



SCOTIAN SHELF AND SOUTHERN GRAND BANKS ATLANTIC HALIBUT (*HIPPOGLOSSUS HIPPOGLOSSUS*) STOCK STATUS UPDATE IN 2025

CONTEXT

Fisheries and Oceans Canada (DFO) Resource Management (RM) has requested Science advice on the status of the Scotian Shelf and southern Grand Banks (NAFO Divisions 3NOPs4VWX5Zc) Atlantic Halibut (*Hippoglossus hippoglossus*) stock based on the articulated harvest decision rule adopted at the Scotia-Fundy Groundfish Advisory Committee (SFGAC) meeting in March 2022. This Science Response Report results from the regional peer review of December 2-3, 2025, on the Stock Status Update for Atlantic Halibut in NAFO Divisions 3NOPs4VWX5Zc.

SCIENCE ADVICE

Status

- The 2025 three-year mean exploitable biomass index (51.1 kt) from the stratified random Industry-DFO Halibut Longline Survey is above the upper stock reference (USR) with a very high probability of being in the healthy zone.

Trends

- Inter-annual changes in the index of exploitable biomass and the three-year mean have remained relatively stable through the time series with a small decrease in 2025 from the previous year.
- Atlantic Halibut abundance in 2025 from the DFO Maritimes Summer Ecosystem Research Vessel Survey was the lowest value since 2020, although it remains well above the long-term mean. The trend in abundance appears similar to what was seen during the peak and decline in the 2010s.

Ecosystem and Climate Change Considerations

- Ecosystem and climate change considerations were taken into account in the most recent assessment framework review and were not further updated or reviewed during this interim-year update.

Stock Advice

- The three-year mean exploitable biomass of 51.1 kt corresponds to removals of 5,064 t under the harvest decision rule (HDR) for this stock.
- Removals of 5,064 t is within the maximum annual change of 15% from the 2025-2026 total allowable catch (TAC). It is 85 t (1.7%) less than last year's TAC.

BASIS FOR ASSESSMENT

Assessment Details

Year Assessment Approach was Approved:

2022 (DFO 2024; Johnson et al. 2024, Li et al. 2025)

Assessment Type:

Interim Year Update

Most Recent Assessment Date

1. Last Full Assessment: March 2022 (DFO 2024, Johnson et al. 2024, Li et al. 2025)
2. Last Interim Year Update: December 2024 (DFO 2025)

Assessment Approach

1. Broad category: index-based (trends in empirical indices only), single stock assessment model, management strategy evaluation (MSE)-lite
2. Specific category: Statistical catch-at-length; index-based (including fishery-dependent and fishery-independent indices)

A new assessment framework was adopted in 2022. This framework used a catch-at-length model with sex and age structure to assess the stock status and provide maximum sustainable yield (MSY) based reference points. The performance of a suite of HDRs were assessed through closed loop simulation (MSE-lite).

Stock Structure Assumption

In 1987, Atlantic Halibut in Canadian waters were separated into two management units, 4RST and 3NOPs4VWX5Zc, based primarily on conventional tagging (Li et al. 2025). The Scotian Shelf and southern Grand Banks stock (NAFO Divisions 3NOPs4VWX5Zc) is managed as a single stock with a single set of reference points.

Reference Points

- Limit reference point (LRP): 10.9 kt (0.4BMSY; DFO 2024).
- Upper stock reference (USR): 21.8kt (0.8 BMSY; DFO 2024).
- Removal reference (RR): NA

Harvest Decision Rule

The HDR has two steps. First, a fishing mortality rate (F) is applied to the exploitable biomass (B) estimated from the three-year mean of the stratified random Industry-DFO Halibut Longline Survey to calculate total allowable catch (TAC) advice. The articulated HDR includes three control points, the LRP, USR, and $1.2 B_{MSY}$. Below the LRP, F is capped at 0.05 and above the USR it is relative to F_{MSY} (i.e., $F = 0.8 F_{MSY}$ when $B = 0.8 B_{MSY}$) up to the third control point ($1.2 B_{MSY}$), above which it is capped at $1.2 F_{MSY}$. Second, the percentage change from the previous year's TAC is limited by the sliding inter-annual TAC change threshold, where the limit of change ranges from 15% at the USR to 100% at the LRP (Figure 1).

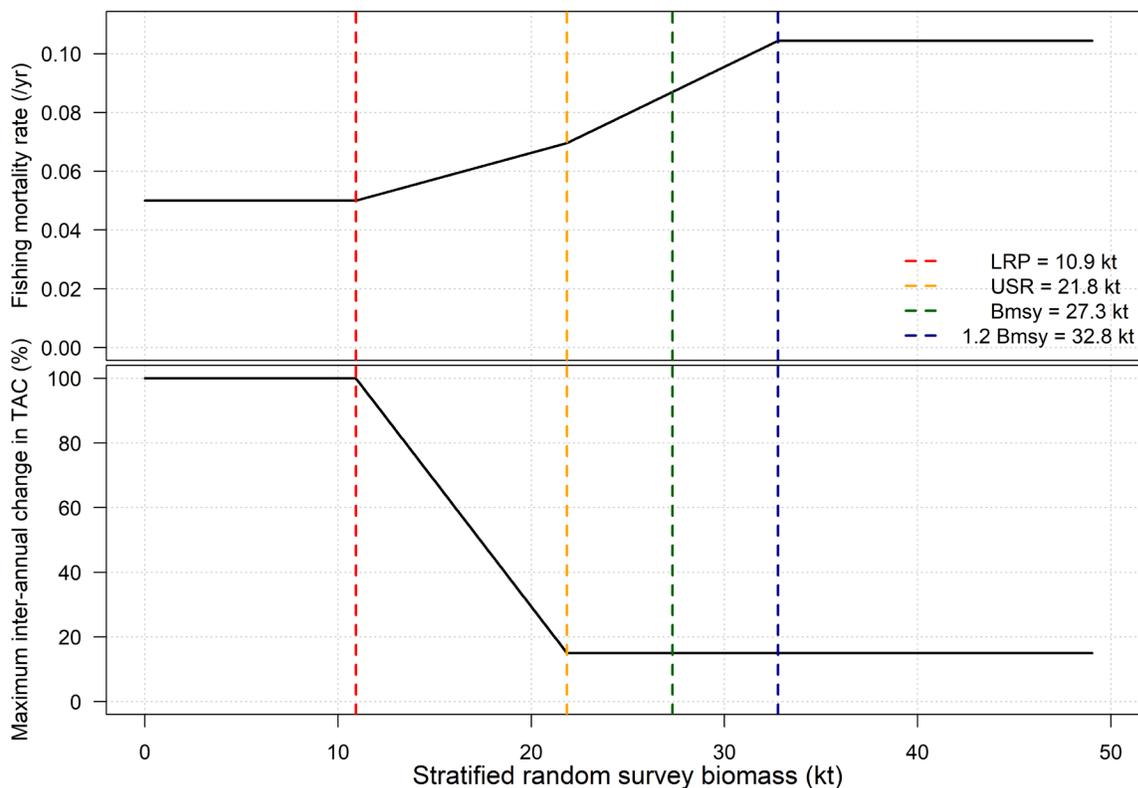


Figure 1. The articulated harvest decision rule with reference points and control points used for determining target harvest rates for Atlantic Halibut for the Scotian Shelf and southern Grand Banks stock (NAFO Divisions 3NOPs4VWX5Zc) based on the three-year mean of biomass estimates from the stratified random Industry-DFO Halibut Longline Survey. LRP = limit reference point, USR = upper stock reference, B_{MSY} = Biomass at maximum sustainable yield.

Data

- Industry-DFO Halibut Longline Survey (Stratified Random Halibut Survey) Halibut catch (2017-2025)
- DFO Maritimes Summer Ecosystem Research Vessel Survey (DFO Summer RV Survey, NAFO Divisions 4VWX) Halibut abundance (1970-2025)
- Atlantic Halibut landings - Canadian and International landings from Northwest Atlantic Fisheries Organization (NAFO)
- 2025 Preliminary Maritimes Region Atlantic Halibut landings from the Maritimes Fisheries Information System database (MARFIS)

ASSESSMENT

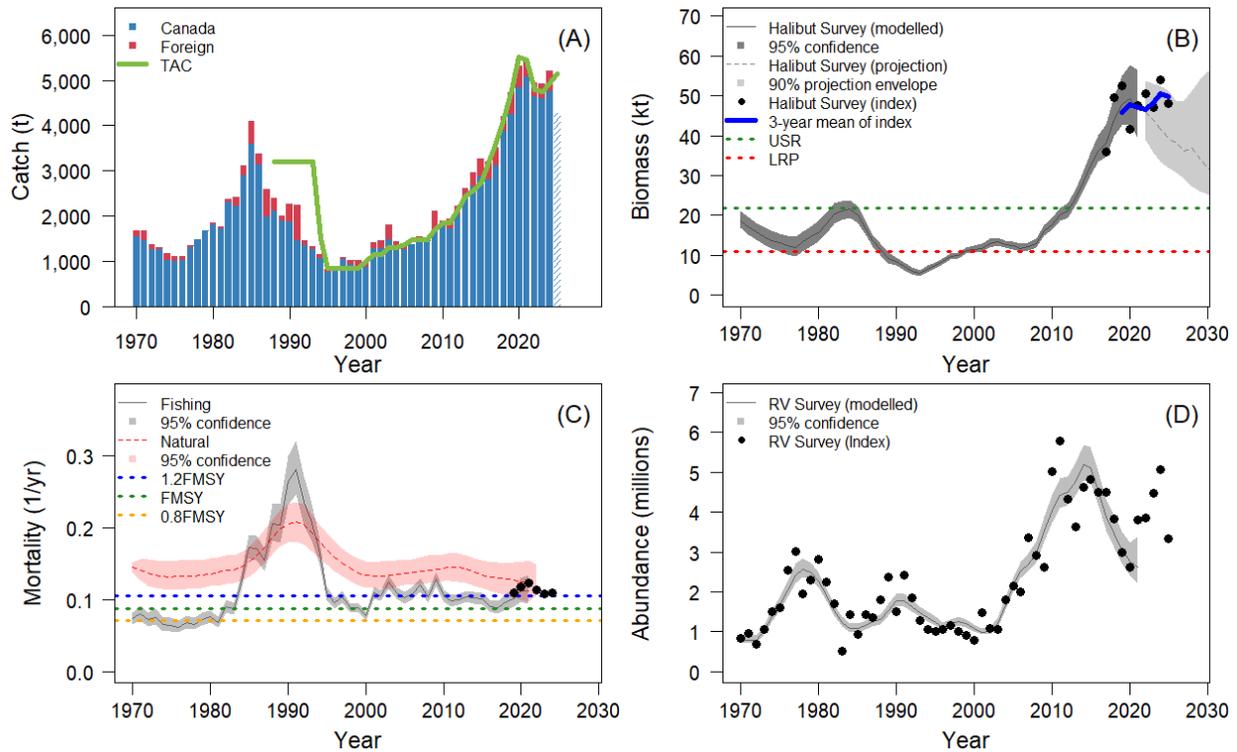


Figure 2. (A) Northwest Atlantic Fisheries Organization (NAFO) reported Canadian (blue) and foreign (red) landings (tonnes) for 3NOPs4VWX5Zc Atlantic Halibut. Landings for 2025 (hashed bar) are preliminary, and taken from the Maritimes Fisheries Information System (MARFIS) as of November 14, 2025 (this does not include landings in Newfoundland which are not yet available). The solid green line is the Canadian total allowable catch (TAC). The NAFO 21A table of landings by country is reported by calendar year; however, the TAC for the stock is set for the period of April-March, (B) Stratified Random Halibut Survey biomass in relation to the limit reference point (LRP; 10.9 kt) and upper stock reference (USR; 21.8 kt), (C) Fishing and natural mortality in relation to the FMSY Removal references, the black dots are the exploitation rate based on reported landings and the three-year mean biomass from the Stratified Random Halibut Survey, (D) Recruitment index from the DFO Summer RV Survey in numbers.

Stock Status and Trends

Index of Exploitable Biomass - Industry-DFO Halibut Longline Survey (Stratified Random Halibut Survey)

Following outcomes from the last framework in 2022, harvest advice in interim years is based on the three-year mean exploitable biomass index from the Stratified Random Halibut Survey. Inter-annual changes in this index have been minimal (Figure 2B).

In 2023, a new stratum with reduced allocation of stations was introduced into the survey in an area in the northeast where there has been little to no catch of Atlantic Halibut in the Stratified Random Halibut Survey since 2017 (Figure 3, DFO 2025).

Although not all stations were completed this year (Figure 3), there was adequate coverage in all strata to effectively calculate the index of exploitable biomass from the Stratified Random Halibut Survey. The 2025 index of exploitable biomass and the three-year mean (2023-2025) are slightly lower than last year. Inter-annual changes in the three-year mean have remained relatively stable through the time series.

The 2025 biomass from the Stratified Random Halibut Survey was estimated using a catchability of 0.002 to be 49.4 kt (95% confidence interval: 35.8, 63.1). Based on the three-year mean (20203-2025) (Figure 2B), the exploitable biomass index from the Stratified Random Halibut Survey for 2025 is 51.1 kt which is 1.9 B_{MSY} , higher than the LRP ($0.4 B_{MSY}=10.9$ kt) and USR ($0.8 B_{MSY}=21.8$ kt) (Figure 1).

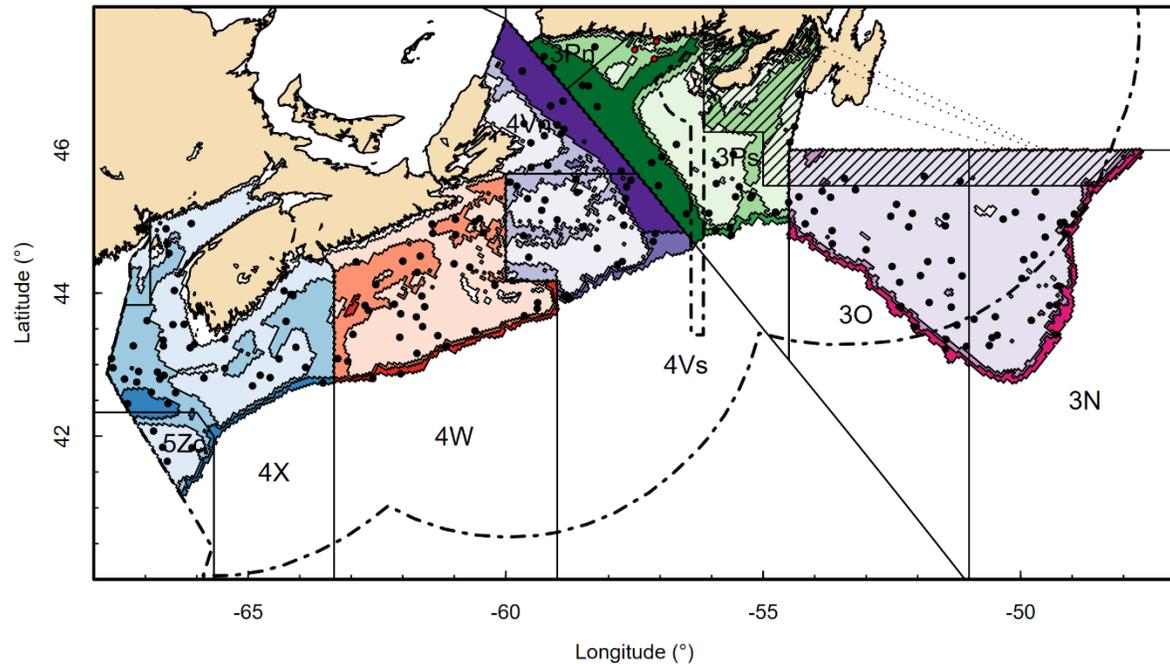


Figure 3. The Stratified Random Industry-DFO Halibut Longline survey area is separated into five zones across the Scotian Shelf and southern Grand Banks represented by different colours. Each zone is further separated into depth strata, shown in different shades of each colour. The hatched area is a new stratum with lower station allocation introduced in 2023. The survey area includes division 3Pn, which is not part of the management unit. Two hundred stations were assigned in the 2025 survey, black dots indicate completed stations and red dots indicate incomplete stations (three stations in 3Ps). Solid black lines represent Northwest Atlantic Fisheries Organization Division boundaries, while international boundaries are marked with dashed lines.

Index of Recruitment: DFO Maritimes Summer Ecosystem Research Vessel Survey (DFO Summer RV Survey, NAFO Divisions 4VWX)

The DFO Summer RV Survey provides an index of recruitment for Atlantic Halibut. The median size of Atlantic Halibut caught in the trawl survey is between 40–50 cm. The abundance of Atlantic Halibut in this survey increased between 2000 and 2011 (Figure 2D) but then declined to the lowest value since 2011 in 2020. Since 2020, catch has been increasing but declined this year showing a similar trend to what was seen after the last peak in 2011.

A conversion factor for Atlantic Halibut between the old and new survey vessels and fishing gear was estimated (1:1) in 2024 (Yin et al. 2025), and since then the data from the 2021 survey that was not included in previous years is now being incorporated into the time series, however coverage remains incomplete for that year.

The abundance index for 2025 is the lowest in the last 5 years, however it is still higher than the long-term mean. The index of abundance is reviewed annually, exclusively for context and does not directly contribute to the HDR outputs.

Current Status

The 2025 three-year mean exploitable biomass index (51.1 kt) from the Stratified Random Halibut Survey is above the USR with a very high probability of being in the healthy zone.

History of Management, TAC, Catch Advice and Landings

A TAC for this fishery was first established in 1988 (DFO 2024; Li et al. 2025) followed by a period of declining landings which led to a significantly reduced TAC by 1995 and the introduction of a minimum size limit of 81 cm. Since then, TAC has increased and peaked at 5,507 t in 2020 (Table 1, Figure 2A).

Landings data for Atlantic Halibut are retrieved from the NAFO database for each calendar year because landings occur in two DFO regions (Maritimes and Newfoundland and Labrador (NL)) as well as in other countries. Landings from the MARFIS database are reported as preliminary Canadian landings for 2025. These preliminary landings do not include landings in NL. The majority of landings occur on the Scotian Shelf (NAFO Divisions 4VWX).

Table 1. Total reported Canadian and foreign landings (tonnes) of Atlantic Halibut from Northwest Atlantic Fisheries Organization (NAFO) Divisions 3NOPs4VWX5Zc and total allowable catch (TAC) for these divisions. Ten-year annual average landings are presented for 1960 to 2009. The [NAFO 21A table of landings by country](#) are reported by calendar year; however, the TAC for the stock is set for the period of April–March. Data were extracted from the NAFO 21A database on November 14, 2025. A dash indicates where data are not available.

Year	3NOPs Canadian Landings	4VWX5Zc Canadian Landings ¹	Total Canadian Landings	3NOPs Foreign Landings	4VWX5Zc Foreign Landings ¹	Total Foreign Landings	Overall Landings	TAC
1960-1969	638.4	1,520.9	2,159.3	492.2	62	554.2	2,713.5	-
1970-1979	427.8	874	1,301.8	73.7	15.4	89.1	1,390.9	-
1980-1989 ²⁻³	738.2	1,624.6	2,362.8	217	13.8	230.8	2,593.6	-
1990-1999	323.2	815.4	1,138.6	179.6	4.3	183.9	1,322.5	1,855
2000-2009	460.9	878.1	1,339	147.8	0.1	147.9	1,486.9	1,340
2010	464	1,296	1,760	131	1	132	1,892	1,850
2011	373	1,346	1,719	218	1	219	1,938	1,850
2012	531	1,491	2,022	200	1	201	2,223	2,128
2013	562	1,836	2,398	205	1	206	2,604	2,447
2014	839	1,811	2,650	312	1	313	2,963	2,563
2015	693	2,174	2,867	395	1	396	3,263	2,738
2016	626	2,186	2,812	393	1	394	3,206	3,149
2017	759	2,353	3,112	403	1	404	3,516	3,621
2018	699	3,171	3,870	343	0	343	4,213	4,164
2019	841	3,416	4,257	480	3	483	4,740	4,789
2020	1,142	3,692	4,834	492	1	493	5,327	5,507
2021	1,342	3,741	5,083	363	1	364	5,447	5,445
2022	1,614	3,028	4,642	317	1	318	4,960	4,807
2023	1,985	2,622	4,607	330	1	331	4,938	4,744

Year	3NOPs Canadian Landings	4VWX5Zc Canadian Landings ¹	Total Canadian Landings	3NOPs Foreign Landings	4VWX5Zc Foreign Landings ¹	Total Foreign Landings	Overall Landings	TAC
2024	1,691	3,053	4,744	463	1	464	5208	4,927
2025 ⁴	1,064	3,200	4,264	-	-	-	-	5,149

¹Canadian landings in 5Y are assumed to have been in the Canadian portion and are included in the 4VWX+5Zc value. Foreign/US landings in 5Y are not included.

²Landings were first listed in 5Zc in 1986; 5Zc and 5Ze are used interchangeably to indicate same area.

³Prior to 1988 the Atlantic Halibut catch was unregulated.

⁴Landings from the Maritimes Fisheries Information System (MARFIS) for 2025 are preliminary, as of November 14, 2025. Landings for NL in 2025 are not included as they are not yet available.

Ecosystem and Climate Change Considerations

The environmental conditions affecting this stock are currently unknown. Recent work by Czich et al. (2023) suggest that forecasted changes in thermal conditions in the Northwest Atlantic may influence the distribution and abundance of juvenile Atlantic Halibut in the near future.

Stock Advice

Stock status in interim years is assessed based on the three-year mean exploitable biomass index from the Stratified Random Halibut Survey. Closed-loop simulation testing conducted at the last framework projected a gradual return to B_{MSY} . So far, stock status has remained well above B_{MSY} .

Harvest Decision Rule Outputs

As the 2025 three-year mean exploitable biomass based on the Stratified Random Halibut Survey is higher than $1.2 B_{MSY}$ (32.8 kt, Table 1), the highest fishing mortality, $1.2 F_{MSY}$ (0.104), would be applied using the articulated HDR. This results in TAC advice for 2026-2027 of 5,064 t. As this is within the maximum inter-annual change of 15% from the 2025-2026 TAC (5,149 t), the 2026-2027 TAC advice is 5,064 t. This application of the HDR assumes all removals from Canadian and international fisheries are included.

Evaluation of Exceptional Circumstances/Assessment Triggers

No significant changes in data sources or significant deviations from expectations were observed that would trigger an early assessment. The three-year mean index for 2025 was near the upper end, but still within the 90% probability envelope from the closed-loop simulation.

SOURCES OF UNCERTAINTY

Sources of uncertainty related to the Stratified Random Halibut Survey exploitable biomass index and the DFO Summer RV Survey index of recruitment, and the interpretation of the trends of these indices, were outlined in the last assessment and stock status update (DFO 2024, DFO 2025).

Three stations were not completed in the 2025 Stratified Random Halibut Survey; however, the minimum number of stations in each stratum were completed, allowing for the calculation of the exploitable biomass index without any expected impact on the science advice provided.

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SOURCES OF INFORMATION

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