US Acadian redfish, haddock and pollock otter trawl fishery

Surveillance Report

Conformity Assessment Body (CAB)	SAI Global
Assessment team	Lead Assessor, Vito Romito Assessor, Jerry Ennis
Fishery client	Sustainable Groundfish Association (SGA)
Assessment Type	Third Surveillance
Report Code	MSC022 SA3
Report Date	23 April 2020

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2 Glossary

ABC	Acceptable Biological Catch
ASM	At sea monitoring
ACE	Annual Catch Entitlements
ACL	Annual Catch Limits
AM	Accountability measures
ASAP	Age Structured Assessment Program
B_{MSY}	Biomass calculated for Maximum Sustainable Yield
CAB	Conformity Assessment Body
DFO	Fisheries and Oceans Canada
F	Fishing Mortality
FA or FW	Framework Arrangement
FG	Fixed Gear
FMP	Fishery Management Plan
FSB	Fisheries Sampling Branch (NESC)
F_{LIM}	Limit Reference Point for Fishing Mortality
F_{REF}	Fishing Mortality reference Point
GARFO	Greater Atlantic Regional Fisheries Office (NOAA)
GARM	Groundfish Assessment Review Meeting
GB	Georges Bank
GCES	General Counsel - Enforcement Section
GOA	Groundfish Operational Assessment
GOM	Gulf of Maine
GOMAC	Gulf of Maine Advisory Committee
GN	Gillnet
HL	Handline
IFMP	Integrated Fisheries Management Plan
LL	Longline
LMOT	Large Mesh Otter Trawl
MG	Mobile Gear
MSC	Marine Stewardship Council
MSE	Management Strategy Evaluation
MSP	Maximum Spawning Potential
NEFMC	New England Fisheries Management Council
NEFOP	Northeast Fisheries Observer Program
NCRP	Northeast Cooperative Research Program
NEFSC	Northeast Fisheries Science Center
NMFS	National Marine Fisheries Service (NOAA)
NOAA	National Oceanic and Atmospheric Administration
OLE	Office of Law Enforcement
OTB	Otter Trawl, Bottom
P1, P2, P3	MSC's Guiding Principles
PA	Precautionary Approach
PI	Performance Indicator
PTNS	Pre-Trip Notification System
RAP	Regional Advisory Process

RV	Research Vessel
RV Biomass Index	Research Vessel Biomass Index
SARC	Stock Assessment Review Committee
SAW	Stock Assessment Workshop
SFF	Sustainable Fisheries Framework
SH	Stakeholder
SSB	Spawning Stock Biomass
SSB_{MSY}	Spawning Stock Biomass for Maximum Sustainable Yield
SSC	Statistical and Scientific Committee
SSR	Special Science Response
PDT	Plan Development Team (Groundfish)
TAC	Total Allowable Catch
TMGC	Trans-boundary Management Guidance Committee (US-Can)
TRAC	Trans-boundary Resources Assessment Committee (US-Can)
UoA	Unit of Assessment (MSC)
UoC	Unit of Certification (MSC)
USR	Upper Stock Reference Point
VPA	Virtual Population Analysis
VMS	Vessel Monitoring System

3 Executive summary

The US Acadian redfish, haddock and pollock otter trawl fishery was originally certified on 05th July 2016 by SAI Global under MSC Certification Requirements version 1.3. The first surveillance audit was completed on the 17th September 2018, while the second surveillance was completed on the 20th May 2019.
The surveillance audit was announced on 21st January 2020 which is outside the allowed 6 months window (FCP v.2.1 §1.28.8.1).

This report contains the findings of the 3rd surveillance audit (performed through an on-site audit and desktop review of available information) in relation to the Sustainable Groundfish Association, Inc. certificate of the US Acadian redfish, haddock and pollock otter trawl fishery. The audit has been carried out against the MSC Fisheries Certification Process v 2.1.

The 3rd surveillance audit focused on any changes to the fishery and its management since the last surveillance audit and monitoring continued compliance with the MSC Principles and Criteria. Also, the assessment team has evaluated progress against the 2 conditions (PI 2.1.1 - Retained Species Outcome and PI 2.1.2 - Retained Species Management).

Table 1 summarises the status on conditions as well as Performance indicators and Principle 2 original and revised score.

Table 1. Conditions status and original and revised Performance Indicator (PI) and Principle level scores.

Condition	PI	Status	Performance Indicator		Principle		
			Original score	Revised Score	Original score	Revised Score Surveillance 2 (2019)	Revised Score Surveillance 3 (2020)
1	2.1.1	On target	70	Not revised	84.7	Not revised	Not revised
2	2.1.2	On target	70	Not revised	84.7	Not revised	Not revised

SAI Global determines that:

- **The US Acadian redfish, haddock and pollock otter trawl 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.**

On behalf of the MSC client, the Sustainable Groundfish Association, Inc. (SGA), SAI Global would like to extend thanks to the management and scientific organisations and stakeholders of the US Acadian redfish, haddock and pollock otter trawl fishery who took part in this surveillance audit.

We note that on March 27th, 2020, the MSC issued an updated COVID-19 derogation allowing a six-month certificate extension for all fisheries. Accordingly, the MSC has required CABs to extend the deadlines for all associated processes, including assessments, conditions, action plans and milestones by six months.
The updated derogation has been released as an Interpretation, and can be seen at the link below:
https://mscportal.force.com/interpret/s/article/Covid-19-pandemic-derogation-March-2020

The lead assessor for this 3rd surveillance assessment team is different from the lead assessor from the 2nd surveillance audit but the P1 assessor remains the same as for previous audits. Skills and experience are summarized below.

Lead Assessor: Vito Romito (responsible for P2 and Traceability)
Vito has almost 10 years of expertise in fisheries certification. He's an ISO14001 Certified Lead Auditor and MSC FCR v.2.0 and FCP v.2.1 approved Fisheries Team Leader for SAI Global with extensive experience in ecosystems effects of fisheries. Vito received a BSc (Honours) in Ecology and a MSc in Tropical Coastal Management from Newcastle University (U.K.), in between which he worked for a year in Tanzania, carrying out comparative biodiversity assessments of pristine and dynamited coral reef ecosystems around the Mafia Island Marine Park. For five years he worked at Global Trust Certification/ later SAI Global as Lead Assessor for all the fishery assessments in Alaska, Iceland and Louisiana. Vito has also carried out several IFFO forage fisheries assessments in Chile, Peru, Europe and other various pre-assessments in Atlantic and Pacific Canada. To date, Vito has headed and conducted dozens of assessments involving 40+ different species including salmonid, groundfish, pelagic, flatfish, crustacean and cephalopod species in Europe, North and South America, and SE Asia. For three years, as a senior fisheries consultant and then manager with RS Standards Ltd., he was involved in the development and testing of a Data Deficient Fisheries framework and v.2.0 fisheries standard for the ASMI Alaska RFM Scheme, and IFFO RS Improver/FIP projects related to South East Asia multispecies bottom trawl fisheries. Vito re-joined the SAI Global Fisheries Team in 2018 and has since been involved in fisheries assessments in the Baltic Sea, Canada, Iceland, Alaska and Louisiana.

Assessor: Dr. Jerry Ennis (responsible for P1)
Following undergraduate and graduate degrees at Memorial University of Newfoundland in the 1960s, Dr. Ennis completed a Ph.D. in marine biology at University of Liverpool in the early 1970s. He retired in 2005 following a 37-year research career with the Science Branch of the Department of Fisheries and Oceans. His extensively published work has focused primarily on lobster fishery and population biology and on various aspects of larval, juvenile and adult lobster behavior and ecology in Newfoundland waters. Throughout his career, Dr. Ennis was heavily involved in the review and formulation of scientific advice for management of shellfish in Atlantic Canada as well as the advisory/consultative aspect of managing shellfisheries throughout the Newfoundland-Labrador region of the Northwest Atlantic. In retirement he has been involved on a regular basis as assessor and peer reviewer for MSC assessments of various stocks/fisheries. He is qualified by MSC as team member with responsibility on Principle 1 and is part of the MSCI Peer Review College.

4 Report details

4.1 Surveillance information

Announcement of Surveillance Audit

An announcement of the surveillance site visit was published on the MSC website on January 21st, 2020 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 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 2. Surveillance announcement.

1	Fishery name	
	US Acadian redfish, haddock and pollock otter trawl fishery	
2	Surveillance level and type	
	Surveillance level 5, on-site surveillance audit. The surveillance program for this fishery has not changed from that previously indicated in the previous surveillance report.	
3	Surveillance number	
	1st Surveillance	
	2nd Surveillance	
	3rd Surveillance	X
	4th Surveillance	
	Other (expedited etc)	
4	Proposed team leader	
	Vito Romito, primarily responsible for Principle 2 and Traceability Vito meets Fishery Team Leader Qualification and Competency Criteria outlined in MSC FCP Annex PC Table PC1. ▪ A degree in a relevant subject. ▪ 3 years' fisheries experience. ▪ Pass MSC's fishery team leader training at least every 5 years. ▪ Review any updates to the MSC Fisheries Program Documents at least annually. ▪ Pass new versions of the online training prior to undertake assessments against the revised MSC Fisheries Standard or certification process. ▪ Pass the Lead Auditor ISO 19011 course. ▪ Have undertaken 2 MSC fishery assessment or surveillance site visits as a team member in the last 5 years. ▪ Experience in applying different types of interviewing and facilitation techniques. Vito holds a BSc in Ecology and a MSc in Tropical Coastal Management from Newcastle University (UK). His studies were focused on fisheries bycatch and impacts of fishing gears/methods on benthic habitats.	

	He completed MSC's Fishery Team Leader training both for FCR v.2.0 and FCP v.2.1 and passed the Lead Auditor ISO 19011 course. Vito has undertaken three MSC fishery surveillance site visits as a team member in the last 5 years. Vito will be in charge of coordinating the Assessment Team's work and be responsible for the completion of the re-assessment in accordance with FCP v.2.1. In addition to leading the Assessment Team, Vito will be the team's expert on Principle 2 and Traceability. He meets the Principle 2 and Traceability components of the Fishery Team Qualification and Competency Criteria in Annex PC Table PC3: ▪ 3 years more experience in research into, policy analysis for, or management of, fishery impacts on aquatic ecosystems. ▪ Pass MSC's Traceability training module. His studies were focused on fisheries bycatch and impacts of fishing gears and fishing methods on benthic habitats in various part of the world. He has more than three years of experience in the assessment of ecosystem effects of fisheries. He passed the MSC's traceability training. In addition, in the past 10 years, Vito has had experience and knowledge of the country, language and local fishery context in which the fishery under assessment is based. Vito was involved in numerous fisheries projects in North America in the last 5 years, including four MSC surveillance audits of Canadian fisheries. He is fluent in English which is the language of harvesters in the fishery region. A short biography has been provided earlier on in this report. Vito does not have any conflicts of interest in relation to the fishery. He will be on site for the audit.
5	Proposed team member
	Jerry Ennis, Principle 1 expert Jerry meets the Fishery Team Member Qualification and Competency Criteria outlined in MSC FCR Annex PC. • A degree in a relevant subject • 5 years' fisheries experience • Passed MSC's fishery team member training within the last 3 years • 5 years more experience as a practicing fisheries stock assessment, fisheries biology and ecology • Assignments in the country or region in which the fishery under assessment is based in the last 10 years Jerry has a PhD in Marine biology and has extensive experience in a large range of stock assessment techniques, 37-year research career which focused primarily on fishery and fish population biology and ecology in Newfoundland waters. Career included heavy involvement in the review and formulation of scientific advice for management of resources in Atlantic Canada. Jerry passed MSC's Fishery Team Member training in 2015 and was involved in numerous MSC assessments in both Canada and US in the last 5 years, including the previous two surveillance

	assessments of this fishery. Jerry does not have any conflicts of interest in relation to the fishery for which the surveillance audit will be conducted. A short biography has been provided earlier on in this report. Jerry does not have any conflicts of interest in relation to the fishery. He will be on site for the audit.
6	Audit/review time and location
	24th – 26th of February 2020. The site visit was carried out on site. The team met the client group and relevant management / science /enforcement staff.
7	Assessment and review activities
	The objectives of the audit were: 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 Conditions of Certification raised during the Expedited Audit.; 3. To review any developments or changes within the fishery which impact traceability and the ability to segregate MSC from non-MSC products; and 4. To review any other significant changes in the fishery. The team collected and reviewed all the new available fishery data relevant to this assessment and to address the two open conditions in Principle 2.

4.2 Background

The fishery under assessment was evaluated during 2015 and the beginning of 2016 under MSC Certification Requirements version 1.3. The Public Certification Report was posted on the MSC website in July 2016. This assessment has been carried out against the MSC Fisheries Certification Process v 2.1. The Units of Assessment and Certification originally described in the PCR are listed in the table below and remain unchanged.

Table 3. Unit of Assessments (UoAs) and Unit of certifications (UoCs) defined in the full assessment and evaluated during the surveillance audit.

UoA 1 Acadian Redfish	
Species	**Acadian Redfish** (*Sebastes fasciatus)*
Geographical Area	NW Atlantic, US EEZ (Gulf of Maine, Georges Bank)
Stock	NW Atlantic, US EEZ (Gulf of Maine, Georges Bank)
Method of capture	Otter Trawl
Management system	NMFS/NEFMC
Client Group and Others eligible fishers	Sustainable Groundfish Association, Inc. and the vessels holding the license to fish in the groundfish
UoA 2 Pollock	
Species	**Pollock** (*Pollachius virens)*
Geographical Area	NW Atlantic, US EEZ (Gulf of Maine, Georges Bank)
Stock	NW Atlantic, US EEZ (Gulf of Maine, Georges Bank)
Method of capture	Otter Trawl
Management system	NMFS/NEFMC
Client Group and Others eligible fishers	Sustainable Groundfish Association, Inc. and other eligible fishers are the vessels holding the license to operate in the groundfish
UoA 3 GOM Haddock	
Species	**Haddock** (*Melanogrammus aeglefinus*)
Geographical Area	NW Atlantic, US EEZ (Gulf of Maine)
Stock	**Haddock** NW Atlantic, US EEZ, Gulf of Maine
Method of capture	Otter Trawl
Management system	NMFS/NEFMC
Client Group and Others eligible fishers	Sustainable Groundfish Association, Inc. and other eligible fishers are the vessels holding the license to operate in the groundfish
UoA 4 GB Haddock	
Species	**Haddock** (*Melanogrammus aeglefinus*)
Geographical Area	NW Atlantic, US EEZ (Georges Bank)
Stock	**Haddock** NW Atlantic, US EEZ, Georges Bank
Method of capture	Otter Trawl
Management system	NMFS/NEFMC
Client Group and Others eligible fishers	Sustainable Groundfish Association, Inc. and other eligible fishers are the vessels holding the license to operate in the groundfish
UoC 1 Acadian Redfish	
Species	**Acadian Redfish** (*Sebastes fasciatus)*
Geographical Area	NW Atlantic, US EEZ (Gulf of Maine, Georges Bank)
Stock	NW Atlantic, US EEZ (Gulf of Maine, Georges Bank)
Method of capture	Otter Trawl
Management system	NMFS/NEFMC

Client Group	Sustainable Groundfish Association, Inc.
UoC 2 Pollock	
Species	**Pollock** (*Pollachius virens)*
Geographical Area	NW Atlantic, US EEZ (Gulf of Maine, Georges Bank)
Stock	NW Atlantic, US EEZ (Gulf of Maine, Georges Bank)
Method of capture	Otter Trawl
Management system	NMFS/NEFMC
Client Group	Sustainable Groundfish Association, Inc.
UoC 3 GOM Haddock	
Species	**Haddock** (*Melanogrammus aeglefinus*)
Geographical Area	NW Atlantic, US EEZ (Gulf of Maine)
Stock	**Haddock** NW Atlantic, US EEZ, Gulf of Maine
Method of capture	Otter Trawl
Management system	NMFS/NEFMC
Client Group	Sustainable Groundfish Association, Inc.
UoC 4 GB Haddock	
Species	**Haddock** (*Melanogrammus aeglefinus*)
Geographical Area	NW Atlantic, US EEZ (Georges Bank)
Stock	**Haddock** NW Atlantic, US EEZ, Georges Bank
Method of capture	Otter Trawl
Management system	NMFS/NEFMC
Client Group	Sustainable Groundfish Association, Inc.

The UoAs/UoCs remain unchanged since the full assessment.

According to GARFO (NOAA), in 2019 there were 1,879 vessels that held a NE multispecies commercial permit for at least some part of FY2019 (see list of vessels). However, only the otter trawl vessels that commercialise their product through the client group companies can carry on the MSC ecolabel and are included in the certificate.

4.3 Principle 1: Sustainable target fish stocks - Update

4.3.1 Total Allowable Catch (TAC) and catch data

Table 4. Total Allowable Catch (TAC) and catch data.				
UoA 1 Acadian Redfish				
TAC	Year	2019	Amount	10,972 t *
UoA share of TAC	Year	2019	Amount	10,972 t
UoA share of total TAC	Year	2019	Amount	10,972 t
Total green weight catch by UoC	Year (most recent)	2019	Amount	4,143 t **
Total green weight catch by UoC	Year (second most recent)	2018	Amount	5,294 t ***
UoA 2 Pollock				
TAC	Year	2019	Amount	37,400 t
UoA share of TAC	Year	2019	Amount	34,700 t
UoA share of total TAC	Year	2019	Amount	34,700 t
Total green weight catch by UoC	Year (most recent)	2019	Amount	2,598 t
Total green weight catch by UoC	Year (second most recent)	2018	Amount	3,374 t
UoA 3 Gulf of Maine Haddock				
TAC	Year	2019	Amount	8,312 t
UoA share of TAC	Year	2019	Amount	8,312 t
UoA share of total TAC	Year	2019	Amount	8,312 t
Total green weight catch by UoC	Year (most recent)	2019	Amount	2,814 t
Total green weight catch by UoC	Year (second most recent)	2018	Amount	2,820 t
UoA 4 Georges Bank Haddock				
TAC	Year	2019	Amount	53,276 t
UoA share of TAC	Year	2019	Amount	53,276 t
UoA share of total TAC	Year	2019	Amount	53,276 t
Total green weight catch by UoC	Year (most recent)	2019	Amount	3,811 t
Total green weight catch by UoC	Year (second most recent)	2018	Amount	4,709 t

*TACs are sub-ACLs provided in catch monitoring reports. They do not include carryovers or overages. GB Haddock includes GB Haddock East.
**2019 catches are from a report run on February 28, 2020.
***2018 catches are from a report run on July 31, 2019. The annual fishing season (TAC year) runs from May 1 through April 30. Available at: www.greateratlantic.fisheries.noaa.gov

In 2018, total catches were 4,709 t (Georges Bank haddock), 2,820 t (Gulf of Maine haddock), 5,294 t (redfish) and 3,374 t (pollock). As of the quota report run on February 2020, 2019 total catches are 3,811 t (GB haddock), 2,814 t (GOM haddock), 4,143 t (redfish) and 2,598 t (pollock) representing 7.5%, 34.6%, 38.1% and 7.1% of the respective 2019 ACLs for these stocks. The primary reason for large underruns of ACLs in these directed fisheries is restrictive catch limits on other groundfish species (referred to as choke stocks) that are taken as bycatch.

The time series of annual catches to 2016 reported in the 2017 stock assessment (NEFSC 2017) for Acadian redfish and to 2018 in the 2019 assessments (NEFSC 2019) for pollock, GB and GOM haddock are provide below for comparison (Figs. 1, 2, 3 and 4).

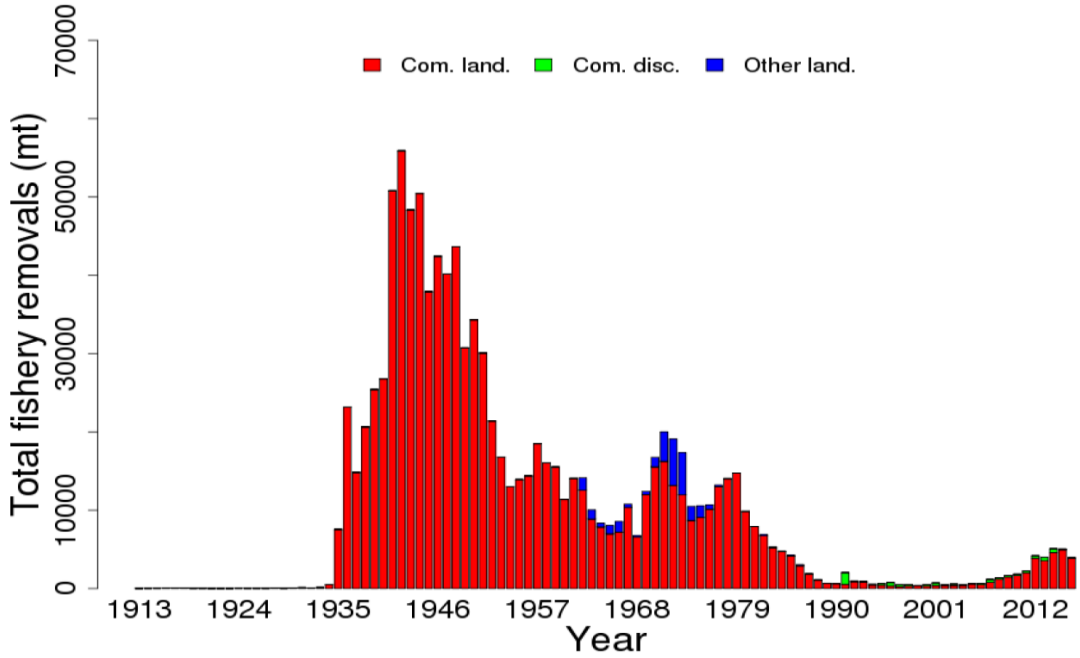


Figure 1. Total catch of Acadian redfish between 1913 and 2016 by fleet (commercial and other) and disposition (landings and discards). Source: NEFSC 2017.

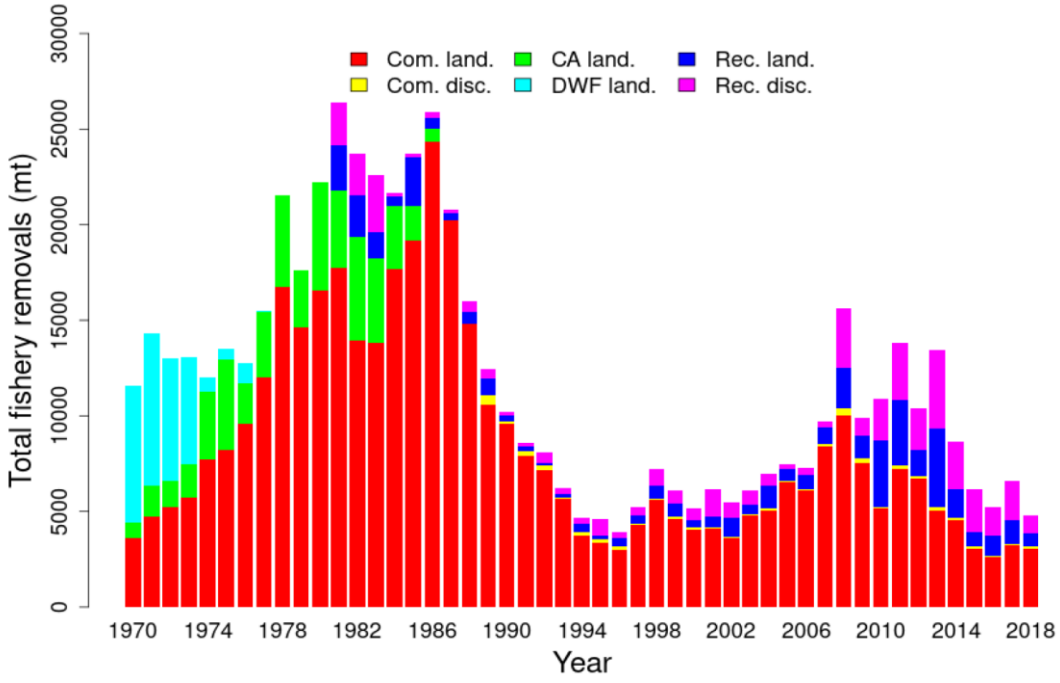


Figure 2. Total catch of pollock between 1970 and 2018 by fleet (commercial, Canadian, distant water fleet, and recreational) and disposition (landings and discards). Source: NEFSC 2019.

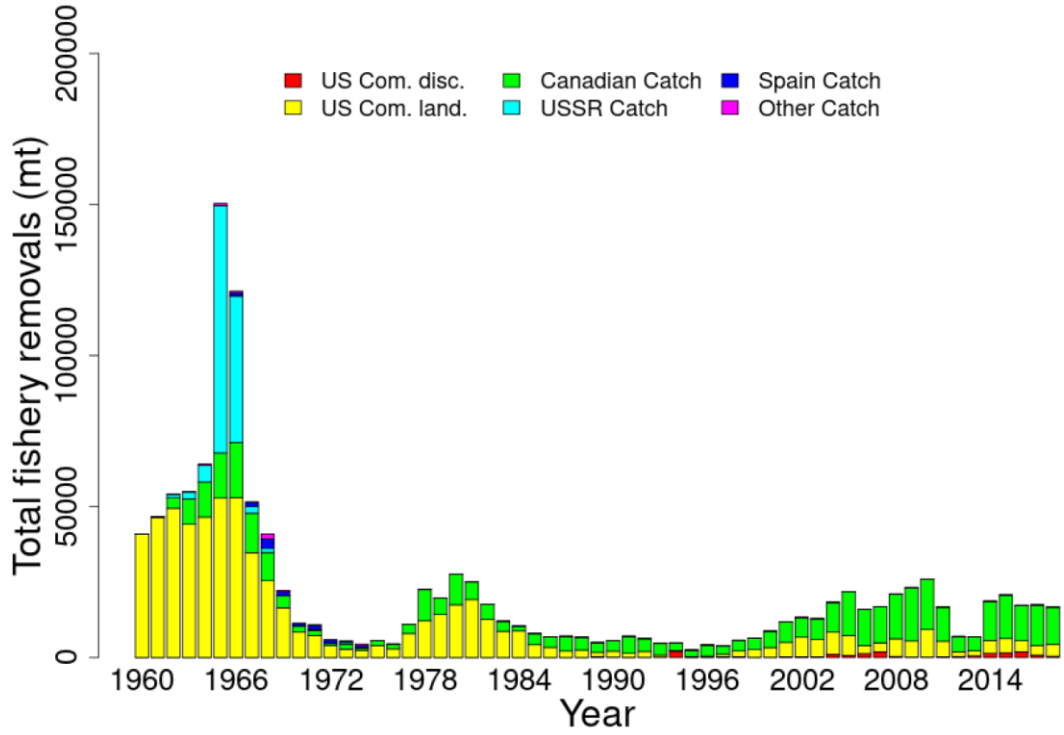


Figure 3. Total catch of Georges Bank haddock between 1931 and 2018 by fleet (US Commercial, Canadian, or foreign fleet) and disposition (landings and discards). Source: NEFSC 2019.

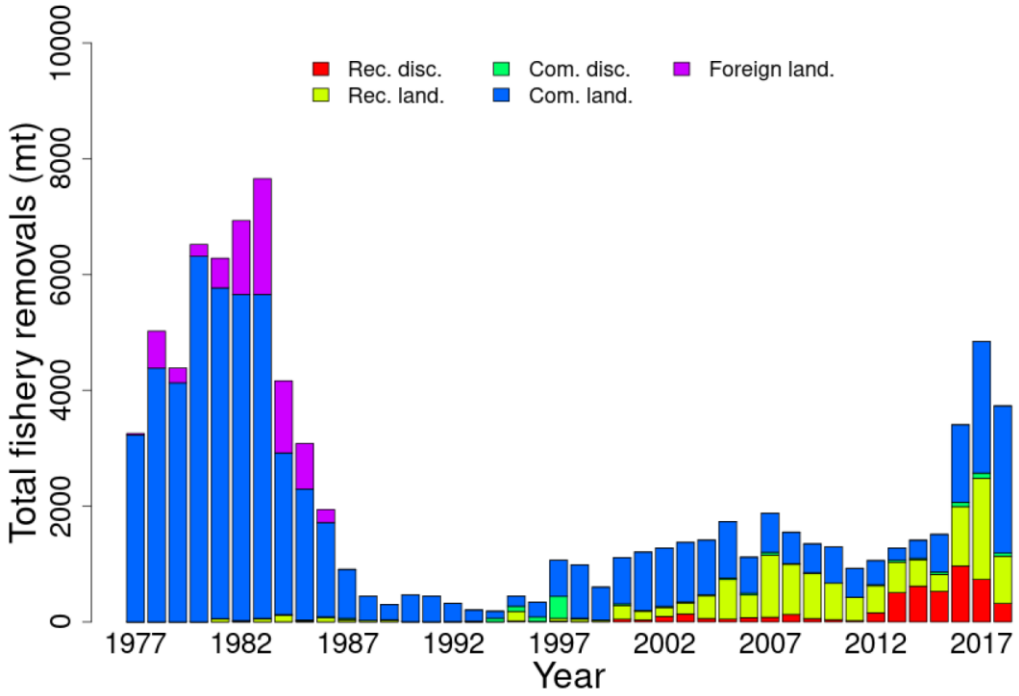


Figure 4. Total catch of Gulf of Maine haddock between 1977 and 2018 by fleet (commercial, recreational, or foreign) and disposition (landings and discards). Source: NEFSC 2019.

4.3.2 Status of each stock (UoA)

The 1st surveillance audit (SAI Global 2018) updated Gulf of Maine and Georges Bank haddock, Acadian redfish and pollock stock status based on assessments done in 2017 (NEFSC 2017), which incorporated data through 2016. At the time of this 3rd audit, there has not been a new redfish assessment (one is planned for September 2020) and information on its status is copied from the 2017 assessment. These stocks are normally assessed at 2-year intervals and the updated status of the other stocks provided here is based on assessments done in September 2019, which incorporated data through 2018 (NEFSC 2019).

In discussion with NEFSC staff responsible for conducting the assessments of these stocks, it was stated there were no signals from ongoing monitoring to indicate significant departures from stock projections done as part of the 2017 (for redfish) and 2019 assessments. These projections are provided below for each stock along with the time series of population model estimates of SSB for reference.

Georges Bank Haddock

Based on the 2019 assessment, the Georges Bank haddock (*Melanogrammus aeglefinus*) stock is not overfished and overfishing is not occurring (Figs. 5 and 6; Table 5). Retrospective adjusted spawning stock biomass (SSB) in 2018 was estimated to be 507,130 t which is 365% of the biomass target (SSB_{MSY} proxy = 138,924 t). The 2018 average fishing mortality on ages 5-7 was estimated to be 0.061 which is 18% of the overfishing threshold proxy (F_{MSY} proxy = 0.33). The F_{MSY} proxy is expressed as the average F on ages 5-7 for comparability with the VPA estimated F.

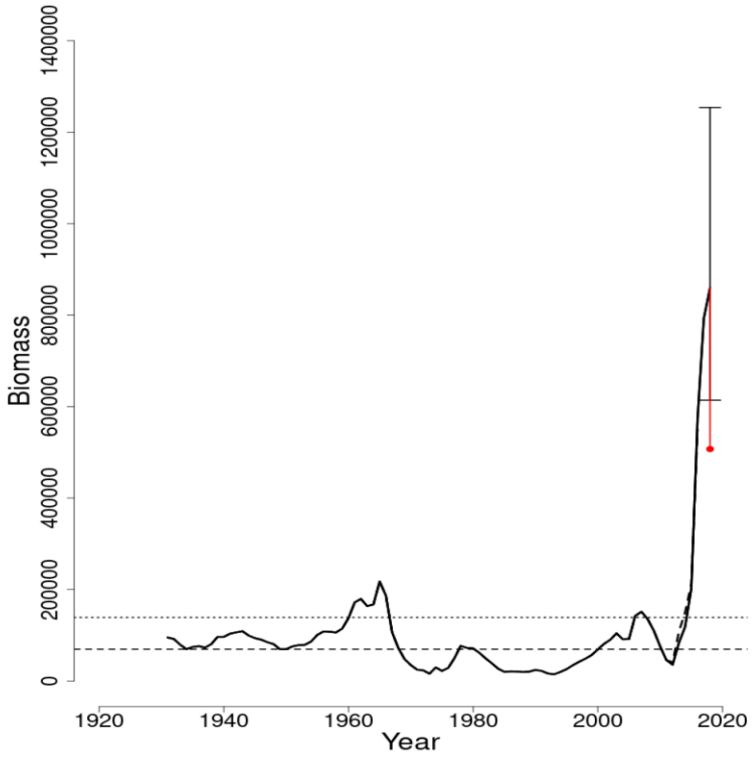


Figure 5. Trends in spawning stock biomass of Georges Bank haddock between 1931 and 2018 from the current (solid line) and previous (dashed line) assessment and the corresponding $SSB_{Threshold}$ (.5 SSB_{MSY} proxy; horizontal dashed line) as well as SSB_{Target} (SSB_{MSY} proxy; horizontal dotted line) based on the 2019 assessment. Biomass was adjusted for a retrospective pattern and the adjustment is shown in red. The 90% bootstrap probability intervals are shown. Source: NEFSC 2019.

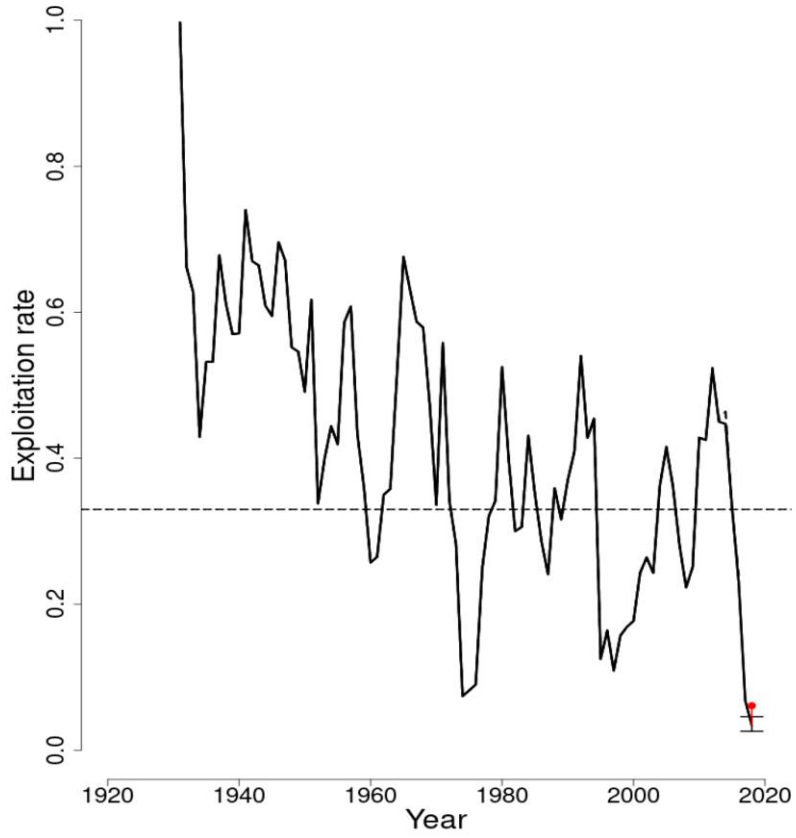


Figure 6. Trends in the average fishing mortality (average F_{5-7}) of Georges Bank haddock between 1931 and 2018 from the current (solid line) and previous (dashed line) assessment and the corresponding $F_{Threshold}$ (F_{MSY} proxy=0.33; horizontal dashed line) based on the 2019 assessment. Average F_{5-7} was adjusted for a retrospective pattern and the adjustment is shown in red. The 90% bootstrap probability intervals are shown. Source: NEFSC 2019.

Table 5. Catch and status table for Georges Bank haddock. All weights are in t, recruitment is in (000s), and F_{5-7} is the average fishing mortality on ages 5 to 7. Model results are from the current updated VPA assessment. A rho adjustment was not applied to values in this Table. Source: NEFSC 2019.

	2011	2012	2013	2014	2015	2016	2017	2018
				Data				
US Commercial discards	212	321	538	1,409	1,552	1,880	786	408
US Commercial landings	5,210	1,550	1,659	4,240	4,762	3,682	3,217	4,017
Canadian Catch	11,248	5,064	4,631	12,953	14,374	11,713	13,384	12,222
Catch for Assessment	16,670	6,935	6,828	18,601	20,687	17,274	17,387	16,647
				Model Results				
Spawning Stock Biomass	45,624	35,501	83,187	118,415	202,052	574,481	793,125	859,587
$\bar{F}_{5-7}$	0.425	0.522	0.45	0.447	0.332	0.23	0.068	0.034
Recruits (age 1)	207,156	38,754	29,515	2,267,641	55,083	154,684	546,138	79,974

Short term projections of biomass (Table 6) were derived by sampling from a cumulative distribution function (cdf) of recruitment estimates from ADAPT VPA (corresponding to SSB>75,000 t and dropping the two most recent year class estimates for 2017 and 2018). The extremely large 1963, 2003, 2010, 2013, and 2016 year classes were included in the cdf. The annual fishery selectivity was a recent 5-year average except for the 2013 year class, which was assigned the same selectivity at age as the 2010 year class. The 2010 and 2013 year classes have demonstrated the slowest growth of any observed year classes in the time series. The maturity ogive was a recent 5-year average. Mean weights at age were a recent 2-year average, except for the 2010 and 2013 year classes, where recent trends in growth were assumed to continue. Retrospective adjustments were applied to the starting numbers at ages (2019) in the projections (each age was multiplied by 0.59).

Table 6. Short term projections of total fishery catch and spawning stock biomass for Georges Bank haddock based on a harvest scenario of fishing at F_{MSY} proxy between 2020 and 2022. Catch in 2019 was assumed to be 19,445 t (estimate provided by the Groundfish Plan Development Team). Source: NEFSC 2019.

Year	Catch (mt)	SSB (mt)	$\bar{F}_{5-7}$
2019	19,445	605,990 (443,224 - 853,0145)	0.052 (0.036 - 0.072)

Year	Catch (mt)	SSB (mt)	$\bar{F}_{5-7}$
2020	184,822 (131,096 - 271,319)	581,672 (429,415 - 810,119)	0.332
2021	106,805 (79,085 - 148,763)	503,812 (363,623 - 755,210)	0.332
2022	100,009 (73,029 - 145,801)	412,276 (289,733 - 718,407)	0.332

Gulf of Maine Haddock

Based on the 2019 assessment, the Gulf of Maine haddock (*Melanogrammus aeglefinus*) stock is not overfished and overfishing is not occurring (Figs. 7 and 8; Table 7). Retrospective adjusted spawning stock biomass (SSB) in 2018 was estimated to be 82,763 t which is 1035% of the biomass target (SSB_{MSY} proxy = 7,993). The 2018 fully selected fishing mortality was estimated to be 0.082 which is 22% of the overfishing threshold proxy (F_{MSY} proxy = F40% = 0.369).

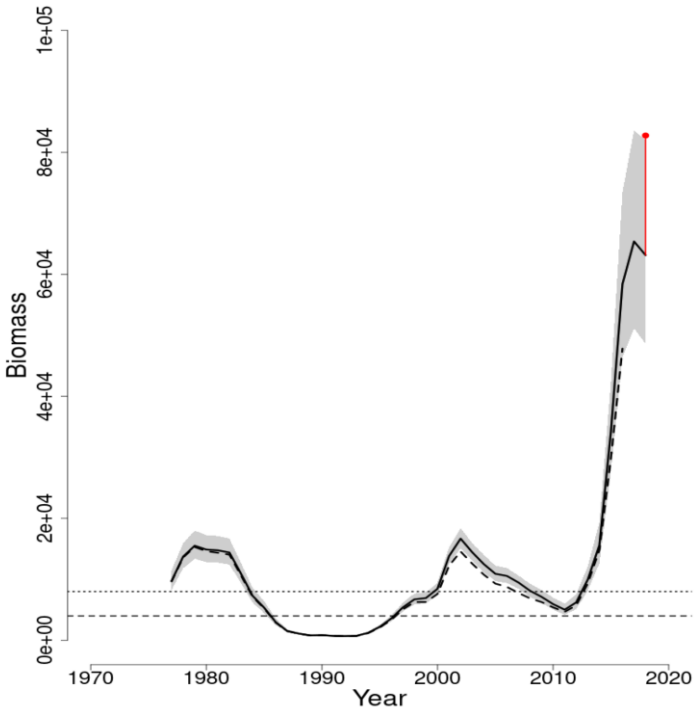


Figure 7. Trends in spawning stock biomass (SSB) of Gulf of Maine haddock between 1977 and 2018 from the current (solid line) and previous (dashed line) assessment and the corresponding $SSB_{Threshold}$ (.5 SSB_{MSY} proxy; horizontal dashed line) as well as SSB_{Target} (SSB_{MSY} proxy; horizontal dotted line) based on the 2019 assessment. SSB was adjusted for a retrospective pattern and the adjustment is shown in red based on the 2019 assessment. The approximate 90% lognormal confidence intervals are shown. Source NEFSC 2019.

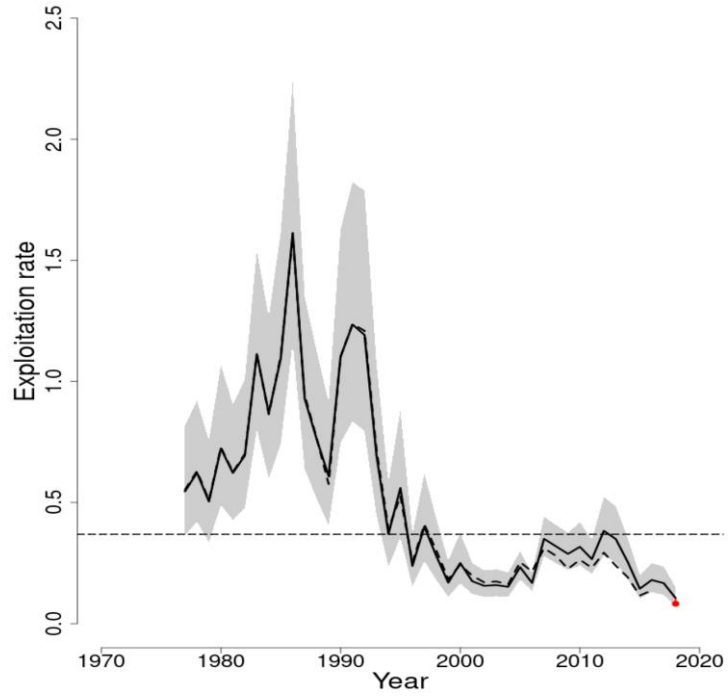


Figure 8. Trends in the fully selected fishing mortality (F) of Gulf of Maine haddock between 1977 and 2018 from the current (solid line) and previous (dashed line) assessment and the corresponding $F_{Threshold}$ (F_{MSY} proxy=0.369; horizontal dashed line) from the 2019 assessment model. F in 2019 was adjusted for a

retrospective pattern and the adjustment is shown in red based on the 2019 assessment. The approximate 90% lognormal confidence intervals are shown. Source: NEFSC 2019.

Table 7. Catch and status table for Gulf of Maine haddock. All weights are in t recruitment is in (000s) and F_{Full} is the fully selected fishing mortality. Model results below are from the current updated ASAP assessment without retrospective adjustment. Source NEFSC 2019.

	2011	2012	2013	2014	2015	2016	2017	2018
				Data				
Recreational discards	21	158	504	618	526	966	733	319
Recreational landings	400	467	528	457	295	1,026	1,747	817
Commercial discards	6	18	32	22	42	72	91	54
Commercial landings	499	417	212	314	650	1,342	2,273	2,542
Foreign landings	0	0	0	0	0	0	0	0
Catch for Assessment	926	1,060	1,277	1,412	1,513	3,406	4,843	3,731
				Model Results				
Spawning Stock Biomass	5,019	6,215	9,963	15,575	34,226	58,404	65,397	63,143
F_{Full}	0.266	0.383	0.349	0.254	0.144	0.18	0.167	0.105
Recruits (age 1)	17,611	5,800	24,849	140,737	7,962	7,502	12,480	3,246

Short term projections of median total fishery yield and spawning stock biomass for Gulf of Maine haddock (Table 8) were conducted based on a harvest scenario of fishing at the F_{MSY} proxy between 2020 and 2022. Catch in 2019 has been estimated at 5,239 t. Recruitment was sampled from a cumulative distribution function of model estimated age-1 recruitment from 1977-2016. The age-1 estimate in 2019 was generated from the geometric mean of the 1977-2018 recruitment series. The annual fishery selectivity, maturity ogive, and mean weights at age used in the projections were estimated from the most recent 5 year averages. Retrospective adjustments were applied in the projections.

Table 8. Short term projections of total fishery catch and spawning stock biomass for Gulf of Maine haddock based on a harvest scenario of fishing at F_{MSY} proxy (F40%) between 2020 and 2022. Catch in 2019 was assumed to be 5,239 t. Source: NEFSC 2019.

Year	Catch (mt)	SSB (mt)	F_{Full}
2019	5,239	103,670	0.075

Year	Catch (mt)	SSB (mt)	F_{Full}
2020	24,803	91,167	0.369
2021	19,536	65,929	0.369
2022	12,563	50,468	0.369

Acadian Redfish

Based on the 2017 assessment, the Acadian redfish (*Sebastes fasciatus*) stock is not overfished and overfishing is not occurring (Figs. 9 and 10). Retrospective adjusted spawning stock biomass (SSB) in 2016 was estimated to be 359,970 t which is 145% of the biomass target (SSB_{MSY} proxy of SSB at $F_{50\%}$). The retrospective adjusted 2016 fully selected fishing mortality (F) was estimated to be 0.011 (cf. 0.15 in 2014) which is 29% of the overfishing threshold (F_{MSY} proxy of $F_{50\%}$).

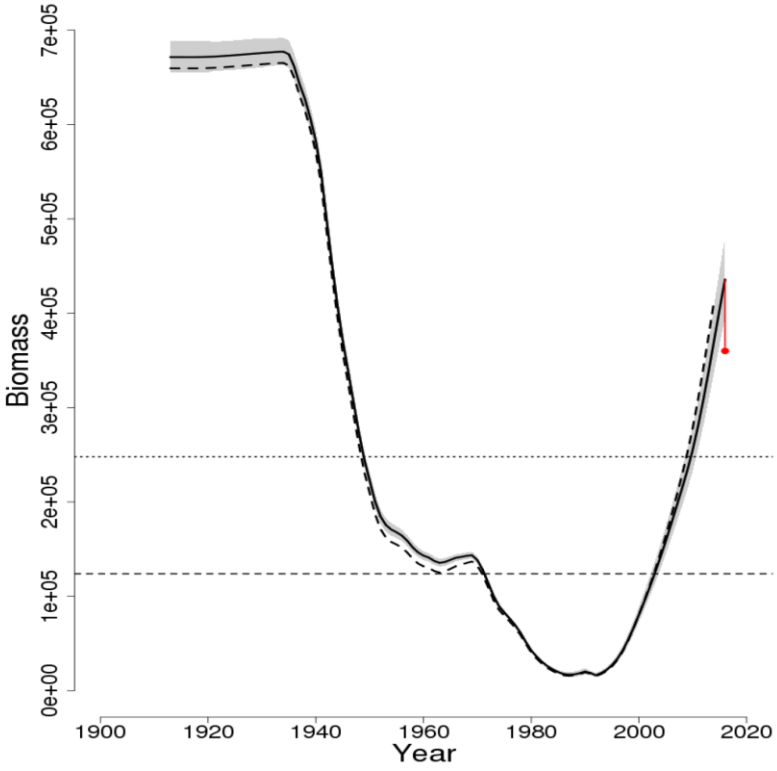


Figure 9. Trends in spawning stock biomass of Acadian redfish between 1913 and 2016 from the current (solid line) and previous (dashed line) assessment and the corresponding $SSB_{Threshold}$ (0.5 * SSB_{MSY} proxy; horizontal dashed line) as well as SSB (SSB_{MSY} proxy; horizontal dotted line) based on the 2017 assessment. The 2016 biomass was adjusted for a retrospective pattern and the adjustment is shown in red. The approximate 90% lognormal confidence intervals are shown. Source: NEFSC 2017.

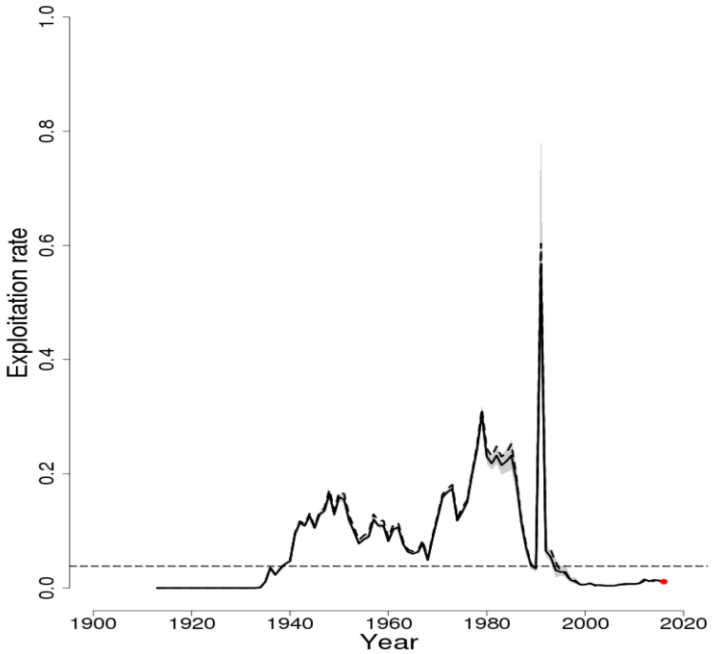


Figure 10. Trends in the fully selected fishing mortality (F_{Full}) of Acadian redfish between 1913 and 2016 from the current (solid line) and previous (dashed line) assessment and the corresponding $F_{Threshold}$ (F_{MSY}

proxy=0.038; horizontal dashed line) based on the 2017 assessment. The 2016 F_{Full} was adjusted for a retrospective pattern and the adjustment is shown in red. The approximate 90% lognormal confidence intervals are shown. Source: NEFSC 2017.

Short term projections of median total fishery yield and spawning stock biomass for Acadian redfish (Table 9) were conducted based on a harvest scenario of fishing at the F_{MSY} proxy between 2018 and 2020. Catch in 2017 has been estimated at 4,630 t. Recruitments were sampled from a cumulative distribution function derived from ASAP estimated age 1 recruitment between 1969 and 2014. The annual fishery selectivity, natural mortality, maturity ogive, and mean weights used in projections are the same as those used in the assessment model. Retrospective adjusted SSB and fully selected F in 2016 fell outside the 90% confidence intervals of the unadjusted 2016 values. Therefore, age-specific abundance rho values were applied to the initial numbers at age in the projections.

Table 9. Retrospective adjusted short-term projections of median total fishery yield and spawning stock biomass for Acadian redfish based on a harvest scenario of fishing at an F_{MSY} proxy of $F_{50\%}$ between 2018 and 2020. Catch in 2017 has been estimated at 4,630 t. F_{Full} is the fully selected F. Source: NEFSC 2017.

Year	Catch (mt)	SSB (mt)	F_{Full}
2017	4,630	382,980	0.012

Year	Catch (mt)	SSB (mt)	F_{Full}
2018	15,451	400,038	0.038
2019	15,614	406,382	0.038
2020	15,677	410,365	0.038

According to NEFSC staff who participated in the February 2020 site visit meeting, there are no signals from ongoing monitoring over the past three years to indicate significant departures from the stock projections above for redfish which were done as part of the 2017. As of April 2, 2020, the 2019 catch was 4,659 t, which represented 42.8% of the ACL. This is down from 5,294 t in 2018, which represented 50% of the 2018 ACL, as shown below.

Year	**2017**	**2018**	**2019**
Acadian redfish ACL (t)	10,183	10,755	10,972
Acadian redfish Landings (t)	4,619	5,294	4,659
Acadian redfish Discards (t)	29	68	42

Pollock

Based on the 2019 assessment, the pollock (*Pollachius virens*) stock is not overfished and overfishing is not occurring (Figs. 11 and 12; Table 10). Retrospective adjusted spawning stock biomass (SSB) in 2018 was estimated to be 212,416 t under the base model and 71,322 t under the flat sel sensitivity model which is 170 and 101%, respectively, of the biomass target, an SSB_{MSY} proxy of SSB at $F_{40\%}$. Retrospective adjusted 2018 age 5 to 7 average fishing mortality (F) was estimated to be 0.038 under the base model and 0.094 under the flat sel sensitivity model, which is 14 and 36%, respectively, of the overfishing threshold, an F_{MSY} proxy of $F_{40\%}$.

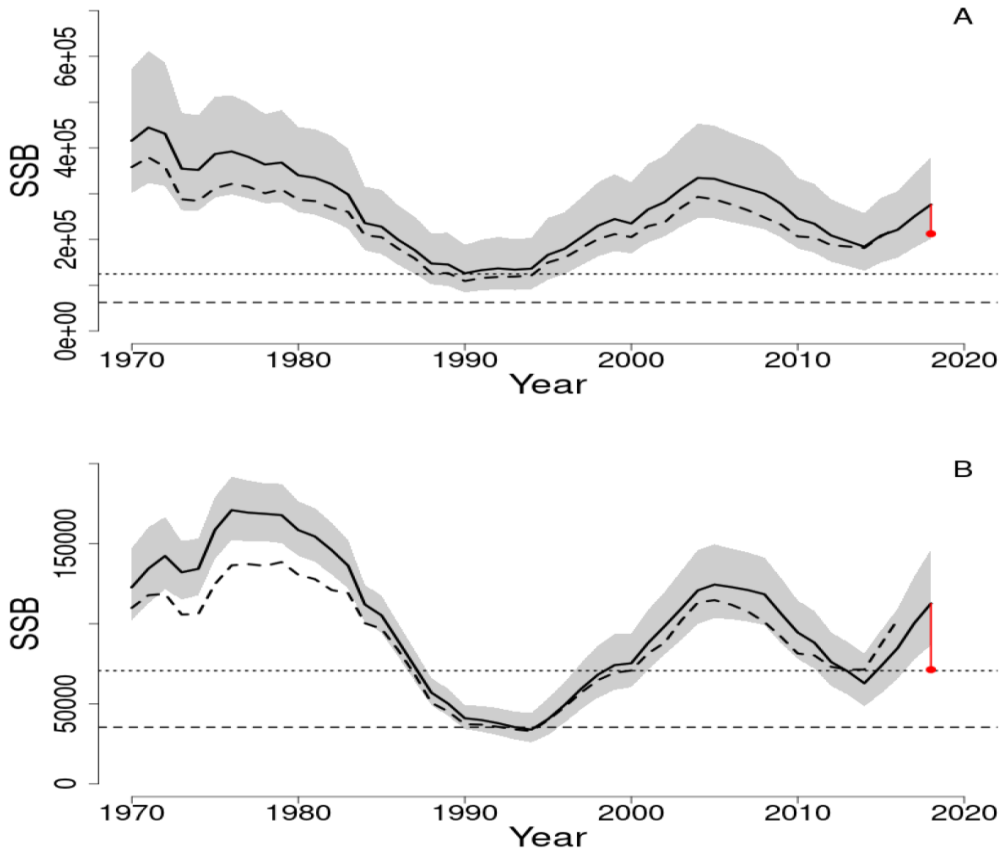


Figure 11. Estimated trends in the spawning stock biomass of pollock between 1970 and 2018 from the current (solid line) and previous (dashed line) assessment and the corresponding $SSB_{Threshold}$ (0.5 * SSB_{MSY} proxy; horizontal dashed line) as well as SSB_{Target} (SSB_{MSY} proxy; horizontal dotted line) based on the 2019 assessment models base (A) and flat sel sensitivity (B). Biomass was adjusted for a retrospective pattern and the adjustment is shown in red. The approximate 90% lognormal confidence intervals are shown. Source: NEFSC 2019.

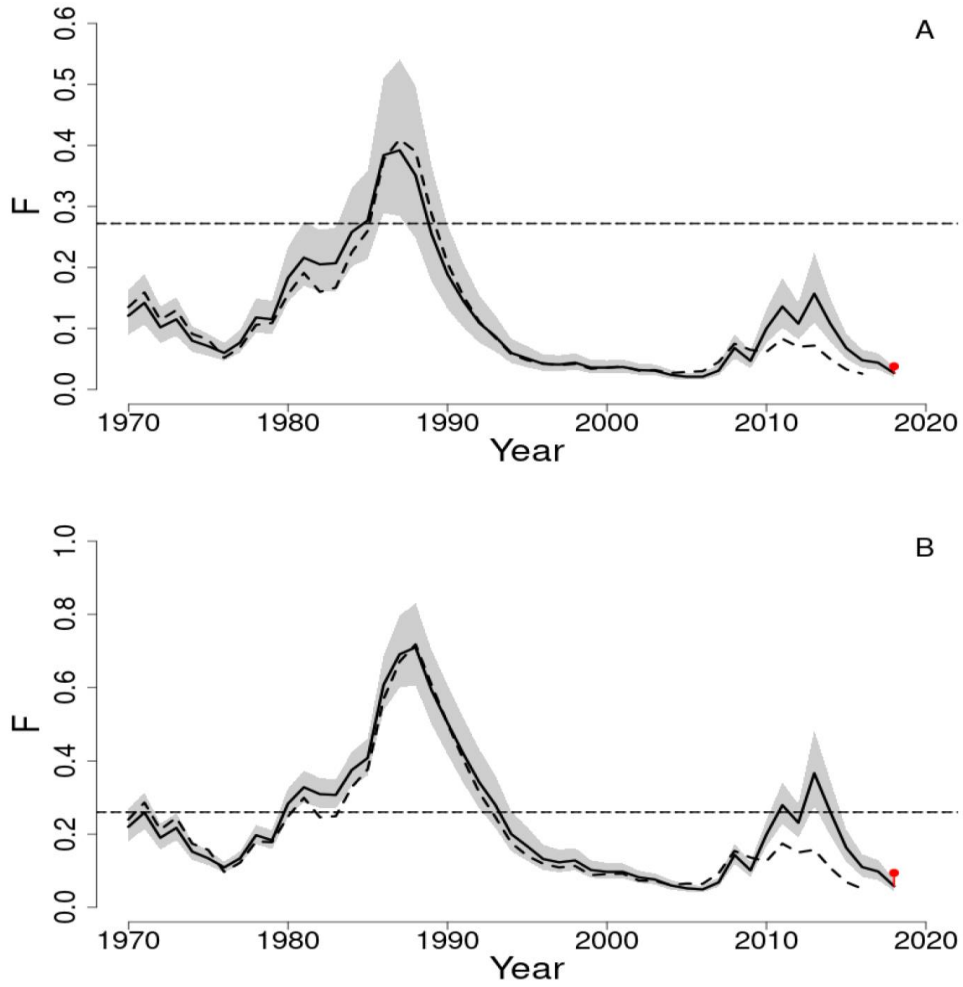


Figure 12. Estimated trends in age 5 to 7 average F (F_{AVG}) of pollock between 1970 and 2018 from the current (solid line) and previous (dashed line) assessment and the corresponding $F_{Threshold}$ (F_{MSY} proxy; dashed line) based on the 2019 assessment models base (A) and flat sel sensitivity (B). F_{AVG} was adjusted for a retrospective pattern and the adjustment is shown in red. The approximate 90% lognormal confidence intervals are shown.

Table 10. Catch and status table for pollock. All weights are in t, recruitment is in (000s), and F_{AVG} is the age 5 to 7 average F. Unadjusted SSB and F estimates are reported. Model results are from the current base model and flat sel sensitivity model. Source: NEFSC 2019.

	2011	2012	2013	2014	2015	2016	2017	2018
				Data				
Commercial landings	7,211	6,742	5,058	4,545	3,043	2,582	3,249	3,078
Commercial discards	176	121	169	135	155	97	49	70
Recreational landings	3,447	1,355	4,078	1,511	752	1,030	1,239	687
Recreational discards	2,958	2,151	4,123	2,441	2,190	1,522	2,059	944
Catch for Assessment	13,792	10,370	13,428	8,632	6,139	5,231	6,597	4,779
				Model Results (base)				
Spawning Stock Biomass	234383	208817	196520	184110	208798	221237	250282	276305
F_{AVG}	0.136	0.108	0.157	0.108	0.068	0.048	0.044	0.027
Recruits $age1$	29695	51121	50567	75056	49903	36034	32358	24169
				Model Results (flat sel sensitivity)				
Spawning Stock Biomass	88172	76164	70252	62825	73521	84802	100368	112633
F_{AVG}	0.279	0.231	0.366	0.261	0.163	0.11	0.098	0.058
Recruits $age1$	16057	27367	27264	40406	27095	19710	17940	13950

Short term projections of median total fishery yield and spawning stock biomass were conducted for pollock Table 11). Catch in 2019 has been estimated at 5,140 t. Recruitments were sample from a cumulative

distribution function derived from ASAP estimated age 1 recruitment between 1970 and 2016. Recruitments in 2017 and 2018 were not included due to uncertainty in those estimates. The annual fishery selectivity, natural mortality, maturity ogive, and mean weights used in projections are the most recent 5 year averages. Retrospective adjusted age 5 to 7 average F in 2018 fell outside the 90% confidence intervals of the unadjusted 2018 value under the base model (Figure 12). Retrospective adjusted SSB and age 5 to 7 average F in 2018 fell outside the 90% confidence intervals of the unadjusted 2018 values under the flat sel sensitivity model (Figure 11). Therefore, age-specific abundance rho values were applied to the initial numbers at age in the projections for the base model and the flat sel sensitivity model.

Table 11. Retrospective adjusted short-term projections of median total fishery yield and spawning stock biomass for pollock from the current base model and flat sel sensitivity model based on a harvest scenario of fishing at an F_{MSY} proxy of $F_{40\%}$ between 2020 and 2022. Catch in 2019 has been estimated at 5,140 (mt). F_{AVG} is the age 5 to 7 average F. Source: NEFSC 2019.

Year	Catch (mt)	SSB (mt)	F_{AVG}	Catch (mt)	SSB (mt)	F_{AVG}
		base			*flat sel sensitivity*	
2019	5,140	190,927	0.036	5,140	65,237	0.092

Year	Catch (mt)	SSB (mt)	F_{AVG}	Catch (mt)	SSB (mt)	F_{AVG}
		base			*flat sel sensitivity*	
2020	35,358	200,992	0.272	14,522	69,808	0.260
2021	26,765	176,117	0.272	11,924	63,273	0.260
2022	19,889	160,156	0.272	9,388	59,921	0.260

Ecosystem considerations as they relate to P1 stocks

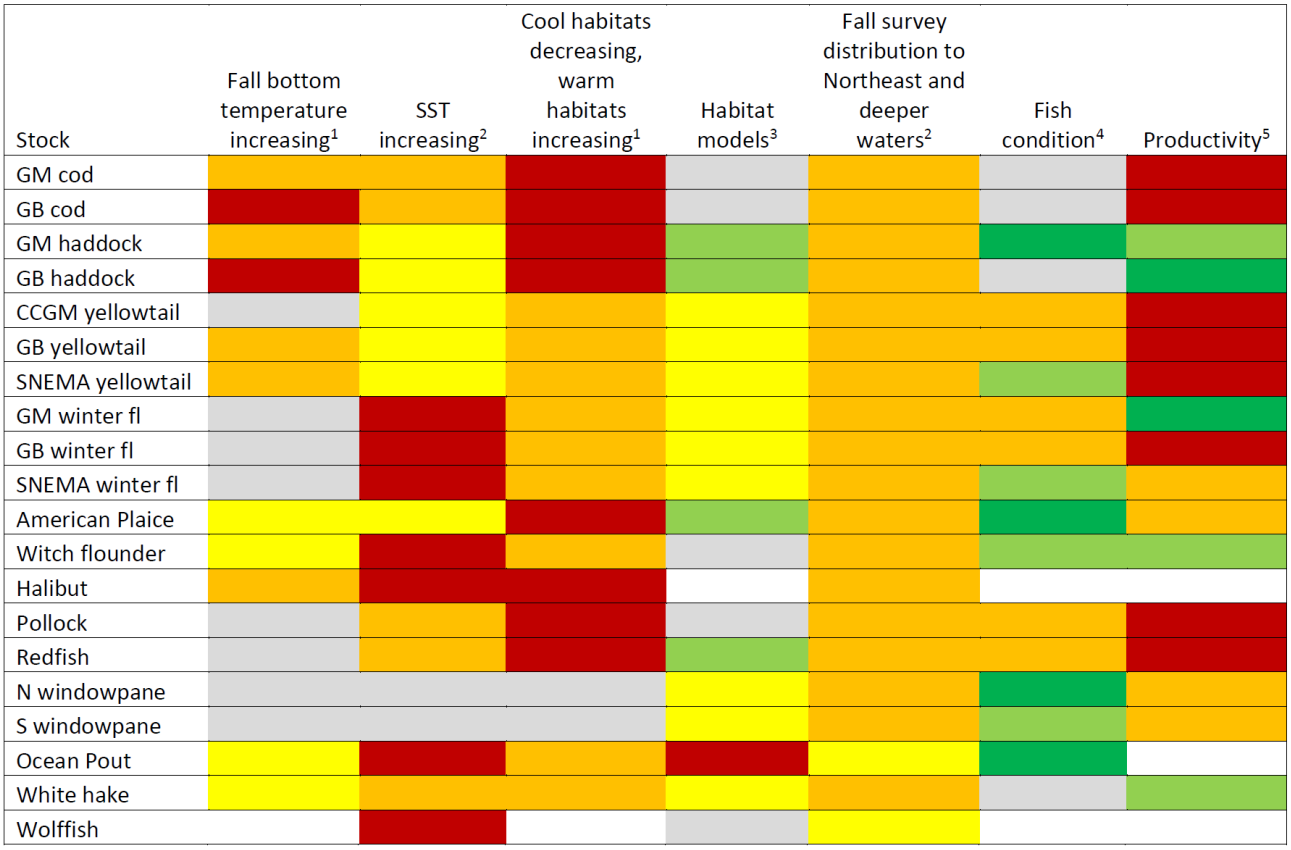
NEFMC continues to move forward with evaluation of potential ecosystem-based management strategies. Further to the draft example Fishery Ecosystem Plan (eFEP) for Georges Bank prepared by its Ecosystem-Based Fishery Management Committee (January 2019), the committee's Management Strategy Evaluation (MSE) Steering Committee provided recommendations and advice in December 2019 regarding EBFM public information workshops, the next step in the process. With a February 14, 2020 deadline, the Council has sought a contractor to prepare materials suitable for a variety of stakeholders for use during these workshops. Ongoing progress towards EBFM can be reviewed on the NEFMC website.

Indices of environmental drivers are not incorporated directly into the population models used to conduct operational assessments for Gulf of Maine-Georges Bank groundfish stocks. However, the assessments are done at 2-year intervals and include the new data from ongoing monitoring which are expected to reflect impacts over the intervening 2-year period on recruitment, growth and maturity which in turn are inputted to the models. Any further uncertainty in this regard is addressed in the initial step in the calculation of the ACL (i.e. TAC) which multiplies the projected OFL (B_{MSY} proxy) by 75% of the F_{MSY} proxy to determine the ABC. This step is intended as a buffer against overall uncertainty pertaining to the stock assessment.

Nevertheless, appended to the 2017 Operational Assessment Report (NEFSC 2017) is a status of the ecosystem report which provides a qualitative evaluation of the potential impacts that environmental drivers may have on individual stocks (Fig. 13). While not used quantitatively, this informs the management decision making process.

Table 12. Summary of potential impacts of ecosystem indicators on Operational Assessment stocks. Potential impacts are categorized as highly positive (dark green), positive (light green), neutral (grey), slightly negative (yellow), negative (orange), highly negative (red), or unknown (white). Potential impacts on stocks were

categorized based on 1) temperature preferences, 2) vulnerability assessments, 3) trend of index, 4) current time period compared to historical quantiles, or 5) current 3-yr mean compared to quantiles of historical 3-yr means.



Impacts of environmental drivers receive in-depth consideration as part of benchmark assessments for each stock. These were last done in 2008 (Redfish and Georges Bank Haddock), in 2010 (Pollock) and in 2014 (Gulf of Maine Haddock). Benchmark assessments are planned for the two haddock stocks in 2020 but not for redfish and pollock up to 2024.

4.3.3 P1 References

NEFSC 2017. Operational Assessment of 19 Northeast Groundfish Stocks, Updated Through 2016. US Dept Commer, Northeast Fish Sci Cent Ref Doc. 17-17; 259 p. Available from: National Marine Fisheries Service, 166 Water Street, Woods Hole, MA 02543-1026.

NEFSC 2019. Operational Assessment of 14 Northeast Groundfish Stocks, Updated Through 2018.*
* This is a Prepublication Copy of the September 2019 Operational Stock Assessment Report.
The report is "in preparation" for publication by the NEFSC. (10-3-2019).

SAI Global. 2018. US Acadian redfish, haddock and pollock otter trawl fishery 1st Surveillance report. MSC022/SUR01, Sept 17th, 2018.

4.4 Principle 2: Environmental impact of fishing – Updates

There have been no significant updates in Principle 2 evidence aside from what has been shown below.

4.4.1 Bycatch and retained species

Updates on the status of key retained species are shown below. We note that the following species are subjects of two open condition relating to their status (PI 2.1.1) and management (PI 2.1.2). Updated 2019 stock assessment reports are available for all of these species.

- GOM/GB cod,
- GOM/GB yellowtail flounder,
- GB winter flounder, and
- GB Witch Flounder

4.4.2 Atlantic Cod (GB and GOM stocks)

Georges Bank Atlantic cod

The 2019 assessment of the Georges Bank Atlantic cod (Gadus morhua) stock[1] is an operational assessment of the existing 2017 operational update assessment (NEFSC 2017). Based on the previous assessment the stock status could not be quantitatively determined but was qualitatively determined to be overfished based on poor stock condition, while overfishing status remained unknown.

The 2019 assessment updates commercial fishery catch data through 2018 and updates research survey indices of abundance and the PlanBsmooth assessment model through 2019. Based on this updated assessment, the Georges Bank Atlantic cod stock status cannot be quantitatively determined due to a lack of biological reference points associated with the PlanBsmooth approach but is recommended to be overfished due to poor stock condition, while recommended overfishing status is unknown.

Are there signs of improvement since the 2017 assessment?
Combined commercial and recreational landings and discards have all decreased in 2017 and 2018, the two most recent years (Table 13). Biomass in 2017 and 2018 has shown some increases since previous years and the relative exploitation rate has decreased substantially from 0.29 in 2016 to 0.18 in 2017, and down to 0.12 in 2018 (Table 13, Figure 13). Based on the above, the Georges Bank Atlantic cod stock has shown some signs of improvement since the 2017 assessment.

Table 13. Catch and model results for Georges Bank Atlantic cod. Catch weights are in (mt), Biomass is the average survey biomass in (kg/tow) smoothed using a loess, and Rel. Exploit. Rate is the relative exploitation rate (catch/smoothed survey). Model results are from the PlanBsmooth assessment.

[1] https://www.nefsc.noaa.gov/saw/sasi/uploads/2019_COD_GB_Update_2019_09_13_142644.pdf

	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
					Data					
Commercial landings	2,999	2,688	3,387	2,007	1,312	1,514	1,300	1,109	464	574
Commercial discards	385	253	122	120	83	19	31	33	20	13
Recreational landings	142	195	142	81	7	257	486	1,075	785	66
Recreational discards	9	27	25	3	2	19	71	32	25	6
CA landings	1,003	748	702	395	384	430	472	428	474	510
CA discards	206	94	43	75	39	28	20	12	14	7
Catch for Assessment	4,744	4,005	4,421	2,681	1,828	2,267	2,380	2,690	1,782	1,176
					Model Results					
Biomass	3.227	3.107	3.13	3.175	3.022	2.428	2.919	4	4.27	4.256
Rel. Exploit. Rate	0.633	0.555	0.609	0.364	0.261	0.402	0.351	0.29	0.18	0.119

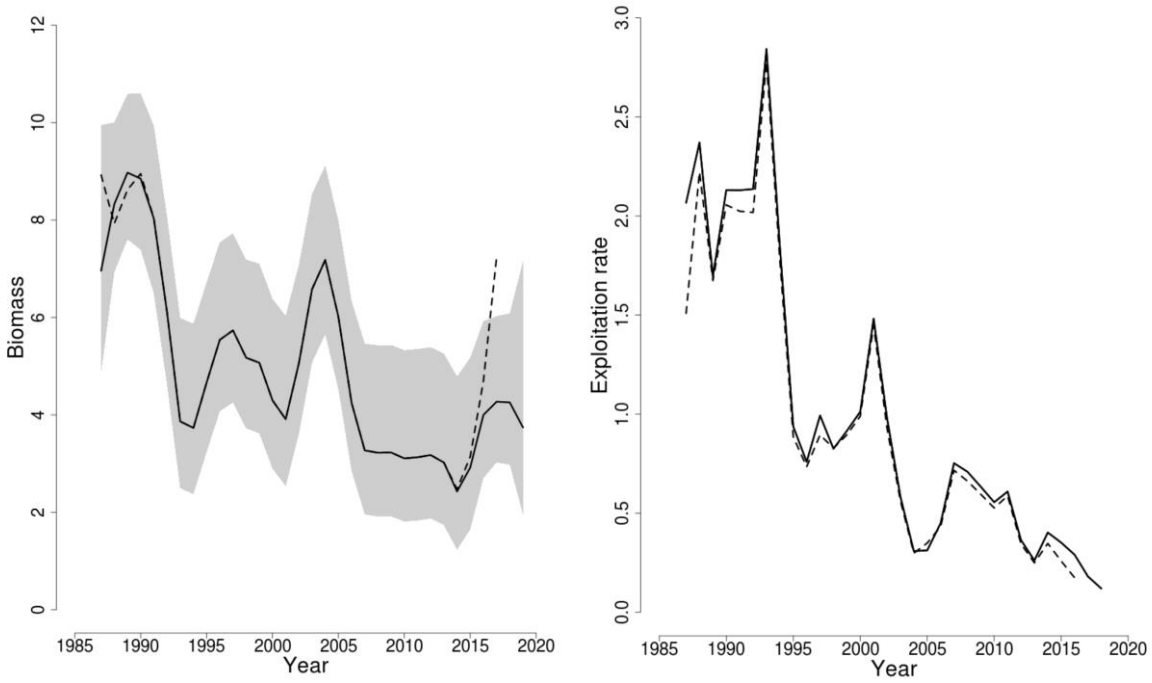


Figure 13. (Left) Trends in smoothed survey biomass (kg/tow) of Georges Bank Atlantic cod between 1987 and 2019 from the current (solid line) and previous (dashed line) assessment based on the 2019 assessment. The approximate 90% lognormal confidence intervals are shown. **(Right)** Trends in the relative exploitation rate (catch/smoothed survey) of Georges Bank Atlantic cod between 1987 and 2018 from the current (solid line) and previous (dashed line) assessment based on the 2019 assessment.

Gulf of Maine Atlantic cod

The 2019 assessment of the Gulf of Maine Atlantic cod (*Gadus morhua*) stock[2] is an operational assessment of the existing benchmark assessment (NEFSC 2013). This stock was most recently assessed in 2017 (NEFSC 2017). The 2019 assessment updates commercial and recreational fishery catch data, research survey indices of abundance, and the analytical ASAP assessment models through 2018. Additionally, stock projections have been updated through 2022.

[2] https://www.nefsc.noaa.gov/saw/sasi/uploads/Gulf_of_Maine_Atlantic_cod_Update_2019_08_23_080524.pdf

Based on the 2019 updated assessment, the stock status for the Gulf of Maine Atlantic cod stock continues to be overfished and overfishing is still occurring. Retrospective adjustments were not made to the model results. Spawning stock biomass (SSB) in 2018 was estimated to be 3,752 (mt) under the M=0.2 model and 3,838 (mt) under the M-ramp model scenario which is 9% and 6% (respectively) of the biomass target, SSBMSY proxy (42,692 (mt) and 63,867 (mt). The 2018 fully selected fishing mortality was estimated to be 0.188 and 0.198 which is 109% and 113% of the FMSY proxy(F40%; 0.173 and 0.175).

Are there signs of improvement since the 2017 assessment?

Recreational landing and discard of GOM cod have decreased considerably from 2017 and 2018, while commercial catches have been very low in the past 4 years with some increase in the past 3 years. Spawning stock biomass has increased between 2017 and 2018 for both models, while F_{Full} has decreased quite significantly from 2017 to 2018 (Table 14, Figure 14 and 15). Recruitment has shown some increase in the past two years for which data is available (Figure 16). Based on the above, the Gulf of Maine Atlantic cod stock has shown some signs of improvement since the 2017 assessment.

Table 14. Catch and status table for Gulf of Maine Atlantic cod. All weights are in (mt), recruitment is in (000s), and F Full is the fishing mortality on fully selected ages.

	2011	2012	2013	2014	2015	2016	2017	2018
				Data				
Recreational discards	307	103	195	151	168	334	610	326
Recreational landings	2,999	1,245	1,524	796	11	187	170	12
Commercial discards	103	97	54	27	14	8	16	17
Commercial landings	4,598	2,759	951	832	227	320	376	398
Catch for Assessment	8,007	4,204	2,723	1,806	420	850	1,171	753
				Model Results (M=0.2)				
Spawning Stock Biomass	6723	3524	1874	1263	1439	2258	3051	3752
F_{Full}	1.504	1.69	2.178	2.224	0.37	0.459	0.419	0.188
Recruits $age1$	1645	1682	788	2702	1184	758	1845	2767
				Model Results (M-ramp)				
Spawning Stock Biomass	8009	4221	2361	1809	2164	3023	3593	3838
F_{Full}	1.308	1.482	1.859	1.669	0.27	0.374	0.379	0.198
Recruits $age1$	3123	3451	1712	5727	2311	1355	3062	4261

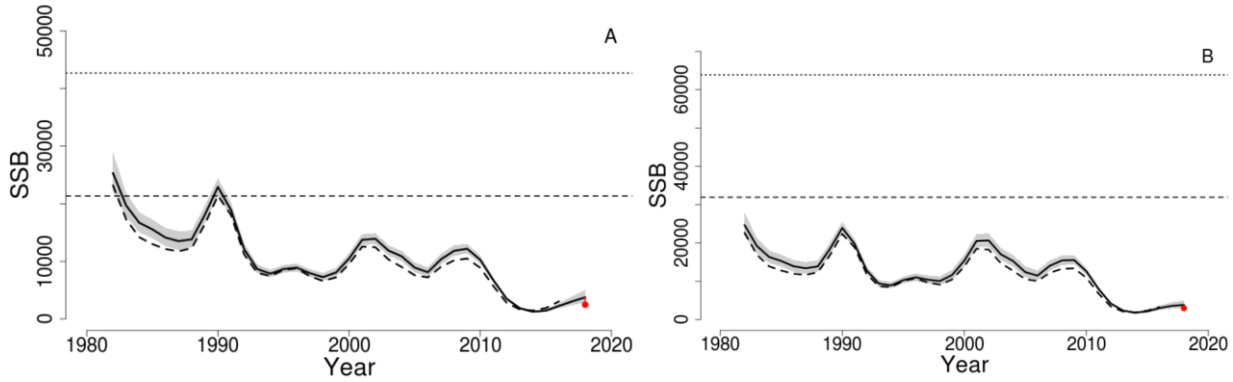


Figure 14. Estimated trends in the spawning stock biomass (SSB) of Gulf of Maine Atlantic cod between 1982 and 2018 from the current (solid line) and previous (dashed line) assessment and the corresponding SSB Threshold (1/2 SSBMSY; horizontal dashed line) as well as SSB Target SSBMSY; horizontal dotted line) based on the 2019 M=0.2 (A) and M-ramp (B) assessment models. The 90% lognormal confidence intervals are

shown. The red dot indicates the rho-adjusted SSB values that would have resulted had a retrospective adjustment been made to either model

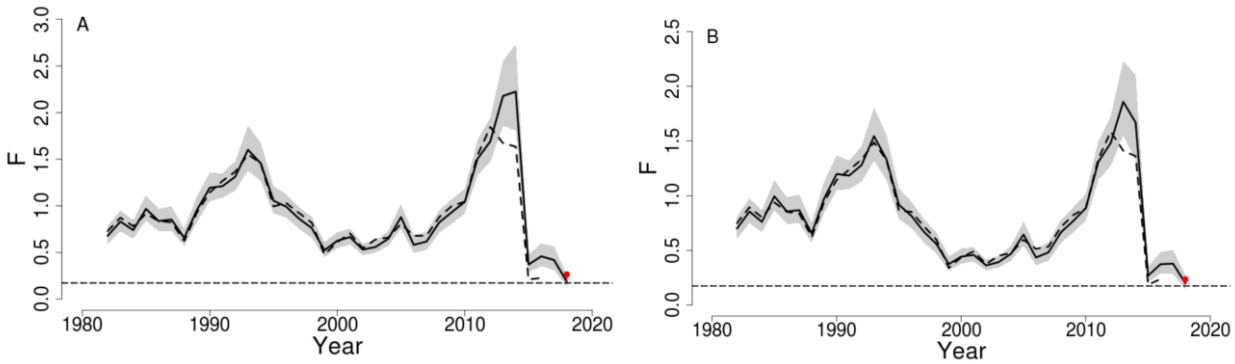


Figure 15. Estimated trends in the fully selected fishing mortality (F) of Gulf of Maine Atlantic cod between 1982 and 2018 from the current (solid line) and previous (dashed line) assessment and the corresponding F Threshold (0.173 (M=0.2), 0.175 (M-ramp); dashed line) based on the 2019 M=0.2 (A) and M-ramp (B) assessment models. The 90% lognormal confidence intervals are shown. The red dot indicates the rho-adjusted F values that would have resulted had a retrospective adjustment been made to either model.

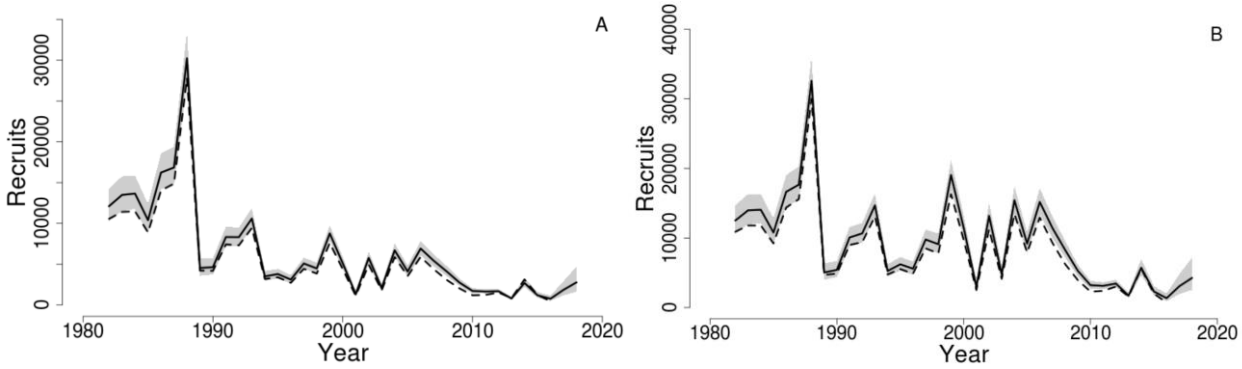


Figure 16. Estimated trends in age-1 recruitment (000s) of Gulf of Maine Atlantic cod between 1982 and 2018 from the current (solid line) and previous (dashed line) M=0.2 (A) and M-ramp (B) assessment models. The 90% lognormal confidence intervals are shown.

4.4.3 Yellowtail flounder (GB and GOM stocks)

Cape Cod-Gulf of Maine yellowtail flounder

The 2019 assessment of the Cape Cod-Gulf of Maine yellowtail flounder (*Limanda ferruginea*) stock[3] is an operational assessment of the existing 2017 VPA assessment (Alade 2017). The last benchmark for this stock was in 2008 (Legault et al., 2008). Based on the previous assessment the stock was overfished, and overfishing was occurring.

The 2019 assessment updates commercial fishery catch data, research survey indices of abundance, weights at age, and the analytical VPA assessment model and reference points through 2018. Additionally, stock projections have been updated through 2022. Based on the 2019 updated assessment, Cape Cod-Gulf of Maine yellowtail flounder stock is not overfished and overfishing is not occurring. Retrospective adjustments were made to the model results. Spawning stock biomass (SSB) in 2018 was estimated to be 2,125 (mt) which

[3] https://www.nefsc.noaa.gov/saw/sasi/uploads/2019_YEL_CCGM_RPT_v3.pdf

is 62% of the biomass target (SSBMSY proxy = 3,439. The 2018 fully selected fishing mortality was estimated to be 0.092 which is 29% of the overfishing threshold proxy (FMSY proxy = 0.32).

Are there signs of improvement since the 2017 assessment?

Commercial catches have decreased in 2018 and the stock is no longer considered overfished and overfishing is not occurring as of 2019, a clear improvement of status since 2017 where the stock was considered overfished and with overfishing occurring. Recruitment in the past 5 years has shown increases since the previous 4 years, with a peak in 2017. Fishing mortality has decreased while biomass has increased in the past two years (Table 15 and Figure 17). Based on the above, the Cape Cod-Gulf of Maine yellowtail flounder stock has shown some signs of improvement since the 2017 assessment.

Table 15. Catch and model results for Cape Cod-Gulf of Maine yellowtail flounder. All weights are in (mt), recruitment is in (000s) and F Full is the average fishing mortality on ages (ages 4 and 5). Model results below are from the current updated VPA assessment without any retrospective adjustment.

	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
					Data					
Commercial discards	175	87	74	146	86	54	45	66	50	45
Commercial landings	464	546	684	946	590	421	306	302	314	226
Total Catch for Assessment	639	633	758	1,092	676	475	351	368	365	271
					Model Results					
Spawning Stock Biomass	935	1,232	1,391	1,117	903	1,066	1,725	2,307	2,857	2,753
F_{Full}	0.754	0.501	0.669	1.062	1.015	0.44	0.204	0.133	0.118	0.078
Recruits (age 1)	4,005	3,321	3,232	3,086	5,614	5,241	5,784	5,719	7,524	5,537

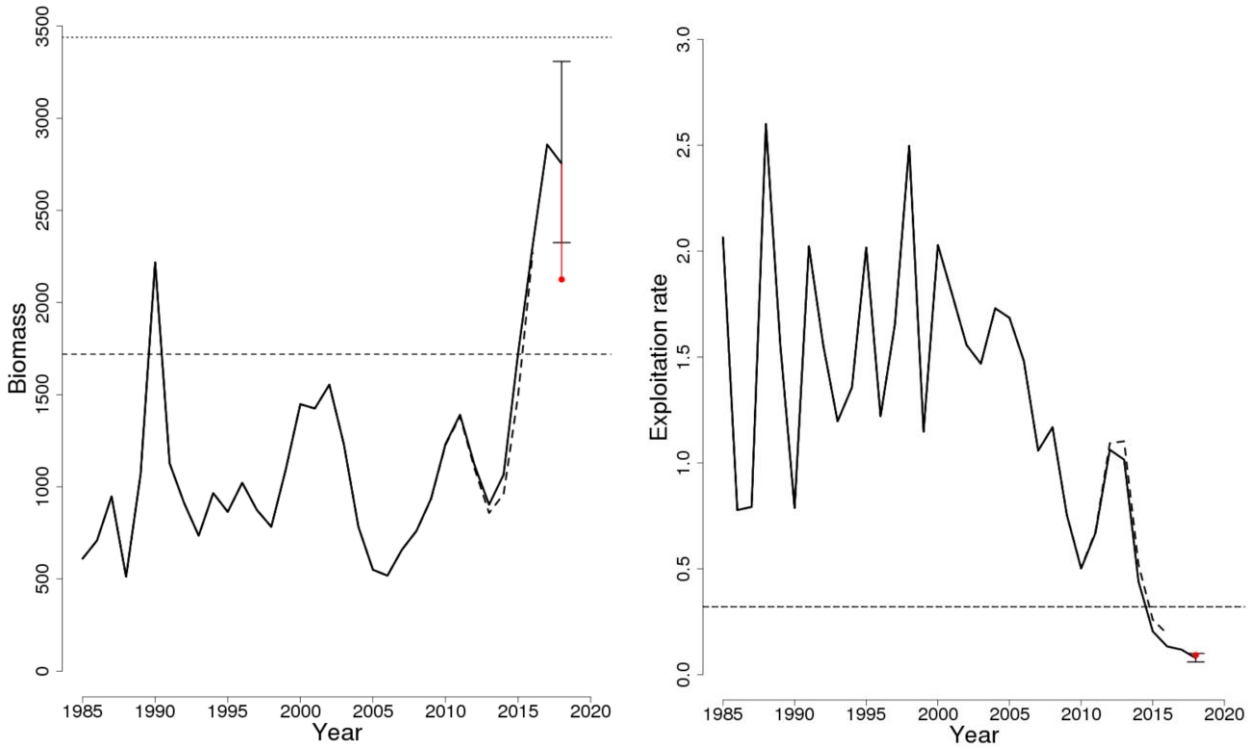


Figure 17. (Left) Trends in spawning stock biomass of Cape Cod-Gulf of Maine yellowtail flounder between 1985 and 2018 from the current (solid line) and previous (dashed line) assessment and the corresponding SSB Threshold (1/2 SSBMSY proxy; horizontal dashed line) as well as SSB Target (SSBMSY proxy; horizontal dotted line) based on the 2019 assessment. Biomass was adjusted for a retrospective pattern and the adjustment is

shown in red. The 90% bootstrap probability intervals are shown. **(Right)** Trends in the fully selected fishing mortality (F Full) of Cape Cod-Gulf of Maine yellowtail flounder between 1985 and 2018 from the current (solid line) and previous (dashed line) assessment and the corresponding F Threshold (FMSY proxy=0.32; horizontal dashed line). F Full was adjusted for a retrospective pattern and the adjustment is shown in red based on the 2019 assessment. The 90% bootstrap probability intervals are shown.

Georges Bank Yellowtail Flounder

The Georges Bank Yellowtail Flounder (*Limanda ferruginea*) stock is a transboundary resource in Canadian and US jurisdictions. The management unit currently recognized by Canada and the US for the Georges Bank stock includes the entire bank east of the Great South Channel to the Northeast Peak, encompassing Canadian fisheries statistical areas 5Zj, 5Zm, 5Zn and 5Zh and US statistical reporting areas 522, 525, 551, 552, 561 and 562. The combined Canada/US Yellowtail Flounder catch in 2018 was 45 mt, with neither country filling its portion of the quota. Two of the three bottom trawl surveys increased, but all remained at low levels compared to their time series.
The empirical approach recommended at the 2014 Diagnostic Benchmark and modified during last year's TRAC was applied in the 2019 assessment update[4]. The three recent bottom trawl surveys were scaled to absolute biomass estimates, averaged, and an exploitation rate applied to generate catch advice for the following year. Relative fishing mortality (fishery catch biomass/survey biomass, scaled to the mean for 1987-2007) was quite variable but followed a similar trend for all three surveys, with a sharp decline to low levels since 1995. In 2018, the TRAC recommended an exploitation rate of 6% for catch advice. Applying this exploitation rate to 2019 updated surveys results in catch advice of 199 mt for 2020. The full range of exploitation rates from the 2014 Diagnostic and Empirical Benchmark, 2% to 16%, applied to 2019 surveys results in 66 mt to 531 mt. Catch advice of 140 mt, the current quota, in 2020 has an associated exploitation rate of 4%.

Are there signs of improvement since the 2017 assessment?
TACs and catches have decreased in quota year 2017 and 2018. Between 2016 and 2018, only a maximum of 30% of the TAC was taken, and between 2009 and 2018 the TAC was never fully taken in any single year. Some increase in the average survey biomass was recorded in 2019 to similar level as 2017. There appear to be some slight signs of improvement considering also that catches have been well below the allowable limits (Table 16 and 17).

Table 16. Empirical approach used to derive catch advice based on 2017 TRAC intersessional consensus formulation (wing width with survey catchability = 0.31). The mean of the three-bottom trawl survey population biomass values is denoted Avg. The catch advice is computed as the exploitation rate multiplied by Avg. The catch advice year is applied in the year following (e.g., the 2019 row of catch advice will be applied in 2020).

	Biomass (mt) Wings				Exploitation rate 0.02	0.06
Year	DFO	Spring	Fall (year-1)	Average	Catch Advice (mt)	
2010	29452	68752	83490	60565	1211	3634
2011	12344	29621	27821	23262	465	1396
2012	18113	46209	30354	31559	631	1894
2013	2249	12766	31199	15404	308	924
2014	1654	8564	10828	7015	140	421
2015	2650	5861	12682	7064	141	424
2016	5569	3610	5811	4997	100	300
2017	1104	2819	5432	3118	62	187
2018	812	143	2424	1126	23	68
2019	182	3735	6047	3322	66	199

[4] https://www.nefsc.noaa.gov/saw/trac/2019_WP_GBYT_Assessment_WP_2019_v2.pdf

Table 17. Recent quotas and catches by year and corresponding exploitation rates (computed by dividing annual quota or catch by the average survey biomass in Table 12) based on 2017 TRAC intersessional consensus formulation (wing width with survey catchability = 0.31). Model type refers to the approach used to set the quota for that year.

Assmt Year	Quota Year	Quota (mt)	Catch (mt)	Quota/Avg	Catch/Avg	Model Type
2009	2010	1956	1170	3%	2%	VPA
2010	2011	2650	1171	11%	5%	VPA
2011	2012	1150	725	4%	2%	VPA
2012	2013	500	218	3%	1%	VPA
2013	2014	400	159	6%	2%	VPA
2014	2015	354	118	5%	2%	Empirical
2015	2016	354	44	7%	1%	Empirical
2016	2017	300	95	10%	3%	Empirical
2017	2018	300	45	27%	4%	Empirical
2018	2019	140		4%		Empirical
	mean	810	416	8%	3%	

4.4.4 GB Winter flounder

The 2019 assessment of the Georges Bank Winter Flounder (*Pseudopleuronectes americanus*) stock[5] is an operational update of the existing 2017 operational VPA assessment which included data for 1982-2016 (NEFSC 2017). Based on the previous assessment the stock was not overfished and overfishing was not occurring. The 2019 assessment updates commercial fishery catch data, research survey biomass indices, and the analytical VPA assessment model and reference points through 2018. Additionally, stock projections have been updated through 2022.

Based on the 2019 updated assessment, the Georges Bank Winter Flounder stock is overfished and overfishing is not occurring. Retrospective adjustments were made to the model results. Spawning stock biomass (SSB) in 2018 was estimated to be 2,175 (mt) which is 24% of the biomass target for an overfished stock (SSBMSY = 8,910 with a threshold of 50% of SSBMSY). The 2018 fully selected fishing mortality (F) was estimated to be 0.223 which is 43% of the overfishing threshold (FMSY = 0.519) (Fig. 18). However, the 2018 point estimate of SSB and F, when adjusted for retrospective error (55% for SSB and -35% for F), is outside the 90% confidence interval of the unadjusted 2018 point estimate. Therefore, the 2018 F and SSB values used in the stock status determination were the retrospective-adjusted values of 0.223 and 2,175 mt, respectively.

[5] https://www.nefsc.noaa.gov/saw/sasi/uploads/2019_FLW_GB_RPT.pdf

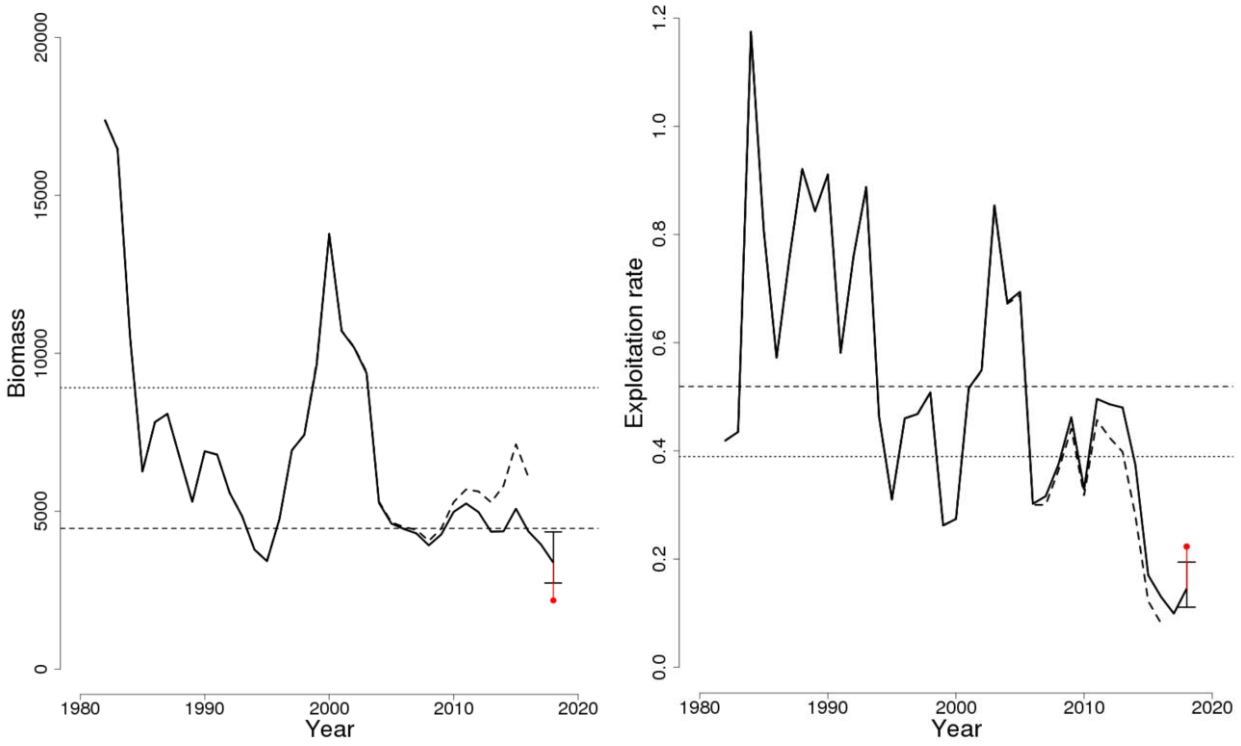


Figure 18. (Left) Trends in spawning stock biomass (mt) of Georges Bank Winter Flounder between 1982 and 2018 from the current (solid line) and previous (dashed line) assessments and the corresponding SSBThreshold (1/2 SSBMSY; horizontal dashed line) as well as SSBTarget (SSBMSY; horizontal dotted line) based on the 2019 assessment. Biomass was adjusted for a retrospective pattern and the adjustment is shown in red. The 90% normal confidence interval is shown for 2018. **(Right)** Trends in fully selected fishing mortality (FFull) of Georges Bank Winter Flounder between 1982 and 2018 from the current (solid line) and previous (dashed line) assessments and the corresponding FThreshold (FMSY =0.519; horizontal dashed line) as well as (FTarget= 75% of FMSY; horizontal dotted line). FFull was adjusted for a retrospective pattern and the adjustment is shown in red. The 90% normal confidence interval is shown for 2018.

Are there signs of improvement since the 2017 assessment?

Fishing mortality was at or slightly below FMSY during 2011-2013, then declined rapidly between and reached the lowest level of the time series in 2017. The 2018 fishing mortality rate (0.145) was only slightly higher (Figure 18, Figure 19).

Spawning stock biomass estimates were near the SSBthreshold during 2004-2015, but then decreased and reached the lowest level of the time series in 2018 (3,372 mt) (Figure 18). The stock status of Georges Bank Winter Flounder has changed from not overfished and overfishing is not occurring to overfished and overfishing is not occurring. Although fishing mortality rates were at the lowest levels of the time series during 2015-2018, SSB remained near the SSBMSY threshold (4,455 mt) during 2004-2015 and then declined to the lowest level on record in 2018 (3,372 mt). There was a major retrospective pattern for this assessment because the ρ adjusted estimates of 2018 SSB (SSBρ=2,175) and 2018 F (Fρ=0.223) were outside the 90% confidence limits for SSB (2,725 - 4,346) and F (0.111 - 0.194). A retrospective adjustment was made for both the determination of stock status and for projections of catch in 2020. The retrospective adjustment changed the 2018 SSB from 3,372 to 2,175 and the 2018 FFull from 0.145 to 0.223. The stock is in a revised rebuilding plan, based on fishing at 70% of FMSY, with rebuilding by 2029.

Recruitment declined rapidly during the last decade, from about 13 million fish in 2008 to a time series low of 532,000 fish in 2018. Recruitment increased in 2019 and was similar to the 2017 value (about 3 million fish),

but the 2019 estimate is uncertain because it is based solely on the geometric mean of age 1 stock numbers during 2011-2017.

Catches have been well below the TAC in the past 4 years of available data as shown in the Figure below.

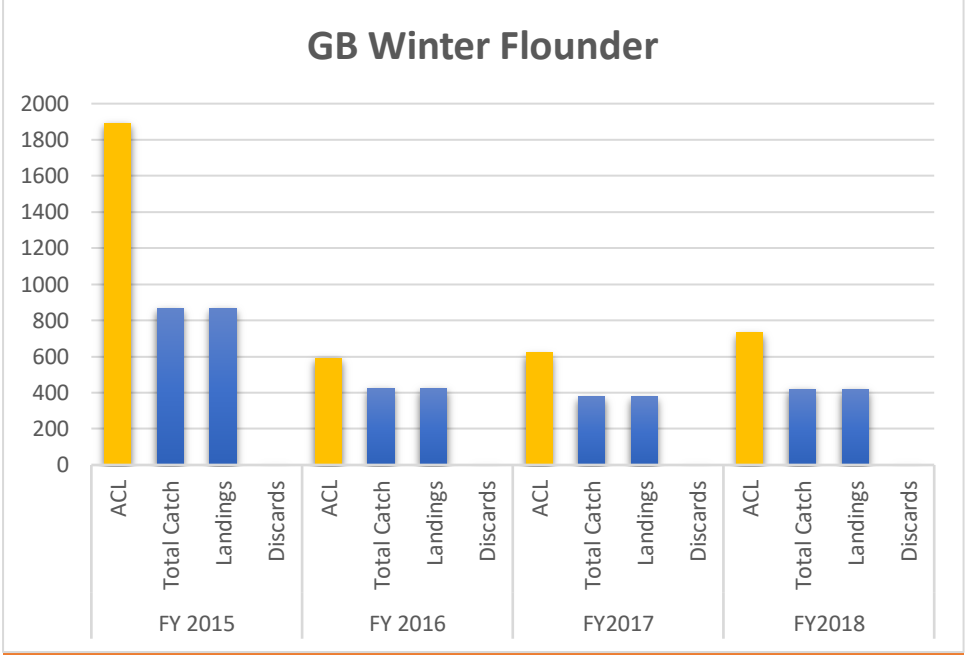


Figure 19. Georges Bank winter flounder Allowable Catch Limits against total catches for 2015 to 2018 (Source: data provided by Spencer Talmage, NOAA GARFO, 26th February 2020).

Overall, the stock is not undergoing overfishing as fishing mortality is below Ftarget (which equals 75% of FMSY). Biomass has decreased below SSBThreshold (which equals 1/2 SSBMSY) due to retrospective error adjustments that revised biomass down. We also note some likely increases in recruitment numbers. Although signs of improvement in biomass are not obvious, the fishery is not undergoing overfishing and it is likely that the target fishery is not hindering recovery of Georges Bank winter flounder because in the past 4 years, catches have been well within ACLs (about 30% within average ACLs in the past 3 years), and fishing mortality is well below the limit.

4.4.5 GB Witch Flounder

The 2019 assessment of the witch flounder (*Glyptocephalus cynoglossus*) stock[6] is an operational assessment of the existing 2017 assessment (NEFSC 2017a). Based on the 2017 assessment the stock status was overfished and overfishing unknown, and stock condition was poor. This assessment updates commercial fishery catch data through 2018, and updates research survey biomass indices and the empirical approach assessment through 2018. No stock projections can be computed using the empirical approach.

Based on the 2019 updated assessment, witch flounder recommended stock status cannot be determined analytically due to a lack of biological reference points associated with the empirical approach; stock condition remains poor. Retrospective adjustments were not made to the model results. The exploitable biomass in 2018 (defined as the arithmetic average of the 2018 NEFSC spring and 2017 NEFSC fall surveys population biomass estimates and converted to exploitable biomass using 0.9 based on examination of survey and fishery

[6] https://www.nefsc.noaa.gov/saw/sasi/uploads/2019_WIT_UNIT_RPT_09_13_171100.pdf

selectivity patterns) was estimated to be 35,585 (mt). The 2018 exploitation rate (2018 catch divided by 2018 exploitable biomass) was estimated to be 0.02 (see Table 18, Figure 20).

Table 18. Catch and model results table for witch flounder. All weights are in (mt). The exploitable biomass in year y is the arithmetic average of the year y NEFSC spring and year y-1 NEFSC fall surveys then converted to exploitable biomass using 0.9. The exploitation rate is the year y catch divided by the year y exploitable biomass. Model results are from the current updated empirical approach assessment.

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
					Data						
Commercial Landings	1,009	954	759	870	1,038	686	570	492	397	446	606
Commercial Discards	127	204	153	201	232	124	106	94	115	106	115
Catch for Assessment	1,136	1,158	913	1,072	1,270	811	676	586	512	552	722
					Model Results						
Exploitable Biomass	39,131	22,689	18,403	17,986	20,390	13,634	16,690	19,670	18,331	24,820	35,585
Exploitation Rate	0.029	0.051	0.05	0.06	0.062	0.059	0.04	0.03	0.028	0.022	0.02

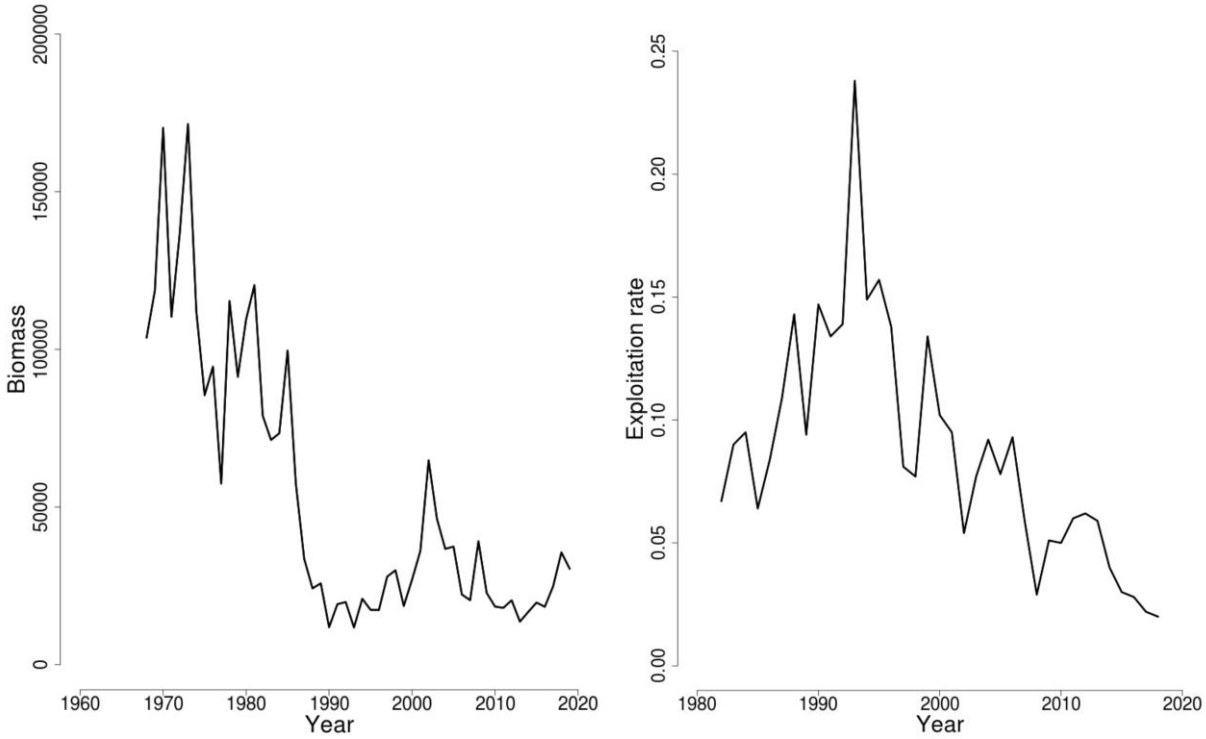


Figure 20. (Left) Trends in exploitable biomass (mt) of witch flounder between 1968 and 2019 and **(Right)** in exploitation rate (catch/ exploitable biomass) between 1982 and 2018 from the current assessment.

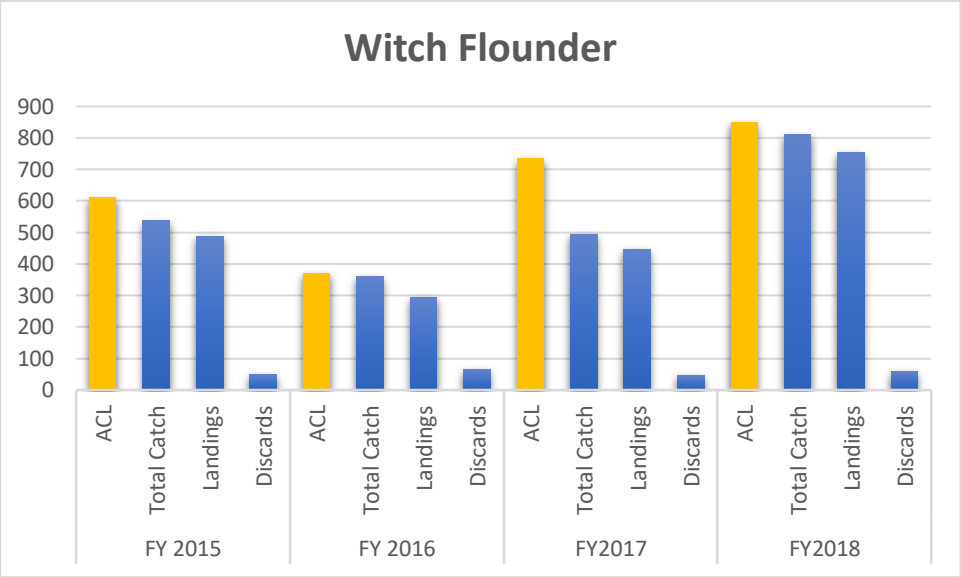


Figure 21. Witch flounder Allowable Catch Limits against total catches for 2015 to 2018 (Source: data provided by Spencer Talmage, NOAA GARFO, 26th February 2020).

Are there signs of improvement since the 2017 assessment?

Exploitation rate has decreased in the past two years from 0.028 in 2016 to 0.02 in 2018. Exploitable biomass has shown some increase from 18K tonnes in 2016 to 35K tonnes in 2018. Catches have been within ACL limits for all years between 2015 and 2018 (Figure 21) but we also note that uncertainty in the catch has increased due to recent criminal convictions in a case involving catch misreporting. Based on the currently available information there appears to be some sign of improvement for this stock.

Changing environmental conditions

After the on-site visit for this audit, Russel Brown, Population Dynamics Branch Chief at the NEFSC pointed out that changing environmental conditions may be impacting recruitment or the reproductive success of some of the groundfish stocks that are not recovering, and that they have noted changes in depth distribution for some stocks that seem to be collaborated by observations from fishers. He also highlighted that historically, when New England groundfish stocks were overfished, fishing mortality was the dominate component of total mortality for fully recruited ages (sometimes 2-4X the apparent natural mortality rate). Management has been successful in reducing fishing mortality rates, and in many cases, that are equal to or below natural mortality rates. One of the issues with this is that natural mortality is certainly variable and may be trending in concert with a changing environment. However, in most of their modelling, natural mortality is assumed to be constant because it cannot be measured directly.

Rebuilding plans

Existing rebuilding plans

Population projections for **Georges Bank Atlantic cod** are not computed. Catch advice is derived from applying an estimate of recent change in the smoothed survey biomass to the average of the recent three years of catch and thus is influenced by uncertainty in survey estimates. The smoothed survey biomass is decreasing, but without a biomass reference point it is not known if rebuilding is on schedule for 2026.

Population projections for **Gulf of Maine Atlantic cod** are reasonably well determined, though the projected biomasses from the last assessment did not fall within the confidence bounds of the biomass estimated in the current assessment. Multiple factors likely contributed to this including overestimation of the initial stock size and underestimation of F in the projection bridge year (2017). This stock is not on target to rebuild by 2024.

Population projections for **Cape Cod-Gulf of Maine yellowtail flounder** are uncertain for reasons associated with the retrospective bias in this updated assessment. The 2019 estimates of SSB and yield from this assessment are not well within the bound of values projected in the 2017 operational assessment. The stock is in a rebuilding plan with a rebuilding date of 2023. Based on the 2019 assessment, estimated SSB in 2018 is above SSBThreshold but below the SSBTarget.

Population projections for **Georges Bank yellowtail flounder** are not computed and rebuilding cannot be calculated. Catch advice is derived from applying an exploitation rate to the current estimate of survey biomass.

New or revised rebuilding plans

Framework 58 published in the Federal Register on July 19th 2019[7] revised the rebuilding programs for GB winter flounder and northern windowpane flounder; and creates new rebuilding plans for Southern New England/Mid-Atlantic (SNE/MA) yellowtail flounder, witch flounder and ocean pout. These rebuilding plans can be thought be the central framework for managing these stocks. Of importance to this assessment we list:

The **GB winter flounder** and SNE/MA yellowtail flounder rebuilding programs approved in FW 58 are expected to rebuild the stocks within 10 years, or by 2029, which is the maximum rebuilding time (Tmax) allowed by the Magnuson Stevens Act. The approved rebuilding plan for GB winter flounder sets the fishing mortality (F) rate that is required to rebuild the stock (Frebuild) at 70 percent of fishing mortality rate associated with maximum sustainable yield (FMSY) with a 77-percent probability of achieving the biomass associated with maximum sustainable yield (BMSY). Generally, F is the proportion of the mean population size that is removed in a period of time.

FW 58 approved the **witch flounder** rebuilding plan and sets Frebuild as an exploitation rate of 6 percent (or as otherwise determined in a future stock assessment) and Ttarget at 23 years, rebuilding by the end of 2043.

Other non target species - updates

Aside from the key species analysed above we note new catch data on typical species caught in this fishery as reported by GARFO in their commercial catch summary tables. These tables include catch and discards of species taken in the Northeast Multispecies Fishery. The source of information was referred to by GARFO personnel to verify the most current catch information, and also referenced in the client submission document. Accordingly, the assessment team has collected this information to evaluate if the species profile of this fishery had changed significantly since the original assessment that used data reported in the NEFMC Northeast Multispecies FMP (NEFMC 2015). This was done to use a comparable dataset to what was used in the original certification report and to monitor potential changes. Accordingly, the team has used an average of the GARFO summary catch tables for the past 3 years[8].

May 1, 2019 to current	May 1, 2018 to April 30, 2019	May 1, 2017 to April 30, 2018

[7] https://s3.amazonaws.com/nefmc.org/190719-FW-58-Final-Rule.pdf
[8] https://www.greateratlantic.fisheries.noaa.gov/ro/fso/reports//Sectors/Commercial_Summary_2019.html
https://www.greateratlantic.fisheries.noaa.gov/ro/fso/reports//Sectors/Commercial_Summary_2018.html
https://www.greateratlantic.fisheries.noaa.gov/ro/fso/reports//Sectors/Commercial_Summary_2017.html

Stock	Cumulative Kept (mt)	Cumulative Discard (mt)	Cumulative Catch (mt)	Cumulative Kept (mt)	Cumulative Discard (mt)	Cumulative Catch (mt)	Cumulative Kept (mt)	Cumulative Discard (mt)	Cumulative Catch (mt)	3 year total catch average per species	UoA % of total (3 year average)
GB Cod East	40.2	2.6	42.8	105	1.4	106.4	41.3	2.4	43.7	192.9	0.30%
GB Cod	466.2	7	473.2	833.2	4.7	837.9	432.8	13.1	446	1757.1	2.71%
GOM Cod	251.9	12.7	264.6	306.5	8.5	315	250.2	18.6	268.9	848.5	1.31%
GB Haddock East	344	29.8	373.9	561.2	61.9	623.1	313.6	93.7	407.3	1404.3	2.16%
GB Haddock	4,303.40	212.2	4,515.60	4,708.60	435.1	5,143.70	3,526.30	564.2	4,090.50	13749.8	21.18%
GOM Haddock	3,268.70	85.3	3,354.10	2,820.00	50.1	2,870.10	2,167.00	98	2,265.00	8489.2	13.08%
GB Yellowtail Flounder	3	0.1	3.2	27.4	0.2	27.6	30.9	0.1	31	61.8	0.10%
SNE/MA Yellowtail Flounder	2.4	0.2	2.6	7.3	1.1	8.5	13.3	1.1	14.5	25.6	0.04%
CC/GOM Yellowtail Flounder	107.6	14.2	121.8	149	21.4	170.3	187.4	18.3	205.7	497.8	0.77%
Plaice	764.9	49.8	814.8	1,019.70	58.7	1,078.40	1,007.60	70.7	1,078.30	2971.5	4.58%
Witch Flounder	666.6	35.9	702.5	753.3	58.5	811.8	447.5	47.2	494.7	2009	3.09%
GB Winter Flounder	302.9	0.9	303.8	419.3	0.6	419.9	376.9	0.7	377.6	1101.3	1.70%
GOM Winter Flounder	46.9	1.5	48.4	89.3	2.4	91.7	110.7	3.1	113.8	253.9	0.39%
SNE Winter Flounder	138.3	2.7	141	247.7	3	250.7	401.6	7.7	409.3	801	1.23%
Redfish	4,621.40	42.4	4,663.80	5,294.30	67.8	5,362.10	4,618.50	29	4,647.50	14673.4	22.60%
White Hake	1,976.20	8.6	1,984.90	2,086.10	11	2,097.10	2,015.70	7.7	2,023.40	6105.4	9.40%
Pollock	2,901.30	66.4	2,967.70	3,374.00	106.8	3,480.80	2,970.40	38.1	3,008.50	9457	14.57%
Northern Windowpane	0	21.1	21.1	0	33.3	33.3	0	35.1	35.1	89.5	0.14%
Southern Windowpane	0	28.7	28.7	0	66.5	66.5	0.1	71.3	71.5	166.7	0.26%
Ocean Pout	0	16.8	16.8	0	17.1	17.1	0	11.1	11.1	45	0.07%
Halibut	28.2	45.7	73.8	27.1	43.7	70.8	25.7	42.6	68.3	212.9	0.33%
Wolffish	0	2.3	2.3	0	1.5	1.5	0	1.6	1.6	5.4	0.01%
									Total (average catch over 3 years)	64919	100.00%

* These data are the best available to NOAA's National Marine Fisheries Service (NMFS). Data sources for this report include: (1) Vessels via VMS; (2) Vessels via vessel logbook reports; (3) Dealers via Dealer Electronic reporting; (4) Observers and at-sea monitors via the Northeast Fisheries Observer Program. Differences with previous reports are due to corrections made to the database. Data from the NOAA Fisheries Northeast Multispecies (Groundfish) Monitoring Reports: https://www.greateratlantic.fisheries.noaa.gov/ro/fso/reports/h/nemultispecies.html

We note that based on MSC Certification Requirements Guidance V1.3, GCB3.5.2: "*'Main' allows consideration of the weight, value or vulnerability of species caught. For instance, a species that comprises less than 5% of the total catch by weight may normally be considered to be a minor species (i.e., not 'main') in the catch, unless it is of high value to the fisher or of particular vulnerability, or if the total catch of the fishery is large, in which case even 5% may be a considerable catch.*"

Based on the table above and according to the guidance, we note that GOM/GB cod, GOM/GB yellowtail flounder, GB winter flounder, and GB Witch Flounder are below the 5% threshold but because are all considered depleted can continue to be classified as main retained species due to their vulnerability. Plaice, just below the 5% threshold can still be considered as a main retained species. White hake, at 9.4% remains also a main retained species. Anything below 0.5% is not considered. This list of species continues to be consistent with the list analysed for the 2016 certification report. A status update for white hake and plaice is provided below.

American Plaice update. The 2019 assessment of the Gulf of Maine-Georges Bank American plaice (*Hippoglossoides platessoides*) stock[9] is an operational update of the existing 2012 benchmark assessment (O'Brien et al. 2012). Based on the previous assessment in 2017 the stock was not overfished, and overfishing was not occurring. The 2019 assessment updates commercial fishery catch data, research survey indices of abundance, the analytical VPA assessment model, and reference points through 2018. Additionally, stock projections have been updated through 2022. Based on the 2019 updated assessment, the Gulf of Maine-Georges Bank American plaice stock continues to be not overfished and overfishing is not occurring.

White hake update. The 2019 assessment of the white hake (*Urophycis tenuis*) stock is an operational update of the 2017 operational assessment (NEFSC 2017) and the last benchmark assessment (NEFSC 2013). Based on the previous assessment the stock was not overfished and overfishing was not occurring. The 2019 assessment updates commercial fishery catch data, research survey indices of biomass, and the ASAP assessment model and reference points through 2018. Stock projections have been updated through 2022. Based on this updated assessment, the white hake stock is overfished and overfishing is not occurring[10].

We note that based on v1.3 requirements the white hake would not longer meet PI 2.1.1 SI (a) SG 80: "Main retained species are highly likely to be within biologically based limits (if not, go to scoring issue c below)". However, it would meet PI 2.1.1 SI (c) SG 80: "If main retained species are outside the limits there is a partial strategy of demonstrably effective management measures in place such that the fishery does not hinder recovery and rebuilding."

White hake meets this requirement (i.e. SI c) because the stock is not subject to overfishing since 2013. Furthermore, hake has just reached the limit reference point level as of 2019 and has not gone under it and prior to that, the stock had been fluctuating since 2011 between the limit and target reference point. The fishery has only taken 57.8% of the sub ACL quota in the past 5 years indicating that the fishery is not overexploiting this stock. The current ACL based harvest strategy in place can be considered effective such that the fishery is not considered to hinder recovery and rebuilding. Hence the score would remain SG80 for the white hake scoring element and the PI (2.1.1) score would remain unchanged. According to the "no-change" in score detected, the evaluation table for PI 2.3.1 is not rescored.

Based on the same evidence and reasoning, there is a partial strategy in place, if necessary, that is expected to ensure the fishery does not hinder white hake's recovery and rebuilding such that the score in PI 2.1.2 would remain unchanged, since this was the same evidence provided and scored in the 2016 certification report.

4.4.6 ETP Species updates

GARFO confirmed that there had not been any new ESA-listed species in 2019.

Of note, NOAA Fisheries has just created a new App, the Section 7 Mapper[11], to assist Federal action agencies in identifying the ESA-listed species and critical habitat in their project action area.

The number of grey seals (*Halichoerus grypus*) in U.S. waters has risen dramatically in the last 2 decades[12], with few observed in the early 1990s to roughly 24,000 observed in southeastern Massachusetts in 2015 (Pace et al. in press). Roughly 30,000 - 40,000 grey seals were estimated in southeastern Massachusetts in 2015, using correction factors applied to seal counts visible in Google Earth imagery. As of 2016, the size of the grey

[9] https://www.nefsc.noaa.gov/saw/sasi/uploads/2019_PLA_UNIT_RPT_v2.pdf
[10] https://www.nefsc.noaa.gov/saw/sasi/uploads/2019_HKW_UNIT_RPT.pdf
[11] https://www.fisheries.noaa.gov/new-england-mid-atlantic/consultations/section-7-species-critical-habitat-information-maps-greater
[12] https://s3.amazonaws.com/nefmc.org/11_SOE-NEFMC-2019.pdf

seal population in Canada, which is part of the same stock as the grey seals in the U.S., was estimated to be roughly 425,000, and increasing by 4% a year. Pups born on Muskeget Island MA, currently the largest pupping site for grey seals in the U.S., were first observed in 1988 and now number over 3,500. Trends in pup production at U.S. colonies appear to be increasing, and it is likely that U.S. pup production is being supplemented each year by animals from Canada. An Unusual Mortality Event (UME) for both grey and harbor seals was declared in 2018, triggering an investigation into the cause of this event. Tests so far suggest phocine distemper virus as a potential cause, although the investigation is not yet complete.

Harbor porpoise bycatch has resulted in fisheries closures in the past, but current bycatch levels suggest that management measures have been effective, reducing this fishery interaction. The 5-year mean bycatch has been below the maximum permitted level (Potential Biological Removal, PBR) since 2011, and the 2016 and draft 2017 annual bycatch estimates are among the lowest in the time series. Recent compliance with the harbor porpoise take reduction plan and reduced fishing effort are thought to contribute to low bycatch estimates. Potential recent shifts in porpoise distribution could also be contributing to low bycatch and this will be explored during the coming year. A new draft harbor porpoise abundance estimate suggests stable or increasing abundance of the Gulf of Maine/Bay of Fundy harbor porpoise stock[13].

This fishery under assessment continues to be categorised a Category II in the MMPA List of Fisheries[14]. White side dolphin drove the classification of this fishery. Mortality of white side dolphins was within the PBR limit in the last year of available data (2016), as well as in the preceding 4 years[15].

No interactions with large whale species or Atlantic sturgeons were reported for 2019 by either the Client Group representative or the management organisations consulted during the onsite meetings.

4.4.7 Habitat updates

On January 3, 2020, NOAA Fisheries published a proposed rule to designate coral protection areas on Georges Bank and in the Gulf of Maine and to implement the measures of the New England Fishery Management Council's Omnibus Deep-Sea Coral Amendment.

The proposed rule would establish deep-sea coral protection areas on the continental slope and continental rise in New England and various coral protection areas in continental shelf waters. Dedicated habitat research areas would also be established. Commercial bottom-tending fishing gears would be restricted in some of these places and provisions for vessels transiting through coral protection areas would be established [16].

The implementation of small closed areas in offshore New England waters will likely occur in the 2020 summer (pers. comm. Spencer Talmage, NOAA GARFO, 26th February 2020). The location of coral canyons and projected closures are shown in the figure below.

[13] https://s3.amazonaws.com/nefmc.org/11_SOE-NEFMC-2019.pdf
[14] https://www.fisheries.noaa.gov/national/marine-mammal-protection/northeast-bottom-trawl-fishery-mmpa-list-fisheries
[15] https://repository.library.noaa.gov/view/noaa/20611
[16] https://s3.amazonaws.com/nefmc.org/200102_Coral_Amendment-final-with-IRFA-edits.pdf

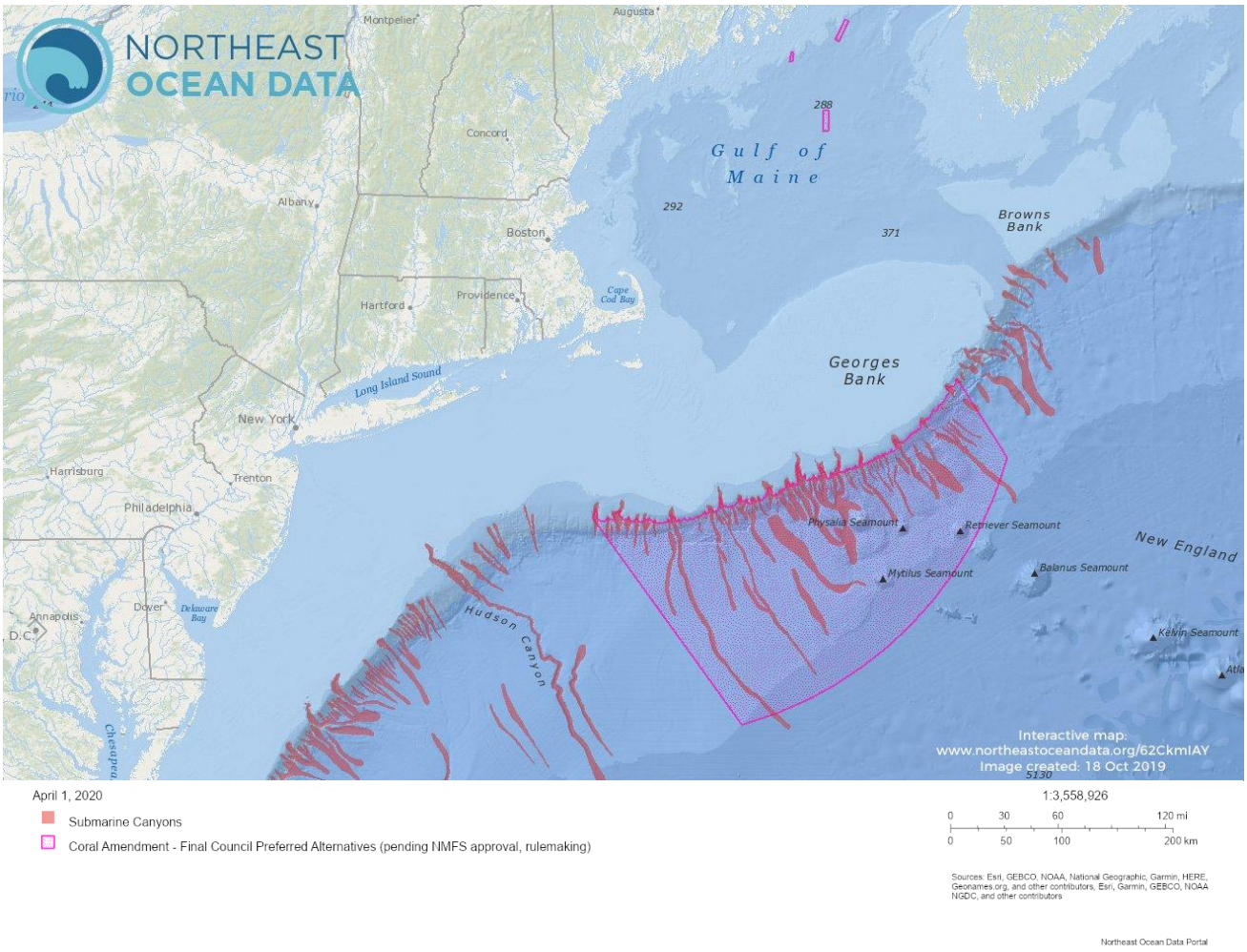


Figure 22. Submarine canyons and Council's preferred alternatives part of the Coral Amendment[17].

These closures are unlikely to have any major effect on the fishery due to their limited size.

4.4.8 Ecosystem Updates

In 2019, a State of the Ecosystem report was published.[18] The report covers the New England portion of the US Northeast Shelf (the Gulf of Maine, GOM, and Georges Bank, GB).

The report summarises that several climate and ecosystem observations are trending towards or have reached unprecedented levels. The Northeast US shelf is among the fastest warming waters globally with implications for species physiology, productivity, distribution, and community composition. Globally, 2018 was the 4th warmest year on record with the last four years being the warmest on record. In both the GOM and GB, 2018 seasonal sea surface temperatures were above average, while the summer temperatures in the Gulf of Maine were the highest on record. Annual average bottom temperature measurements show a significant long term warming trend in the GOM. Ocean circulation is changing as well. The position of the northern edge of the Gulf Stream has trended northward since the late 1950s, with an increasing rate since 2009. The most northerly positions on record were observed between 2014-2017. Since the mid-2000's, the warmer, saltier shelf slope water associated with the Gulf Stream has dominated the input into the GOM at the Northeast

[17] https://www.northeastoceandata.org/deep-sea-corals/
[18] https://s3.amazonaws.com/nefmc.org/11_SOE-NEFMC-2019.pdf

Channel. A more northerly Gulf Stream position is generally associated with warmer ocean temperature in the Northeast US shelf and increased sea surface height along the U.S. east coast. The management implications of these ocean changes vary by region and species, and are not fully understood at this point. Changes in the distribution of managed fish species continue, with aggregate trends on the entire Northeast Shelf shifting towards the northeast and generally into deeper water.

Observed changes at the base of the food web, including timing and community composition, affect productivity of protected and managed species in ways we do not yet fully understand. There is a trend of increasing primary production in New England, but this trend is primarily driven by increased summer production, which is due to warmer temperatures and increased bacterial remineralization and nutrient recycling. This increased productivity is most likely from smaller-celled species that contribute less to fish production compared to larger phytoplankton. Current zooplankton trends show a shift towards smaller-bodied copepods. This suggests a possible return to conditions last observed during the 1990s, when small bodied copepods dominated the zooplankton community, regime shifts in groundfish recruitment were observed, and north Atlantic right whales experienced lower birth rates. The timing of shifts in fish condition may be similar, though potential mechanisms connecting adult fish condition to zooplankton patterns require further study. The status of different species guilds in New England is presented below.

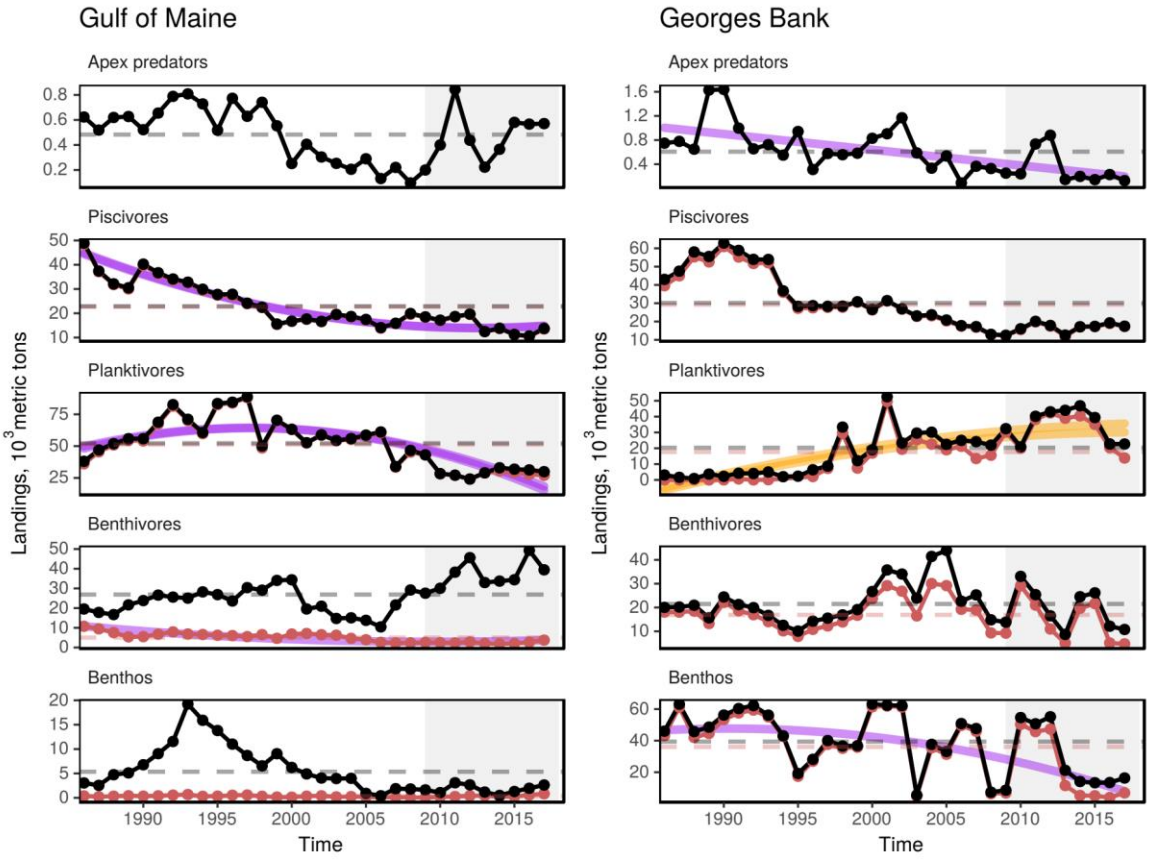


Figure 23. NEFMC managed species landings (red) and total commercial landings (black) by feeding guild in Gulf of Maine (left) and Georges Bank (right).

Changes in personnel since the previous surveillance audit:

Greater Atlantic Regional Fisheries Office: Prior to becoming the Assistant Regional Administrator for Sustainable Fisheries, Sarah Bland was the Groundfish Branch Chief at GARFO.

4.5 Principle 3: Effective management - Updates

Since the previous surveillance assessment, no significant management updates were implemented aside from the one highlighted below.

Management System Updates

Groundfish Catch Share Program Review[19]

In June 2019, the New England Fishery Management Council started a review of the groundfish sector system, which is a catch share program under the Northeast Multispecies Fishery Management Plan (FMP). The National Oceanic and Atmospheric Administration's (NOAA) catch share policy states that Councils periodically should review catch share programs to evaluate whether a program is meeting its goals and objectives. NOAA's guidance is that "a formal and detailed review" should occur "no less frequently than once every seven years" for all limited access privilege programs (LAPPs) established after January 12, 2007.

Framework 58[20]

The FW 58 rule of July 2019 set 2019–2020 catch limits for 7 of the 20 multispecies (groundfish) stocks, implements new or revised rebuilding plans for 5 stocks (GB winter flounder and northern windowpane flounder; and new rebuilding plans for Southern New England/Mid-Atlantic (SNE/MA) yellowtail flounder expected to rebuild the stocks within 10 years, or by 2029, witch flounder by the end of 2043, and ocean pout), revises an accountability measure, and makes other minor changes to groundfish management measures. This action is necessary to respond to updated scientific information and to achieve the goals and objectives of the fishery management plan. The final measures are intended to help prevent overfishing, rebuild overfished stocks, achieve optimum yield, and ensure that management measures are based on the best scientific information available.

Framework 59[21]

The draft FW 59 of June 2019 contains the following proposed measures: 2020 TACs for U.S./Canada stocks on Georges Bank; 2020-2022 specifications for 15 groundfish stocks; adjustments to address commercial/recreational allocation issues raised by new data from the Marine Recreational Information Program (MRIP); and a measure to revise the Georges Bank cod incidental catch TAC to remove the allocation to the Closed Area I Hook Gear Haddock Special Access Program.

Amendment 21 - Observer Policy Committee (Industry-Funded Monitoring)[22]

This action implemented in February 2020 the New England Fishery Management Council's Industry-Funded Monitoring Omnibus Amendment. This amendment allows the New England Council flexibility to increase monitoring in certain fishery management plans to assess the amount and type of catch and reduce uncertainty around catch estimates. This amendment establishes a process to standardize future industry-funded monitoring programs in New England fishery management plans and establishes industry-funded monitoring in the Atlantic herring fishery. This action helps ensure consistency in industry-funded monitoring programs across fisheries and increases monitoring in the Atlantic herring fishery.

Draft Amendment 23[23]

Draft Amendment 23 to the Northeast Multispecies Fishery Management Plan was submitted on March 4, 2020 by the NEFMC. It would maintain the current goals and objectives of the groundfish monitoring program

[19] https://www.nefmc.org/library/groundfish-catch-share-program-review
[20] https://s3.amazonaws.com/nefmc.org/190719-FW-58-Final-Rule.pdf
[21] https://www.nefmc.org/library/framework-59
[22] https://s3.amazonaws.com/nefmc.org/2020-00881.pdf
[23] https://s3.amazonaws.com/nefmc.org/200304_Draft_Groundfish_A23_DEIS_formal_submission_corrected_200312.pdf

but consider measures to further improve documentation of catch or catch accounting. This action was initiated due to the need for better catch data and to ensure the observer coverage improves.

Amendment 24 - part of the Omnibus Deep-Sea Coral Amendment[24]
The Deep-Sea Coral Amendment includes management areas to protect coral habitat from the impacts of fishing gears, provisions to encourage further research on deep-sea corals and fisheries, and measures to facilitate future updates to coral management approaches.

The Council identified final preferred alternatives at its January 2018 meeting, and the amendment document and Environmental Assessment (EA) were finalized and submitted to the National Marine Fisheries Service (NMFS, NOAA Fisheries). The Final Omnibus Deep Sea Coral Amendment was published in Jan 2, 2020. The coral closures created here do not affect the fishery in question in any significant way as these closures are located offshore in the Gulf of Maine.

Enforcement Updates

Based on NOAA Office of the General Counsel, Enforcement Section Enforcement Actions January 1, 2019, through June 30, 2019, the Northeast area has charged the following cases:

1. NE1703241; F/V Alex Marie – Owner and operator charged under the High Seas Fishing Compliance Act for unlawfully engaging in directed fishing for cod in Northwest Atlantic Fisheries Organization (NAFO) regulatory area 3N. A $4,500 NOVA was issued. [See Settled Cases, Item 6, below, for resolution of this matter.]
2. NE1605281, F/V Lori B – Owner and operator were charged under the Magnuson-Stevens Act for fishing without an observer when one was required and failing to provide requisite pre-trip notification on 61 groundfish trips. A $15,000 NOVA was issued.
3. NE1806395; F/V Capt. Travis – Owner and Operator were charged under the Magnuson Stevens Act for exceeding the possession limits for Atlantic sea scallops. A $19,317 NOVA was issued.
4. NE1604789; F/V Ocean Pride – Owner and Operator were charged under the Magnuson Stevens Act for failing to provide reasonable assistance to an observer in the performance of their duties. A $500 NOVA was issued. [See Settled Cases, Item 2, below, for resolution of this matter.]

Further to the above a number of cases were settled:

1. NE1704209 & NE1605818, F/V Debra Ann II – Two NOVAs (one for $4,000 and one for $1,000) issued under the Magnuson-Stevens Act for fishing without an observer and failing to accurately complete a Vessel Trip Report were settled for a suspension of the combined penalties pending no additional violations for two years based on ability to pay issues.
2. NE1604789; F/V Ocean Pride – A NOVA for $500 issued under the Magnuson-Stevens Act for failing to provide reasonable assistance to an observer in the performance of their duties was settled for $450. [See Charged Cases, Item 8, above, for initial charging information.]
3. NE1700005; F/V Finast Kind II – A NOVA for $24,896.30 issued under the Magnuson Stevens Act for exceeding the common pool vessel landing limit of Georges Bank cod on seven occasions was settled for $20,000. [See Charged Cases, Item 25, from January – June 2018 posting, for initial charging information.]
4. NE1708007A, F/V Went-Way– A NOVA for $15,000 issued under the Magnuson-Stevens Act for landing a bluefin tuna when the fishery was closed was settled for $3,000, due to documented financial inability to pay the penalty. [See Charged Cases, Item 15, from July – December 2018 posting, for initial charging information.]

[24] https://s3.amazonaws.com/nefmc.org/200102_Coral_Amendment-final-with-IRFA-edits.pdf

5. NE1600563; F/V Tom Slaughter II – A $15,962 NOVA issued under the Magnuson Stevens Fishery Conservation and Management Act for two counts of exceeding the possession limits for Atlantic sea scallops was settled for $10,650. [See Charged Cases, Item 25, from July – December 2017 posting, for initial charging information.]
6. NE1703241; F/V Alex Marie – A $4,500 NOVA issued under the High Seas Fishing Compliance Act for unlawfully engaging in directed fishing for cod in Northwest Atlantic Fisheries Organization (NAFO) regulatory area 3N was settled for $4,050 NOVA.

US Coast Guard enforcement

The US Coast Guard provides enforcement reports to the NEFMC every two to three months. Since the previous surveillance audit completed on the 20th May 2020, the USCG has recorded the following compliance rate in the Northeast multi species fishery:

1 April 2019 – 1 June 2019[25]:
- Fishing Vessel Boardings – 275
- Fishery Violations Issued – 05
- Observed Compliance Rate: 98%

1 June 2019 – 1 September 2019[26]
- Fishing Vessel Boardings– 368
- Fishery Violations Issued – 21
- Observed Compliance Rate: 94%

1 September 2019 – 1 December 2019[27]:
- Fishing Vessel Boardings – 482
- Fishery Violations Issued – 27
- Observed Compliance Rate: 94%

1 December 2019 – 1 January 2020[28]
- Fishing Vessel Boardings – 195
- Fishery Violations Issued – 10 – Onboard 02 individual vessels
- Observed Compliance Rate: 99%

The compliance rate in the fishery remains high.

Consultation Updates

There have not been any reported changes in consultation arrangements aside from the consultation opportunities offered primarily through the Council and NOAA fisheries.

[25] https://s3.amazonaws.com/nefmc.org/CAPT-KING-NEFMC-JUNE-PORTLAND-ME.pdf
[26] https://s3.amazonaws.com/nefmc.org/4_CAPT-KING-NEFMC-SEP-GLOUCESTER-MA.pdf
[27] https://s3.amazonaws.com/nefmc.org/CAPT-KING-NEFMC-DEC-NEWPORT-RI-Updated.pdf
[28] https://s3.amazonaws.com/nefmc.org/4_CAPT-KING-NEFMC-JAN-PORTSMOUTH-NH-003.pdf

4.6 Version details

Table 19. Fisheries program documents versions.

Document	Version number
MSC Fisheries Certification Process	Version 2.1
MSC Fisheries Standard	Version 1.3
MSC General Certification Requirements	Version 2.4.1
MSC Reporting Template	Version 2.01

5 Results

5.1 Surveillance results overview

5.1.1 Summary of conditions

Note that the condition milestones are subject to a 6-month extension in accordance with Covid-19 Derogation dated 27 March 2020.

Table 20. Summary of conditions.

Condition number	Condition	Performance Indicator (PI)	Status	PI original score	PI revised score
Condition 1.	The client must provide evidence that the current partial strategy that has been adopted for GOM and GB cod is demonstrably effective i.e. the fisheries for Acadian redfish, haddock and pollock do not hinder the recovery and rebuilding of: GOM/GB cod, GOM/GB yellowtail flounder, GB winter flounder, and witch flounder.	**PI 2.1.1 (retained species status).**	Status is on target due to Year 3 audit being carried out more than 6 months after the initial planning (July 2019).	70	'Not revised'
Condition 2.	The client must provide evidence that the current partial strategy that has been adopted for GOM and GB cod is demonstrably effective i.e. the fisheries for Acadian redfish, haddock and Pollock do not hinder the recovery and rebuilding of: GOM/GB cod, GOM/GB yellowtail flounder, GB winter flounder, and witch flounder.	**PI 2.1.2. (retained species management).**	Status is on target due to Year 3 audit being carried out more than 6 months after the initial planning (July 2019).	70	'Not revised'

No new conditions have been set during this surveillance audit.

5.1.2 Recommendations

There are no new recommendations.

5.2 Conditions

Table 21. Condition 1.	
Performance Indicator	**2.1.1 Retained Species Outcome** - The fishery does not pose a risk of serious or irreversible harm to the retained species and does not hinder recovery of depleted retained species
Score	70
Justification	During the full assessment audit, given the information of 2015 stock assessment update (September 2015) and the re-examination of strategies to reduce GOM and GB Cod retained catch, there was no clear evidence at the time, that the mitigation measures that act as a partial strategy were demonstrably effective in promoting recovery and rebuilding of GOM and potentially for GB Cod. Further the status for GOM yellowtail flounder, GB Winter flounder and witch flounder were stated as overfished and overfishing was occurring. Status of GB yellowtail flounder was unknown due to changes in stock assessment methodologies. There were no existing reference points. Latest assessment showed the 2014 GB stock biomass as one of the lowest in the time series and their condition was categorized as poor. Thus, at the time partial strategy were not effective in stopping overfishing and promoting recovery for these species and the condition were raised.
Condition	The client must provide evidence that the current partial strategy that has been adopted for GOM and GB cod is demonstrably effective i.e. the fisheries for Acadian redfish, haddock and pollock do not hinder the recovery and rebuilding of: GOM/GB cod, GOM/GB yellowtail flounder, GB winter flounder, and witch flounder.
Milestones	**By Year 1:** In the first year following grant of certification, the Client Group will work actively with NMFS, and NEFMC to monitor compliance and implementation of the adopted partial strategy, and other (new) measures as may be appropriate, with the aim of being able to demonstrate that this strategy is resulting in sufficiently low fishing mortality such that the fishery does not hinder recovery and rebuilding. Evidence required for this purpose could include the following: - Examination of the status of GOM/GB cod, GOM/GB yellowtail flounder, GB winter flounder, and witch flounder to its' Limit Reference Point (LRP) proxy - For each gear type, fleet sector and management area, (i) data on GOM/GB cod, GOM/GB yellowtail flounder, GB winter flounder bycatch from the pre-assessment averages reported in the initial 2016 fishery assessment up to the data available at the time of surveillance audit, in regards to annual quantities caught/retained and discarded, and associated percentages of US Acadian redfish/Pollock and haddock catch, and (ii) US Acadian redfish/Pollock and haddock trip catch and effort; - Quantified estimates of discard mortality in relation to the RV biomass index for the pre-assessment period and recent years; and - Examination of observer reports relative to the management measures applicable to GOMGOM/GB cod, GOM/GB yellowtail flounder, GB winter flounder i.e. handling, live release, move-away protocol etc.) (Score remains to 70)

	By Year 2: The Assessment Team shall be provided with up-dated evidence available at the time of surveillance audit (as per the range of evidence described for year 1 above); that the current partial strategy to reduce GOM/GB cod, GOM/GB yellowtail flounder, GB winter flounder, and witch flounder mortality by retained catch of US Acadian redfish/pollock/haddock otter trawl fisheries has been reviewed and corrective adjustments (if any) have been proposed. (Score remains to 70) **By Year 3** **+ 6 months as per the MSC COVID-19 Derogation 27 March 2020** The Assessment Team shall be provided with up-dated evidence available at the time of surveillance audit (as per the range of evidence described for year 1 above); that any revised measures of the partial strategy have been implemented and monitoring activity in place to assess their implementation. (Score remains to 70) **By Year 4** **+ 6 months as per the MSC COVID-19 Derogation 27 March 2020** The Assessment Team shall be provided with up-dated evidence available at the time of surveillance audit (as per the range of evidence described for year 1 above); that the relative fishing mortality for GOM/GB cod, GOM/GB yellowtail flounder, GB winter flounder, and witch flounder from the target fisheries has been maintained at levels that does not hinder their recovery. The Assessment Team shall be provided with enough evidence that SG 80 is met at the end of the year 4. (Score reaches 80)
Consultation on condition	As part of the Client Action Plan the client is relying upon the involvement, funding and/or resources of management and research entities. Consultation on condition was documented with the original action plan. During the full assessment when the conditions were set up, NMFS and the NEFMC were consulted. The client group continues to work closely to those institution involved in reaching the milestones defined in these conditions.
Progress on Condition (Year 3)	As part of the current surveillance, the Assessment Team was to be provided with up-dated evidence (as per the range of evidence described for year 1 above); that any revised measures of the partial strategy have been implemented and monitoring activity in place to assess their implementation. Accordingly, updated stock assessment reports for all the retained species subject of this condition have been published at the end of 2019. A summary of result for each species is summarised below (detailed information available in the background section). **Georges Bank Atlantic cod** **Are there signs of improvement since the 2017 assessment?** Combined commercial and recreational landings and discards have all decreased in 2017 and 2018, the two most recent years (Table 13). Biomass in 2017 and 2018 has shown some increases since previous years and the relative exploitation rate has decreased substantially from 0.29 in 2016 to 0.18 in 2017, and down to 0.12 in 2018 (Table 13, Figure 13). Based on the above, and due to the current monitoring efforts and management measures based primarily on catch limits, the Georges Bank Atlantic cod stock has shown some signs of improvement since the 2017 assessment. **Gulf of Maine Atlantic cod** **Are there signs of improvement since the 2017 assessment?**

Recreational landing and discard of GOM cod have decreased considerably from 2017 and 2018, while commercial catches have been very low in the past 4 years with some increase in the past 3 years. Spawning stock biomass has increased between 2017 and 2018 for both models, while F_{Full} has decreased quite significantly from 2017 to 2018 (Table 14, Figure 14 and 15). Recruitment has shown some increase in the past two years for which data is available (Figure 16). Based on the above, and due to the current monitoring efforts and management measures based primarily on catch limits, the Gulf of Maine Atlantic cod stock has shown some signs of improvement since the 2017 assessment.

Cape Cod-Gulf of Maine yellowtail flounder
Are there signs of improvement since the 2017 assessment?
Commercial catches have decreased in 2018 and the stock is no longer considered overfished and overfishing is not occurring as of 2019, a clear improvement of status since 2017 where the stock was considered overfished and with overfishing occurring. Recruitment in the past 5 years has shown increases since the previous 4 years, with a peak in 2017. Fishing mortality has decreased while biomass has increased in the past two years (Table 15 and Figure 17). Based on the above, and due to the current monitoring efforts and management measures based primarily on catch limits, the Cape Cod-Gulf of Maine yellowtail flounder stock has shown some signs of improvement since the 2017 assessment.

Georges Bank Yellowtail Flounder
Are there signs of improvement since the 2017 assessment?
TACs and catches have decreased in quota year 2017 and 2018. Between 2016 and 2018, only a maximum of 30% of the TAC was taken, and between 2009 and 2018 the TAC was never fully taken in any single year. Some increase in the average survey biomass was recorded in 2019 to similar level as 2017 (Table 16 and 17). There appear to be some slight signs of improvement due to the current monitoring efforts and management measures based primarily on catch limits, considering also that catches have been well below the allowable limits.

GB Winter flounder
Are there signs of improvement since the 2017 assessment?
Fishing mortality was at or slightly below FMSY during 2011-2013, then declined rapidly between and reached the lowest level of the time series in 2017. The 2018 fishing mortality rate (0.145) was only slightly higher (Figure 18).

Overall, the stock is not undergoing overfishing as fishing mortality is below Ftarget (which equals 75% of FMSY). Biomass has decreased below SSBThreshold (which equals 1/2 SSBMSY) due to retrospective error adjustments that revised biomass down. We also note some likely increases in recruitment numbers. Although signs of improvement in biomass are not obvious, the fishery is not undergoing overfishing and it is likely that the target fishery is not hindering recovery of Georges Bank winter flounder because in the past 4 years, catches have been well within ACLs (about 30% within average ACLs in the past 3 years), and fishing mortality (Figure 19) is well below the limit.

GB Witch Flounder
Are there signs of improvement since the 2017 assessment?

	Exploitation rate has decreased in the past two years from 0.028 in 2016 to 0.02 in 2018. Exploitable biomass has shown some increase from 18K tonnes in 2016 to 35K tonnes in 2018. Catches have been within ACL limits for all years between 2015 (Table 18 and Fig. 21) and 2018 (Figure 20) but we also note that uncertainty in the catch has increased due to recent criminal convictions in a case involving catch misreporting. Based on the currently available information and due to the current monitoring efforts and management measures based primarily on catch limits, there appears to be some sign of improvement for this stock. All in all, as explained above, fishing mortality for all these stocks is either at their lowest or decreasing, while catches remain within ACLs. Additionally, stock biomass for some stocks shows slight improvements. These conditions can be said to support the notion that the fishery is not hindering recovery of these stocks. As the assessment team has concluded that the information is enough to be on target the score remains at SG 70 and PI 2.1.1 has not been rescored.
Status	As part of the current surveillance, the assessment team shall be provided with documentary evidence that the fishery complies with the MSC requirements. The scoring guideposts that the fishery failed to meet at the time of initial certification and which ultimately resulted in the application of this condition were SG 80 Scoring issue a and c: ***A) "Main retained species are highly likely to be within biologically based limits (if not, go to scoring issue c below)"*** ***C)" If main retained species are outside the limits there is a partial strategy of demonstrably effective management measures in place such that the fishery does not hinder recovery and rebuilding"*** As explained above, fishing mortality for all these stocks is either at their lowest or decreasing, while catches remain within ACLs. Additionally, stock biomass for some stocks shows slight improvements. These conditions can be said to support the notion that the fishery is not hindering recovery of these stocks. As the assessment team has concluded that the information is enough to be on target the score remains at SG 70 and PI 2.1.1 has not been rescored. This condition is on target due to Year 3 audit being carried out more than 6 months after the initial planning (July 2019).
Additional information	N/A

Table 22. Condition 2.	
Performance Indicator	**2.1.2 – Retained Species Management**
Score	70
Justification	During the full assessment audit, given the information of 2015 stock assessment update (September 2015) and the re-examination of strategies to reduce GOM and GB Cod retained catch, there was no clear evidence at the time, that the mitigation

	measures that act as a partial strategy were demonstrably effective in promoting recovery and rebuilding of GOM and potentially for GB Cod. Further the status for GOM yellowtail flounder, GB Winter flounder and witch flounder were stated as overfished and overfishing was occurring. Status of GB yellowtail flounder was unknown due to changes in stock assessment methodologies. There were no existing reference points. Latest assessment showed the 2014 GB stock biomass as one of the lowest in the time series and their condition was categorized as poor. Thus, at the time partial strategy were not effective in stopping overfishing and promoting recovery for these species and the condition were raised.
Condition	The client must provide evidence that the current partial strategy that has been adopted for GOM and GB cod is demonstrably effective i.e. the fisheries for Acadian redfish, haddock and Pollock do not hinder the recovery and rebuilding of: GOM/GB cod, GOM/GB yellowtail flounder, GB winter flounder, and witch flounder.
Milestones	**By Year 1:** In the first year following grant of certification, the Client Group will work actively with NMFS, and NEFMC to monitor compliance and implementation of the adopted partial strategy, and other (new) measures as may be appropriate, with the aim of being able to demonstrate that this strategy is resulting in sufficiently low fishing mortality such that the fishery does not hinder recovery and rebuilding. Evidence required for this purpose could include the following: - Examination of the status of GOM/GB cod, GOM/GB yellowtail flounder, GB winter flounder, and witch flounder to its' Limit Reference Point (LRP) proxy - For each gear type, fleet sector and management area, (i) data on GOM/GB cod, GOM/GB yellowtail flounder, GB winter flounder bycatch from the pre-assessment averages reported in the initial 2016 fishery assessment up to the data available at the time of surveillance audit, in regards to annual quantities caught/retained and discarded, and associated percentages of US Acadian redfish/Pollock and haddock catch, and (ii) US Acadian redfish/Pollock and haddock trip catch and effort; - Quantified estimates of discard mortality in relation to the RV biomass index for the pre-assessment period and recent years; and - Examination of observer reports relative to the management measures applicable to GOMGOM/GB cod, GOM/GB yellowtail flounder, GB winter flounder i.e. handling, live release, move-away protocol etc.) (Score remains to 70) **By Year 2:** The Assessment Team shall be provided with up-dated evidence available at the time of surveillance audit (as per the range of evidence described for year 1 above); that the current partial strategy to reduce GOM/GB cod, GOM/GB yellowtail flounder, GB winter flounder, and witch flounder mortality by retained catch of US Acadian redfish/pollock/haddock otter trawl fisheries has been reviewed and corrective adjustments (if any) have been proposed. (Score remains to 70) **By Year 3** **+ 6 months as per the MSC COVID-19 Derogation 27 March 2020** The Assessment Team shall be provided with up-dated evidence available at the time of surveillance audit (as per the range of evidence described for year 1 above);

	that any revised measures of the partial strategy have been implemented and monitoring activity in place to assess their implementation. (Score remains to 70) **By Year 4** **+ 6 months as per the MSC COVID-19 Derogation 27 March 2020** The Assessment Team shall be provided with up-dated evidence available at the time of surveillance audit (as per the range of evidence described for year 1 above); that the relative fishing mortality for GOM/GB cod, GOM/GB yellowtail flounder, GB winter flounder, and witch flounder from the target fisheries has been maintained at levels that does not hinder their recovery. The Assessment Team shall be provided with enough evidence that SG 80 is met at the end of the year 4.(Score reaches 80)
Consultation on condition	As part of the Client Action Plan the client is relying upon the involvement, funding and/or resources of management and research entities. Consultation on condition was documented with the original action plan. During the full assessment when the conditions were set up, NMFS and the NEFMC were consulted. The client group continues to work closely to those institution involved in reaching the milestones defined in these conditions.
Progress on Condition (Year 3)	As part of the current surveillance, the Assessment Team was to be provided with up-dated evidence (as per the range of evidence described for year 1 above); that any revised measures of the partial strategy have been implemented and monitoring activity in place to assess their implementation. Accordingly, updated stock assessment reports for all the retained species subject of this condition have been published at the end of 2019. A summary of result for each species is summarised below (detailed information available in the background section). **Georges Bank Atlantic cod** **Are there signs of improvement since the 2017 assessment?** Combined commercial and recreational landings and discards have all decreased in 2017 and 2018, the two most recent years (Table 13). Biomass in 2017 and 2018 has shown some increases since previous years and the relative exploitation rate has decreased substantially from 0.29 in 2016 to 0.18 in 2017, and down to 0.12 in 2018 (Table 13, Figure 13). Based on the above, and due to the current monitoring efforts and management measures based primarily on catch limits, the Georges Bank Atlantic cod stock has shown some signs of improvement since the 2017 assessment. **Gulf of Maine Atlantic cod** **Are there signs of improvement since the 2017 assessment?** Recreational landing and discard of GOM cod have decreased considerably from 2017 and 2018, while commercial catches have been very low in the past 4 years with some increase in the past 3 years. Spawning stock biomass has increased between 2017 and 2018 for both models, while F_{Full} has decreased quite significantly from 2017 to 2018 (Table 14, Figure 14 and 15). Recruitment has shown some increase in the past two years for which data is available (Figure 16). Based on the above, and due to the current monitoring efforts and management measures based

primarily on catch limits, the Gulf of Maine Atlantic cod stock has shown some signs of improvement since the 2017 assessment.

Cape Cod-Gulf of Maine yellowtail flounder
Are there signs of improvement since the 2017 assessment?
Commercial catches have decreased in 2018 and the stock is no longer considered overfished and overfishing is not occurring as of 2019, a clear improvement of status since 2017 where the stock was considered overfished and with overfishing occurring. Recruitment in the past 5 years has shown increases since the previous 4 years, with a peak in 2017. Fishing mortality has decreased while biomass has increased in the past two years (Table 15 and Figure 17). Based on the above, and due to the current monitoring efforts and management measures based primarily on catch limits, the Cape Cod-Gulf of Maine yellowtail flounder stock has shown some signs of improvement since the 2017 assessment.

Georges Bank Yellowtail Flounder
Are there signs of improvement since the 2017 assessment?
TACs and catches have decreased in quota year 2017 and 2018. Between 2016 and 2018, only a maximum of 30% of the TAC was taken, and between 2009 and 2018 the TAC was never fully taken in any single year. Some increase in the average survey biomass was recorded in 2019 to similar level as 2017 (Table 16 and 17). There appear to be some slight signs of improvement due to the current monitoring efforts and management measures based primarily on catch limits, considering also that catches have been well below the allowable limits.

GB Winter flounder
Are there signs of improvement since the 2017 assessment?
Fishing mortality was at or slightly below FMSY during 2011-2013, then declined rapidly between and reached the lowest level of the time series in 2017. The 2018 fishing mortality rate (0.145) was only slightly higher (Figure 18).

Overall, the stock is not undergoing overfishing as fishing mortality is below Ftarget (which equals 75% of FMSY). Biomass has decreased below SSBThreshold (which equals 1/2 SSBMSY) due to retrospective error adjustments that revised biomass down. We also note some likely increases in recruitment numbers. Although signs of improvement in biomass are not obvious, the fishery is not undergoing overfishing and it is likely that the target fishery is not hindering recovery of Georges Bank winter flounder because in the past 4 years, catches have been well within ACLs (about 30% within average ACLs in the past 3 years), and fishing mortality (Figure 19) is well below the limit.

GB Witch Flounder
Are there signs of improvement since the 2017 assessment?

Exploitation rate has decreased in the past two years from 0.028 in 2016 to 0.02 in 2018. Exploitable biomass has shown some increase from 18K tonnes in 2016 to 35K tonnes in 2018. Catches have been within ACL limits for all years between 2015 (Table 18 and Fig. 21) and 2018 (Figure 20) but we also note that uncertainty in the catch has increased due to recent criminal convictions in a case involving catch misreporting. Based on the currently available information and due to the current

monitoring efforts and management measures based primarily on catch limits, there appears to be some sign of improvement for this stock.

Further to the above, we list the updated management measures implemented for some of the stocks in question.

Existing rebuilding plans and relationship to 2019 stock assessment

Population projections for **Georges Bank Atlantic cod** are not computed. Catch advice is derived from applying an estimate of recent change in the smoothed survey biomass to the average of the recent three years of catch and thus is influenced by uncertainty in survey estimates. The smoothed survey biomass is decreasing, but without a biomass reference point it is not known if rebuilding is on schedule for 2026.

Population projections for **Gulf of Maine Atlantic cod** are reasonably well determined, though the projected biomasses from the last assessment did not fall within the confidence bounds of the biomass estimated in the current assessment. Multiple factors likely contributed to this including overestimation of the initial stock size and underestimation of F in the projection bridge year (2017). This stock is not on target to rebuild by 2024.

Population projections for **Cape Cod-Gulf of Maine yellowtail flounder** are uncertain for reasons associated with the retrospective bias in this updated assessment. The 2019 estimates of SSB and yield from this assessment are not well within the bound of values projected in the 2017 operational assessment. The stock is in a rebuilding plan with a rebuilding date of 2023. Based on the 2019 assessment, estimated SSB in 2018 is above SSBThreshold but below the SSBTarget.

Population projections for **Georges Bank yellowtail flounder** are not computed and rebuilding cannot be calculated. Catch advice is derived from applying an exploitation rate to the current estimate of survey biomass.

New or revised rebuilding plans

Framework 58 published in the Federal Register on July 19th 2019[29] revised the rebuilding programs for GB winter flounder and northern windowpane flounder; and creates new rebuilding plans for Southern New England/Mid-Atlantic (SNE/MA) yellowtail flounder, witch flounder and ocean pout. These rebuilding plans can be considered to be the central framework for managing these stocks. Of importance to this UoA we list:

The **GB winter flounder** and SNE/MA yellowtail flounder rebuilding programs approved in FW 58 are expected to rebuild the stocks within 10 years, or by 2029, which is the maximum rebuilding time (Tmax) allowed by the Magnuson Stevens Act. The approved rebuilding plan for GB winter flounder sets the fishing mortality (F) rate that is required to rebuild the stock (Frebuild) at 70 percent of fishing mortality rate associated with maximum sustainable yield (FMSY) with a 77-percent

[29] https://s3.amazonaws.com/nefmc.org/190719-FW-58-Final-Rule.pdf

	probability of achieving the biomass associated with maximum sustainable yield (BMSY). Generally, F is the proportion of the mean population size that is removed in a period of time. FW 58 approved the **witch flounder** rebuilding plan and sets Frebuild as an exploitation rate of 6 percent (or as otherwise determined in a future stock assessment) and Ttarget at 23 years, rebuilding by the end of 2043. Following the milestone for year 3, the new rebuilding plans and the slightly improvements on the retained species stocks mentioned above, there is some evidence that proposed corrective adjustments are having some positive impacts, albeit small for some stocks.
Status	The scoring guideposts that the fishery failed to meet at the time of initial certification and which ultimately resulted in the application of this condition were SG 80 Scoring issue a, b and c: *a) 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.* *b) 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.* *c) There is some evidence that the partial strategy is being implemented successfully.* Using all available information, the audit team has analysed each of these stocks and the fishing pressure on these, to establish primarily if the fishery does not hinder their recovery and rebuilding, by showing that there is some objective evidence that the partial strategy will work based on stock species information and actual implementation of these measures. In terms of evaluating progress in the condition, we note there has been marginal improvement that can be considered part of a successfully partial strategy in place with evidence that the strategy is working. The year 3 milestone required that "any revised measures of the partial strategy has been implemented and monitoring activity in place to assess their implementation". These measures continue to be implemented based on information from the most current assessment and monitoring efforts. The Assessment Team has concluded that the information is sufficient to determine the fishery is on-target for this year, but the score remains at SG 70 and PI 2.1.2 has not been rescored, accordingly. Following the assessment team's determination, the condition remains open and the score of SG 70 is not reviewed at this 3rd Surveillance audit. This condition is on target due to Year 3 audit being carried out more than 6 months after the initial planning (July 2019).
Additional information	N/A

5.3 Client Action Plan

There are no new conditions set up during the 3rd Surveillance audit of 2020, therefore there is no new or updates in the current Client Action Plan.

5.4 Re-scoring Performance Indicators

Conditions are on target in this 3rd surveillance audit and the scores remain unchanged. Therefore, there is no re-scoring PIs due to the limited progress against the condition or due to major changes in the fishery that would affect the initial scoring of the PIs.

6 Appendices

6.1 Evaluation processes and techniques

6.1.1 Site visits

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

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 Conditions of Certification raised during the Expedited Audit.;

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

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 re-assessment and management organizations that comprise the management system and regime for the Scotian Shelf snow crab trap fishery. Emails and information on objectives of the surveillance audit were sent to stakeholders and management agencies.

The site visit for this 3rd surveillance audit was conducted on site in Massachusetts, USA, between February 24th and February 26th, 2020. The Assessment Team spoke to the Client Group representative, to NEFSC, NEFMC and GARFO. The surveillance audit meetings were informed by a pre-determined agenda for each meeting. The agenda was set out 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 consultation meetings.

6.1.2 Stakeholder participation

The Assessment Team visited the following parties and discussed aspects relating to each of these parties' expertise.

Date & time	Organisation	Agenda points discussed
Monday 24th Feb 2020 at 1.00 pm	Northeast Fisheries Science Center (NEFSC), in Wood's Hole, MA Russel Brown, Ph.D., Chief, Population Dynamics Branch	1. The recent operational assessments (Sept 2019) of GB haddock, GOM haddock and pollock stocks were based on updates through 2018. Are there any signals from ongoing 2019 monitoring to indicate any significant departures from stock projections that were done? 2. Results of the Sept 2019 assessments are available in a prepublication (10-3-2019). What is the status of the final report at this time? 3. The last assessment of Acadian redfish was in 2017 based on updates through 2016. Are there any signals from ongoing monitoring through 2019 of any significant departures from stock projections that were done?

	Brian Linton, Ph.D., Research Fishery Biologist, pollock and redfish stock assessment Lizz Brooks, Ph.D., Operations Research Analyst, haddock stock assessment John Whiteside, Attorney, (Client rep.) from the Sustainable Groundfish Association (SGA) Audit Team: Vito Romito, Lead and P2 Jerry Ennis, P1	4. When in 2020 will redfish be assessed? 5. There have been significant sources of uncertainty in assessments of the four stocks under consideration: associated in redfish with lack of age data; in pollock with gear selectivity and a positive retrospective bias; in GOM haddock with reliability of catch data, recruitment forecasting and a negative retrospective bias; and in GB haddock with reliability of catch data, recruitment forecasting and a positive retrospective bias. To what extent have efforts over recent years to address the various sources of uncertainty resulted in a tightening of confidence intervals for population estimates? 6. Benchmark assessments were last done in 2008 (GB haddock and redfish), in 2010 (pollock) and in 2014 (GOM haddock). Are any benchmark assessments for these stocks planned at this time? 7. Stock projections for redfish indicate moderate increases in SSB to 2020 and declines in GB haddock, GOM haddock and pollock to 2022. Quite low Fs in all these stocks suggest that environmental factors are driving changes in SSB – would you comment on this and possibly explain why the redfish stock is increasing and others are declining? 8. Ongoing changes in oceanographic conditions are not incorporated directly into the stock assessment models or considered in stock status reports. An ecosystem status report appended to the 2017 Operational Assessments Report provides a qualitative evaluation for each stock/species of vulnerability and likely response to changes in ecosystem variables. Do stock assessment and ecosystem scientists work collaboratively on this report? Is there a stage in the ACL decision-making process at which this evaluation is presented in a more quantitative fashion? 9. Is the ecosystem status report referenced above the same one published on the NEFSC website? Is this report updated annually? Is it the same one published on the NEFMC website as the State of the Ecosystem Report? 10. Status of GOM/GB cod, GOM/GB yellowtail flounder, GB winter flounder, and witch flounder biomass relative to reference points in the latest 2019 stock assessment /TRAC reports; 11. Status of GOM/GB cod, GOM/GB yellowtail flounder, GB winter flounder, and witch flounder fishing mortality relative to reference points in the latest 2019 stock assessment /TRAC reports; 12. Is there evidence that the recovery of these species in not being hindered by the US Acadian Redfish, Haddock and Pollock otter trawl target fisheries under assessment here? 13. Discuss changes/status of OFL (Overfishing limit) proposed over the years (from 2017 to 2019) for the species in question? Can an increase in the OFL be seen as a biomass improvement? 14. Plans for future stock assessment updates? 15. GOM/GB cod, GOM/GB yellowtail flounder, GB winter flounder and witch flounder annual quantities caught/retained and discarded, relative to US Acadian redfish/Pollock and haddock catches. 16. Observer reports or other information related to the management measures applicable to GOM/GB cod, GOM/GB yellowtail flounder, GB winter flounder and witch flounder in terms of handling, live releases, move-away protocols etc. 17. Observer Coverage: number of observed fishing trips vs. number of total fishing trips. Are managers satisfied with the observer coverage rate? Any significant changes in the past 12 months in terms of coverage rate? Estimates of discards on unobserved trips derived from discards rates on observe trips are likely to be an underestimated reflection of actual discards. What's the estimated repercussion on the estimation of discards for depleted species mentioned above? 18. Retained species in the fishery, any significant changes in the past 12 months? 19. Bycatch species in the fishery. Any significant changes or updates in discarded bycatch amounts/species in the past 12 months? 20. Any newly listed Endangered Species Act (ESA) and/or the Marine Mammal Protection Act (MMPA) species in the area under assessment? 21. ETP species and relationship with Units of Certification (UoCs). Are there new publications/reports on the UoCs interaction with ESA/MMPA listed species? Has any notable change occurred in the past 12 months (e.g. interaction with whales, sea turtles, seals, Atlantic sturgeon) with the otter trawl fishery in question?

		22. Are there new publications/reports on the UoCs interaction with other important species in the ecosystem, as it relates to foodwebs and the integrity of ecosystem structure and processes? 23. Were any changes made to the (a) long-term objectives, and (b) fishery-specific objectives of relevance to the redfish, haddock and pollock fisheries? If so, please identify the changes.
Tuesday 25th Feb 2020	John Whiteside, Attorney, (Client rep.) from the Sustainable Groundfish Association (SGA) at 8.30 am in Dartmouth, MA Audit Team: Vito Romito, Lead and P2 Jerry Ennis, P1	1. Notable US Acadian Redfish, Haddock and Pollock otter trawl fishery updates from the past 12 months (day to day operations, legislation/ regulations, improvements, issues, etc…) 2. Discuss evidence package in support of the Year 3 milestones for both conditions (PI 2.1.1 and PI 2.1.2 Retained Species Outcome and Management) and specifically discuss that the revised measures of the partial strategy have been implemented and monitoring activity is in place to assess their implementation. 3. Discuss evidence that the client group has been working actively with the management agencies to reach the current milestone of condition 1 and 2. 4. Discuss any new developments or changes to the traceability component of the certification report? 5. Discuss any new developments or changes to the certificate sharing arrangement?
Tuesday 25th Feb 2020	New England Fishery Management Council (NEFMC) in Newburyport, MA Tom Nies, Exec. Director Audit Team: Vito Romito, Lead and P2 Jerry Ennis, P1	6. Significant regulatory or policy changes that impact how these fisheries are managed across the Units of Certification in the past 12 months? If so, discuss changes and likely impacts. 7. Management Strategy Evaluation updates for any of the groundfish fisheries in the region (e.g. herring given its importance as prey species)? 8. Ecosystem-Based Fishery Management Strategy Review underway for the region. Updates? 9. Have there been any changes in the otter trawl gear specifications? 10. A broad-scale Ecosystem-Based Fishery Management Strategy Review for GB has been underway for some time. Perusal of the draft example Fishery Ecosystem Plan (eFEP) for GB, as well as recommendations and advice from the EBFM MSE Steering Committee from December 2019, indicate a fair bit of time yet before implementation. In the meantime, how are changing oceanographic conditions factored into decision making? 11. Framework 58 and revised rebuilding plans for flounder stocks. Performance and updates? 12. Draft Amendment 23 contains four alternatives for at-sea monitoring coverage rates for groundfish sectors: 25%, 50%, 75%, and 100%. Here, the Council selected 100% coverage as its preferred alternative in order to solicit the broadest range of public comment possible and get a sense from industry of the maximum costs associated with this action. What are the expected timelines for potential adoption of alternative coverage rates? 13. Projected benefits and challenges to adoption in requiring commercial fishermen to submit vessel trip reports (VTRs) electronically as eVTRs instead of on paper for all species managed by both Councils? 14. Were any industry/stakeholder consultations held to present/discuss new information of relevance to these fisheries? 15. An estimated 58,298 mt (128,526,054 lb) of federally regulated species were discarded in the northeastern US fisheries during the July 2017 through June 2018 time period. The predominant species groups discarded were skates (Rajidae) and sea scallop (Placopecten magellanicus). Across all species groups examined, “no market” was the reason reported for the majority of discards. Have there been considerations to improve the issue through market means (e.g. create a market for such species) or other ways to improve on utilisation of catches? 16. Omnibus Deep-Sea Coral Amendment. Implementation timelines and how it would affect the fisheries under assessment (e.g. through closures, or other). 17. State of the Ecosystem reports, how do the findings get integrated in the management process?
Wednesday 26th 2020	NOAA Fisheries Greater Atlantic Regional Fisheries Office (GARFO) at 10.30 am	1. Have there been any significant/obvious statutory/regulatory or policy changes that impact how these fisheries are managed? If so, discuss changes and impacts 2. Were any changes made to the (a) long-term objectives, and (b) fishery-specific objectives of relevance to these fisheries? Framework 58 and revised rebuilding plans. Implementation and updates as of 2019/2020?

	Spencer Talmage, Fisheries Management Specialist GARFO Mark Grant, Fisheries Policy Analyst GARFO Daniel D'Ambrosio, Special Agent, NOAA OLE John Whiteside, Attorney, (Client rep.) Sustainable Groundfish Association (SGA) Audit Team: Vito Romito, Lead and P2 Jerry Ennis, P1	3. Have there been any changes to the governance systems of the operational/administrative bodies (e.g. committees, task/working groups) for these fisheries? 4. Have there been changes to GOM/GB cod, GOM/GB yellowtail flounder, GB winter flounder and witch flounder in terms of handling, live releases, move-away protocols etc. 5. Difference in the number in overfished stock in 2008 vs 2018 the number has decreased. Where would we find those tables? 6. Have there been recent letter sent to the Council that rebuilding for GOM/GB cod, GOM/GB yellowtail flounder, GB winter flounder and witch flounder may be too slow and to urge further measures? 7. Conservation Law Foundation (CLF) petition on rebuilding timeframes. 8. Ecosystem-Based Fishery Management Strategy Review underway for the region. Updates? 9. Any newly listed Endangered Species Act (ESA) and/or the Marine Mammal Protection Act (MMPA) species in the area under assessment? 10. ETP species and relationship with Units of Certification (UoCs). Are there new publications/reports on the UoCs interaction with ESA/MMPA listed species? Has any notable change occurred in the past 12 months (e.g. interaction with whales, sea turtles, seals, Atlantic sturgeon) with the otter trawl fishery in question? 11. Projected benefits and challenges to adoption in requiring commercial fishermen to submit vessel trip reports (VTRs) electronically as eVTRs instead of on paper for all species managed by NEFMC and MAFMC? The learning curve will likely be steep, what kind of training will be offered to fishermen? Any likely resistance to adoption? 12. Would it be possible to get an updated table for the most recent years (as shown below) to evaluate overall ACL, catches, discards for stocks that are currently the subject of conditions to certification in this assessment? 13. Were any changes made to the management system's consultation and decision-making processes? 14. Omnibus Deep-Sea Coral Amendment. Implementation timelines and how it would affect the fisheries under assessment. 15. Were any industry/stakeholder consultations held to present/discuss new information of relevance to these fisheries? 16. Have there been any changes to personnel (Management and Policy) of direct relevance to these fisheries? If so, please identify names and titles. 17. Were any reports produced that served to monitor and evaluate the performance of the major components of these fisheries (e.g. management plan, compliance and enforcement, research, stakeholder engagement, external reviews)? 18. Overall enforcement performance (violations and compliance rate) for the fisheries in question in the past 12 months.
Wednesday 26th 2020	John Whiteside, Attorney, (Client rep.) Sustainable Groundfish Association (SGA) Audit Team: Vito Romito, Lead and P2 Jerry Ennis, P1	1. Closing meeting 2. Preliminary findings 3. Timelines for completion 4. Follow up and additional information 5. AOB

6.2 Stakeholder input

The Assessment Team did not receive any stakeholder submission during the audit process.

6.3 Revised surveillance program

Although surveillance level and program have not changed since the previous surveillance, the timing of the next audit has changed due to the 6-month certificate extension resulting from the MSC COVID-19 derogation of the 27th of March 2020.

Table 23. Fishery surveillance program.

Surveillance level	Year 1	Year 2	Year 3	Year 4
Level 5	On-site surveillance audit	Off-site surveillance audit	On-site surveillance audit	On-site surveillance audit and re-assessment

Table 24. Timing of surveillance audit.

Year	Anniversary date of certificate	Proposed date of surveillance audit	Rationale
3	5th July 2019	24th-26th February 2020	The first surveillance audit was carried out 1 year later than the certificate anniversary date due to the fact that the client had not allowed SAIG to conduct the surveillance audit within the required timeframe and due to delays, the certificate was suspended. In order to put the fishery back on track, the 2nd surveillance audit was proposed in March 2019. The 3rd surveillance audit was announced in January 2020 and conducting in February 2020 following the certificate holders' agreement to allow SAI global carrying out the audit confirmed in December 2019. Due to the COVID-19 derogation of the 27th of March 2020 and with the certificate expiring now on January 4th, 2022, the 4th anniversary date of the certificate is January 4th, 2021. Therefore, the 4th surveillance audit can be conducted 6 months earlier (July 2020) or later (July 2021) than the certificate anniversary date.

Table 25. Surveillance level rationale.

Year	Surveillance activity	Number of auditors	Rationale
3	On site audit	3 auditors on site	The program of surveillance was set up at level 5, therefore the 3rd surveillance audit should be a site visit.

6.4 Harmonised fishery assessments

Table 26. Overlapping fisheries

Fishery name	Certification status and date	Performance Indicators to harmonise
US Gulf of Maine and Georges Bank haddock, pollock and redfish trawl	Lloyd's Certified V2.0, 1st Surveillance published on 21 Aug 2019.	P1, P2 (2.3.1-2.3.3) and P3 (3.1.1-3.1.2 and 3.1.4- only for V1.3 fisheries)
US Atlantic spiny dogfish	SCS Global, Re-Certified V1.3, May 28th, 2018. 1st Surveillance report published 13 Nov 2019	P2 and P3 (3.1.1-3.1.2 and 3.1.4- only for V1.3 fisheries)
US Atlantic Scallop	SCS Global, Re-Certified, V1.3, Oct 11th, 2018.	P3 (3.1.1-3.1.2 and 3.1.4- only for V1.3 fisheries)
US Atlantic Surfclam and Ocean Quahog	SCS Global, Certified V1.3 December 15th, 2016. 3rd Surveillance published 04 Feb 2020.	P3 (3.1.1-3.1.2 and 3.1.4- only for V1.3 fisheries)
US Atlantic Longfin Inshore Squid Bottom Trawl	SCS Global, Certified V2.0 May 18th, 2018. 1st Surveillance published 23 Sep 2019.	P2 (2.3.1-2.3.3) and P3 (3.1.1-3.1.2 and 3.1.4- only for V1.3 fisheries)

Table 27. Overlapping fisheries.

Supporting information	
The information to harmonize the overlapping fisheries has been collected consulting the recent reports posted on the MSC website. No meetings have been necessary during the review of the information by the Assessment Team during the 3rd surveillance.	
Was either FCP v2.1 Annex PB1.3.3.4 or PB1.3.4.5 applied when harmonising?	**No**
Date of harmonisation meeting	**No meetings were held during the Surveillance audit**
If applicable, describe the meeting outcome	
NA	

Table 28. Scoring differences.

Performance Indicators (PIs)	US Gulf of Maine and Georges Bank haddock,	US Atlantic spiny dogfish	US Atlantic Scallop	US Atlantic Surfclam and Ocean	US Atlantic Longfin Inshore	US Acadian redfish, haddock

	pollock and redfish trawl			Quahog	Squid Bottom Trawl	and Pollock otter trawl
PI 1.1.1	**100**					**100**
PI 1.2.1	**95**					**95**
PI 1.2.2	**95**					**95**
PI 1.2.3	**90**					**95**
PI 1.2.4	**100**					**100**
PI 2.1.1		**80**				**70**
PI 2.1.2		**90**				**70**
PI 2.1.3		**80**				**95**
PI 2.2.1		**80**				**95**
PI2.2.2		**90**				**95**
PI 2.2.3		**80**				**95**
PI 2.3.1	**90**	**75**			**85**	**90**
PI 2.3.2	**90**	**85**			**75**	**90**
PI 2.3.3	**80**	**80**			**80**	**80**
PI 2.4.1	**80**	**80**			**80**	**80**
PI 2.4.2	**85**	**80**			**75**	**85**
PI 2.4.3	**95**	**80**			**80**	**95**
PI 2.5.1	**80**	**80**			**80**	**80**
PI 2.5.2	**80**	**80**			**85**	**80**
PI 2.5.3	**80**	**85**			**90**	**80**
PI 3.1.1	**100**	**100**	**95**	**100**	**100**	**95**
PI 3.1.2	**100**	**100**	**100**	**100**	**100**	**100**
PI 3.1.3	**100**	**100**	**100**	**100**	**100**	**100**
PI 3.1.4	**NA**	**100**	**100**	**NA**	**NA**	**100**

Table 29. Rationale for scoring differences
If applicable, explain and justify any difference in scoring and rationale for the relevant Performance Indicators (FCP v2.1 Annex PB1.3.6)
P2 PIs are harmonised in some fisheries, some of the overlapping fisheries (US Gulf of Maine and Georges Bank haddock, pollock and redfish trawl and US Atlantic Longfin Inshore Squid Bottom Trawl) have been evaluated against V2.0 of the MSC standard and it is not possible to harmonize the PI of primary and secondary species as different version of the standard (V1.3) has been used for the SAIG fishery and the classification of the species is completely different. Therefore, the scope of minor and main species is different, and the harmonization is not feasible. The US Atlantic spiny dogfish retained and bycatch species

profile is different from the UoA in question because there are multiple gears in their unit of assessment while only bottom trawl in this fishery. Furthermore, US Atlantic spiny dogfish condition on 2.3.1 refers to gillnet gear, which is not part of the UoA in question here. Also, the condition of the US Atlantic spiny dogfish condition on PI 2.4.2. is quite specific to longfin squid EHF as well as involving management by the Mid Atlantic Fisheries Management Council, which is different from the Council that manages the UoA in question here. Minor differences in ETP species have been identified due to the different operation methodologies of the gear types and the fisheries in fact. Slight differences in habitats have been the result of differences attributed to scale of impact of fishery or the use of different versions of the standard. Ecosystems PIs have been largely consistent among the overlapping fisheries. P3 PIs are very similar in all the fisheries, slightly differences can be found in 3.1.1 because some of the fisheries have given the management system a score of 80 for “Legal Rights.” Other fisheries have evaluated 100 on all the SG for PI 3.1.1 because they considered the management stronger and it considered that management plans constitute a formal commitment while other fisheries scoring 95 consider that as a mechanism to observe the legal rights. However, the difference in the overall score is from 95 to 100 and it does not represent a relevant issue among fisheries.
If exceptional circumstances apply, outline the situation and whether there is agreement between or among teams on this determination
N/A

7 Template information and copyright

This document was drafted using the 'MSC Surveillance Reporting Template v2.01'. Note amendments have been made to formatting in order to comply with SAI Global's corporate identity; however, content and structure follow that of the original template.

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A controlled document list of MSC program documents is available on the MSC website (msc.org)

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