanged. The fishery will be assessed at the next surveillance audit with respect to further work on the implementation of a bycatch monitoring system.
Progress on Condition (Year 1)	During the Maritimes Region Lobster Advisory Committee, DFO gave an overview of the objectives and implementation steps of the Department's new *Policy on Managing Bycatch*. DFO described, and invited comments on, the overlap between these and the bycatch-related conditions of the inshore fishery's MSC certificate. DFO also described DFO's bycatch priorities for both the inshore and offshore lobster fisheries: systematically working through the steps of the bycatch policy, documenting risk management strategies in the management plans, and addressing risks to bycatch species of concern, such as cusk and 4X5Y cod. In February 2016, the client group collaborated with DFO on the development of a bycatch data collection protocol (see Appendix 4.2). A bycatch data collection form (see Appendix 4.2) has been designed and distributed to LFA representatives for being used beginning on the 2016 fishing season. At-sea bycatch monitoring continues in LFAs 27, LFA 31A, 31B and 32.
Evidence for Year 2	In February 2016, the client group collaborated with DFO on the development of a bycatch data collection protocol (see Appendix 4.2). A bycatch data collection form (see Appendix 4.2) has been designed and distributed to LFA representatives for being used beginning on the 2016 fishing season. The bycatch monitoring system has been tested in all LFA s and data collection stated on 2016 fishing season on a voluntary basis. At-sea bycatch monitoring continues in LFAs 27, LFA 31A, 31B and 32.
Conclusion and Outcome on Condition 4 from 2nd surveillance audit	The client provided evidence that a system for data collection has been designed, agreed and tested. Although there is an on-going a bycatch data collection in LFAs 27, LFA 31A, 31B and 32, it cannot be considered that the fishery fully meets the requirements of Year 3 and 4 milestones yet as a bycatch monitoring system is not implemented yet in all LFAs. The Condition is not closed out since the original score for this PI remains unchanged. The fishery will be assessed at the next surveillance audit with respect to further work on the implementation of a bycatch monitoring system.
Status of condition 4	**Status of condition 4: Open – On target**

6.1.5 Condition 5 of 5

UoA 1 - SGSL

	PI number(s)	Scoring issue/ scoring guidepost text	Score
Performance Indicator(s) & Score(s)	**3.2.4 Research Plan**	**Scoring issue a** **A research plan provides the management system with a strategic approach to research and reliable and timely information sufficient to achieve the objectives consistent with MSC's Principles 1 and 2.**	**70**
Condition	The client must provide evidence that a written research plan for the fishery provides the management system with a strategic approach to research and reliable and timely information sufficient to achieve the objectives consistent with MSC's Principles 1 and 2.		
Client action plan and agreed Milestones	**Action Plan** 1. The client shall immediately engage DFO and the other participating parties on what information and support can be provided to fulfill this condition. 2. The client will acquire any additional information that may be required to support these activities. 3. The client will provide documentary evidence of the requests and support provided on this condition. 4. The client will consult with DFO and representative stakeholders on the research plan, e.g., through advisory committee meetings. 5. As a result of the consultations, the client will develop the research plan specific to the region's lobster fishery in accordance with MSC principles 1 and 2. 6. The client, DFO and other stakeholders will develop monitoring and measurement activities with respect to the research plan within the area of their respective responsibility. **Milestones** By Year 1: The Assessment team shall be provided with documentary evidence that stakeholder consultations regarding the research plan for the SGSL lobster fishery have been commenced or are planned. (score remains unchanged) By Year 2: The Assessment team shall be provided with documentary evidence that a research plan reflective of existing and scheduled research activities has been developed, and that their activities, milestones, and results (proposed or achieved) support the objectives and requirements of Principles 1 and 2. The plan shall incorporate research activities conducted by other organizations in so far as they relate to Principles 1 and 2. (score remains unchanged) By Year 3: The Assessment team shall be provided with documentary evidence that the research plan has been agreed and implemented for the fishery, and is updated annually (as required) for the reminder of the certification period. (score reaches 80)		
Conclusion and Outcome on Condition 5 from 1st surveillance audit	The surveillance team was provided with a research plan that was approved and implemented for the fishery in 2016. The evidence presented during the 1st surveillance audit demonstrates that the client's actions have met the requirements of the Action Plan for the Year 1, Year 2 and year 3 milestone of Condition 5. This condition is closed and the PI 3.2.4 was re-scored at surveillance audit 1 (see Appendix 1).		

Progress on Condition (Year 1)	The surveillance team was provided with a research plan that was approved and implemented for the fishery in 2016. The research plan covers activities carried out and planned by DFO Science, the industry and the PEI provincial government. Responsibilities are defined as well as a time frame for each activity. The research plans covers activities planned and undertaken in the Gulf Region over a five-year time period (2014-2018). These research activities support the objectives and requirements of Principles 1 and 2. Six research activities concern monitoring and lobster stock assessment: - At-Sea Sampling (2014-2018) - Recruitment Index Monitoring Program (2014-2018) - Benthic recruitment monitoring program (2014-2018) - Fishery Independent Trawl Survey (2014-2018) - Coastal Temperature Monitoring Program (2014-2018) - Assessment and Science Advice (2016) And eleven research projects include: - Lobster Fishery Bycatch (2015-2017) - Female Reproductive Biology (2014-2017) - Research on Adaptation to Climate Changes (2014-2017) - Interaction between Aquaculture and Lobster Habitat (2015-2018) - New Method to Collect Benthic Recruitment Indices (2014-2018) - Population Connectivity (2014-2018) - Larval seeding (2014-2018) - Environment quality (2014-2018) - Ecological bait (2014-2018) - Lobster quality assessment (BRIX) (2014-2016) - Electronic logbook (2014-2018) - Bycatch monitoring program (started in 2015)
Status of condition 5	**Status of condition 5: Closed – Ahead target**

UoAs 2, 3 and 4 – Maritimes

	PI number(s)	**Scoring issue/ scoring guidepost text**	**Score**
Performance Indicator(s) & Score(s)	**3.2.4 Research Plan**	**Scoring issue a** **A research plan provides the management system with a strategic approach to research and reliable and timely information sufficient to achieve the objectives consistent with MSC's Principles 1 and 2.**	**70**
Condition	The client must provide evidence that a written research plan for the fishery provides the management system with a strategic approach to research and reliable and timely information sufficient to achieve the objectives consistent with MSC's Principles 1 and 2.		
Client action plan and agreed Milestones	**Action Plan** 1. The client shall immediately engage DFO and the other participating parties on what information and support can be provided to fulfill this condition. 2. The client will acquire any additional information that may be required to support these activities.		

	3. The client will provide documentary evidence of the requests and support provided on this condition. 4. The client will consult with DFO and representative stakeholders on the research plan, e.g., through advisory committee meetings. 5. As a result of the consultations, the client will develop the research plan specific to the region's lobster fishery in accordance with MSC principles 1 and 2. 6. The client, DFO and other stakeholders will develop monitoring and measurement activities with respect to the research plan within the area of their respective responsibility. **Milestones** By Year 1: The Assessment team shall be provided with documentary evidence that stakeholder consultations regarding the research plan for the Maritimes lobster fishery have been commenced or are planned. (score remains unchanged) By Year 2: The Assessment team shall be provided with documentary evidence that a research plan reflective of existing and scheduled research activities has been developed, and that their activities, milestones, and results (proposed or achieved) support the objectives and requirements of Principles 1 and 2. The plan shall incorporate research activities conducted by other organizations in so far as they relate to Principles 1 and 2. (score remains unchanged) By Year 3: The Assessment team shall be provided with documentary evidence that the research plan has been agreed and implemented for the fishery, and is updated annually (as required) for the reminder of the certification period. (score reaches 80)
Conclusion and Outcome on Condition 5 from 1st surveillance audit	Discussions regarding the development of a research plan occurred. The evidence presented during the 1st surveillance audit demonstrates that the client's actions have met the requirements of the Action Plan for the Year 1 Condition 5. The Condition is not closed out since the original score for this PI remains unchanged. The fishery will be assessed at the next surveillance audit with respect to further work on the development of a research plan.
Progress on Condition (Year 1)	Discussions with the industry regarding the ongoing research, the research needs and the development of a research plan occurred during lobster advisory committees. More discussions are planned for the next lobster advisory committees. During the surveillance audit, DFO highlighted that the two senior scientists in charge of lobster fisheries retired on 2015. Two new scientists were hired in 2014 and 2015. As a consequence, it will take more time than for DFO Gulf before they could precise their priorities and provide a research plan.
Evidence for Year 2	Discussions with the industry regarding the ongoing research, the research needs and the development of a research plan occurred during lobster advisory committees meetings. Two research plans have been developed, agreed and approved to support the objectives and requirements of Principles 1 and 2 (see Appendix 4.3).
Conclusion and Outcome on Condition 5 from 2nd surveillance audit	The evidence presented during the 2nd surveillance audit demonstrates that the client's actions have met the requirements of the Action Plan for the Year 2 Condition 5. Although research plans have been agreed, the assessment team has not been provided yet with the final approved document and documentary evidence that they have been implemented, preventing the fishery from meeting the requirements of Year 3 milestone.

	The Condition is not closed out since the original score for this PI remains unchanged. The fishery will be assessed at the next surveillance audit with respect to the implementation of a research plan.
Status of condition 4	**Status of condition 4: Open – On target**

6.2 Summary of Status of Conditions

UoA 1 - SGSL

Condition number	PI	Status	PI original score	PI revised score
1	1.2.2	**Open-on target**	70	Not revised
2	2.1.1	**Open- ahead target**	60	Not revised
3	2.1.2	**Open- ahead target**	60	**70** at surveillance 2
4	2.2.3	**Open- ahead target**	70	Not revised
5	3.2.4	**Closed-ahead target**	70	**90** at surveillance 1

UoAs 2, 3 and 4 - Maritimes

Condition number	PI	Status	PI original score	PI revised score
1	1.2.2	**Open-on target**	70	Not revised
2	2.1.1	**Open- ahead target**	60	Not revised
3	2.1.2	**Open- ahead target**	60	**70** at surveillance 2
4	2.2.3	**Open- on target**	75	Not revised
5	3.2.4	**Closed-on target**	70	Not revised

6.3 Revised milestones (if applicable)

Not applicable.

7 Conclusion

The assessment team conducting this 2nd surveillance audit confirms that Nova Scotia and New Brunswick Eco-Certification Society has met the general requirements for continued certification to the MSC Principles and Criteria for Sustainable Fishing.

UoA 1 - SGSL
The assessment team concludes that there is sufficient evidence and information provided by the client and substantiated through the course of the consultation meeting during the surveillance audit to confirm that commitment to meeting the Year 2 Milestone of conditions 1; the Year 2 and Year 3 Milestone of condition 2, 3 and 4 have been met; and condition 5 has been closed.

A recommendation has been raised about the correct identification of wolffish species (ETP species) by-caught in lobster traps.
Recommendation
A recommendation is not obligatory and does not require a client action plan as for a condition. It means that it does not have to be implemented to maintain the certification. But the client is encourage to act upon within the spirit of the MSC certification.

Although a booklet, which aims helping for wolffish species identification, has been issued by DFO and provided to fishermen associations of all Atlantic provinces, the surveillance team recommends that an fishermen awareness and education campaign being implemented to improve identification of wolffish species in bycatches.

UoAs 2, 3 and 4 - Maritimes
The assessment team concludes that there is sufficient evidence and information provided by the client and substantiated through the course of the consultation meeting during the surveillance audit to confirm that commitment to meeting the Year 2 Milestone of conditions 1, 4 and 5 and the Year 2 and Year 3 Milestones of condition 2 and 3 of certification have been met.

The assessment team recommends that continued certification be awarded to the:

- **The Bay of Fundy, Scotian Shelf and Southern Gulf of St Lawrence lobster trap Fishery.**

7.1 Outcome of SAI Global Decision

SAI Global determines that:

- **The Bay of Fundy, Scotian Shelf and Southern Gulf of St Lawrence Lobster Trap Fishery continues to operate a well-managed and sustainable fishery and therefore, continued certification to the MSC Principles and Criteria for Sustainable Fishing is awarded.**

8 References

DFO 2016a. Notice to Fish Harvesters – Lobster Conservation Harvesting Plan – New management measures for 2016 and beyond (LFA 23, 24, 25, 26A and 26B). April 19, 2016.

DFO 2016b. Notice to Fish Harvesters. Lobster Conservation Harvesting Plan – LFA 25 – New management measures for 2016 and beyond. July 5, 2016.

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9 Appendices

9.1 Appendix 1. Re-scoring evaluation tables

9.1.1 PI 3.2.4 re-scoring table (UoA 1 – SGSL)

PI 3.2.4 was rescored during the 1st surveillance audit. The update based on the evidence received during the first surveillance audit is written in blue.

Scoring Table PI 3.2.4 Research Plan

PI 3.2.4		The fishery has a research plan that addresses the information needs of management		
Scoring Issue		SG 60	SG 80	SG 100
a	**Guidepost**	Research is undertaken, as required, to achieve the objectives consistent with MSC's Principles 1 and 2.	A research plan provides the management system with a strategic approach to research and reliable and timely information sufficient to achieve the objectives consistent with MSC's Principles 1 and 2.	A comprehensive research plan provides the management system with a coherent and strategic approach to research across P1, P2 and P3, and reliable and timely information sufficient to achieve the objectives consistent with MSC's Principles 1 and 2.
	Met?	Y	Y	Y

PI 3.2.4		The fishery has a research plan that addresses the information needs of management
	Justification	A comprehensive research plan provides the management system with a coherent and strategic approach to research across P1, P2 and P3, and reliable and timely information sufficient to achieve the objectives consistent with MSC's Principles 1 and 2.Research is undertaken, as required, to achieve the objectives consistent with MSC's Principles 1 and 2. DFO's national science and oceans research programs are typically defined by multi-year strategic plans and/or frameworks with appropriate planning imperatives and guidance. There are numerous documented past and current/ongoing project-specific research initiatives which support the needs of the PEI lobster resource, habitat and ecosystem and contribute to the objectives consistent with MSC's Principles 1 and 2. Descriptions of the initiatives are provided in the main report. These initiatives vary in their scope, complexity, duration, objectives and outcomes. Collectively, they provide the management system with ongoing, reliable advice that informs the development of measures and policies consistent with the requirements of the MSC's principles. ~~However, the assessment team found no documented evidence to indicate that a formalized regional research plan was developed to provide the management system with a strategic approach to research and reliable and timely information sufficient to achieve the objectives consistent with MSC's Principles 1 and 2. By extension, there was no documented evidence of a comprehensive research plan that provides the management system with a coherent and strategic approach to research across P1, P2 and P3, and reliable and timely information sufficient to achieve the objectives consistent with MSC's Principles 1 and 2, preventing the fishery from meeting 80a and 100a.~~ A comprehensive research plan was approved and implemented in 2016. This plan covers activities carried on by DFO-Science, the fishing industry (Maritime Fisheries union and its affiliated development office *Homarus*), and the Department of Fisheries of Prince Edward Island. Responsibilities are defined as well as a time frame for each activity. The plan covers research activities planned and undertaken in the Gulf region over a five-year time period (2014-2018). It includes six research activities related to monitoring and stock assessment: - At-Sea Sampling (2014-2018) - Recruitment Index Monitoring Program (2014-2018) - Benthic recruitment monitoring program (2014-2018) - Fishery Independent Trawl Survey (2014-2018) - Coastal Temperature Monitoring Program (2014-2018) - Assessment and Science Advice (2016) And eleven research projects are also designed, including: - Lobster Fishery Bycatch (2015-2017) - Female Reproductive Biology (2014-2017) - Research on Adaptation to Climate Changes (2014-2017) - Interaction between Aquaculture and Lobster Habitat (2015-2018) - New Method to Collect Benthic Recruitment Indices (2014-2018) - Population Connectivity (2014-2018) - Larval seeding (2014-2018) - Environment quality (2014-2018) - Ecological bait (2014-2018) - Lobster quality assessment (BRIX) (2014-2016) - Electronic logbook (2014-2018)

PI 3.2.4		The fishery has a research plan that addresses the information needs of management		
b	Guidepost	Research results are available to interested parties.	Research results are disseminated to all interested parties in a timely fashion.	Research plan and results are disseminated to all interested parties in a timely fashion and are widely and publicly available.
	Met?	Y	Y	N
	Justification	Research results are disseminated to all interested parties in a timely fashion. DFO-based research results are widely and publicly available on the CSAS website and occasionally in scientific journals. The results are also explained to, and discussed with, industry stakeholders and others at formal and informal venues. Related research generated by other government departments, academia, and NGOs is also disseminated on various websites and scientific journals. The research plan is recent (2016). It is not possible, at this time, to affirm that this plan is widely distributed and available to interested parties, which prevent the fishery from meeting 100.		
References		DFO Research Plan for the Lobster Fishery in the Gulf Region. Strategic Approach to Research. Monitoring, Assessment and Research, 2014-2018.		
OVERALL PERFORMANCE INDICATOR SCORE:				90
CONDITION NUMBER (if relevant): Closed				N/A

9.1.2 PI 2.1.2 Re-scoring table (all UoAs)

The assessment team concludes that the evidence provided for condition 2 shows that a partial strategy to ensure the fishery does not hinder the recovery and rebuilding of the Atlantic mackerel is now in place; 80a is now met and the score of 2.1.2 is revised to 70. The update based on the evidence received during the 2nd surveillance audit is written in blue.

UoA 1 – SGSL

PI 2.1.2		There is a strategy in place for managing retained species that is designed to ensure the fishery does not pose a risk of serious or irreversible harm to retained species		
Scoring Issue		SG 60	SG 80	SG 100
a	Guidepost	There are measures in place, if necessary, that are expected to maintain the main retained species at levels which are highly likely to be within biologically based limits, or to ensure the fishery does not hinder their recovery and rebuilding.	There is a partial strategy in place, if necessary, that is expected to maintain the main retained species at levels which are highly likely to be within biologically based limits, or to ensure the fishery does not hinder their recovery and rebuilding.	There is a strategy in place for managing retained species.
	Met?	Y	Y for rock crab, fall-spawning Y for Atlantic mackerel	Y for rock crab, fall-spawning herring N for Atlantic mackerel

	Justification	By licence conditions and under actual fishing practices, rock crab is the only retained species in the NB and NS lobster fishery. There is a strategy in place to maintain rock crab at levels which are highly likely to be within biologically based limits. Lobster harvesters are allowed to retain only male rock crab. The amount of rock crab landed by lobster harvesters was incorporated in the assessment of the rock crab stock in the SGSL. The use of larger escape mechanism in lobster traps adjusted to the lobster MLS could reduce the retention of small male rock crabs. In addition, the strategy of fishing effort reduction adopted by DFO would have reduced rock crab catches. The management of the directed rock crab fishery is based on effort control (number of licences, trap allocation, restrictions on gear characteristics, and limited fishing season), with individual catch allocations (except in LFA 24) and by a MLS (DFO 2013c). Female cannot be landed. Formal management strategies are in place in the directed fall-spawning fishery to maintain this species used as bait in the lobster fishery at levels which are highly likely to be within biologically based limits. The fall-spawning herring is managed under a two-year SGSL conservation and harvesting plan for 2012-2013 including input and output control measures. There is a partial strategy in place for the directed Canadian Atlantic mackerel fisheries that is expected to ensure the recovery of the mackerel stock. Canadian Atlantic mackerel fisheries are managed under an IFMP. Mackerel fisheries are input and output controls fisheries. Given the critical situation of the stock, the 2014 TAC, set at 10,000 t, was reduced of 26,000 t compared to 2013. The minimum size was increased from 250 mm to 273 mm. The U.S. Atlantic mackerel is under a Fishery Management Plan established in 1978. The FMP includes a number of measures to ensure sustainable harvesting including input (limited access program) and output (quotas) controls, reference points, and protection of mackerel Essential Fish Habitats. Gaspereau fisheries are managed under a 2000-2004 IFMP for gaspereau of PEI and a six-year 2007-2012 IFMP for gaspereau of eastern New Brunswick. Gaspereau fisheries are regulated by season, gear, and licence restrictions. The management objective is to maintain harvest at about long-term mean levels. The silverside fishery is managed under a 2000-2004 IFMP. Silverside fishery is regulated by season, gear and licence restrictions. The impact of the lobster fishery on the Canadian mackerel stock is indirect. Canadian mackerel uses as bait is purchased by lobster fishermen to local directed fisheries, so the amount of bait used is already accounting into mackerel fisheries management system and taking into account in the Canadian mackerel stock assessment. A partial strategy to ensure the fishery does not hinder the recovery rebuilding of the Atlantic mackerel has been proposed, agreed and implemented and includes the following axes: 1) Monitoring of the amount of mackerel used as bait The client group solicited the bait suppliers participation to monitor the use of Atlantic mackerel for bait. The client group provided bait suppliers willing to participate with an Annual Bait Survey Form. Survey results of bait suppliers were inconclusive, and it has been determined that this proposed source of information is not reliable due to commercial trade concerns. A lobster harvesters survey was implemented in 2017 to inform bait use. 2) Encourage and support improvements of the mackerel fisheries management and mackerel stock assessment The client group strongly advocated the improvement of mackerel fisheries management and encourage DFO to carry out a new mackerel stock assessment. DFO has undertaken a number of activities to improve stock assessment methodology and management. The Atlantic mackerel stock assessment was carried out in March 2017 but the stock assessment report has not been published yet. However, the surveillance team was provided with a summary of the stock assessment outcomes. The issue of unreported catches has been investigated and shows that total catches can reach 150% to 200% of declared catches depending of the region (Van Beveren *et al* 2017). A new population dynamics model was developed to allow to include sources of uncertainties including estimated unrecorded catches and calculate reliable reference points (DFO 2017b). The client group attended the Regional Peer Review of the Assessment Framework for Atlantic mackerel held in Mont-Joli in January 2017. New management measures have been implemented in 2017 to improve monitoring and reporting of catches in mackerel fisheries. These measures include mandatory hail-in

PI 2.1.2		There is a strategy in place for managing retained species that is designed to ensure the fishery does not pose a risk of serious or irreversible harm to retained species		
		reporting estimated weight of catch for every fishing trip and 25% dockside monitoring coverage for landings (DFO 2017c). 3) Reduce the amount of mackerel use It was highlighted that the decrease in the availability of main bait sources and the increase in bait prices leaded to issues in bait supply for lobster harvesters. Preliminary consultations with bait suppliers show that the availability of Atlantic mackerel has declined and the mackerel bait prices has significantly increased the last 5 years, leading to a decrease in the use of mackerel. Also, Homarus Inc., the Research and Development sector of the Union des Pêcheurs des Maritimes, worked on the development of an alternative and ecological bait using the residues from fish transformation in processing plants. This alternative bait is in its commercialization phase. ~~There are measures or fishing practices in place that are expected to ensure that the lobster fishery does not hinder recovery and rebuilding of the mackerel stock.~~ ~~According to the GCB3.3 "Measures" are individuals actions or tools that may be in place either explicitly to manage impacts on the component or incidentally, being designed primarily to manage impacts on another component, indirectly contribute to management of the component under assessment.~~ ~~The reduction of the number of licences and the reduction of the number of traps per licence over the years are management measures that have contributed to reduce the impact on the Canadian mackerel and other P2 components as a decrease in the number of traps induced less bait used. The nominal NB and NS lobster fishing effort was reduced over the years. The total NB and NS fishing licenses went from 1,954 in 2006 to 1,720 in 2012. Also, the number of traps per license was reduced in areas 26A1 (from 300 to 280), 26A2 (from 300 to 275), 26A3 (from 300 to 250), and 26B North and South (from 300 to 250).~~ ~~In addition, the high price of bait species is a wide concern in all Atlantic Canada lobster fisheries and has forced lobster harvesters to a better and optimal utilization of bait.~~ ~~However, the assessment team considered that there is no formal partial strategy in place in the lobster fishery to ensure that the fishery does not hinder recovery and rebuilding of the Canadian mackerel stock, preventing the fishery from meeting 80a and 100a.~~		
b	**Guidepost**	The measures are considered likely to work, based on plausible argument (e.g., general experience, theory or comparison with similar fisheries/species).	There is some objective basis for confidence that the partial strategy will work, based on some information directly about the fishery and/or species involved.	Testing supports high confidence that the strategy will work, based on information directly about the fishery and/or species involved.
	Met?	Y	Y for rock crab, fall-spawning herring N for Atlantic mackerel	Y for fall spawning herring N for other species

PI 2.1.2		There is a strategy in place for managing retained species that is designed to ensure the fishery does not pose a risk of serious or irreversible harm to retained species		
	Justification	There is some objective basis for confidence that strategies will work, based on evidence from stock assessment results for rock crab and fall-spawning herring used as bait, and from fisheries characteristics and management, and the biological characteristics for secondary bait species. So the fishery meets 60b and 80b for these species. The impact of the lobster fishery on the Canadian mackerel stock is indirect. Canadian mackerel uses as bait is purchased by lobster fishermen to local directed fisheries, so the amount of bait used is already accounting into mackerel fisheries management system and taking into account in the Canadian mackerel stock assessment. Although a partial strategy has been proposed, agreed and implemented to ensure the fishery does not hinder the recovery and rebuilding of the Atlantic mackerel, it cannot be said that there is some objective basis for confidence yet that the partial strategy will work as it has been recently implemented. Also, based on the same evidence, there is high evidence that strategies will work for fall-spawning herring, but not for the other species, preventing the fishery from meeting 100b. ~~There are measures or fishing practices in place that are expected to ensure that the lobster fishery does not hinder recovery and rebuilding of the mackerel stock.~~ ~~According to the GCB3.3 "Measures" are individuals actions or tools that may be in place either explicitly to manage impacts on the component or incidentally, being designed primarily to manage impacts on another component, indirectly contribute to management of the component under assessment.~~ ~~The reduction of the number of licences and the reduction of the number of traps per licence over the years are management measures that have contributed to reduce the impact on the Canadian mackerel and other P2 components as a decrease in the number of traps induced less bait used. The nominal NB and NS lobster fishing effort was reduced over the years. The total NB and NS fishing licenses went from 1,954 in 2006 to 1,720 in 2012. Also, the number of traps per license was reduced in areas 26A1 (from 300 to 280), 26A2 (from 300 to 275), 26A3 (from 300 to 250), and 26B North and South (from 300 to 250).~~ ~~In addition, the high price of bait species is a wide concern in all Atlantic Canada lobster fisheries and has forced lobster harvesters to a better and optimal utilization of bait.~~ ~~However, the assessment team considered that there is no formal partial strategy in place in the lobster fishery to ensure that the fishery does not hinder recovery and rebuilding of the Canadian mackerel stock, preventing the fishery from meeting 80b.~~ ~~Also, based on the same evidence, a N was assigned to 100b.~~		
c	Guidepost		There is some evidence that the partial strategy is being implemented successfully.	There is clear evidence that the strategy is being implemented successfully.
	Met?		Y for rock crab, the fall-spawning herring N for Atlantic mackerel	Y for fall spawning herring N for other species

PI 2.1.2		There is a strategy in place for managing retained species that is designed to ensure the fishery does not pose a risk of serious or irreversible harm to retained species		
	Justification	There is some evidence that strategies is being implemented successfully, based on evidence from stock assessment results for rock crab and fall-spawning herring used as bait, and from fisheries characteristics and management, and the biological characteristics for secondary bait species. So the fishery meets 80c for these species. Although a partial strategy has been proposed, agreed and implemented to ensure the fishery does not hinder the recovery and rebuilding of the Atlantic mackerel, it cannot be said that the partial strategy is being implemented successfully as it has been recently implemented. Based on the same evidence, there is clear evidence that strategies is being implemented successfully fall-spawning herring, but not for the other species, preventing the fishery from meeting 100c. ~~The assessment team considered that there is no formal partial strategy in place in the lobster fishery to ensure that the fishery does not hinder recovery and rebuilding of the Canadian mackerel stock, preventing the fishery from meeting 80c for Canadian mackerel~~. ~~Also, based on the same evidence, a N was assigned to 100C.~~		
d	Guidepost			There is some evidence that the strategy is achieving its overall objective.
	Met?			Y for fall spawning herring N for other species
	Justification	Based on the same evidence, there is some evidence that strategies is achieving its overall objectives for fall-spawning herring, but not for the other species, preventing the fishery from meeting 100d.		
e	Guidepost	It is likely that shark finning is not taking place.	It is highly likely that shark finning is not taking place.	There is a high degree of certainty that shark finning is not taking place.
	Met?	Not relevant	Not relevant	Not relevant
	Justification			
References		DFO 2007a. Integrated Fisheries Management Plan for the Atlantic Mackerel, effective from 2007. DFO 2012e. Assessment of the Atlantic mackerel stock for the Northwest Atlantic (Subareas 3 and 4) in 2011. DFO Can. Sci. Advis. Sec. Sci. Advis. Rep. 2012/031.		

PI 2.1.2	There is a strategy in place for managing retained species that is designed to ensure the fishery does not pose a risk of serious or irreversible harm to retained species
	DF0 2012f. Assessment of Atlantic herring in the southern Gulf of St. Lawrence (NAFO Div. 4T). DFO Can. Sci. Advis. Sec. Sci. Advis. Rep. 2012/014. DFO 2014b. Assessment of the Atlantic Mackerel stock for the Northwest Atlantic (Subareas 3 and 4) in 2013. DFO Can. Sci. Advis. Sec. Sci. Advis. Rep. 2014/030. SGSL herring: http://www.glf.dfo-mpo.gc.ca/Gulf/FAM/Herring-Information/Herring-2012-2013-CHP DFO 2016f. Assessment of the Southern Gulf of St Lawrence (NAFO Div. 4T) spring and fall spawner components of Atlantic herring (*Clupea harengus*) with advice for the 2016 and 2017 fisheries. Can. Sci. Advis. Sec. Sci. Advis. Rep. 2016/036. DFO 2017a. Update of the fishery indicators for rock crab (*Cancer irroratus*) in the Southern Gulf of St Lawrence. DFO Can. Sci. Advis. Sec. Sci. Res. 2016/053. DFO 2017b. Proceedings of the Regional Peer review of the Assessment Framework for Atlantic Mackerel in subareas 3 and 4; January 18-20, 2017. DFO Can. Sci. Advis. Sec. Proceed. Ser. 2017/013. DFO 2017c. Notice to Fish Harvesters. Season opening and new management measures for the mackerel fishery in Mackerel Fishing Area 16 (Southern Gulf of St Lawrence) May 11, 2017. Van Beveren, E., Castonguay, M., Doniol-Valcroze, T., and Duplisea, D. 2017. Results of an informal survey of Canadian Atlantic mackerel commercial, recreational and bait fishers. DFO Can. Sci. Advis. Sec. Res. Doc. 2017/029. v + 26 p.
OVERALL PERFORMANCE INDICATOR SCORE:	~~60~~ 70*
CONDITION NUMBER (if relevant):	3

*The assessment team pointed out that an error was done during the initial full assessment. The initial score should have been 65 rather than 60 as except Atlantic mackerel all retained species met 80, herring met 100 and rock crab met 85.

UoAs 2, 3 and 4 - Maritimes

PI 2.1.2		There is a strategy in place for managing retained species that is designed to ensure the fishery does not pose a risk of serious or irreversible harm to retained species		
Scoring Issue		SG 60	SG 80	SG 100
a	**Guidepost**	There are measures in place, if necessary, that are expected to maintain the main retained species at levels which are highly likely to be within biologically based limits, or to ensure the fishery does not hinder their recovery and rebuilding.	There is a partial strategy in place, if necessary, that is expected to maintain the main retained species at levels which are highly likely to be within biologically based limits, or to ensure the fishery does not hinder their recovery and rebuilding.	There is a strategy in place for managing retained species.
	Met?	Y	Y for rock crab, the fall-spawning herring Y for Atlantic mackerel	N for Atlantic mackerel Y for other species

	Justification	There is a partial strategy in place that is expected to maintain the main retained species at levels which are highly likely to be within biologically based limits, or to ensure the fishery does not hinder their recovery and rebuilding. All inshore Lobster harvesters in LFAs 27-38 are authorized by licence condition to retain green crab, rock crab, and sculpin. In addition, harvesters in LFAs 33-38 are authorized to retain Jonah crab that is 130 mm and greater in length. However, in actual fishing practices, sculpin is not retained. Formal management strategies are in place in the directed herring fishery to maintain this species used as bait in the lobster fishery at levels which are highly likely to be within biologically based limits. The herring is managed under a Scotia-Fundy IFMP including input and output control measures. There is a partial strategy in place for the directed Canadian Atlantic mackerel fisheries that is expected to ensure the recovery of the mackerel stock. Canadian Atlantic mackerel fisheries are managed under an IFMP. Mackerel fisheries are input and output controls fisheries. Given the critical situation of the stock, the 2014 TAC, set at 10,000 t, was reduced of 26,000 t compared to 2013. The minimum size was increased from 250 mm to 273 mm. The U.S. Atlantic mackerel is under a Fishery Management Plan established in 1978. The FMP includes a number of measures to ensure sustainable harvesting including input (limited access program) and output (quotas) controls, reference points, and protection of mackerel Essential Fish Habitats. The crab fisheries are managed by effort control (input fishery). The current level of effort does not appear to have an impact on rock crab resource given the protection of brood stock provided by the MLS (for the directed rock crab fishery) and the mandatory release of female crabs. The impact of the lobster fishery on the Atlantic mackerel stock is indirect. Atlantic mackerel uses as bait is purchased by lobster fishermen to local directed fisheries, so the amount of bait used is already accounting into mackerel fisheries management system and taking into account in the Atlantic mackerel stock assessment. ~~There are measures or fishing practices in place that are expected to ensure that the lobster fishery does not hinder recovery and rebuilding of the mackerel stock.~~ ~~According to the GCB3.3 "Measures" are individuals actions or tools that may be in place either explicitly to manage impacts on the component or incidentally, being designed primarily to manage impacts on another component, indirectly contribute to management of the component under assessment.~~ ~~The reduction of the number of licences and the reduction of the number of traps per licence over the years are management measures that have contributed to reduce the impact on the Canadian mackerel and other P2 components as a decrease in the number of traps induced less bait used. The nominal NB and NS lobster fishing effort was reduced over the years. A lobster licence buy-back program was implemented to reduce the number of participants, and in particular those who were not dependent on the fishery. The number of traps per licence has been reduced from 275 to 250 in LFAs 27-33.~~ ~~In addition, the high price of bait species is a wide concern in all Atlantic Canada lobster fisheries and has forced lobster harvesters to a better and optimal utilization of bait.~~ A partial strategy to ensure the fishery does not hinder the recovery rebuilding of the Atlantic mackerel has been proposed, agreed and implemented and includes the following axes: 4) Monitoring of the amount of mackerel used as bait

PI 2.1.2		There is a strategy in place for managing retained species that is designed to ensure the fishery does not pose a risk of serious or irreversible harm to retained species		
		The client group solicited the bait suppliers participation to monitor the use of Atlantic mackerel for bait. The client group provided bait suppliers willing to participate with an Annual Bait Survey Form. Survey results of bait suppliers were inconclusive, and it has been determined that this proposed source of information is not reliable due to commercial trade concerns. A lobster harvesters survey was implemented in 2017 to inform bait use. 5) Encourage and support improvements of the mackerel fisheries management and mackerel stock assessment The client group strongly advocated the improvement of mackerel fisheries management and encourage DFO to carry out a new mackerel stock assessment. DFO has undertaken a number of activities to improve stock assessment methodology and management. The Atlantic mackerel stock assessment was carried out in March 2017 but the stock assessment report has not been published yet. However, the surveillance team was provided with a summary of the stock assessment outcomes. The issue of unreported catches has been investigated and shows that total catches can reach 150% to 200% of declared catches depending of the region (Van Beveren *et al* 2017). A new population dynamics model was developed to allow to include sources of uncertainties including estimated unrecorded catches and calculate reliable reference points (DFO 2017b). The client group attended the Regional Peer Review of the Assessment Framework for Atlantic mackerel held in Mont-Joli in January 2017. New management measures have been implemented in 2017 to improve monitoring and reporting of catches in mackerel fisheries. These measures include mandatory hail-in reporting estimated weight of catch for every fishing trip and 25% dockside monitoring coverage for landings (DFO 2017c). 6) Reduce the amount of mackerel use It was highlighted that the decrease in the availability of main bait sources and the increase in bait prices leaded to issues in bait supply for lobster harvesters. Preliminary consultations with bait suppliers show that the availability of Atlantic mackerel has declined and the mackerel bait prices has significantly increased the last 5 years, leading to a decrease in the use of mackerel. Also, Homarus Inc., the Research and Development sector of the Union des Pêcheurs des Maritimes, worked on the development of an alternative and ecological bait using the residues from fish transformation in processing plants. This alternative bait is in its commercialization phase. ~~However, the assessment team considered that there is no formal partial strategy in place in the lobster fishery to ensure that the fishery does not hinder recovery and rebuilding of the Canadian mackerel stock, preventing the fishery from meeting 80a and 100a.~~		
b	**Guidepost**	The measures are considered likely to work, based on plausible argument (e.g., general experience, theory or comparison with similar fisheries/species).	There is some objective basis for confidence that the partial strategy will work, based on some information directly about the fishery and/or species involved.	Testing supports high confidence that the strategy will work, based on information directly about the fishery and/or species involved.
	Met?	Y	Y for rock crab, the fall-spawning herring N for Atlantic mackerel	Y for fall spawning herring N for other species

PI 2.1.2		There is a strategy in place for managing retained species that is designed to ensure the fishery does not pose a risk of serious or irreversible harm to retained species		
	Justification	There is some objective basis for confidence that strategies will work, based on evidence from stock assessment results for rock crab and fall-spawning herring used as bait, and from fisheries characteristics and management, and the biological characteristics for secondary bait species. So the fishery meets 60b and 80b for these species. The impact of the lobster fishery on the Atlantic mackerel stock is indirect. Atlantic mackerel uses as bait is purchased by lobster fishermen to local directed fisheries, so the amount of bait used is already accounting into mackerel fisheries management system and taking into account in the Atlantic mackerel stock assessment. ~~There are measures or fishing practices in place that are expected to ensure that the lobster fishery does not hinder recovery and rebuilding of the mackerel stock.~~ ~~According to the GCB3.3 "Measures" are individuals actions or tools that may be in place either explicitly to manage impacts on the component or incidentally, being designed primarily to manage impacts on another component, indirectly contribute to management of the component under assessment.~~ ~~The reduction of the number of licences and the reduction of the number of traps per licence over the years are management measures that have contributed to reduce the impact on the Canadian mackerel and other P2 components as a decrease in the number of traps induced less bait used. The nominal NB and NS lobster fishing effort was reduced over the years. A lobster licence buy-back program was implemented to reduce the number of participants, and in particular those who were not dependent on the fishery. The number of traps per licence has been reduced from 275 to 250 in LFAs 27-33.~~ ~~In addition, the high price of bait species is a wide concern in all Atlantic Canada lobster fisheries and has forced lobster harvesters to a better and optimal utilization of bait.~~ Although a partial strategy has been proposed, agreed and implemented to ensure the fishery does not hinder the recovery and rebuilding of the Atlantic mackerel, it cannot be said that there is some objective basis for confidence yet that the partial strategy will work as it has been recently implemented. Also, based on the same evidence, there is high evidence that strategies will work for fall-spawning herring, but not for the other species, preventing the fishery from meeting 100b.		
c	Guidepost		There is some evidence that the partial strategy is being implemented successfully.	There is clear evidence that the strategy is being implemented successfully.
	Met?		Y for rock crab, the fall-spawning herring N for Atlantic mackerel	Y for fall spawning herring N for other species

PI 2.1.2		There is a strategy in place for managing retained species that is designed to ensure the fishery does not pose a risk of serious or irreversible harm to retained species		
	Justification	There is some evidence that strategies is being implemented successfully, based on evidence from stock assessment results for rock crab and fall-spawning herring used as bait, and from fisheries characteristics and management. So the fishery meets 80c for these species. ~~The assessment team considered that there is no formal partial strategy in place in the lobster fishery to ensure that the fishery does not hinder recovery and rebuilding of the Canadian mackerel stock, preventing the fishery from meeting 80c for Canadian mackerel.~~ Although a partial strategy has been proposed, agreed and implemented to ensure the fishery does not hinder the recovery and rebuilding of the Atlantic mackerel, it cannot be said that the partial strategy is being implemented successfully as it has been recently implemented. Based on the same evidence, there is clear evidence that strategies is being implemented successfully fall-spawning herring, but not for the other species, preventing the fishery from meeting 100c.		
d	Guidepost			There is some evidence that the strategy is achieving its overall objective.
	Met?			Y for fall spawning herring N for other species
	Justification	Based on the same evidence, there is some evidence that strategies is achieving its overall objectives for fall-spawning herring, but not for the other species, preventing the fishery from meeting 100d.		
e	Guidepost	It is likely that shark finning is not taking place.	It is highly likely that shark finning is not taking place.	There is a high degree of certainty that shark finning is not taking place.
	Met?	Not relevant	Not relevant	Not relevant
	Justification			
References		DFO 2007a. Integrated Fisheries Management Plan for the Atlantic Mackerel, effective from 2007. DFO 2012e. Assessment of the Atlantic mackerel stock for the Northwest Atlantic (Subareas 3 and 4) in 2011. DFO Can. Sci. Advis. Sec. Sci. Advis. Rep. 2012/031. DFO 2013f. 2013 Assessment of 4VWX herring. DFO Can. Sci. Advis. Sci. Sec. Sci. Advis. Rep. 2013/045.		

PI 2.1.2	There is a strategy in place for managing retained species that is designed to ensure the fishery does not pose a risk of serious or irreversible harm to retained species
	DFO 2014b. Assessment of the Atlantic Mackerel stock for the Northwest Atlantic (Subareas 3 and 4) in 2013. DFO Can. Sci. Advis. Sec. Sci. Advis. Rep. 2014/030. Robichaud, D.A., and Frail, C. 2006.Development of Jonah crab, *Cancer borealis*, and rock crab, *Cancer irroratus*, fisheries in the Bay of Fundy (LFAs 35-38) and off southwest Nova Scotia (LFA 34): from exploratory to commercial status (1995-2004). Can. Manuscr. Rep. Fish. Aquat. Sci. 2775: iii + 48 pp. DFO. 2016g. 4VWX Herring 2016 Update Report. DFO Can. Sci. Advis. Sec. Sci. Resp. 2016/036. DFO 2017b. Proceedings of the Regional Peer review of the Assessment Framework for Atlantic Mackerel in subareas 3 and 4; January 18-20, 2017. DFO Can. Sci. Advis. Sec. Proceed. Ser. 2017/013. DFO 2017c. Notice to Fish Harvesters. Season opening and new management measures for the mackerel fishery in Mackerel Fishing Area 16 (Southern Gulf of St Lawrence) May 11, 2017. Van Beveren, E., Castonguay, M., Doniol-Valcroze, T., and Duplisea, D. 2017. Results of an informal survey of Canadian Atlantic mackerel commercial, recreational and bait fishers. DFO Can. Sci. Advis. Sec. Res. Doc. 2017/029. v + 26 p.
OVERALL PERFORMANCE INDICATOR SCORE:	~~60~~ 70*
CONDITION NUMBER (if relevant):	3

*The assessment team pointed out that an error was done during the initial full assessment. The initial score should have been 65 rather than 60 as except Atlantic mackerel all retained species met 80, herring met 100 and rock crab met 85.

9.1.3 Principles revised scoring

UoA 1 - SGSL

Two	1	Retained species	0.2	2.1.1	Outcome	0.333	0.0667	60
				2.1.2	Management	0.333	0.0667	70
				2.1.3	Information	0.333	0.0667	90
		By-catch species	0.2	2.2.1	Outcome	0.333	0.0667	100
				2.2.2	Management	0.333	0.0667	80
				2.2.3	Information	0.333	0.0667	70
		ETP species	0.2	2.3.1	Outcome	0.333	0.0667	100
				2.3.2	Management	0.333	0.0667	95
				2.3.3	Information	0.333	0.0667	80
		Habitats	0.2	2.4.1	Outcome	0.333	0.0667	80
				2.4.2	Management	0.333	0.0667	95
				2.4.3	Information	0.333	0.0667	90
		Ecosystem	0.2	2.5.1	Outcome	0.333	0.0667	100
				2.5.2	Management	0.333	0.0667	100
				2.5.3	Information	0.333	0.0667	80

Three	1	Governance And policy	0.5	3.1.1	Legal & customary framework	0.25	0.125	90
				3.1.2	Consultation, roles & responsibilities	0.25	0.125	90
				3.1.3	Long term objectives	0.25	0.125	90
				3.1.4	Incentives for sustainable fishing	0.25	0.125	100
		Fishery specific management system	0.5	3.2.1	Fishery specific objectives	0.2	0.1	100
				3.2.2	Decision making processes	0.2	0.1	90
				3.2.3	Compliance & enforcement	0.2	0.1	95
				3.2.4	Research plan	0.2	0.1	90
				3.2.5	Management performance evaluation	0.2	0.1	90

As a result, the overall score of Principle 2 is revised from **85.3 to 86.**

As a result the overall score of the Principle 3 is revised from **90.8 to 92.8.**

UoAs 2, 3 and 4 - Maritimes

Two	1	Retained species	0.2	2.1.1	Outcome	0.333	0.0667	60
				2.1.2	Management	0.333	0.0667	70
				2.1.3	Information	0.333	0.0667	85
		By-catch species	0.2	2.2.1	Outcome	0.333	0.0667	80
				2.2.2	Management	0.333	0.0667	80
				2.2.3	Information	0.333	0.0667	75
		ETP species	0.2	2.3.1	Outcome	0.333	0.0667	85
				2.3.2	Management	0.333	0.0667	85
				2.3.3	Information	0.333	0.0667	80
		Habitats	0.2	2.4.1	Outcome	0.333	0.0667	80
				2.4.2	Management	0.333	0.0667	95
				2.4.3	Information	0.333	0.0667	90
		Ecosystem	0.2	2.5.1	Outcome	0.333	0.0667	100
				2.5.2	Management	0.333	0.0667	100
				2.5.3	Information	0.333	0.0667	80

As a result, the overall score of Principle 2 is revised from **82.3 to 83.**

9.2 Appendix 2. Stakeholder submissions

A submission from the Anderson Cabot Center for Ocean Life at the New England Aquarium has been received.

Nature of Comment (select all that apply)		Justification Please attach additional pages if necessary.
e.g. X	**I wish to alert the assessment team to important changes in the circumstances of this fishery relevant to the MSC certification.**	There are more references to consider and include with regards to endangered species bycatch, specifically North Atlantic right whale entanglement and ensuing serious injury and/or mortality. These three papers show 1) ropes are too strong and have been increasing in strength over time, 2) overall population health has declined in 2000s and reproduction is related to female health; and 3) survival is impacted by more complex entanglements • Knowlton, A.R., J. Robbins, S. Landry, H. McKenna, S.D. Kraus, and T. B. Werner. 2016. Effects of fishing gear strength on the severity of large whale entanglements. Conservation Biology 30: 318-328. • Rolland, R.M,, R.S. Schick, H.M. Pettis, A.R. Knowlton, P.K. Hamilton, J.S. Clark, S.D. Kraus. 2016. Health in North Atlantic right whales *(Eubalaena glacialis)* over three decades: from individual health to demographic and population health trends. Marine Ecology Progress Series 542: 265-282. • Robbins, J., A.R. Knowlton, and S. Landry. 2015. Apparent survival of North Atlantic right whales after entanglement in fishing gear. Biological Conservation 191: 421-427. And here are some others to consider and include: • Arthur, L.H., McLellan, W.A.,, Piscitelli, M.A., Rommel, S.A., Woodward, B.L., Winn, J.P., Potter, C.W., Pabst, D.A., 2015. Estimating maximal force output of cetaceans using axial locomotor muscle morphology. Mar Mammal Sci 31, 1401-26. • Moore, M.J., Bogomolni, A., Bowman, R., Hamilton, P.K., Harry, C.T., Knowlton, A.R., Landry, S., Rotstein, D.S. and Touhey, K., 2006, September. Fatally entangled right whales can die extremely slowly. In *OCEANS 2006* (pp. 1-3). IEEE. • Moore, M., Andrews, R., Austin, T., Bailey, J., Costidis, A., George, C., Jackson, K., Pitchford, T., Landry, S., Ligon, A. and McLellan, W., 2013. Rope trauma, sedation, disentanglement, and monitoring-tag associated lesions in a terminally entangled North Atlantic right whale (Eubalaena glacialis). *Marine Mammal Science*, *29*(2), pp.E98-E113. • Cassoff, R.M., Moore, K.M., McLellan, W.A., Barco, S.G., Rotstein, D.S. and Moore, M.J., 2011. Lethal entanglement in baleen whales. https://doi.org/10.3354/dao02385 • Hoop, J., Moore, M., Fahlman, A., Bocconcelli, A., George, C., Jackson, K., Miller, C., Morin, D., Pitchford, T., Rowles, T. and Smith, J., 2014. Behavioral impacts of disentanglement of a right whale under sedation and the energetic cost of entanglement. *Marine Mammal Science*, *30*(1), pp.282-307. • van der Hoop, J.M., Corkeron, P., Kenney, J., Landry, S., Morin, D., Smith, J. and Moore, M.J., 2016. Drag from fishing gear entangling North Atlantic right whales. Marine Mammal Science 32: 619–642. doi:10.1111/mms.12292

☐	**I wish to provide information relevant to fulfilment of the conditions of certification.**	Please also refer to the Species at Risk Public Registry website for right whale documents including the recovery plan which clearly states that right whales have been seen in the Gulf of St. Lawrence. Many documents are listed at the bottom of the page here http://www.registrelep-sararegistry.gc.ca/species/speciesDetails_e.cfm?sid=780
X	**Other (I wish to alert the assessment/audit team to include important sources of information regarding interactions with/effects on ETP species, specifically North Atlantic right whales)**	We would argue that the ALWTRP latest changes (reduction of vertical lines) would only reduce the chance of interaction by 30%. Also, whales "saved" by disentanglement should still be considered a serious injury, i.e. it's not a solution.

Assessment team's response

Michelle Cho
Wild Fisheries Project Lead, Sustainable Seafood Programs
Anderson Cabot Center for Ocean Life at the New England Aquarium
Central Wharf Boston, MA 02110
USA

Re: Your submission regarding the MSC 2nd surveillance audit of the Bay of Fundy, Scotian Shelf and Southern Gulf of St Lawrence Lobster Trap Fishery

Dear Michelle,

The assessment team appointed to conduct the MSC 2nd surveillance audit of the Bay of Fundy, Scotian Shelf and Southern Gulf of St Lawrence lobster trap fishery has reviewed your submission and discussed the references related to interactions with ETP species, specifically the North Atlantic right whale you provided.

The assessment team would like to thank you for providing a list of recent scientific papers that constitutes an important and updated source of information regarding interactions with large whales specifically the North Atlantic right whale.

As part of the surveillance processes, the assessment team continues to annually review available information and data related to the effect of the Bay of Fundy, Scotian Shelf and Southern Gulf of St Lawrence lobster fishery on ETP species including large whale species.
We reviewed recent reports providing estimates of fishing-induced injury and mortality of large whales in both Atlantic Canada and US.

During the initial full assessment, the assessment team determined that, although the presence of North Atlantic right whale in the Gulf of St Lawrence has been documented, there is potentially low overlapping between the North Atlantic right whale distribution and the UoA 1 (Southern Gulf of St Lawrence). The fishery operates in the Southern Gulf of St Lawrence in Lobster Fishing Areas 23, 25, 26A and 26B (Figure 1).
The lobster fishing in LFA 23 and 26AB is a spring activity (April-June) and in LFA 25 is a summer/fall activity (August-October).
Figures 3-14 show North Atlantic right whale sightings were extracted from the NOAA interactive sightings map tool[2] which compiled the most recent data from aerial and vessel-based surveys as well as reported opportunity sightings.
Although whales swim continuously and travelled through adjacent areas to arrive in the locations where sightings were made, the assessment team considers that this tools give a good view of the temporal and spatial distribution of North Atlantic right whale concentration.

Sightings in the SGSL occur in June, July, August and October (Figures 8, 9, 10 and 12). There were one sighting in June 2015 (Figure 8) in the area of LFA 25 when lobster fishing is closed in this LFA and still operates in LFA 23 and 26AB. There was one sighting end of July 2017 when lobster fishery is closed in the SGSL. There were two sightings in August (one in 2010 and one in 2015) when the lobster fishing is closed in LFA 23 and 26AB and starts in LFA 25. There was one sighting in October 1954 in the area of LFA 26A.

[2] https://www.nefsc.noaa.gov/psb/surveys/

Overall, the mapping tool shows that North Atlantic right whale sightings in the Gulf of St Lawrence occur mainly in the area of the Gaspésie peninsula, Quebec and Cape Breton, Nova Scotia.

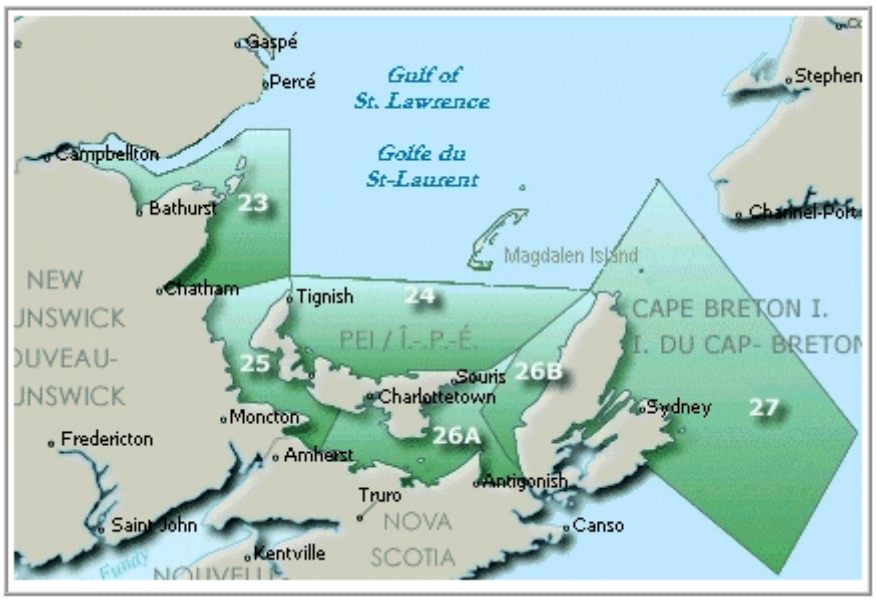

Figure 1. Lobster Fishing Areas (LFAs) in the Southern Gulf of St Lawrence (LFA 23, 25, 26 A and 26B).

The lobster fishing in the Eastern Scotia (UoA 2) is a spring (April-June) activity in LFA 28-32 and a spring/early summer (May-July) activity in LFA 27 (Figure 2).
There are few sightings in April (one occur in 1979), May and June along the Eastern Scotia (Figures 6, 7 and 8). Sightings mainly occur from July to November (Figures 6-13) when the lobster fishing is closed in Eastern Scotia except for LFA 27 (Cape Breton) where lobster fishing lasts until mid-July.

The lobster fishing in the Southwest Nova Scotia (UoA 3, Figure 2)) is a fall/winter/spring activity that lasts from November to May. There are very few to no sighting during these months in the area (Figures 3-7 and 13-14).

The lobster fishing in the Bay of Fundy (UoA 4, Figure 2) is a fall/winter/spring activity. There are very few to no sighting from December to May in the Bay of Fundy (Figures 14 and 3-7). Sightings mainly occur from June to November especially during summer months when the fishery is closed, except in LFA 35 where lobster fishing ends in July.

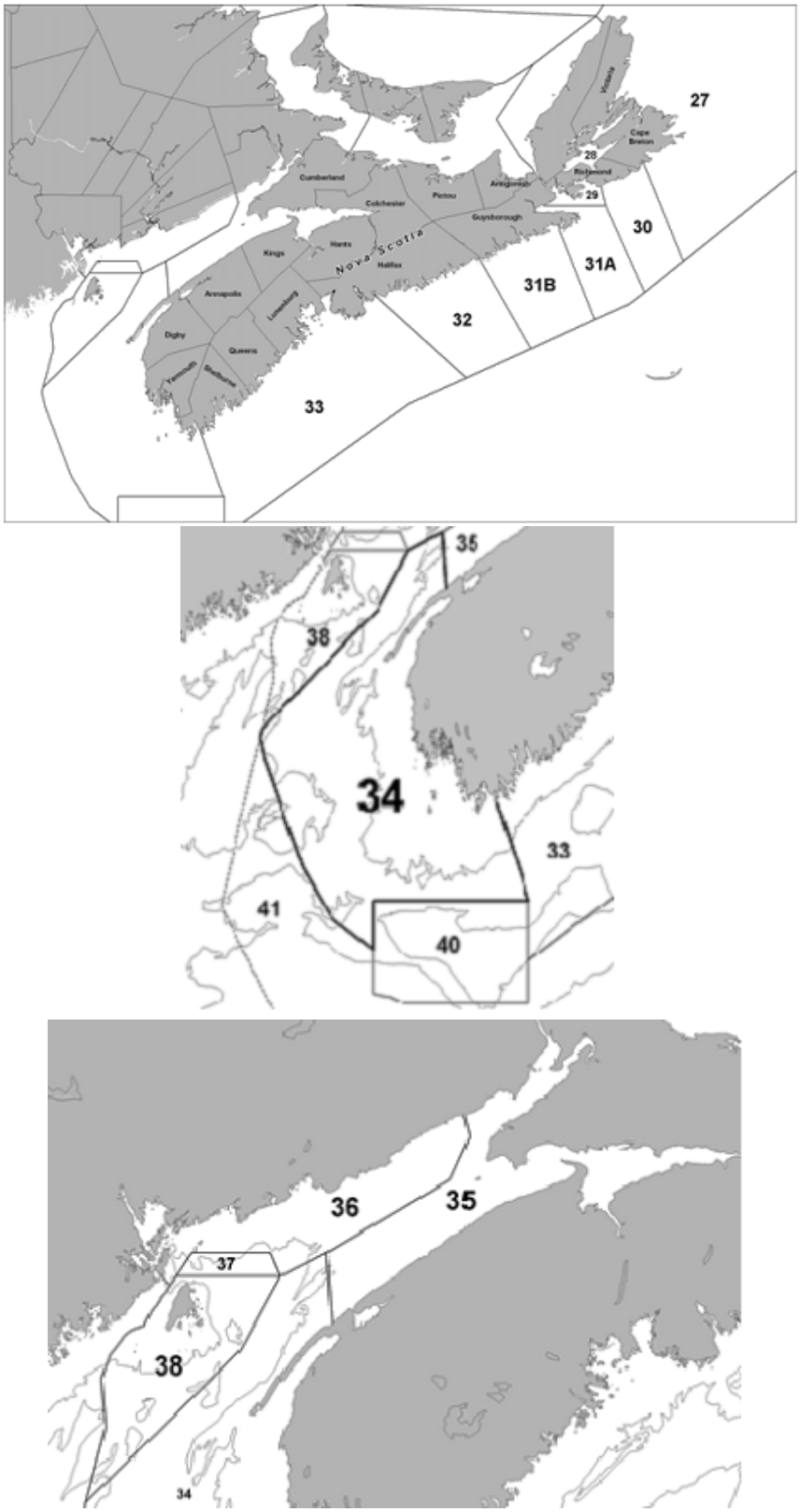

Figure 2. LFA in the Maritimes region. Eastern Scotia (UoA 2) lobster fishery operates in LFA 27-33. Southwest Nova Scotia (UoA 3) lobster fishery operates in LFA 34. Bay of Fundy (UoA 4) lobster fishery operates in LFA 35-38.

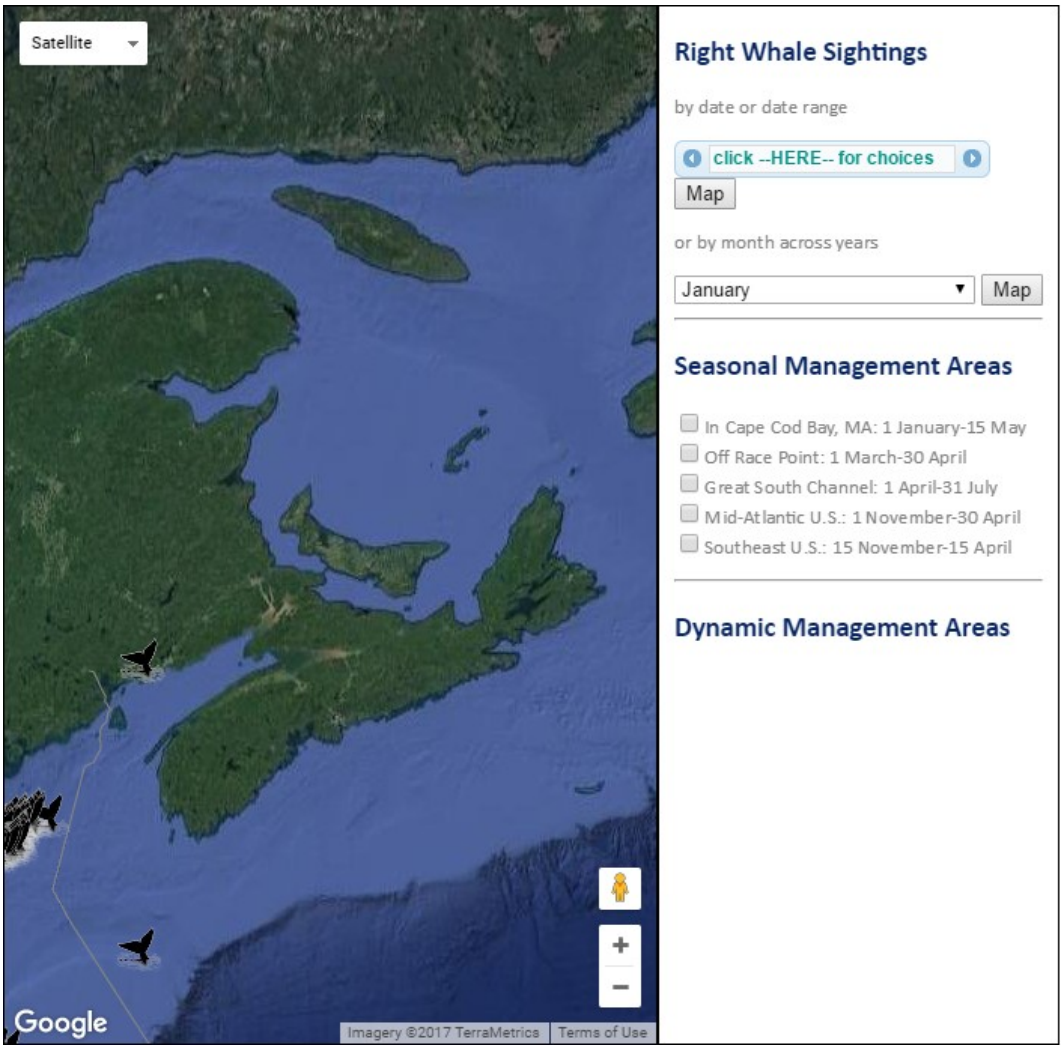

Figure 3. Right whale sightings in January**.**

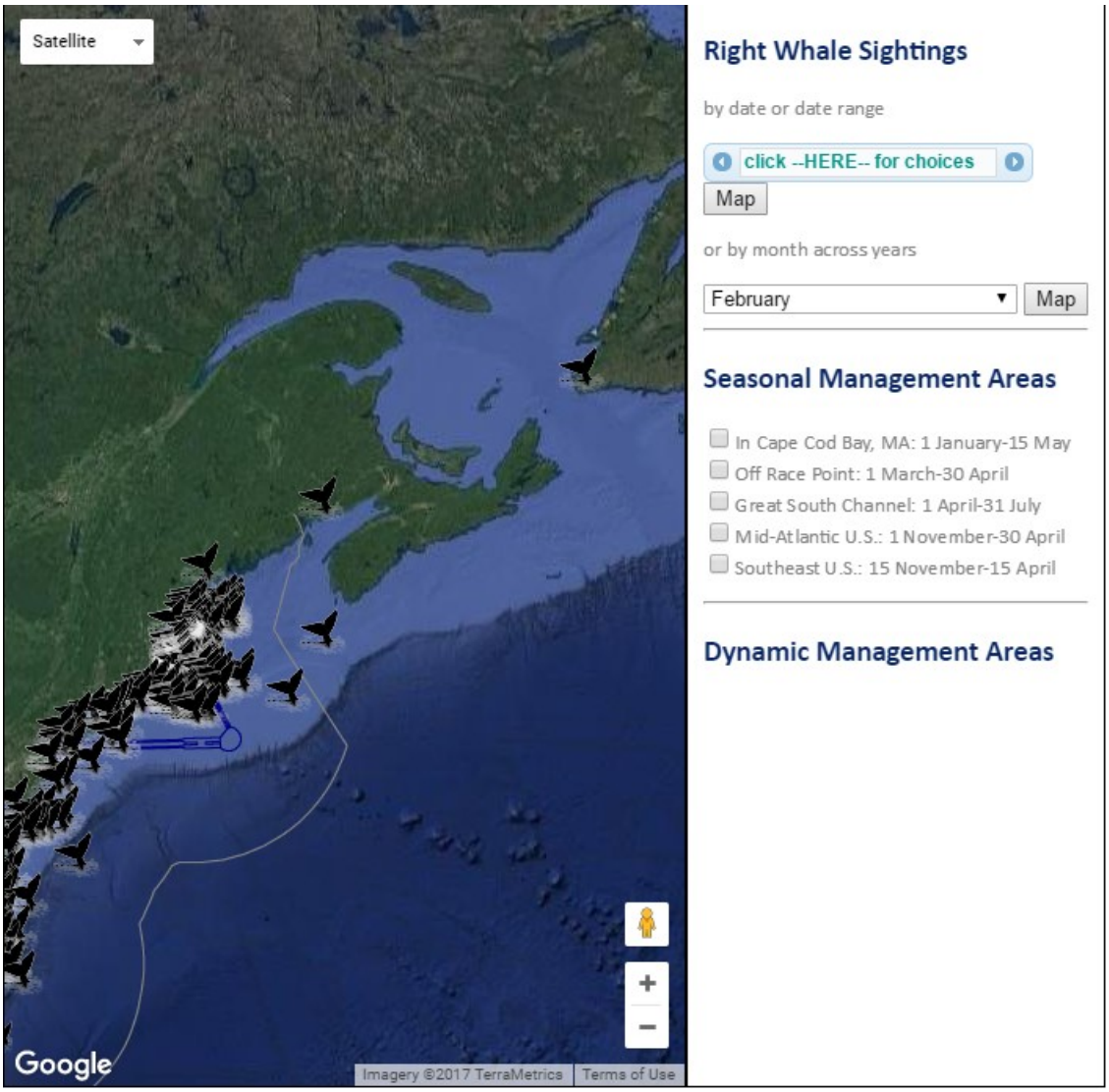

Figure 4. Right whale sightings in February**.**

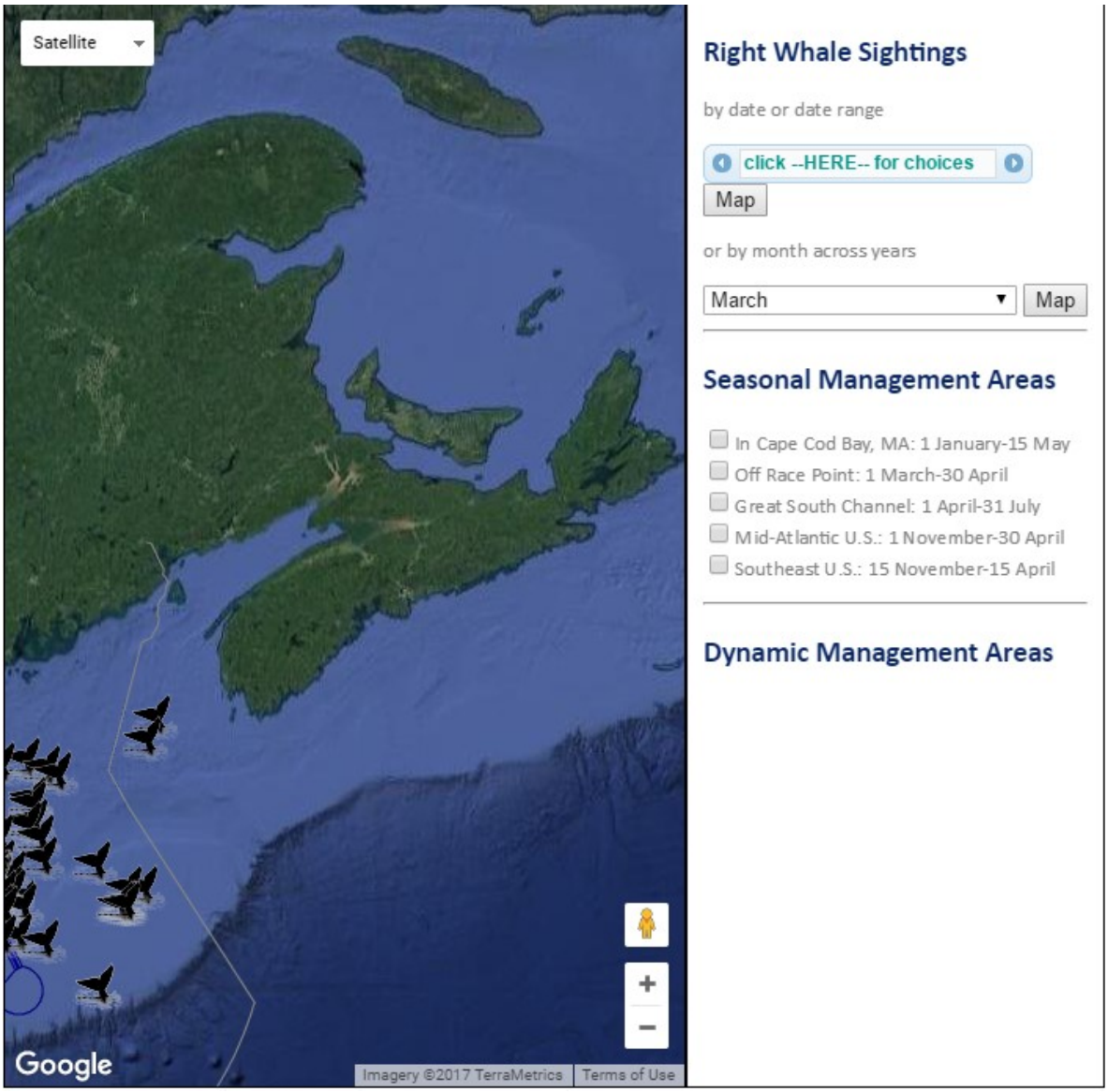

Figure 5. Right whale sightings in March.

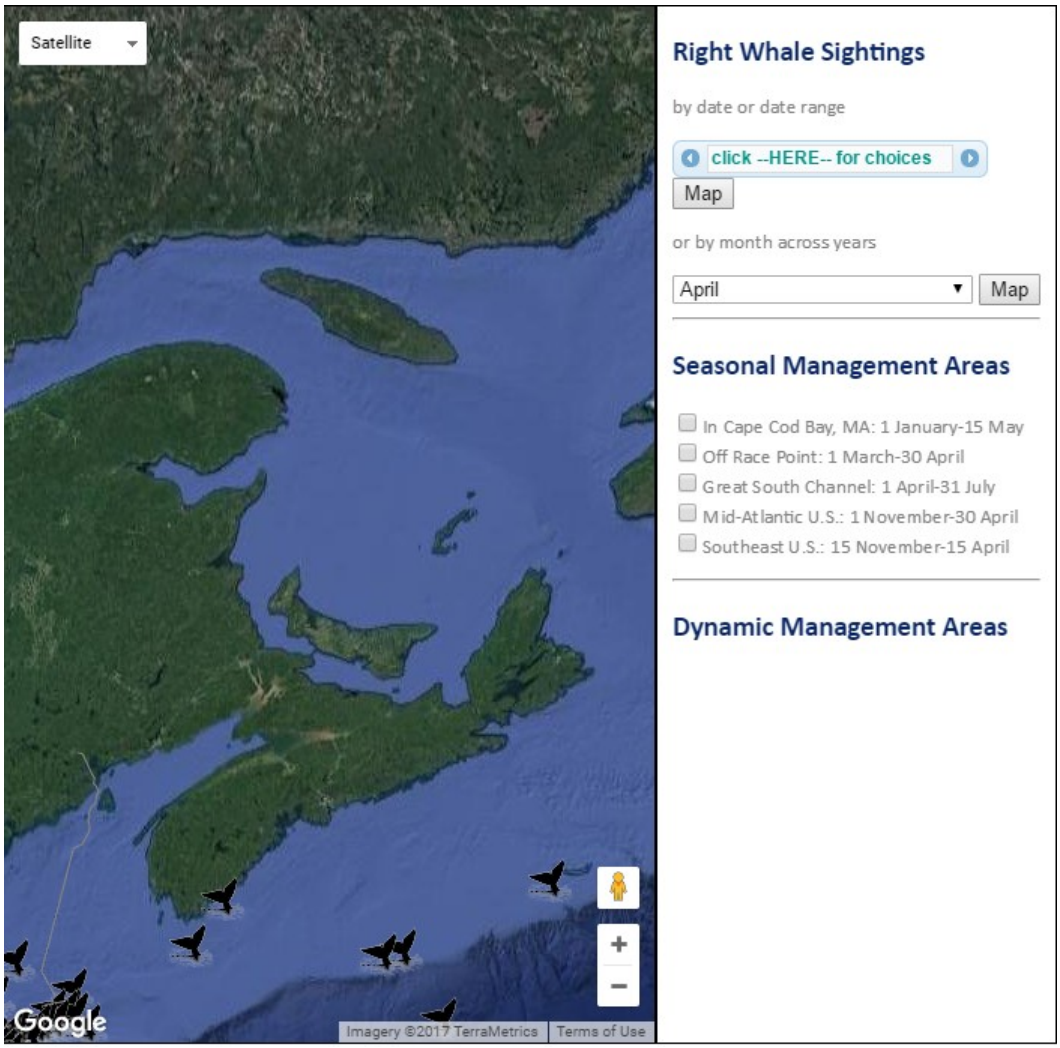

Figure 6. Right whale sightings in April.

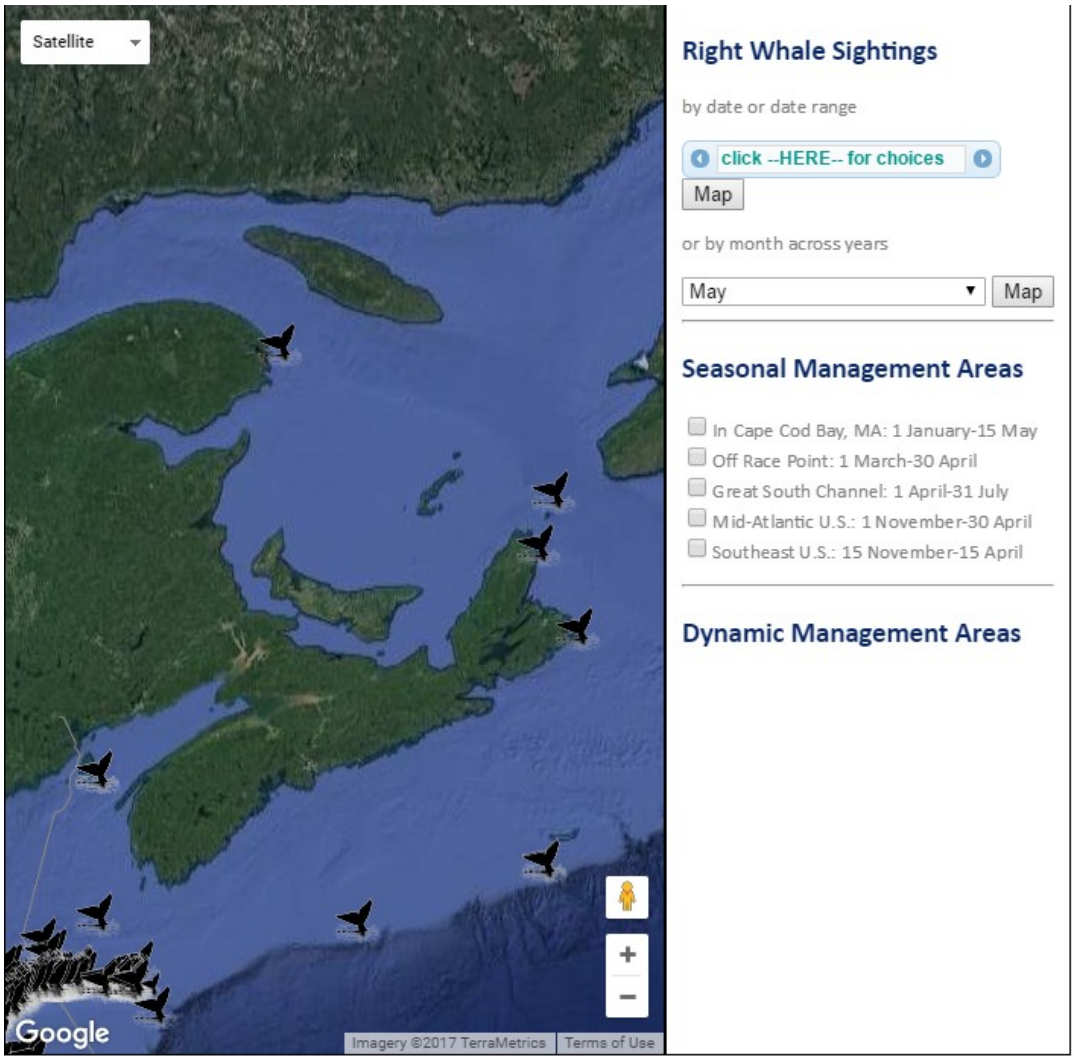

Figure 7. Right whale sightings in May.

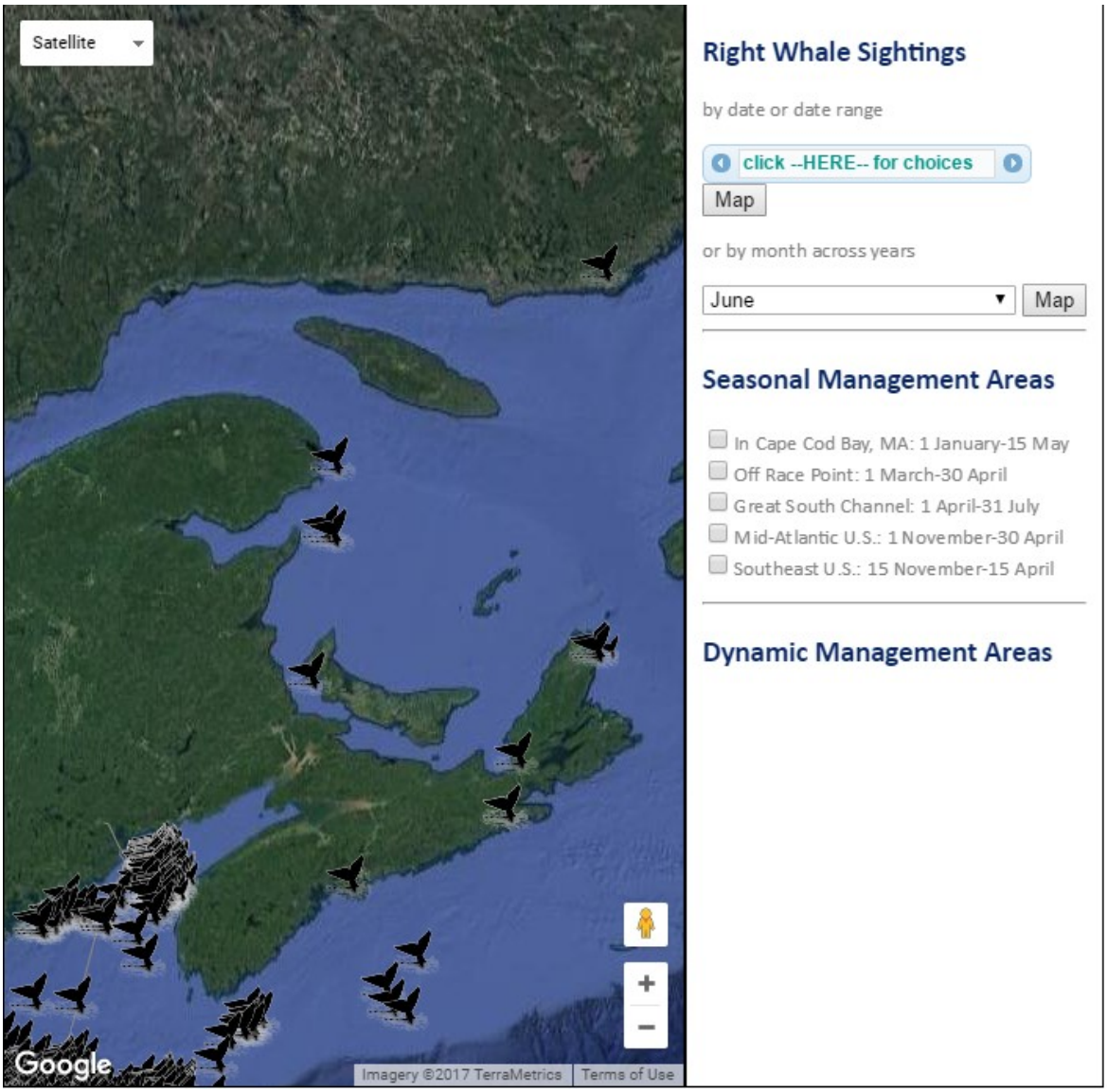

Figure 8. Right whale sightings in June.

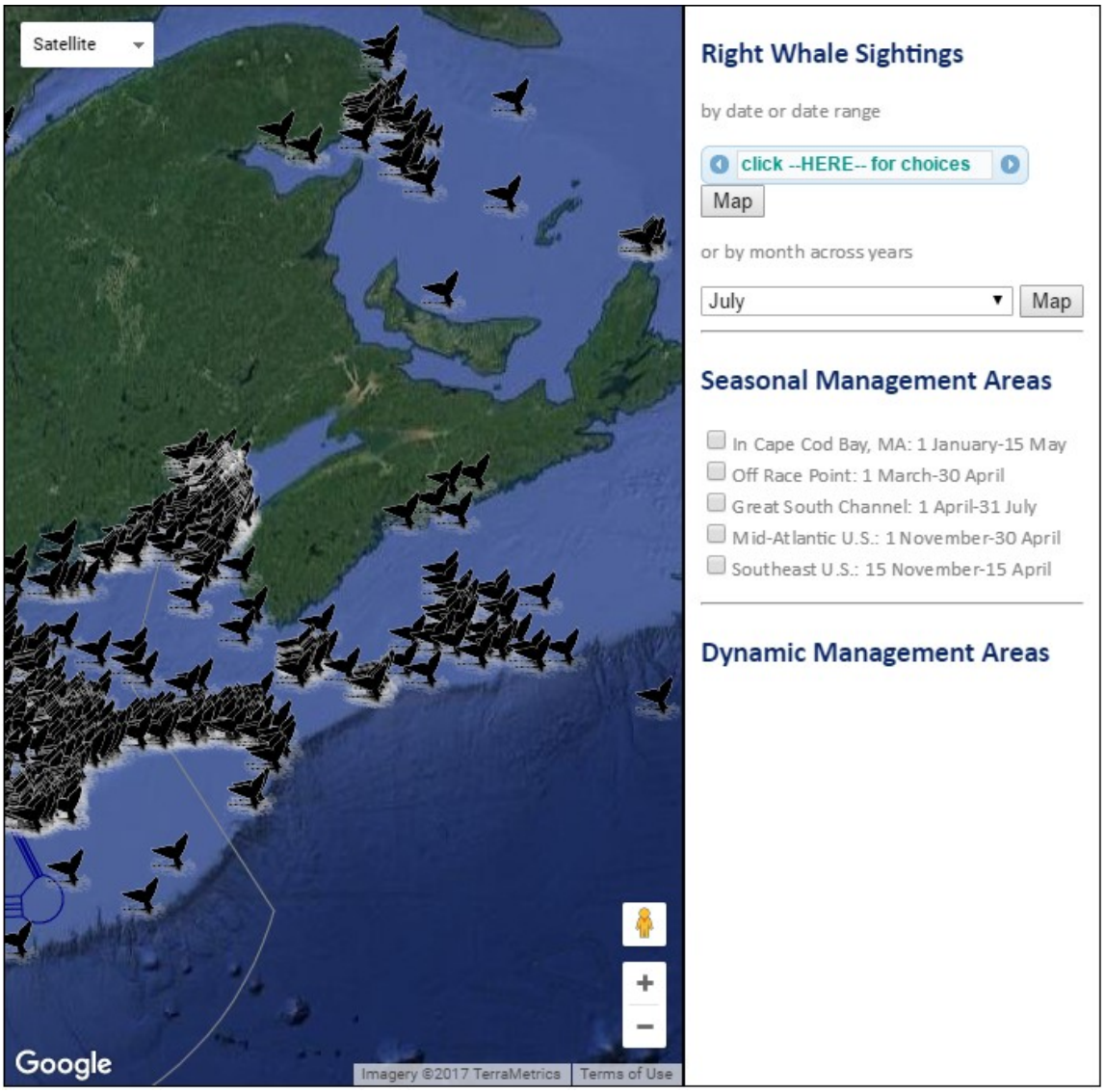

Figure 9. Right whale sightings in July.

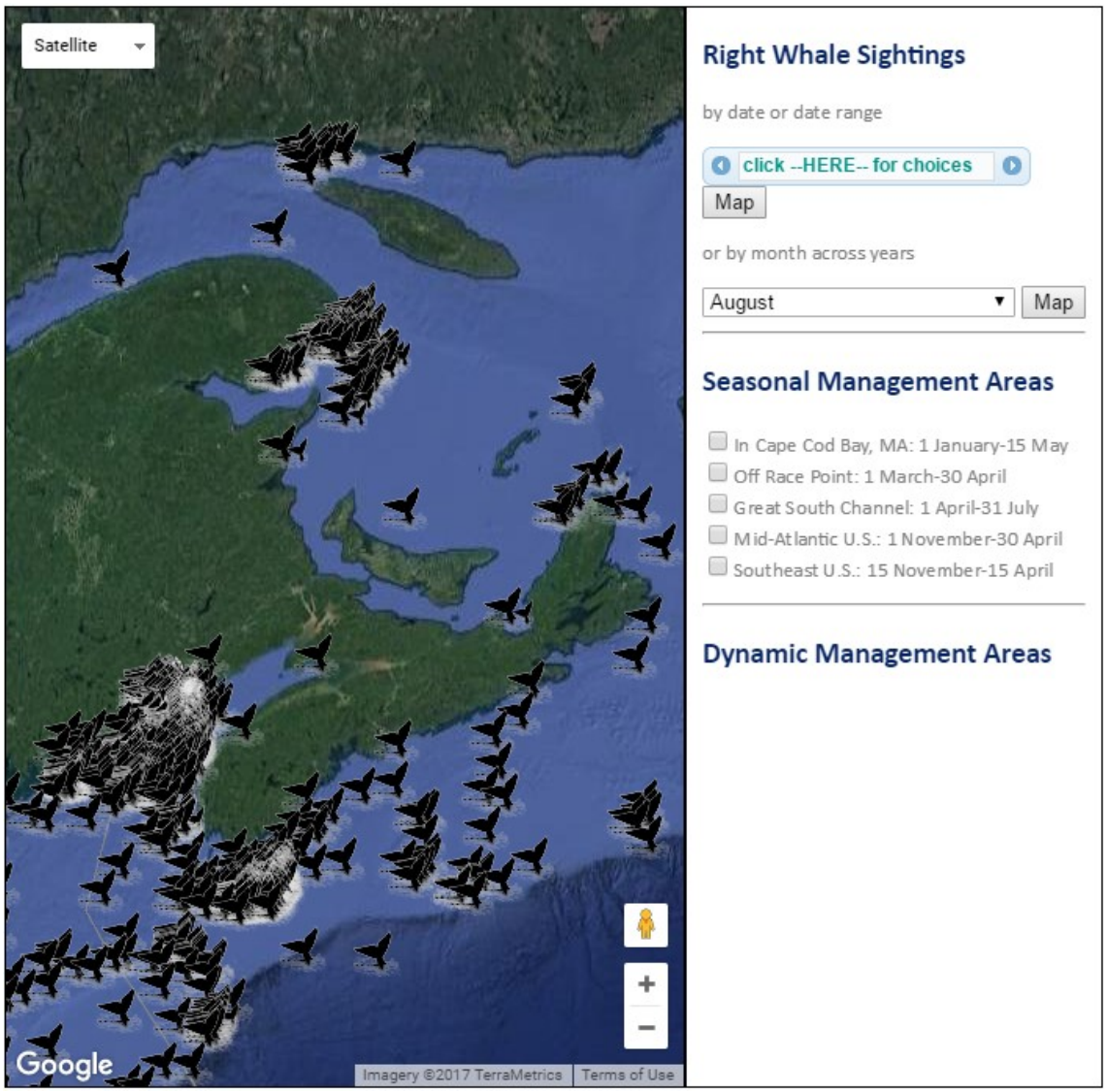

Figure 10. Right whale sightings in August.

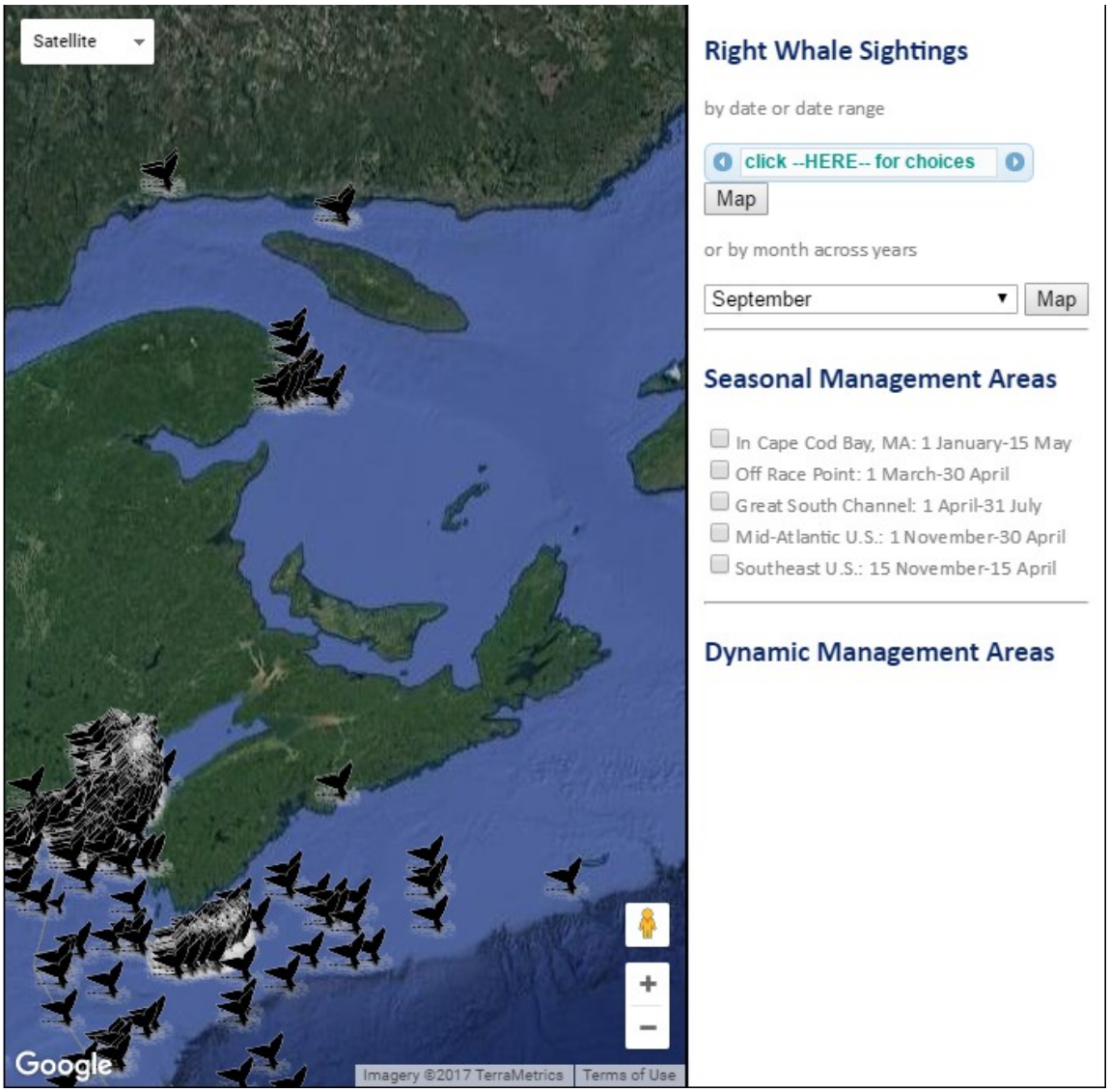

Figure 11. Right whale sightings in September.

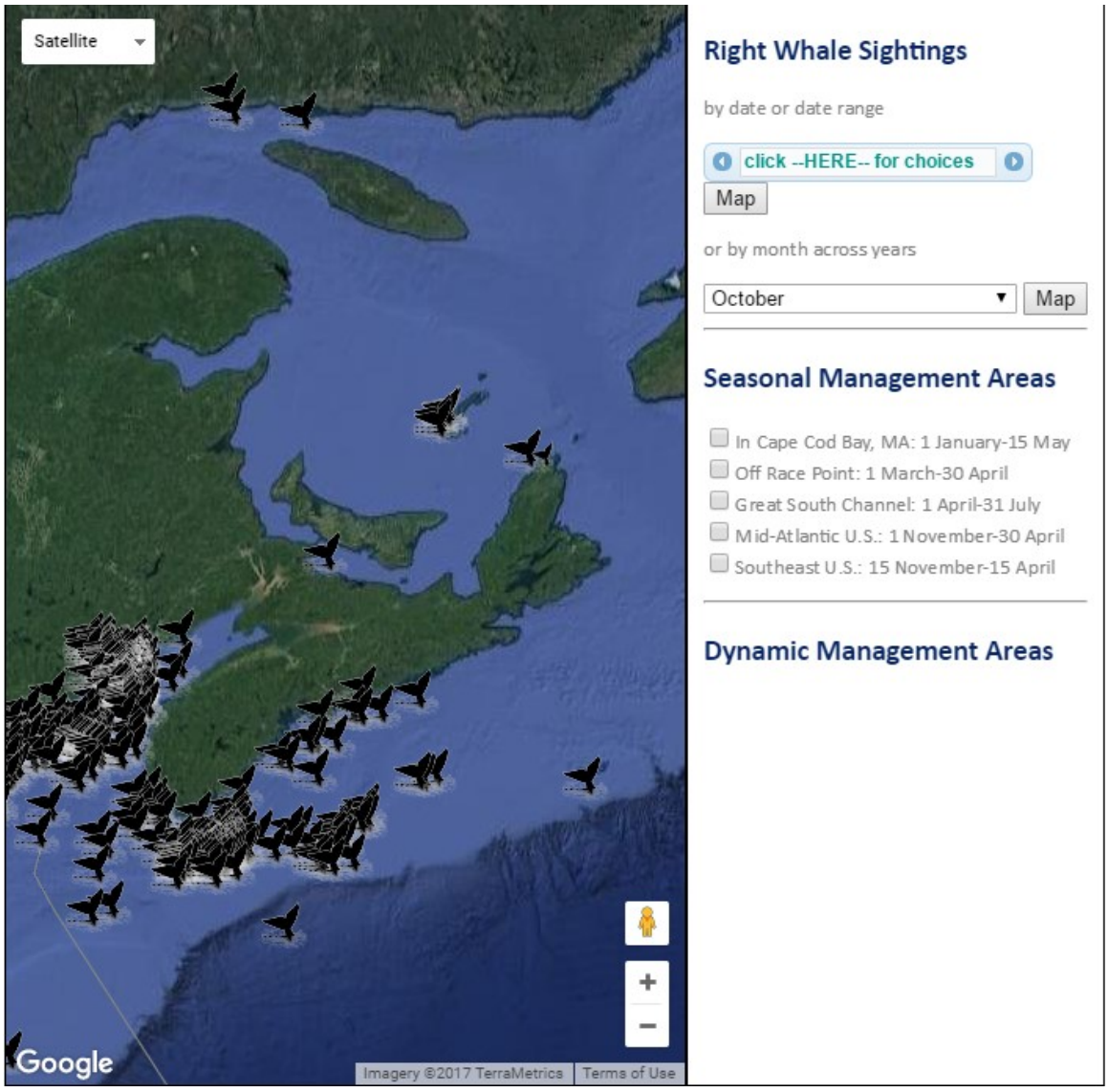

Figure 12. Right whale sightings in October.

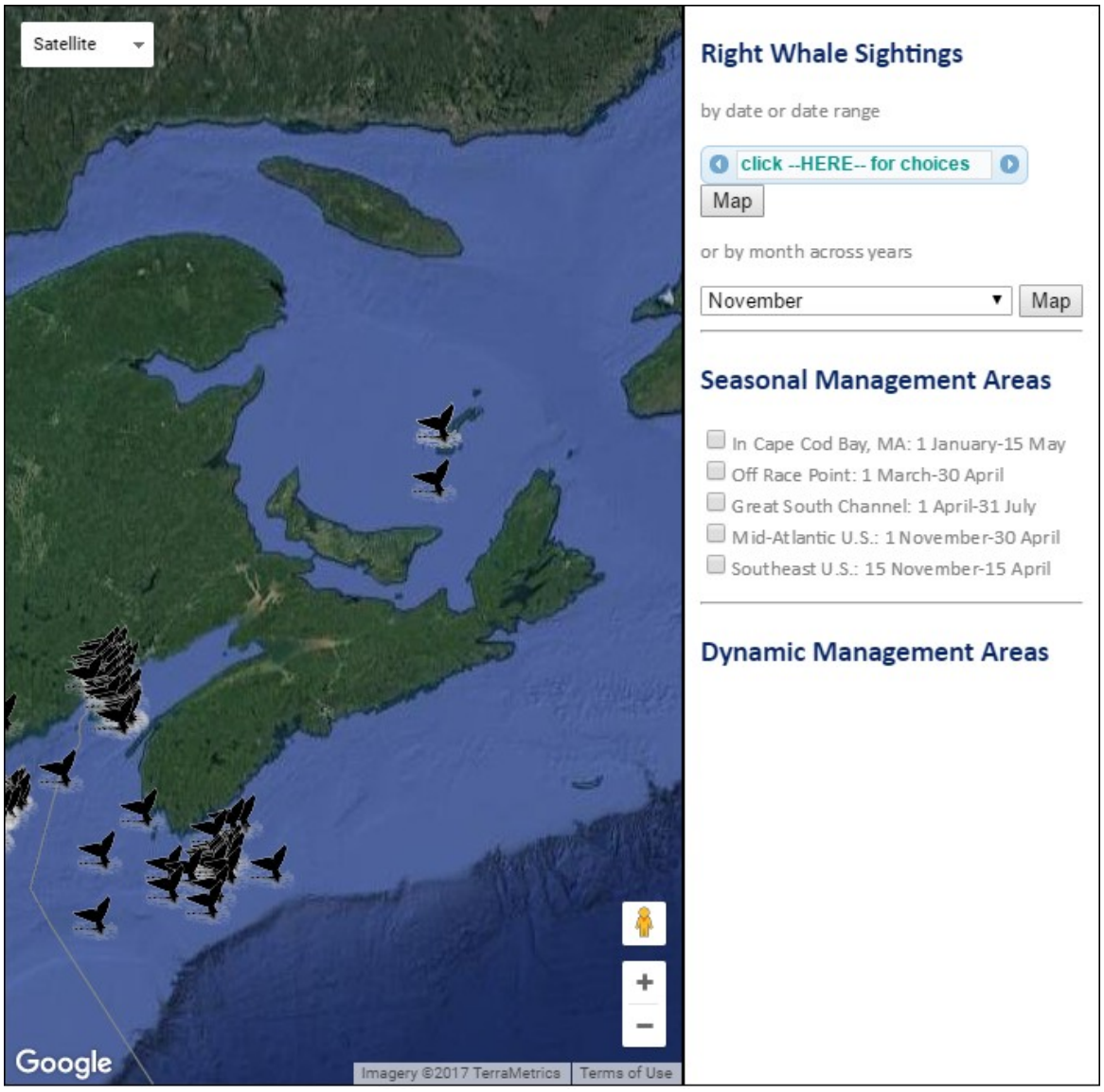

Figure 13. Right whale sightings in November.

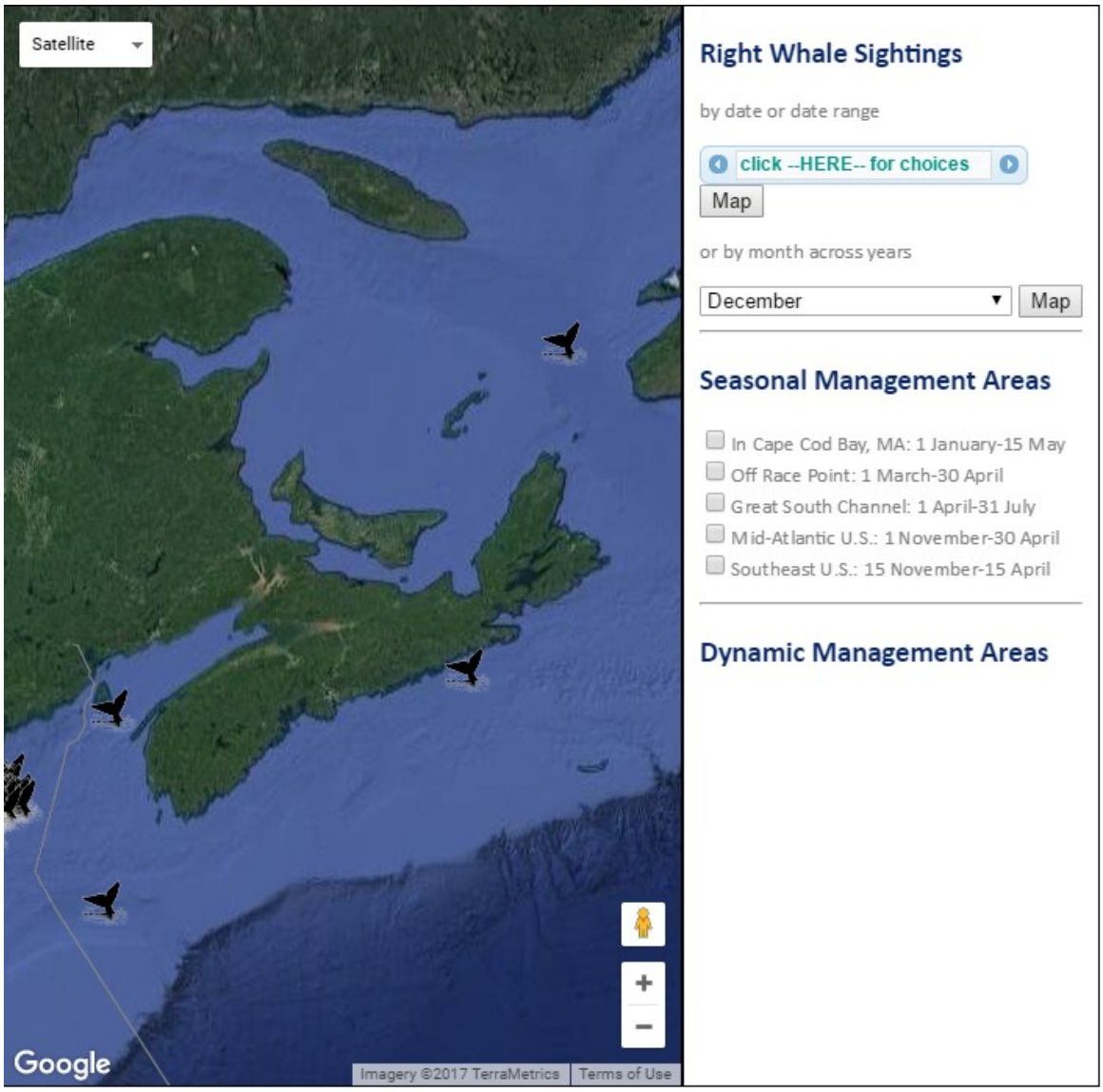

Figure 14. Right whale sightings in December.

A preliminary estimates of human-induced injury to and mortality of cetaceans in Atlantic Canada was published in 2016[3]. It was estimated that the North Atlantic right whale annual mortality rate attributed to interaction with all fishing gears (combined) was 0.43 individual per year (2008-2014) for all combined Canada Atlantic regions; which is below the revised PBR of 1 (Waring et al 2016) acknowledging that this annual calculated rates represent a lower bound.

The 2016 North Atlantic right whale stock assessment (Waring et al 2016) indicates that the examination of the minimum number alive population index calculated from the individual sightings database for the years 1990-2011 suggests a positive and slowly accelerating trend in population size.

[3] DFO 2016. Preliminary Estimates of Human-Induced Injury to and Mortality of Cetaceans in Atlantic Canada. DFO Can. Sci. Advis. Sec. Sci. Advis. Rep. 2016/029.

Furthermore, NFMS 2014 biological opinion[4] concludes that fishery interactions are not threatening the continued survival and recovery of the right whale as well as the humpback whale.

Although the assessment team acknowledges that some aspects could be improved, we believe that the ALWTRP is a dynamic and evolving process aiming to reduce the take of large whales by modifying fishing operations/practices through the time.

Documented information and data will continue to be annually reviewed to evaluate any changes in risk poses by the Bay of Fundy, Scotian Shelf and Southern Gulf of St Lawrence lobster fishery to large whales and especially North Atlantic right whale.

Thank you, once again, for having taken the time to communicate with the assessment team.

Yours Sincerely,

Géraldine Criquet
Fisheries Team Leader
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EMEA Region
Quayside Business Park, Mill Street
Dundalk, County Louth, Ireland
M: +33 (0) 787 96 56 39
E: geraldine.criquet@saiglobal.com
Skype contact: ggcriquet

[4] National Marine Fisheries Service 2016. Endangered Species Act Section 7 Consultation Biological Opinion. Reinitiation of the Biological Opinion on the Endangered Species Act Section 10(a)(1)(A) Permit by Regulation to Authorize Response to Stranded Endangered Sea Turtles in the Marine Environment Permit to the National Marine Fisheries Service's Office of Protected Resources, Marine Mammal and Sea Turtle Conservation Divisions.

9.3 Appendix 3. Surveillance audit information

Not necessary. All information related to the surveillance audit is provide in sections 4, 5 and 6.

9.4 Appendix 4. Additional detail on conditions/ actions/ results

9.4.1 Appendix 4.1 Harvest Control Rules

Agenda of the December 2016 Working Group Meeting: Decision rules for the lobster fishery-SGSL.

WORKING GROUP MEETING: DECISION RULES FOR THE LOBSTER FISHERY – SOUTHERN GULF OF ST. LAWRENCE (sGSL)	RÉUNION DU GROUPE DE TRAVAIL : RÈGLES DE DÉCISION POUR LA PÊCHE DU HOMARD – SUD DU GOLFE DU SAINT LAURENT (sGSL)
AGENDA Expected Outcome : Recommend harvest decision rules for lobster in the sGSL	ORDRE DU JOUR Résultat attendu: proposer des règles de décision pour le homard dans le sGSL
10:00 – Welcome [C. LeBlanc] and introductions	10h00 – Bienvenue [C. LeBlanc] et introductions
10:10 – Approval of January 2015 minutes. [C. LeBlanc]	10h10 – Approbation des procès-verbaux de janvier 2015 [C. LeBlanc]
10:30 – Recap of Precautionary Approach Framework and current reference points for the sGSL lobster fishery [A. Rondeau]	10h30 – Survol du Cadre de l'approche de précaution et points de références du homard du sGSL [A. Rondeau]
11:00 – Proposed decision rules [C. LeBlanc] and discussion [All]	11h00 – Proposition des règles de décision [C. LeBlanc] et discussion [Tous]
12:00 Lunch (not provided)	12h00 Diner (non fournit)
13:00 – Discussions, continued [All]	13h00 – Discussion sur les règles, suite [Tous]
14:00 – Summary of discussions and recommendation of decision rules [C. LeBLanc]	14h00 – Sommaire des discussions et recommendation des règles de décisions [C. LeBlanc]
14: 45 – Future meetings	14h45 – Prochaines réunions
15:00 – End of meeting	15h00 – Fin de la réunion

The proposed and agreed HCR for the SGSL lobster are:

Precautionary Approach	Reference points based on landings	Proposed Harvest Decision Rules
Healthy Zone	Greater than Upper Stock Reference (USR) (13,798 t +)	No action required under the Precautionary Approach Working towards additional Biological Reference Points
Cautious Zone	Less than Upper Stock Reference (USR), above Limit Reference Point (LRP) (13,798t- 6,899t)	Year 1: Indicator < USR: Science advice requested on stock status. Year 2: Fishing effort reduction proportional to the landings' decline according to the science advice. Request for a stock assessment based on indicators independent from landings. Year 3+: Fishing effort adjustments, if required, based on the stock assessment until the stock is out of the cautious zone.
Critical Zone	Below Limit Reference Point (LRP) (< 6,899t)	Minimal removal rates; Closure of all fisheries; Implement measures to promote stock recovery and growth

The agenda of the SGSL Lobster Advisory Committee meeting held in January 2017 in Moncton is presented below.

Southern Gulf of St. Lawrence Lobster (SGSL) Advisory Committee meeting
January 11 & 12, 2017
Moncton Delta Beauséjour - Ballroom A

DRAFT AGENDA

Réunion du comité consultatif du homard du sud du golfe du Saint-Laurent (SGSL)
11 et 12 janvier, 2017
Delta Beauséjour Moncton – Salle A

ÉBAUCHE de l'ORDRE DU JOUR

Each session be followed by a question/answer/discussion period	Chaque session sera suivi d'une période de questions/réponses/discussion
<u>Wednesday January 11, 2017</u>	<u>Le mercredi 11 janvier, 2017</u>
9:00-9:30 AM **[M. Lecouffe]**	9h00-9h30 **[M. Lecouffe]**
1. Welcome/Opening Remarks	**1. Mots de bienvenue et d'ouverture**
9:30-9:45 AM **[M. Lecouffe]**	9h30-9h45 **[M. Lecouffe]**
2. Approval of 2013 Meeting Notes	**2. Approbation du sommaire de la réunion de 2013**
9:45-10:15 AM **[M. Maclachlan]**	9h45-10h15 **[M. Maclachlan]**
3. Economic Overview	**3. Survol économique**
10:15-10:45 AM **[K. MacRae]**	10h15-10h45 **[K. MacRae]**
4. Conservation and Protection	**4. Conservation et Protection**
10:45-11:00 AM - **Break**	10h45-11h00 - **Pause**
11:00 AM-12:00 PM **[A.Rondeau]**	11h00-12h00 **[A.Rondeau]**
5. Sciences Stock Status Update	**5. Sciences - Mise à jour de l'état du stock**
6. Collaborative project on bycatch	**6. Projet de collaboration sur les prises accidentelles**
12:00 PM-1:00 PM – **LUNCH** (not provided)	12h00-13h00 – **DÎNER** (non fourni)
1:00 PM-1:30 PM **[C. Leblanc]**	13h00-13h30 **[C. Leblanc]**
7. Decision Rules Working Group Update and next steps	**7. Mise à jour sur le groupe de travail sur les règles de décisions et prochaines étapes**

Southern Gulf of St. Lawrence Lobster (SGSL) Advisory Committee meeting January 11 & 12, 2017 Moncton Delta Beauséjour - Ballroom A DRAFT AGENDA	Réunion du comité consultatif du homard du sud du golfe du Saint-Laurent (SGSL) 11 et 12 janvier, 2017 Delta Beauséjour Moncton - Salle A ÉBAUCHE de l'ORDRE DU JOUR
DAY 1, continued	**JOUR 1, suite**
1:30 PM-2:00 PM [M.-H. Thériault] **8. Marine Conservation Targets**	13h30-14h00 [M.-H. Thériault] **8. Objectifs de conservation marine**
2:00 PM-2:30 PM [J. Massiéra] **9. E-logs initiative update** **10. Integrated Fisheries Management Plan (IFMP) Update**	14h00-14h30 [J. Massiéra] **9. Mise à jour sur l'initiative des E-logs** **10. Mise à jour du plan de gestion intégré de pêche (PGIP)**
2:30 PM-2:45 PM - **Break**	14h30-14h45 - **Pause**
2:45 PM – 3h00 PM [M. LeCouffe & ALL] **11. Current Management Measures** **12. Strategic Outlook - Round Table** **Question for reflection:** *What modifications can be made to ensure a sustainable and economically viable lobster fishery in the sGSL for the future?*	14h30-16h30 [M. LeCouffe & TOUS] **11. Mesures de gestion courantes** **12. Regard Stratégique – Tour de Table** **Question pour réflexion :** *Quelle modifications pourraient être faites afin d'assurer une pêche durable et économiquement viable pour l'avenir dans la pêche au homard du sGSL?*
DAY 2 **Thursday January 12, 2017** 9:00 AM-12:00 PM [ALL] **12. Strategic Outlook, continued** 12:00 PM [M. Lecouffe] **13. Closing Remarks**	**JOUR 2** **Le jeudi 12 janvier, 2017** 9h00-12h00 [TOUS] **12. Regard Stratégique, suite** 12h00 [M. Lecouffe] **13. Mots de la fin**

9.4.2 Appendix 4.2 Bycatch monitoring

DFO Gulf Bycatch Sampling Protocol

Bycatch composition and vitality assessment of species caught as bycatch during the lobster fishery in the southern Gulf of St. Lawrence.

Bycatch composition

The following equipment is required to carry out the bycatch composition: caliper, hanging scale, buckets (fish pans or other containers for sorting), thermometer (for air temperature), sampling sheets (with pencils and clipboard), identification guides, scientific licence, and wet gear (personal protection equipment).

The sampling method is established to meet sampling requirement for spatial and temporal coverage. At-sea technicians will sample assign vessels by doing the following types of sampling: A) fishing activity information; B) measurements of discarded non-legal lobster; and 3) bycatch composition (counts and weights).

A. Fishing activity information

All the information on the fishing activity will be recorded on the "*Sea sampling header sheet*". Most information can be filled by conducting a short interview with the harvester before starting the fishing activity (one per trip). Information to be collected includes: type of bait, number and length of traps, and dimensions and number of entrances and escape vents on traps. Information on weather can be recorded at the end of the trip except for the air temperature that needs to be recorded at the beginning and end of the hauling activity (first and last trap hauled). Total landings for the day for lobster and rock crab, if any, as well as the total number of traps fished and the number of traps sampled will be noted at the end of the trip. Please note that if not all traps are sampled for bycatch; the landing information must reflect only what was retained from the sampled traps.

It is important that the bycatch composition, including discarded lobsters, be recorded for the highest number of traps possible. Ideally all trap hauled should be sampled, however, if this is not possible, don't skip traps within a line, skip entire lines. Bycatch specimens and discarded lobsters from un-sampled traps or lines should not be accounted for and retained lobsters (legal) must be kept separate or estimated and subtracted from the total landing.

B. Discarded lobster

Lobsters that cannot be legally retained (undersized/shorts, berried females, and window or maximum-size females; see Table 1) should be measured (rounded down to mm) and returned to sea as soon as possible. Lobsters to be discarded according to their size must be first sorted by either the captain or the deckhand before the at-sea technicians can measure them. Lobster measurements tally is to be recorded on the "*Length frequency sheet*". If a lobster to be discarded falls outside the size-range on the tally sheet, clearly write its carapace length measurements and type (female, male, berried or window/maximum size females) at the back of the tally sheet. Please refer to the reference table at the end of this document for LFA specific lobster size restrictions. Do not measure legal size lobsters.

C. Bycatch composition

Bycatch species (inside and outside the traps) should be separated by species or taxonomic group in buckets or other containers immediately after the trap is empty. Counts and weights of those species are to be recorded on the "*Bycatch species sheet*" at the end of the fishing/sampling activity or at any other convenient time. The most common bycatch species or taxonomic groups are already listed on the sheet. Use the proper species name if adding a new one to the tally sheet. It is important to remove any excess of water and account for the container's weight (tare the scale) when weighing bycatch species. If a large quantity (over 50 kg) of a specific bycatch group is caught, weight can be estimated. Remember to separate rock crab males and females before counting and weighing. Male rock crabs can be legally retained and/or sold as bycatch but not the females. Please refer to the provided field guides and bycatch species list for identification.

At the end of the trip, make sure that all the required information on the 3 different sheets has been recorded properly and thank the captain and crew for their cooperation.

Vitality assessment of bycatch

The following equipment is required to carry out the vitality assessment of bycatch: caliper, measuring board, buckets (fish pans or other containers for sorting), timers, thermometer (for air temperature), sampling sheets (with pencils and clipboard), scientific licence, species identification sheets, and wet gear (personal protection equipment). The at-sea sampling should be carried out on a regular basis (at least one a week for

designated wharves) during the entire fishing season to gather information on potential changes in water and air temperature, and also on the bycatch composition.

Information on the fishing activity

All the information on the fishing activity will be recorded on the "*Sea sampling header sheet*". Most information can be filled by conducting a short interview with the harvester before starting the fishing activity (one per trip). Weather information can be filled out at the end of the trip except for the air temperature that need to be recorded at the beginning of hauling and after the 10 minutes vitality observation period for the organisms.

Vitality assessment

The vitality assessment can begin as soon as the hauling activity starts. Take all bycatch individuals (except if there are too many) from the same trap line into a container, start the timer and assess the condition based on injury (Tables 3-4) and vitality (Table 5). Record data on the sampling sheet every minute for a total of 10 minutes. Use Table 6 for vitality signs according to the taxon type being observed. Make sure that individuals pooled together into a container will not injure one another, separate them if needed. At the end of the 10 minutes, record air temperature and their sizes, and finally return them to the sea. Fishes (fork length) are to be measured on a measuring board while crabs (carapace width) and lobsters (carapace length) with a caliper. The vitality assessment is based on observations on the boat and should not be biased by the condition of the specimen when returned at sea. For example, although sculpins will most likely be floating on their back when returned to the sea, they had vigorous movements and were trying to ventilate (vitality code 1) while observed on the boat, i.e., observations from the vitality assessment that should be recorded. Sculpins should be identified to the species level (longhorn, shorthorn, gruby).

The vitality assessment needs to be done on undersized lobsters as they cannot be legally retained. They can be assessed on an *ad hoc* basis when time permit. For lobsters and crabs, record the sex on the sampling sheet (male = 1, female = 2).

Try to assess the vitality of all bycatch specimens but if not possible, focus on less frequent species. Specimens that are not kept for the vitality assessment still need to be accounted for in the bycatch composition component of the project (counted and weighted).

Vitality codes in Table 5 have been developed for fish species but could also be adjusted to crustaceans (crabs, lobsters, hermit-crabs). The vitality assessment of other types of invertebrates such as echinoderms, gastropods and bivalves is more subjective but one could assume that a specimen without any major injury will stay in good condition for the 10 minutes observation (code 1). If it's really hot on the boat and the starfish being observed is getting all flaccid, it could be coded as a 4.

Tableau 3. Description of codes used in the assessment of the injury level of fish species caught.

Injury	Code	Description
None	1	No bleeding, torn operculum or noticeable loss of scales
Minor	2	Minor bleeding or minor tear of mouthparts area or operculum or moderate loss of scales (i.e. bare patch).
Major	3	Major bleeding or major tear of the mouthparts or operculum or everted stomach or bloated swim bladder

Tableau 4. Description of codes used in the assessment of the injury level of invertebrate species caught.

Injury	Code	Description
None	1	No visible injury to body, shell, or carapace

Minor	2	Minor cracks to shell or carapace without exposure of/access to internal organs. Recent loss of some limbs for crustaceans. The specimen should survive these injuries.
Major	3	Body, shell or carapace crushed with internal organs exposed. Recent loss of the majority of limbs for crustacean. Injuries will most likely cause the death of the specimen.

Tableau 5. Description of codes used to characterize fish and invertebrate vitality.

Vitality	Code	Description
Excellent	1	Vigorous body movements or strong reaction to stimuli; no or minor injuries.
Good	2	Weak body movements but still good reaction to external stimuli; minor injuries.
Poor	3	No more body movement but still some breathing attempts (for fish); minor or major injuries.
Moribund/dead	4	No body movement and no reaction to stimuli; specimen considered dead.

Tableau 6. Description of signs to look for when assessing the vitality of specimens from different taxonomic groups.

Groups	Vitality signs
Fish	Body and ventilation movements (mouth, operculum, etc.).
Crustaceans	Body and mouthparts movements, eyes move when touched. Good tonus of the limbs (do not place specimen on their back for the assessment).
Echinoderms	Movements of tube feet and spines, the specimen adhere to a flat surface. Mouthparts are tightly shut; soft bodied specimens (sea stars and sea cucumbers) are toned and not flaccid.
Gastropods	Body movements/locomotion, the operculum is tightly shut.
Bivalves	Valves are tightly shut or do so when physically tapped.

Lobster Bycatch Sampling Protocol for Maritimes Region

Purpose: To capture non-target species information to support condition requirements for the MSC lobster certification.

Participation: It is proposed that each LFA participate in fishery dependent reporting of non-target species encounters. Those LFA's that currently collect non-target species information are not required to participate if current efforts meet the minimum sampling requirements and these LFA's disclose their information annually.

Sampling Plan:

- A minimum of 2% of enterprises from each LFA will participate.
- Each participant will record daily non-target species information for one week per month.
- The total encounters by species will be recorded each day of fishing during the week.

The following summarizes by LFA the anticipated sample plan outcome. Given the proposed participation rates and seasons in each LFA, it is expected there would be 331 weekly logs submitted each year.

	UoC 2									UoC 3	UoC 4				Maritimes
LFA	27	28	29	30	31a	31b	32	33	Total	34	35	36	38	Total	Total
Licensed	524	116	67	20	73	71	161	707	1,639	979	95	177	136	408	3,026
Sample Size	2%	5%	5%	5%	5%	5%	3%	2%	3%	2%	2%	2%	2%	2%	3%
Participants	11	1	4	1	4	4	5	15	45	22	2	4	3	9	76
# Weekly Logs (max)	33	2	8	3	8	12	15	90	171	84	16	24	36	76	331

Information Collected: The following pages provide a sample of the document to be used for reporting.

Collaboration: To ensure DFO can utilize the information the date when fishing starts for the week will be recorded, the corresponding Log number from the enterprise monthly log, and the License number. This will permit assigning non-target species encounters to the geographic area fished, LFA, fishing depth, etc. Subsequently, this should permit DFO to examine spatially and temporally non-target species encounters from the lobster fishery.

Lobster Fishery Bycatch
Weekly Reporting Form

From: Nova Scotia and New Brunswick Lobster Eco-certification Society

Purpose: To meet requirements regarding MSC condition 4; bycatch encounters in lobster fisheries.

Confidentiality: This information will be kept confidential, and only summary information will be reported publicly to the MSC accredited certification body. DFO will have access to data to examine the geographic distribution and abundance of non-target species.

Work Instructions:
1. Complete this report only one week per month, starting the first Sunday of every month of lobster fishing.
2. Each day record the number of traps hauled, and estimated weight of n lobster returns and non-target species captured, whether kept of returned.
3. Any non-specified species, record as 'other' and record the species if known at the bottom in 'Other Species'.
4. Submit your report at the end of the week by post or email to Pisces Consulting Limited.

Form Starting Date: *01 / 01 / 2016* (mm/dd/yy)
Vessel Name: *Cape Sample*
Name: *John Doe*
Lobster Fishing Area: *LFA 34* (e.g.LFA 34)

Lobster Log #: *123456*
License #: *678910*
Phone #: *902-111-1111*

Pounds of Each Captured

			Finfish Pounds									Crab (Pounds)				Other (Pounds)	
	Pots Hauled	Lobster Returns (Pounds)	Sculpin	Cod	Haddock	Pollock	Redfish	Cusk	Hake	Flounder (Flats)	Other finfish	Snow Crab	Rock Crab	Jonah Crab	Other Crab	Urchins	Other
Sample	*150*	*100*	*50*	*10*							*1*		*20*			*5*	
Sunday	*0*																
Monday	*300*	*200*	*50*	*5*	*10*											*10*	
Tuesday	*150*	*60*	*80*													*5*	
Wednesday	*150*	*50*	*60*		*30*						*1*						
Thursday	*0*																
Friday	*150*	*100*	*30*	*10*										*50*			
Saturday	*0*																
Total	*750*	*410*	*220*	*15*	*40*						*1*			*50*		*15*	

Other Species	*Silver Hake - 1 pound*

Sample

Submit Report to: Pisces Consulting Limited
PO 612, 745 Sackville Drive
Lower Sackville, NS
B3J 3K1
or by email to: pisces@ns.sympatico.ca

Office Use Only
Document entry date: _____
Document entry by: _____

9.4.3 Appendix 4.3 Research Plan - Maritimes

Oceans Research Plan

DFO's Oceans and Coastal Management Division Five-Year Plan (subject to change) includes the following:

1. Marine protected areas (MPA) network design in place, which includes additional Oceans Act designations and measures (e.g., fisheries closures) in place that contribute to Marine Conservation Targets.

2. The evaluation and assessment of ecologically and biologically significant areas (EBSAs) should be completed by OCMD and EBSA management advice will be formulated.

3. The 2015 **Atlantic Coral Strategy** includes activities to measure the effectiveness of coral protection and to undertake species distribution modelling of corals/sponges based on environmental factors.

4. Mapping series of catch and effort fisheries footprints will be periodically updated by OCMD.

Monitoring and Research Plan

Monitoring and research are important components for management of the lobster fishery, with a long history of research results being used as primary inputs into management decisions. This Monitoring, Assessment and Research Plan summarizes the priorities for investment in monitoring and research in the Maritimes Region in the next five-years (2017-2022).

The Monitoring and Research Plan for the Lobster Fishery described here was developed for the entire Maritimes Region which consists of Lobster Fishing Areas (LFA) 27 – 38. This document is considered as a public document that may also be used by the fishing sector seeking to obtain or maintain their eco-certification for their fishery.

Strategic objectives	Themes	Monitoring, assessment and research priorities (i.e.: strategic monitoring and research needs)
Maintain and improve the knowledge base for the regional lobster stocks.	Perform functions and activities critical to inform stock status. Foster and maintain monitoring and research activities in collaboration with industry stakeholders and academia.	Collect biological and stock indicators with different long-term monitoring programs: • Conduct a multi-species fishery-independent survey (i.e.: trawl survey) in the Scotian Shelf and Bay of Fundy (LFA 34 - 38). • Conduct a lobster focused fishery-independent survey (i.e.: trawl survey) in LFA 34 and surrounding areas. • Conduct a benthic recruitment survey using passive collectors. • *In collaboration with stakeholders*, collect at-sea sampling data onboard commercial vessels at regular intervals to capture the size composition of lobster caught during fishing (i.e.: legal and sub-legal sizes, and egg bearing females).

		• *In collaboration with stakeholders*, collect population structure and fisheries data by conducting a recruitment-index program with commercial harvesters using modified traps (LFA 27 -35).
Provision of peer reviewed science advices, and scientific publications.	Develop and improve techniques for assessing stock status Investigate issues or address questions raised by clients[1].	• Undertake regular stock status assessment and provision of science advice for fisheries managers. • Develop stock status indicators as part of framework assessments in LFA 27 -33 (Autumn 2017) and LFA 34-38 (Autumn 2018). • Explore and/or improve methods to develop biological reference points which are related to the productivity of lobster stocks • Respond to specific scientific questions related to the lobster population/stock related to fisheries management as needed, via scientific investigations and peer reviewed science advice.
Ensuring ongoing sustainability of the fishery	Continue to improve the Precautionary Approach Framework for the lobster fishery.	• In collaboration with Resource Management work toward implementing the Precautionary Approach Framework to lobster stocks
Research on population dynamics and impacts of climate changes	Continue to improve on scientific knowledge (biological and physical) that can be applied to better assess the stocks.	• Continue research activities to better understand lobster population dynamics and changing productivity regimes under a changing climate through collaborative research and under different funding programs.

9.5 Appendix 5. Revised Surveillance Program (if necessary)

Not applicable. The surveillance program is not revised.

