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Catch levels for the scoping of the ecosystem sustainability of catches in 2026-2027

by

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Abstract

The Roadmap is the framework that NAFO is implementing to deliver an ecosystem approach for the management of NAFO fisheries and ecosystems. One element of the Roadmap is the evaluation of the ecosystem sustainability of catches. This involves the comparison of total catches by functional guild at the ecosystem level, with a corresponding Ecosystem Reference Point. The reference point has been defined as twice the Total Catch Index (2TCI), above which total catches are associated with a high risk of ecosystem overfishing. To use this analysis to inform incoming management decisions on harvesting levels, it is necessary to evaluate how the total future catches would compare with 2TCI, if the scientific advice provided were to be followed. This scoping exercise requires approximating what the incoming catches would be expected to be under already approved quotas for the current year (i.e. ongoing fishing at the time of analysis), and under the maximum catches that are consistent with approved quotas for the following year (i.e. fisheries with multi-year advice) or the scientific advice being provided for decisions on the following year fisheries. This analysis summarizes the procedure used and the results obtained for approximating the 2026 and 2027 catches in the Grand Bank (3LNO) and Flemish Cap (3M) Ecosystem Production Units (EPUs) based on recent catches, already approved fishing quotas by NAFO and coastal states, and the NAFO Scientific Council (SC) advice provided in 2026.

Introduction

The Roadmap is the framework that NAFO is implementing to deliver an ecosystem approach for the management of NAFO fisheries and ecosystems (Koen-Alonso et al., 2019). Within the Roadmap, sustainability of fisheries catches is achieved through a nested series of assessment aimed at evaluating sustainability at different levels of ecological organization. Within these assessments, Tier 1 is focused at sustainability at the ecosystem level, Tier 2 is focused on sustainability at the multispecies level (e.g. species interactions), and Tier 3 is focused on sustainability at the stock level (i.e. traditional stock-assessment) (Koen-Alonso et al., 2019).

The current implementation of Tier 1 includes two distinct elements, a) the evaluation of the sustainability of total catches by functional guild at the Ecosystem Production Unit (EPU) spatial scale, and b) the production of Ecosystem Summary Sheets (ESSs) to provide a synoptic view on the ecological state of EPU and the general performance of the management measures within the ecosystem unit (NAFO, 2022b; NAFO, 2023; Koen-Alonso, 2025).

The evaluation of the ecological sustainability of total catches relies on comparing the total catch by functional guild with the corresponding Ecosystem Reference Point adopted by NAFO and defined as twice the estimated Total Catch Index (2TCI) (Koen-Alonso et al., 2022; NAFO, 2022a; NAFO, 2022b). Total catches above this Ecosystem Reference Point correspond to a high risk of Ecosystem Overfishing (Koen-Alonso et al., 2022; NAFO, 2022b).

Informing on the likely risk of ecosystem overfishing of upcoming Total Allowable Catch (TAC) decisions by the NAFO Commission requires integrating the existing TAC decisions with the SC advice being provided to support those upcoming decisions into forward looking analyses of the ecosystem sustainability of catches. Conducting these analyses requires information on the expected total catches for the upcoming years under the already existing and soon to be made TAC decisions.

While predicting future catches and resulting Catch/TCI Ratios is not straightforward, it is possible to provide a simple scoping of these catches. This is done based on standing TAC decisions, levels and distribution of catch in the most recent years, and assuming that incoming management decisions will follow the SC stock advice. This scoping would constitute a simple approximation to the order of magnitude of the current and near future catches, and can be used to provide reasonable values for the expected catch levels against the 2TCI Ecosystem Reference Point. This approach has been followed since 2024 (Koen-Alonso and Munro, 2024; Koen-Alonso and Munro, 2025).

The objective of this document is to summarize the process used to develop the approximation of catches to be used by NAFO Scientific Council (SC) for the scoping of the ecosystem sustainability of catches in 2025-2026 for the Grand Bank (3LNO) and Flemish Cap (3M) EPUs.

Material and Methods

The approximation of catches followed the general protocol adopted by Scientific Council (SC) for producing this scoping of catches (Table 1) (NAFO, 2024b). This protocol was adopted by SC.

Table 1. Schematic considerations for the compilation of catch information and their use for a scoping exercise done in year t for catch levels expected in year t (current year) and t+1 (year to come).

1. Stocks assessed by SC:
    a. Catch: current TAC (or recent maximum catch if deemed appropriate) for year t, and maximum catch advice recommended by SC for year t+1, noting that this catch advice needs to be done solely considering the stock assessment and without influence by TCI information.
    b. Stock area: if the stock area expands beyond the EPU, the catch should be allocated to the EPU based on the fraction of the total catch for the stock that was taken in the EPU in the year t-1 (the latest full year for which information is available).
2. Stocks without assessment or catch advice:
    a. Catch: Level observed in the EPU in year t-1 (the latest full year for which information is available).
    b. Stock area: not applicable.
3. Stocks assessed by Coastal State:
    a. Catch: Current quota decision (or recent maximum catch if deemed appropriate) for year t, and maximum catch advice from the relevant authority for year t+1. If only the quota decision for year t is available, the quota decision should be assumed for year t+1. If the quota decision for year t and the catch advice for year t+1 are not available at the time of the scoping exercise, the level of catch observed in the EPU in year t-1 should be used instead.
    b. Stock area: if the stock area expands beyond the EPU, the catch should be allocated to the EPU based on the fraction of the total catch for the stock that was taken in the EPU in the year t-1 (the latest full year for which information is available). If the quota decision for year t and catch advice for year t+1 are not available at the time of the scoping exercise, the use of level of catch observed in the EPU in year t-1 makes stock area scaling unnecessary.

In 2024 NAFO adopted a new Precautionary Approach (PA) framework, which includes the provision of a range of catch options when the stock is assessed to be in the Cautious or Healthy zones (NAFO, 2024a; NAFO, 2025). As the new PA gets gradually implemented across NAFO-managed stocks, the maximum catch advice recommended by SC (Table 1) to be used in the scoping exercise would increasingly correspond to the upper end of the range when the stock is in the Cautious zone, and the target fishing mortality when the stock is in the Healthy zone. In those cases where the PA cannot be fully applied, but where SC still provides a range of recommended catch levels, the highest value will be used for the scoping exercise as indicated in Table 1. For those stocks managed using Management Strategy Evaluation (MSE), the maximum catch advice would correspond to the values produced by the corresponding management procedure (MP).

Information of catches and NAFO quotas was obtained from the NAFO Secretariat and includes a compilation and curation of the best available information at the time of analysis, including STATLAN21A database (https://www.nafo.int/Data/STATLANT-21A), and catch estimates produced by the NAFO Joint Commission-Scientific Council Catch Estimation Strategy Advisory Group (CESAG). Data on quotas for Canadian-managed stocks were obtained from publicly available information in the Fisheries and Oceans Canada (DFO) website (https://www.dfo-mpo.gc.ca/fisheries-peches/decisions/index-eng.html#decisions and links within).

Results

The results from the approximation of the 2026 and 2027 catches for the scoping exercise on the ecological sustainability of catches is provided in Table 2.

Table 2. Catch for 2025, fishing quotas information for 2026-2027, and approximated catches for 2025 and 2026 for the scoping of the ecosystem sustainability of catches in the Grand Bank (3LNO) and Flemish Cap (3M) Ecosystem Production Units. All catches are in t. NDF indicates "No Directed Fishing". Some managed and non-managed stocks may be grouped under "Others" if their catches in recent years have been low.

	Catch (t)	Approximated Catch (t)		Total Allowable Catch (TAC) or Quota (t)			
	2025	2026	2027	2025	2026	2027	Notes
Grand Bank (3LNO) EPU							
American plaice	574	574	574	NDF	NDF		No full assessment could be conducted due to the need of a benchmark process for this stock. This stock is under moratorium. The catch in 2025 was used to scope catches in 2026-2027.
Atlantic halibut	1069	1069	1069				The catch in 2025 was used to scope catches in 2026-2027.
Atlantic herring	5892	9485	9485	9485	9485		DFO TACs for 2025-2026 for Herring management stocks in 3LNO: Bonavista Bay/Trinity Bay (6290t), Conception Bay/Southern Shore (945t), St. Mary's Bay/Placentia Bay (2250t). These TACs were used to scope 2027.

Capelin	8432	8407	8407	14533			The 2026 DFO TAC for 2J3KLPs Capelin has not been announced, but the 2025 TAC was set as 14533t, with 8399t allocated to 3L. The 2025 CSAG catch estimates for Capelin in 3NO were 8.36t. Capelin catches for 2026-2027 were scoped using the 2025 DFO TAC allocation for 3L plus the 2025 CSAG estimates for 3NO.
Cod	10021	13872	13872	40000			DFO 2J3KL TAC for 2025 (38000t for domestic fisheries, representing 95% of the full TAC), with 2025 CSAG catch estimates in 3NO of 354t (by-catch). The 3NO Cod stock is under moratorium, and no full assessment could be conducted due to the need of a benchmark process for this stock. The fraction of the catches in 3L (0.34) based on the 2025 2J3KL catches applied to the 2025 2J3KL TAC, plus the 2025 3NO catch, were used to scope the 2026-2027 catches. The 2026 DFO 2J3KL TAC has not been announced at the moment of this analysis.
Greenland halibut	7382	8186	7976	10960	10914	10634	The fraction of the 2025 3LMNO catch caught in 3LNO (0.75) was used to scope the 2026 catch based on 2026 3LMNO TAC. This same fraction was used to scope the 2027 catch based on the SC advice for 2027 for 2+3KLMNO (14351t). The NAFO TAC for 3LMNO is defined as 0.741 of the TAC for 2+3KLMNO.
Haddock	179	179	179				The catch in 2025 was used to scope catches in 2026-2027.
Lobster	395	395	395				The catch in 2025 was used to scope catches in 2026-2027.
Mackerel	0	0	0				The catch in 2025 was used to scope catches in 2026-2027.
Other	2990	2990	2990				The catch in 2025 was used to scope catches in 2026-2027.
Redfish	8998	14000	20131	26000	12000		The scoping for 2026 was based on the TACs for 2026 which were 6000t for the 3LN stock and 8000t for the 3O stock. The scoping for 2027 was done assuming the 2026 TAC for 3O and the 2026 SC advice for 3LN (12131t).
Scallop	7	7	7				The catch in 2025 was used to scope catches in 2026-2027.

Shrimp	7	7	7	NDF	NDF		The management stocks for Northern shrimp were updated in 2025, with 3LNO (Shrimp Fishing Area 7 -SFA7-) being integrated with 2J3K into the South Stock Assessment Region (SSAR). NAFO has maintained its moratorium on the SFA7 area (the moratorium applies to fisheries in international waters) for 2026, and Canada has yet to announce its 2026 management decision for domestic waters in this area. The scoping for 2026-2027 was done assuming the 2025 catches.
Silver hake	5034	5034	5034				The catch in 2025 was used to scope catches in 2026-2027. Catches of this species have shown noticeable increases in this EPU in the 2020s.
Snow crab	45280	47141	47141	45333	47141		DFO 3LNO TAC for 2026 (47141t) was used for scoping catches in 2026-2027.
Squid	20	20	20	34000	34000		This stock is to be assessed at the 2026 September SC meeting during the NAFO Annual meeting. The TAC for Areas 3+4 in 2026 is set at 34000t. Catches have been well below the TAC for a number of years. The catch in 2025 was used to scope catches in 2026-2027.
Surf clam	13665	14756	14756	14756	0		DFO 3LNO TAC for 2025 (14756t) was used for scoping catches in 2026-2027. The 2026 TAC has not been announced.
Thorny skate	2945	4500	4500	7000	7000		No full assessment could be conducted due to the lack of Designated Expert, so there is no new SC advice for this stock. The 2026 TAC is 7000t, but this TAC is rarely caught. Therefore, the 4500t catch decision point from Footnote 10 in NAFO Quota Table for 2026 was used to scope catches for 2026-2027.
White hake	687	1000	1000	1000	1000		No full assessment could be conducted due to the lack of Designated Expert, so there is no new SC advice for this stock. The 2026 TAC for the 3NO area was used to scope the catches for 2026-2027.

Witch flounder	270	1481	667	1395	1461		The 2J3KL stock is under moratorium. The TACs for the 3NO stock for 2026 is 1461t. The 3L CSAG catch estimate for 2025 is 20t. The caches for 3LNO were scoped as the 2026 3NO TAC plus the 2025 3L CSAG catch estimate for 2026, and the 2026 SC Advice for 2027 (647t) plus the 2025 3L CSAG catch estimate for 2027.
Wolffish	67	67	67	0	0		The catch in 2025 was used to scope catches in 2026-2027.
Yellowtail flounder	3646	24290	22000	15810	24290	22000	The TACs for 2026 and 2027 were used to scope catches for 2026-2027.
Flemish Cap (3M) EPU							
American plaice	371	371	371	NDF	NDF		This stock is under moratorium and the 2026 SC Advice supports maintaining this management decision. The catch in 2025 was used to scope catches in 2026-2027.
Atlantic halibut	196	196	196				The catch in 2025 was used to scope catches in 2026-2027.
Cod	12485	15360	12452	12613	15360		The 2026 TAC (15360t) and the 2026 SC advice for 2027 of 12452t, based on the upper edge of the leaf of the NAFO PA, were used to scope the 2026-2027 catches.
Greenland halibut	2458	2729	2659	10960	10914	10634	The fraction of the 2025 3LMNO catch caught in 3M (0.25) was used to scope the 2026 catch based on 2026 3LMNO TAC. This same fraction was used to scope the 2027 catch based on the SC advice for 2027 for 2+3KLMNO (14351t). The NAFO TAC for 3LMNO is defined as 0.741 of the TAC for 2+3KLMNO.
Other	275	275	275				The catch in 2025 was used to scope catches in 2026-2027.
Redfish	10410	15636	15636	17503	15636		Due to unforeseen operational circumstances the assessment was deferred to the 2026 September SC meeting that occurs as part of the NAFO Annual meeting. The 2026 TAC (15636t) was assumed for 2027 for the purpose of scoping catches for 2026-2027.
Shrimp	0	0	0	NDF	NDF		The 3M shrimp stock is under moratorium. The catch in 2025 was used to scope the catches for 2026-2027.

Squid	0	0	0	34000	34000		This stock is to be assessed at the 2026 September SC meeting during the NAFO Annual meeting. The TAC for Areas 3+4 in 2026 is set at 34000t. Catches have been well below the TAC for a number of years. The catch in 2025 was used to scope catches in 2026-2027.
Thorny skate	48	48	48				The catch in 2025 was used to scope catches in 2026-2027.
Witch flounder	234	234	234				The catch in 2025 was used to scope catches in 2026-2027.
Wolffish	161	161	161				The catch in 2025 was used to scope catches in 2026-2027.
Yellowtail flounder	0	0	0				The catch in 2025 was used to scope catches in 2026-2027.

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