Northwest Atlantic Fisheries Organization

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Canadian Research Report for 2023

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A. STATUS OF FISHERIES

Nominal landings from 2018 to 2023 for fish stocks are listed in Table 1. Length sampling information is available in all other tables. Additional information on the status of the fisheries is as follows:

A.1 SUBAREA 2

American plaice–Subarea 2 + Division 3K

The Div. 2+3K American plaice stock was closed to directed commercial fishing in 1994. A Limit Reference Point (LRP) was established in 2012, and the status of the stock was updated in 2020. The stock remains below the LRP, in the critical zone of the Canadian PA framework. Preliminary Canadian landings of this species were 1 t in 2023 and averaged 6 t during the period 2019 to 2022.

Tables 2 - 5 show the total catch length distributions for Divs. 2+3K were available from 19 samples with a total of 585 measured individuals. Lengths varied from 8 cm to 40 cm with a mean of 20 cm.

Atlantic cod–Divisions 2GH, Divisions 2J3KL

The Atlantic cod stock in Div. 2GH has been under a moratorium on directed fishing since 1996 and there has been no reported catch since 1993. Bycatch of cod occurs in shrimp fisheries in 2GH and from 2004-2009 estimates of bycatch have ranged between 250 kg to 5,200 kg annually (Orr et al. 2010). More recent bycatch data have not been compiled.

The Div. 2J3KL Atlantic cod stock was closed to directed commercial fishing in 1992 but has been subjected to ongoing stewardship and recreational fisheries in the inshore since 2006. Preliminary Canadian landings of this species were 12,903 t in 2023 and averaged 10,975 t during the period 2019 to 2022. An updated LRP was established for this stock in 2023 following model revisions and extension of the time series. This stock was last assessed in 2024 and, while the stock has changed little since 2016, is currently above its established LRP and is considered to be within the Cautious Zone of the Canadian Precautionary Approach (PA) framework.

Tables 11 - 13 show the total catches. Length distributions for Divs 2J3KL cod were available from 80 samples with a total of 15,888 measured individuals. Lengths varied from 12 cm to 117 cm with a mean of 52.34 cm.

There are no direct estimates of recreational landings for the majority of the past 17 years; therefore reported landings are less than total catch in those years. Evidence from tagging data has shown that, although removals by the recreational fishery have been substantial in some years since 1997, they had been about 25% for the past three years.

Atlantic salmon–Subarea 2

The commercial fishery for Atlantic salmon in Subarea 2 has remained closed since 1998. Estimates of recreational catches for Newfoundland and Labrador have been highly variable since 2005 (total catch range of 25,566 to 68,663 salmon). Preliminary estimates or recreational Atlantic salmon catch for Subarea 2 in 2023 are 448 retained and 5,525 released salmon, 54% and 10% below the previous generation average (2016-2022), respectively. Estimated Labrador Indigenous and Subsistence fisheries harvest was inferred from logbook returns (60% return rate) at 15,403 salmon in 2023 (7,677 small and 7,726 large), which was 16% above the previous generation average (2016-2022) of 13,312 salmon. Of the four rivers assessed in Subarea 2 in 2023, one was above the upper stock reference point (healthy zone) and three were below the limit reference point (critical zone).

Greenland halibut-Subarea 2 + Divisions 3KLMNO

Preliminary landings for the Subarea 2 + Divisions 3KLMNO Greenland halibut stock were 4,562 t in 2023 and averaged 5,452 t during the period 2019 to 2022.

Tables 17 - 21 show the total catches. Length distributions for Divs. Subarea 2 + Divisions 3KLMNO Greenland halibut were available from 102 samples with a total of 16,244 measured individuals. Lengths varied from 8 cm to 102 cm with a mean of 34.7 cm.

Iceland scallop–Divisions 2HJ

Preliminary Canadian landings for the Divs. 2HJ Iceland scallop stock were 11 t in 2023 and averaged 18 t during the period 2019 to 2022.

Northern shrimp–Subarea 2 + Division 3K

The Northern shrimp (*Pandalus borealis*) fishery in Subarea 2 and the northern portion of Subarea 3 is divided into three management areas, each referred to as a shrimp fishing area (SFA): 2G (SFA 4), Hopedale and Cartwright Channels in 2HJ (SFA 5), and Hawke Channel in 2J3K (SFA 6).

SFA 4 (NAFO Division 2G)

Preliminary Canadian landings for the SFA 4 shrimp stock were 8,759 t in 2023 and averaged 10,258 t during the period 2019 to 2022.

SFA 5 (Hopedale and Cartwright Channels)

Preliminary Canadian landings for the SFA 5 shrimp stock were 12,911 t in 2023 and averaged 16,097 t during the period 2019 to 2022.

SFA 6 (Hawke Channel + NAFO Division 3K)

Preliminary Canadian landings for the SFA 6 shrimp stock were 5,632 t in 2023 and averaged 8,153 t during the period 2019 to 2022.

Redfish–Subarea 2 + Division 3K

The Div. 2+3K redfish stock remains under moratorium. Preliminary Canadian landings of this species were 1 t in 2023 and averaged 7 t during the period 2018 to 2022.

In the absence of a limit reference point (LRP) it was not possible to determine the zone within the Canadian Precautionary Approach (PA) framework that this stock currently resides in.

Tables 22 - 25 show the total catches. Length distributions for Divs. 2+3K redfish were available from 85 samples with a total of 18,855 measured individuals. Lengths varied from 5 cm to 26 cm with a mean of 11.64 cm.

Snow crab–Divisions 2HJ

Preliminary Canadian landings for the Divs. 2HJ snow crab stock were 876 t in 2023 and averaged 1,304 t during the period 2019 to 2022. With status quo removals in 2024, 2HJ is projected to remain in the Cautious zone of the PA Framework

Squid–Subarea 2+3

Preliminary Canadian landings for the Subarea 2+3 squid stock were 100 t in 2023 and averaged 4,240 t during the period 2019 to 2022.

Witch flounder-Divisions 2J3KL

The Div. 2J3KL witch flounder stock has been under moratorium since 1994; it is currently below its established LRP and is considered to be within the Critical Zone of the Canadian Precautionary Approach (PA) framework. Preliminary Canadian landings of this species were 84 t in 2023 and averaged 95 t during the period 2019 to 2022.

Length frequencies were not available for this stock.

A.2 SUBAREA 3

American plaice–Divisions 3LNO

The Div. 3LNO American plaice stock remains under moratorium. Preliminary Canadian landings of this species were 134 t in 2023 and averaged 518 t during the period 2019 to 2022.

Tables 6 - 8 show the total catches. Length distributions for Divs. 3LNO American plaice were available from 7 samples with a total of 672 measured individuals. Lengths varied from 18 cm to 66 cm with a mean of 35.54 cm.

American plaice-Subdivision 3Ps

Preliminary Canadian landings for the Subdiv. 3Ps American plaice stock were 7 t in 2023 and averaged 46 t during the period 2019 to 2022.

Length frequencies were not available for this stock.

Atlantic cod–Divisions 3NO

The Div. 3NO Atlantic cod stock remains under moratorium. Preliminary Canadian landings of this species were 60 t in 2023 and averaged 106 t during the period 2019 to 2022, taken primarily in the yellowtail flounder fishery.

This stock is currently below the established spawning stock biomass limit reference point and is considered to be in the Critical Zone.

Tables 14 & 15 show the total catches. Length distributions for Divs. 3NO cod were available from 9 samples with a total of 34 measured individuals. Lengths varied from 21 cm to 111 cm with a mean of 58.36 cm.

Atlantic cod-Subdivision 3Ps

Preliminary Canadian landings for the Subdiv. 3Ps Atlantic cod stock were 762 t in 2023 and averaged 1,757 t during the period 2019 to 2022.

A new state-space model was accepted for the provision of advice in 2019 and the limit reference point was revised. It was determined that this stock was below the limit reference point (LRP) and therefore within the Critical Zone of the Canadian Precautionary Approach (PA) framework.

Table 16 shows the total catches. Length distributions for Subdiv. 3Ps cod were available from 22 samples with a total of 5,974 measured individuals. Lengths varied from 33 cm to 114 cm with a mean of 64.56 cm.

Atlantic salmon-Subarea 3

The commercial fishery for Atlantic salmon in Subarea 3 has remained closed since 1992. Estimates of recreational catches for Newfoundland and Labrador have been highly variable since 2005 (total catch range of 25,566 to 68,663 salmon). Preliminary estimates of recreational Atlantic salmon catch in Subarea 3 and Division 4R in 2023 are 9,006 retained and 16,560 released salmon, 38% and 44% below the previous generation average (2017-2022), respectively. Of the eleven rivers assessed in Subarea 3 in 2023, three were above the upper stock reference point (healthy zone) and eight were below the limit reference point (critical zone).

Capelin–2+3KL

Capelin landings in Subarea 2 + Div. 3KL were 11,355 t in 2023. Capelin were landed using both mobile and fixed gears.

Iceland scallop–Divisions 3LNO and Subdivision 3Ps

Preliminary Canadian landings for the Divs. 3LNO Iceland scallop stock were 0 t in 2023 and averaged 0 t during the period 2019 to 2022.

Preliminary Canadian landings for the Divs. 3Ps Iceland scallop stock were 0 t in 2023 and averaged 18 t during the period 2019 to 2022.

Redfish – Divisions 3LN

Preliminary Canadian landings for the Divs. 3LN redfish stock were 113 t in 2023 and averaged 2,080 t during the period 2019 to 2022.

Table 26 show the total catches, there were no length data available from Div. 3N. Length distributions for Divs. 3LN redfish were available from 3 samples with a total of 770 measured individuals. Lengths varied from 14 cm to 42 cm with a mean of 31.49 cm.

Redfish – Division 3O

Preliminary Canadian landings for the Divs. 3O redfish stock were 687 t in 2023 and averaged 402 t during the period 2019 to 2022.

Length frequencies were not available for this stock.

Redfish–Unit 2 (3Ps4Vs, 3Pn4Vn, 4Wfgi)

Preliminary Canadian landings for the Unit 2 redfish stock were 6,927 t in 2023 and averaged 4,660 t during the period 2019 to 2022.

Tables 27 – 28 & 30 shows the total catches. Length distributions for Unit 2 redfish were available from 43 samples with a total of 12,295 measured individuals. Lengths varied from 19 cm to 58 cm with a mean of 26.46 cm. Note these length frequencies are only from Newfoundland and Labrador landings.

Sea scallop–Division 3KLNO

Preliminary Canadian landings for the Divs. 3KLNO sea scallop stock were 6 t in 2023 and averaged 2 t during the period 2019 to 2022.

Sea scallop–Subdivision 3Ps

Preliminary Canadian landings for the Divs. 3Ps sea scallop stock were 1,041 t in 2023 and averaged 954 t during the period 2019 to 2022.

The abundance in the inshore (north bed) is currently dominated by a modal group of scallop 75 mm while in the offshore (south and middle beds) the modal group is 120mm and 130mm.

Northern shrimp–Divisions 3LNO

There has been no directed fishing for Northern Shrimp in Divs. 3LNO since 2015. Preliminary Canadian landings for the Divs. 3LNO Northern shrimp stock were 0 t in 2023 and averaged 0 t during the period 2019 to 2022.

Snow crab–Divisions 3KLNO and Subdivision 3Ps

Preliminary Canadian landings for the Divs. 3KLNO snow crab stock were 42,162 t in 2023 and averaged 14,775 t during the period 2019 to 2022. With status quo removals in 2024, 3K, and 3LNO are projected to remain in the Healthy zone of the PA Framework

Preliminary Canadian landings for the Divs. 3Ps snow crab stock were 8,127 t in 2023 and averaged 4,713 t during the period 2019 to 2022. With status quo removals in 2024, 3Ps is projected to remain in the Healthy zone of the PA Framework

Thorny skate–Divisions 3LNO and Subdivision 3Ps

Commercial catches of skates comprise a mix of skate species, however Thorny skate dominates the catch. Preliminary Canadian landings for the Divs. 3LNO thorny skate stock were 0 t in 2023 and averaged 5 t during the period 2019 to 2022.

Length frequencies were not available for this stock.

Preliminary Canadian landings for the Subdiv. 3Ps thorny skate stock were 16 t in 2023 and averaged 534 t during the period 2019 to 2022.

Length frequencies were not available for this stock.

White hake–Divisions 3NO and Subdivision 3Ps

Preliminary Canadian landings for the Divs. 3NO white hake stock were 99 t in 2023 and averaged 156 t during the period 2019 to 2022.

Length frequencies were not available for this stock.

Preliminary Canadian landings for the Subdiv. 3Ps white hake stock were 103 t in 2023 and averaged 119 t during the period 2019 to 2022.

Length frequencies were not available for this stock.

Witch flounder-Divisions 3NO

Preliminary Canadian landings for the Divs. 3NO witch flounder stock were 125 t in 2023 and averaged 414 t during the period 2019 to 2022.

Table 33 show the total catches; there were no length data available from Div. 3N. Length distributions for Divs. 3NO witch flounder were available from 7 samples with a total of 1,858 measured individuals. Lengths varied from 32 cm to 52 cm with a mean of 42.69 cm.

Witch flounder-Subdivision 3Ps

Preliminary Canadian landings for the Subdiv. 3Ps witch flounder stock were 23 t in 2023 and averaged 180 t during the period 2019 to 2022.

An interim limit reference point was adopted in 2017, and the stock is currently above the LRP, as defined by the Canadian Precautionary Approach (PA) framework.

Length frequencies were not available for this stock.

Yellowtail flounder–Divisions 3LNO

Preliminary Canadian landings for the Divs. 3LNO yellowtail flounder stock were 2,641 t in 2023 and averaged 12,186 t during the period 2019 to 2022.

An interim limit reference point was adopted in 2017, and the stock is currently above the LRP, as defined by the Canadian Precautionary Approach (PA) framework.

Tables 34 - 36 show the total catches. Length distributions for Divs. 3LNO yellowtail flounder were available from 72 samples with a total of 17,536 measured individuals. Lengths varied from 16 cm to 54 cm with a mean of 37.25 cm.

A.3 SUBAREA 4

Atlantic salmon–Subarea 4

The commercial fishery for Atlantic salmon in Subarea 4 has remained closed since 1992. Estimates of recreational catches for Newfoundland and Labrador have been highly variable since 2005 (total catch range of 25,566 to 68,663 salmon). Preliminary estimates of recreational Atlantic salmon catch in Subarea 3 and Division 4R in 2023 are 9,006 retained and 16,560 released salmon, 38% and 44% below the previous generation average (2017-2022), respectively. Of the four Newfoundland rivers assessed in Subarea 4 in 2023, one was above the upper stock reference point (healthy zone), one fell between the two reference points (cautious zone), and two were below the limit reference point (critical zone).

Iceland scallop–Div. 4R

Preliminary Canadian landings for the Div. 4R Iceland scallop stock were 73 t in 2023 and averaged 48 t during the period 2019 to 2022.

Sea scallop–Div. 4R

Preliminary Canadian landings for the Div. 4R sea scallop stock were 16 t in 2023 and averaged 5 t during the period 2019 to 2022.

Snow crab–Div. 4R

Preliminary Canadian landings for the Div. 4R snow crab stock were 474 t in 2023 and averaged 296 t during the period 2019 to 2022. Recent and ongoing data deficiencies result in the exclusion of 4R3Pn from the PA Framework.

B. SPECIAL RESEARCH STUDIES

Environmental Studies

The Atlantic Zonal Monitoring Program (AZMP) initiated in 1998 continued during 2023. This program was established to include biological and chemical oceanographic sampling at a high-frequency coastal monitoring station (S27) and along cross-shelf oceanographic sections sampled at biweekly to seasonal time scales during ice-free period. The main objectives are to establish the seasonal, temporal, and spatial distribution and abundance of nutrients, phytoplankton pigments, and zooplankton in relation to the physical environment. Monitored variables include temperature, salinity, dissolved oxygen, ocean currents, spring phytoplankton bloom metrics, nutrients concentration, chlorophyll biomass, and mesozooplankton abundance, biomass and community composition. Additional physical oceanographic observations are also routinely collected during marine resource assessments and research surveys. The oceanographic monitoring program currently conducted on the Newfoundland and Labrador Region aims at understanding the changes in the ecosystem structure and productivity over time. Data from this effort are used to produce annual reports on the physical and biogeochemical state of the ocean and other studies relating environmental conditions to marine resources. Spring, summer and fall missions occurred in 2023. During the spring survey, 3 hydrographic sections were completed (SWSPB, SEGB and FC). During the summer survey, 3 sections were completed (FC, BB and SI). During the fall survey, 5 sections were completed (SWSPB, SEGB, FC, BB and SI). In addition, the high-frequency monitoring station S27 was occupied 36 times between January and November.

Physical Environment

The winter North Atlantic Oscillation (NAO) index, a key indicator of the direction and intensity of the winter wind field patterns over the Northwest Atlantic was neutral in 2023 (+0.2) for the second time in 3 years (2021 was also neutral). While the lowest winter NAO index value was reached in 2010, all years between 2012 and 2020 (except 2013) were positive, including the record high of +1.6 in 2015. Except for Sea Surface Temperatures that were at the second warmest level on record (with 2022 being the record), the majority of the environmental parameters presented in this report were close to normal (defined as the average over the 1991-2020 climatological period). The air temperatures across the NW Atlantic exhibited large intra-annual fluctuations, with a generally colder spring and warmer summer and fall. The sea ice, cold intermediate layer and bottom temperatures were all normal or close to normal. The transport of cold and fresh Labrador-origin water on the Scotian Slope was positive for the first time in a decade.

Nutrients and Plankton Studies

Spatiotemporal variability in biogeochemical indices is derived from satellite observations (timing and intensity of the spring and fall phytoplankton blooms) and from in-situ measurements of oceanographic variables (nitrate and chlorophyll-a inventories, and zooplankton abundance and biomass) across the Canadian Northwest Atlantic zone (NAFO Divisions 2-3-4).

Nitrate and chlorophyll-a inventories were near-normal in 2023, with the exception of the above-normal nitrate concentrations recorded on the Newfoundland Shelf. The timing of the spring phytoplankton was later than normal on the Georges Bank and the Scotian Shelf, and near-normal in the Gulf of St. Lawrence and from southern Newfoundland to the north, while spring bloom intensity was above-normal on the Newfoundland and Labrador shelves and in the Gulf of St. Lawrence, and near or slightly below-normal elsewhere. Fall blooms were notably early and intense on the Scotian Shelf and the Georges Bank. A time series record-high fall bloom intensity associated with a normal timing was observed in the Gulf of St. Lawrence.

Total copepod abundance was mainly near or below-normal for a second consecutive year, representing an overall decline compared to the high abundances of the 2015-2021 period. The abundance of large and energy-rich Calanus finmarchicus and smaller but numerically dominant Pseudocalanus spp. copepods was mainly near-to-above-normal across the zone in 2023. However, despite the second-highest overall Calanus finmarchicus abundance since 2010, total zooplankton biomass remained primarily near-to-below normal for a second consecutive year.

Biological Studies

Multispecies Trawl Surveys

The NL Region has two new offshore research survey vessels for which conversion factors have been developed wherever possible and need to be implemented for many commercial species. In 2022, the annual spring survey was impacted by time constraints largely due to mechanical issues with the primary survey platform (CCGS Alfred Needler). The CCGS John Cabot was used to complete the survey in Subdiv. 3Ps and in Div. 3NO at a reduced allocation. The data from this vessel have been converted where possible, however implementation of conversion factors is ongoing. While some comparative fishing work continued in spring and autumn of 2023, the survey area was covered. For further details see Wheeland and Rideout (2024).

During a standard survey and depending upon the species, sampling occurs for length, age, growth, maturity stage, condition and stomach contents analyses. In addition, sampling for lengths and weights were conducted on a suite of other species to support ecosystem monitoring. Analysis of maturity data is conducted regularly on Atlantic cod, American plaice, Greenland halibut, yellowtail flounder and other species and are presented to the annual meeting of NAFO Scientific Council during assessments of cod in Div. 3NO, American plaice in Div. 3LNO, yellowtail flounder in Div. 3LNO, Greenland halibut in SA2+Div. 3KLMNO when required and when data are available. For further details see Rideout et al. (2024).

Sentinel Studies

The Sentinel Survey of Atlantic cod (*Gadus morhua*) has been conducted in NAFO Subdivision 3Ps and Divs. 3Pn4Rs since 1994, and Divs. 2J3KL since 1995. Data collected and analyses were tabled at the Regional Stock Assessment in the spring 2024 for Divs. 2J3KL Atlantic Cod, and in the fall 2023 for Subdiv. 3Ps Atlantic Cod. The objectives of the program are: the use of Atlantic Cod catch rates to develop indices of relative abundance for resource assessments; to incorporate knowledge of inshore fish harvesters in the resource assessment process; to evaluate inter-annual variability in resource distribution over inshore areas; and to collect information on key biological parameters used in assessments (e.g. fish length, sex, and otoliths to determine fish age), as well as biological samples used for genetic, physiological, and toxicological analyses, along with stomach contents for food and feeding studies. Trends in the standardized catch rate for gillnet and linetrawl in Subdiv. 3Ps (both control and experimental sites) were similar. Catch rates were highest at the beginning of the time-series, declined sharply after 1997 and remained near or below the historical mean catch rate for gillnet, but increased steadily in 2019 and 2020 for linetrawl. Standardized catch rate for gillnet in Divs. 2J3KL (both control and experimental sites) were higher at the beginning of the time-series, declined rapidly to their lowest values in 2002, then increased and peaked in 2014 before declining once more between 2015-2020. The model fit for linetrawl catch rate was questionable and not considered in further analyses.

Cod Tagging and Telemetry

Ongoing mark-recapture studies continued in 2023, with 3972 cod tagged and released with Floy tags in Div. 2J3KL and 553 in Div. 3Ps. This tagging effort is consistent with annual average over the last decade. This tagging program provides critical information on mortality to the Northern Cod Assessment Model and an estimate of the recreational fishery catch for NAFO Divs 2J3KL and 3Ps.

In addition to the mark-recapture tagging program, acoustic telemetry studies have been carried out in the region since 2005 providing information on cod movement and survival. In 2023, 34 Atlantic cod were tagged with acoustic transmitters in Div. 3K. Due to the long battery life of these transmitters, there are approximately 1300 Atlantic cod carrying active transmitters in Newfoundland and Labrador waters. DFO-NL Groundfish and partners maintain a network of 184 active acoustic receivers in the region. This network of receivers includes 120 stations in 2J3KL (25 inshore, 75 offshore) and 51 in 3Ps (31 inshore, 20 offshore).

Distinction of Cod Species in Seal Diets

There is a research project to investigate if Fourier Transform – Near Infrared (FT-NIR) spectrometry be used as a viable and non-destructive method to distinguish between Atlantic cod (*Gadus morhua*) and Greenland cod (*Gadus ogac*) recovered from seal (and other predator) stomachs. Additionally, it will be determined if this methodology can also be used to age Atlantic cod otoliths recovered from pinniped stomachs.

Flatfish (Greenland Halibut and Witch Flounder) Tagging

There is on ongoing program for tagging and telemetry of Greenland Halibut (NAFO DA 2+Div. 3KLMNO, SA0) and witch Flounder (NAFO Div. 2J3KL), led by Fisheries and Oceans Canada - NL Region. This program (2021-2026) is examining the movement ecology of these flatfish, and aims to quantify seasonal and inter-annual movements of these species in the context of habitat use, migration, and stock and survey boundaries. To date, 390 fish have been outfitted with acoustic transmitters and 48 pop-off satelite tags have been deployed. Tagging locations have been in Inshore Newfoundland (Trinity Bay) and offshore in NAFO Div. 2J3KL.

Squid

A 3-year research project related to Northern Shortfin Squid was initiated in 2022 (funding provided by Genomics Research and Development Initiative – GDRI and Canadian Scientific Research Fund – CSRF). This project employs new methods (i.e., online surveys, dockside visits, commercial index harvesters, and detailed fishery sampling) to enhance our understanding of the spatiotemporal dynamics of effort, catch, and catch composition in fisheries throughout Atlantic Canada, and use genomic techniques to provide insights into squid stock structure throughout their range. In addition, a species distribution model based on survey trawl data from throughout Atlantic Canada remains in development.

Snow crab

A trap survey for snow crab was conducted in the northern portion of Div. 2J and Div. 2H in the summers of 2013-2023. The surveys, conducted by the Torngat Joint Fisheries Secretariat with in-kind support from DFO, were performed to quantify the distribution and abundance of commercial-sized males in the Nunatsiavut Settlement Area. The survey covered areas to the north, west, and south of the Makkovik Bank. Small-meshed pots were also incorporated into the study to capture females and small males. DFO trap surveys in Fortune Bay (3Ps), St. Mary's Bay (3L), Trinity Bay (3L), Bonavista Bay (3L), Conception Bay (3L), White Bay (3K), and Notre Dame Bay (3K), were continued in 2023. These surveys collect information on biological and population parameters and are used in annual assessments of snow crab. The surveys have also been used for past and on-going monitoring and research into the incidence and impacts of Bitter Crab Disease (BCD), as well as sperm limitation in NL snow crab . A post-season trap survey, conducted by snow crab harvesters, which began throughout most of 2J3KLNOPs4R in 2004 was continued in 2023. These surveys have expanded in spatial scale since 2018 and now cover both a horizontally and vertically broader area of the continental shelf than the historic design. The frequency of small-mesh pots in this survey has also increased since 2018, with near full coverage of the 1250 allocated stations having a small-mesh pot included in 2023. All trap survey series, as well as the multispecies trawl surveys, are integral components of the annual stock assessment and are used to monitor present biomass along with recruitment prospects, mortality, and reproductive capacity of the stock.

Northern shrimp

Genomics research demonstrated strong connectivity of northern shrimp from the Eastern Arctic through to the Grand Banks (Shrimp Fishing Areas, SFAs 0-7), with localized genetically-distinct pools that may be linked to smaller-scale oceanographic profiles (i.e., gyres) (PANOMICS project). Those results are being used to update larval dispersal patterns from biophysical simulations. Research is ongoing to create model-based biomass estimates and better understand stock structure from Eastern Assessment Zone to SFA 7.

References

Orr, D., P. Veitch, D. Sullivan, J. Firth, C. Peters and T. Inkpen. 2010. Groundfish by-catch within the northern shrimp fishery off the eastern coasts of Newfoundland and Labrador over the years 2007-2009. NAFO SCR Doc. 2010/045 Serial No. N5813 53 p.

Rideout, R.M. B. Rogers, L. Wheeland and M. Koen-Alonso. 2022. Temporal And Spatial Coverage Of Canadian (Newfoundland And Labrador Region) Spring And Autumn Multi-Species RV Bottom Trawl Surveys, With An Emphasis On Surveys Conducted In 2021. NAFO SCR Doc. 22/007, Ser. No. N7271.

Wheeland, L. and R. Rideout. 2024 (NAFO DOCUMENT TO BE ADDED)

Tables

Table 1. Summary of preliminary catches (t) for stocks within the DFO, Newfoundland and Labrador Region. This table presents Newfoundland and Labrador and DFO Maritimes landings combined. Catches are totaled for a Jan 01- Dec 31 calendar year.

Species	Stock	2018	2019	2020	2021	2022	2023
American plaice	2+3K	11	0	1	6	16	1
	3LNO	463	633	448	548	441	134
	3Ps	137	99	58	17	12	7
Atlantic cod	2GH	0	0	0	0	0	0
	2J3KL	9,388	10,454	10,154	10,885	12,406	12,903
	3NO	119	129	83	102	112	60
	3Ps	4,592	3,398	2,025	757	847	762
Capelin	2J3KL	19,840	19,509	16,109	13,949	0	11,355
	3NO	0	0	0	0	0	0
Greenland halibut	2+3KLMNO	6,068	6,064	5,576	4,595	5,571	4,562
Haddock	3LNO	17	73	10	10	20	6
	3Ps	211	169	70	47	23	54
Iceland scallop	2HJ	6	6	34	25	7	11
	3LNO	0	0	0	0	0	0
	3Ps	53	51	0	15	5	0
	4R	140	48	24	76	45	73

Species	Stock	2018	2019	2020	2021	2022	2023
Lobster	3K	82	116	136	175	297	482
	3L	102	163	125	145	187	198
	3PN	216	297	356	440	332	485
	3Ps	1,263	1,572	1,750	1,600	1,543	1,737
	4R	1,756	2,511	2,549	2,619	3,744	4,343
Pollock	3LNO	--	--	--	0	0	0
	3Ps	303	119	79	67	42	51
Redfish	2+3K	9	4	4	11	8	1
	3LN	4,536	2,982	1,518	2,373	1,446	113
	3O	76	211	467	358	570	687
	Unit 2	1,740	2,412	3,742	5,219	7,267	6,927
Roughhead grenadier	2HJK	0	0	3	7	4	0
	3LNO	0	0	0	0	0	0
Sea scallop	3KLNO	1	0	0	5	2	6
	3Ps	414	924	909	946	1,035	1,041
	4R	6	3	7	9	0	16
Shrimp	3L	0	0	0	0	0	0
	3M	0	0	0	795	0	0
	SFA 4	15,697	11,232	8,280	10,272	11,246	8,759
	SFA 5	23,257	23,440	13,596	11,129	16,222	12,911
	SFA 6	8,702	8,638	6,267	9,554	8,154	5,632
Snow crab	2HJ	1,753	1,768	1,372	1,180	897	876
	3K	5,984	6,047	6,541	7,554	9,851	10,432
	3LNO	17,787	15,583	17,786	23,966	30,871	31,730
	3P	2,082	2,789	3,249	5,087	7,728	8,127
	4R	302	186	196	313	489	474
Squid	2+3	1,322	2,540	3,088	11,326	5	100

Species	Stock	2018	2019	2020	2021	2022	2023
Thorny skate	3LNO	2	8	4	7	1	0
	3Ps	916	894	487	536	219	16
White hake	3LNO	57	159	148	138	180	99
	3Ps	283	186	116	115	60	103
Witch flounder	2J3KL	138	35	83	151	111	84
	3NO	479	479	427	386	364	125
	3Ps	277	535	109	30	44	23
Yellowtail flounder	3LNO	7,134	11,541	13,469	13,707	10,028	2,641
	3Ps	5	5	1	0	0	0

Table 2. Length composition (0/000) of American plaice from Canadian commercial landings in NAFO Division 2G in 2023.

Length	Jan	Oct	Apr	Mar	Sep
10	90.91	412.18	--	--	--
12	181.82	--	143.70	--	--
14	454.54	--	237.54	214.29	--
16	181.82	--	56.30	214.29	500
18	--	--	218.77	500.00	--
20	90.91	--	324.93	71.43	--
24	--	318.49	--	--	--
26	--	224.81	--	--	--
28	--	44.52	--	--	500
40	--	--	18.77	--	--
SNPT	1000	1000	1000	1000	1000
AL	15.4	12.7	15.3	17.6	20.5
ALMF	0.00	0.00	0.00	0.00	0.00
AW	0.06	0.02	0.03	0.09	0.08
N	2	1	1	3	1
SLF	20	11	14	10	2

Table 3. Length composition (0/000) of American plaice from Canadian commercial landings in NAFO Division 2H in 2023.

Length	Jan
8	13.80
10	57.53
12	197.79
14	264.10
16	170.52
18	198.51
20	81.63
22	9.98
26	3.08
30	3.08
SNPT	1000
AL	13.5
ALMF	0.00
AW	0.02
N	3
SLF	315

Table 4. Length composition (0/000) of American plaice from Canadian commercial landings in NAFO Division 2J in 2023.

Length	Feb	Apr
8	42.87	--
12	10.72	--
16	45.09	8.40
18	31.18	--
20	117.79	50.42
22	156.12	109.24
24	231.41	260.50
26	202.06	210.08
28	41.89	142.86
30	97.21	84.03
32	12.94	92.44
34	10.72	42.02
SNPT	1000	1000
AL	24.6	21.6
ALMF	0.00	0.00
AW	0.13	0.09
N	2	4
SLF	119	88

Table 5. Length composition (0/000) of American plaice from Canadian commercial landings in NAFO Division 3K in 2023.

Length	Mar	Feb
10	250	--
20	250	--
24	--	500
26	--	500
28	500	--
SNPT	1000	1000
AL	23.5	19.8
ALMF	0.0	0.00
AW	0.1	0.08
N	1	1
SLF	2	4

Table 6. Length composition (0/000) of American plaice from Canadian commercial landings in NAFO Division 3L in 2023.

Length	May
30	200
32	600
34	200
SNPT	1000
AL	30.4
ALMF	0.0
AW	0.2
N	1
SLF	5

Table 7. Length composition (0/000) of American plaice from Canadian commercial landings in NAFO Division 3N in 2023.

Length	Jul	May
18	2.67	--
22	9.61	--
24	0.89	8.66
26	2.67	--
28	1.78	8.66
30	8.72	--
32	53.76	8.66
34	161.57	194.80
36	209.45	558.44
38	219.22	17.32
40	114.39	17.32
42	67.96	186.15
44	73.64	--
46	35.23	--
48	23.31	--
50	15.12	--
SNPT	1000	1000
AL	36.4	35.2
ALMF	0.00	0.00
AW	0.39	0.38
N	2	2
SLF	612	13

Table 8. Length composition (0/000) of American plaice from Canadian commercial landings in NAFO Division 3O in 2023.

Length	May
28	196.14
32	196.14
36	397.95
38	22.68
40	28.35
44	34.02
46	51.03
48	51.03
50	5.67
52	11.34
66	5.67
SNPT	1000
AL	34.1
ALMF	0.00
AW	0.79
N	2
SLF	42

Table 9. Length composition (0/000) of Atlantic cod from Canadian commercial landings in NAFO Division 2G in 2023.

Length	Mar	Jan
15	250	--
18	250	516.60
21	250	380.86
24	250	102.55
SNPT	1000	1000
AL	17.7	18
ALMF	0.00	0.00
AW	0.05	0.05
N	8	1
SLF	26	4

Table 10. Length composition (0/000) of Atlantic cod from Canadian commercial landings in NAFO Division 2H in 2023.

Length	Jan
12	2.44
15	65.29
18	231.34
21	539.57
24	151.66
27	9.71
SNPT	1000
AL	18.5
ALMF	0.00
AW	0.06
N	19
SLF	128

Table 11. Length composition (0/000) of Atlantic cod from Canadian commercial landings in NAFO Division 2J in 2023.

Length	Mar	Apr	Feb	Jan	Sep
12	4.78	--	--	--	--
15	9.57	26.14	3.91	8.66	--
18	124.40	58.82	165.75	354.98	--
21	698.56	594.77	693.85	588.74	--
24	162.68	300.65	131.19	47.62	--
27	--	6.54	4.01	--	--
30	--	13.07	1.30	--	--
45	--	--	--	--	0.68
48	--	--	--	--	62.40
51	--	--	--	--	203.67
54	--	--	--	--	365.97
57	--	--	--	--	383.37
60	--	--	--	--	324.30
63	--	--	--	--	254.76
66	--	--	--	--	163.88
69	--	--	--	--	119.44
72	--	--	--	--	43.34
75	--	--	--	--	45.97
78	--	--	--	--	18.67
81	--	--	--	--	3.38
84	--	--	--	--	4.68
87	--	--	--	--	4.68
90	--	--	--	--	0.79
SNPT	1000	1000	1000	1000	2000.00
AL	19.8	18.9	18.1	19	114.70
ALMF	0.00	0.00	0.00	0.00	0.00
AW	0.07	0.06	0.05	0.06	3.45
N	3	7	1	1	5.00
SLF	153	633	231	209	1970.00

Table 12. Length composition (0/000) of Atlantic cod from Canadian commercial landings in NAFO Division 3K in 2023.

Length	Mar	Sep	Aug	Jul
21	250	--	--	--
24	750	--	--	--
42	--	6.90	--	--
45	--	0.75	0.40	2.59
48	--	34.83	0.43	1.24
51	--	55.11	3.02	19.03
54	--	145.39	41.66	90.17
57	--	199.32	199.20	199.69
60	--	268.14	330.78	259.67
63	--	368.74	394.80	154.19
66	--	361.12	383.90	112.41
69	--	205.52	231.80	33.30
72	--	133.24	150.90	13.96
75	--	93.07	105.75	6.41
78	--	37.00	52.79	25.44
81	--	39.79	34.52	10.13
84	--	13.69	25.62	24.41
87	--	13.58	26.56	11.48
90	--	6.96	3.53	12.93
93	--	3.45	7.23	8.89
96	--	3.45	5.22	8.89
99	--	3.45	1.49	2.59
102	--	1.55	0.21	--
105	--	3.45	--	--
108	--	--	0.21	--
111	--	1.55	--	--
114	--	--	--	2.59
SNPT	2000	1000.00	1000.00	2000

Length	Mar	Sep	Aug	Jul
AL	127.7	61.10	21.25	124.7
ALMF	0.00	0.00	0.00	0.00
AW	5.07	2.24	0.08	4.64
N	13	2.00	1.00	4
SLF	3448	535.00	4.00	1138

Table 13. Length composition (0/000) of Atlantic cod from Canadian commercial landings in NAFO Division 3L in 2023.

Length	May	Aug	Dec	Jul	Sep
21	121.74	--	--	--	--
24	121.74	4.68	--	--	--
27	49.27	--	--	--	--
30	121.74	2.80	--	--	--
36	292.75	--	--	--	--
39	--	2.80	--	--	--
42	--	0.82	--	--	--
45	171.01	3.30	38.46	11.90	8.71
48	121.74	14.09	102.56	0.34	100.51
51	--	71.68	192.31	32.83	182.39
54	--	216.84	230.77	125.76	253.97
57	--	257.31	153.85	175.93	252.80
60	--	320.70	102.56	215.66	190.41
63	--	422.03	76.92	343.32	227.67
66	--	528.45	38.46	327.70	204.31
69	--	325.75	51.28	200.39	167.68
72	--	292.93	--	134.72	99.55
75	--	234.59	12.82	81.81	82.42
78	--	105.95	--	58.47	60.76
81	--	66.57	--	75.67	46.96
84	--	53.77	--	67.78	32.20
87	--	20.49	--	49.75	22.15
90	--	12.75	--	45.01	24.37
93	--	9.42	--	20.59	9.49
96	--	8.89	--	12.32	12.48
99	--	7.22	--	10.88	11.74
102	--	2.26	--	1.59	3.61
105	--	10.30	--	0.81	2.07
108	--	0.41	--	6.76	3.12
111	--	0.21	--	--	--

Length	May	Aug	Dec	Jul	Sep
114	--	2.80	--	--	0.63
117	--	0.21	--	--	--
SNPT	3000	1000.00	2000.00	1000.00	2000.00
AL	192.2	53.74	130.68	32.34	122.39
ALMF	0.00	0.00	0.00	0.00	0.00
AW	7.64	1.42	5.56	0.34	4.66
N	16	1.00	9.00	2.00	15.00
SLF	3071	78.00	1868.00	10.00	2540.00

Table 14. Length composition (0/000) of Atlantic cod from Canadian commercial landings in NAFO Division 3N in 2023.

Length	May	Apr
33	260.02	--
36	80.43	--
39	80.43	--
42	55.86	--
45	243.95	--
48	111.72	--
51	167.59	--
75	--	149.81
84	--	149.81
99	--	190.03
102	--	149.81
108	--	210.73
111	--	149.81
SNPT	1000	1000
AL	96	40
ALMF	0.00	0.00
AW	9.34	0.69
N	3	4
SLF	6	14

Table 15. Length composition (0/000) of Atlantic cod from Canadian commercial landings in NAFO Division 3O in 2023.

Length	May
21	81.68
33	408.40
36	91.61
39	127.48
42	209.16
45	81.68
SNPT	1000
AL	33.7
ALMF	0.00
AW	0.32
N	2
SLF	14

Table 16. Length composition (0/000) of Atlantic cod from Canadian commercial landings in NAFO Division 3Ps in 2023.

Length	Nov	Dec	Feb	Jan	Jul	Sep
33	2.41	--	--	--	--	--
42	--	3.74	--	--	--	--
45	24.04	11.24	8.36	--	--	--
48	98.89	58.87	25.57	2.09	7.30	2.74
51	219.63	80.80	33.63	64.85	7.30	--
54	309.14	141.61	46.06	121.34	36.50	5.48
57	344.37	283.24	49.51	161.09	160.58	38.36
60	483.78	390.25	45.50	148.54	218.98	95.89
63	572.78	554.06	65.10	140.17	182.48	194.52
66	447.25	600.23	62.78	102.51	182.48	213.70
69	261.26	419.03	59.58	66.95	87.59	208.22
72	131.25	216.00	78.85	62.76	72.99	117.81
75	58.21	119.85	57.21	35.56	29.20	63.01
78	25.54	42.17	61.70	37.66	--	27.40
81	11.58	48.31	56.76	23.01	7.30	16.44
84	7.43	15.55	52.73	12.55	7.30	5.48
87	2.41	5.38	63.44	6.28	--	5.48
90	--	5.38	51.73	4.18	--	2.74
93	--	4.29	48.62	4.18	--	2.74
96	--	--	44.30	2.09	--	--
99	--	--	32.42	--	--	--
102	--	--	27.98	2.09	--	--
105	--	--	17.25	--	--	--
108	--	--	10.08	--	--	--
111	--	--	0.83	--	--	--
114	--	--	--	2.09	--	--
SNPT	3000	1000.00	1000.00	1000.00	3000	1000.00
AL	186.5	73.51	61.29	61.07	177.6	65.22

Length	Nov	Dec	Feb	Jan	Jul	Sep
ALMF	0.00	0.00	0.00	0.00	0.00	0.00
AW	6.65	4.07	2.19	2.20	5.73	2.53
N	5	6.00	1.00	1.00	8	1.00
SLF	1359	1502.00	478.00	137.00	2133	365.00

Table 17. Length composition (0/000) of Greenland halibut from Canadian commercial landings in NAFO Division 2G in 2023.

Length	Dec	Oct	Apr	Aug	Jan	Sep	Jul	Mar
8	1.90	7.38	--	--	--	--	--	--
10	1.90	6.47	129.64	--	--	--	--	--
12	3.80	210.84	258.60	44.84	2.79	22.59	--	--
14	15.18	393.78	16.29	239.11	30.64	66.49	165.30	6.63
16	180.27	80.77	113.35	38.79	233.98	9.43	--	109.69
18	127.13	59.54	205.88	161.04	512.54	77.69	165.30	490.21
20	94.88	50.36	168.43	201.17	139.28	291.93	524.20	234.59
22	297.91	83.64	21.49	129.28	30.64	373.57	--	54.68
24	197.34	51.27	10.75	135.33	13.93	83.60	145.19	53.55
26	39.85	6.47	42.99	44.84	25.07	35.51	--	25.40
28	24.67	17.09	16.29	5.61	2.79	24.78	--	19.25
30	11.39	3.24	16.29	--	8.36	6.20	--	4.21
32	3.80	12.95	--	--	--	--	--	1.78
34	--	12.95	--	--	--	8.20	--	--
40	--	3.24	--	--	--	--	--	--
48	--	--	--	6.10	--	--	7.66	--
50	--	--	--	6.62	--	--	3.83	--
52	--	--	--	10.68	--	--	7.66	--
54	--	--	--	13.51	--	--	7.66	--
56	--	--	--	47.62	--	--	61.30	--
58	--	--	--	92.07	--	--	118.77	--
60	--	--	--	125.32	--	--	114.94	--
62	--	--	--	150.60	--	--	126.44	--
64	--	--	--	129.17	--	--	134.10	--
66	--	--	--	121.48	--	--	118.77	--
68	--	--	--	100.42	--	--	88.12	--
70	--	--	--	96.77	--	--	61.30	--
72	--	--	--	49.88	--	--	72.80	--

Length	Dec	Oct	Apr	Aug	Jan	Sep	Jul	Mar
74	--	--	--	27.36	--	--	49.81	--
76	--	--	--	10.61	--	--	15.32	--
78	--	--	--	4.36	--	--	--	--
80	--	--	--	2.00	--	--	--	--
82	--	--	--	1.58	--	--	3.83	--
84	--	--	--	1.02	--	--	7.66	--
86	--	--	--	1.81	--	--	--	--
88	--	--	--	1.02	--	--	--	--
SNPT	1000	2000.00	1000	1000	2000.00	1000	1000	1000
AL	14.9	79.81	19.3	16.7	80.25	17.7	14.8	19.3
ALMF	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
AW	0.03	2.23	0.06	0.04	2.26	0.04	0.04	0.06
N	2	9.00	2	3	3.00	2	4	5
SLF	110	1187.00	527	359	272.00	467	288	146

Table 18. Length composition (0/000) of Greenland halibut from Canadian commercial landings in NAFO Division 2H in 2023.

Length	Jan	Jun	May	Apr	Aug
8	1.07	--	--	--	--
10	115.12	4.13	2.52	--	--
12	29.28	33.00	110.47	--	--
14	15.78	63.00	52.52	141.77	--
16	137.18	46.47	106.99	--	--
18	424.26	220.84	376.37	142.53	500
20	194.95	303.37	239.84	285.82	500
22	15.64	199.60	75.64	192.07	--
24	12.44	93.84	23.14	118.52	--
26	31.02	24.58	12.50	119.28	--
28	10.56	7.82	--	--	--
30	7.49	0.52	--	--	--
32	2.14	1.77	--	--	--
34	3.08	0.52	--	--	--
38	--	0.52	--	--	--
SNPT	1000	1000	1000	1000	1000
AL	18.8	17	16.1	18.2	16.4
ALMF	0.00	0.00	0.00	0.00	0.00
AW	0.05	0.04	0.04	0.05	0.04
N	2	1	3	11	11
SLF	31	2	723	1486	1276

Table 19. Length composition (0/000) of Greenland halibut from Canadian commercial landings in NAFO Division 2J in 2023.

Length	Feb	Apr	Jun	Jan	Dec	Jul	Aug
8	0.78	--	--	--	--	--	--
10	61.66	2.72	--	--	--	--	--
12	321.43	103.45	13.82	--	--	--	--
14	22.20	177.21	110.60	--	--	--	--
16	11.90	38.24	78.34	--	--	--	--
18	148.80	111.99	161.29	--	--	--	--
20	203.78	242.42	195.39	--	--	--	--
22	109.94	133.40	235.94	--	--	--	--
24	63.71	103.45	200.00	--	--	--	--
26	11.25	32.67	4.61	--	--	--	--
28	17.28	13.75	--	--	--	--	--
30	17.09	39.54	--	--	--	--	--
32	9.34	52.58	--	2.38	--	--	--
34	--	46.33	--	4.03	--	--	--
36	--	55.18	--	8.89	9.60	--	--
38	0.84	65.82	--	16.25	25.07	--	--
40	--	56.42	--	38.28	15.28	--	--
42	--	87.32	--	49.88	21.17	--	--
44	--	88.86	--	86.40	38.35	--	--
46	--	59.81	--	118.62	50.76	7.40	--
48	--	89.83	--	128.54	60.29	15.82	26.42
50	--	103.11	--	135.17	53.33	39.98	108.83
52	--	123.37	--	134.84	66.72	86.02	237.51
54	--	65.12	--	92.49	71.84	118.98	188.08
56	--	69.67	--	74.26	55.53	145.08	128.07
58	--	34.88	--	38.85	52.14	132.19	121.51
60	--	0.96	--	18.95	43.76	112.78	132.00
62	--	--	--	12.98	34.22	108.05	106.12

Length	Feb	Apr	Jun	Jan	Dec	Jul	Aug
64	--	0.96	--	5.94	33.41	73.61	82.11
66	--	--	--	4.87	24.73	45.34	94.93
68	--	--	--	2.36	29.42	27.88	124.21
70	--	--	--	3.34	25.54	18.18	132.14
72	--	0.96	--	3.28	32.45	16.05	98.86
74	--	--	--	6.82	36.19	27.35	76.90
76	--	--	--	4.06	27.56	10.66	64.97
78	--	--	--	1.21	22.88	8.30	57.05
80	--	--	--	3.52	43.03	2.74	55.47
82	--	--	--	1.10	38.08	1.13	36.45
84	--	--	--	2.20	18.08	2.48	36.45
86	--	--	--	--	24.69	--	44.38
88	--	--	--	0.51	10.47	--	12.68
90	--	--	--	--	9.57	--	17.43
92	--	--	--	--	9.60	--	3.17
94	--	--	--	--	7.66	--	4.76
96	--	--	--	--	6.69	--	9.51
98	--	--	--	--	0.95	--	--
102	--	--	--	--	0.93	--	--
SNPT	2000	2000	1000.00	1000.00	1000.00	1000.00	1000.00
AL	61.8	124.9	59.99	15.82	48.65	57.78	18.20
ALMF	0.00	0.00	0.00	0.00	0.00	0.00	0.00
AW	0.87	4.67	2.33	0.04	1.05	1.95	0.06
N	6	3	3.00	4.00	7.00	6.00	2.00
SLF	1121	515	791.00	797.00	1761.00	641.00	233.00

Table 20. Length composition (0/000) of Greenland halibut from Canadian commercial landings in NAFO Division 3K in 2023.

Length	Mar	Aug	Feb	May	Apr	Jul
10	6.37	--	--	--	--	--
12	89.17	43.14	310.35	20.72	--	--
14	63.69	289.60	189.66	71.36	--	--
16	6.37	339.38	4.31	79.42	--	--
18	95.54	41.37	51.72	78.96	--	--
20	254.78	29.87	219.83	89.09	--	--
22	363.06	111.28	168.10	180.02	--	--
24	44.59	64.82	43.10	240.33	--	--
26	31.85	46.46	12.93	84.25	3.68	--
28	19.11	16.81	--	24.40	7.35	--
30	12.74	5.53	--	42.82	22.06	--
32	12.74	9.73	--	47.88	22.06	--
34	--	1.99	--	19.34	51.47	--
36	--	--	--	12.43	58.82	--
38	--	--	--	3.68	69.85	--
40	--	1.29	--	5.30	55.15	--
42	--	5.47	--	--	84.56	--
44	--	16.10	--	--	51.47	4.01
46	--	43.08	--	--	80.88	16.03
48	--	93.90	--	--	99.26	42.08
50	--	183.09	--	--	80.88	138.28
52	--	206.34	--	--	125.00	204.41
54	--	199.42	--	--	99.26	226.45
56	--	100.66	--	--	47.79	148.30
58	--	70.81	--	--	29.41	112.22
60	--	42.77	--	--	11.03	46.09
62	--	18.92	--	--	--	24.05
64	--	6.61	--	--	--	18.04

Length	Mar	Aug	Feb	May	Apr	Jul
66	--	3.12	--	--	--	8.02
68	--	3.12	--	--	--	6.01
70	--	1.29	--	--	--	2.00
72	--	1.82	--	--	--	4.01
74	--	1.29	--	--	--	--
86	--	0.91	--	--	--	--
SNPT	1000	2000.00	1000	1000	1000	1000
AL	44.1	67.42	15.4	52.8	18.7	21.1
ALMF	0.00	0.00	0.00	0.00	0.00	0.00
AW	0.78	1.29	0.03	1.36	0.06	0.09
N	1	4.00	1	1	1	2
SLF	272	1472.00	232	499	157	354

Table 21. Length composition (0/000) of Greenland halibut from Canadian commercial landings in NAFO Division 3L in 2023.

Length	Jun	Jul	Aug
44	6.12	--	--
46	--	10.20	--
48	3.06	25.51	--
50	9.17	137.76	--
52	12.23	173.47	500
54	30.58	147.96	500
56	18.35	153.06	--
58	30.58	96.94	--
60	51.99	112.25	--
62	94.80	51.02	--
64	116.21	35.71	--
66	125.38	35.71	--
68	155.96	5.10	--
70	82.57	5.10	--
72	79.51	10.20	--
74	55.05	--	--
76	33.64	--	--
78	36.70	--	--
80	21.41	--	--
82	12.23	--	--
84	9.17	--	--
86	3.06	--	--
88	3.06	--	--
92	6.12	--	--
94	3.06	--	--
SNPT	1000	1000	1000
AL	51.5	54.3	65.6
ALMF	0.00	0.00	0.00

Length	Jun	Jul	Aug
AW	1.16	1.4	2.59
N	1	1	1
SLF	2	196	327

Table 22. Length composition (0/000) of Redfish from Canadian commercial landings in NAFO Division 2G in 2023.

Length	Dec	Mar	Oct	Apr	Jan	Jul	Aug	Sep
5	2.64	3.59	5.96	--	--	--	--	--
6	100.61	11.83	274.33	162.44	16.89	4.85	--	--
7	238.58	32.52	141.51	342.51	35.53	26.05	24.79	14.77
8	88.75	21.38	154.68	49.98	52.48	93.85	91.00	138.83
9	130.49	121.44	88.83	202.08	320.84	59.46	66.85	65.42
10	32.51	207.34	42.03	160.90	414.54	67.43	77.66	83.23
11	25.92	124.14	41.69	38.17	68.85	179.53	159.26	273.01
12	87.00	156.30	55.03	25.06	42.26	205.71	131.59	164.76
13	50.97	195.14	53.60	15.55	28.25	90.50	133.37	104.95
14	84.80	105.89	86.03	3.31	8.75	110.26	222.10	101.19
15	111.60	14.76	42.12	--	7.40	112.35	66.43	43.46
16	35.15	4.15	8.76	--	2.05	36.52	17.82	10.40
17	3.95	1.40	4.57	--	2.15	5.22	9.13	--
18	7.03	0.13	0.44	--	--	6.25	--	--
19	--	--	0.44	--	--	2.04	--	--
SNPT	1000	1000	1000	1000	1000	1000	1000	1000
AL	8.2	11.9	10.1	9.7	11.8	11.2	9	11.2
ALMF	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
AW	0.01	0.02	0.02	0.01	0.02	0.02	0.02	0.02
N	2	5	2	3	8	5	4	5
SLF	391	1177	447	550	2042	1116	808	1093

Table 23. Length composition (0/000) of Redfish from Canadian commercial landings in NAFO Division 2H in 2023.

Length	Jan	May	Apr	Jun	Aug
5	35.83	5.29	--	--	--
6	231.75	112.10	11.50	31.18	--
7	95.92	161.08	134.53	136.00	--
8	105.32	109.80	142.40	155.63	90.91
9	270.81	86.58	164.26	78.55	90.91
10	131.64	112.88	152.77	169.29	181.82
11	64.66	143.62	142.72	156.45	272.73
12	31.62	104.90	83.19	86.45	136.36
13	21.62	86.91	61.32	76.80	45.45
14	6.59	62.29	49.82	52.53	90.91
15	1.41	10.14	38.33	35.22	90.91
16	1.41	4.41	19.16	20.07	--
17	1.41	--	--	0.78	--
18	--	--	--	0.78	--
19	--	--	--	0.26	--
SNPT	1000	1000	1000	1000	1000
AL	10.1	11.2	8.4	10.2	9.7
ALMF	0.00	0.00	0.00	0.00	0.00
AW	0.01	0.02	0.01	0.01	0.02
N	2	1	3	12	15
SLF	315	22	578	3120	3555

Table 24. Length composition (0/000) of Redfish from Canadian commercial landings in NAFO Division 2J in 2023.

Length	Apr	Feb	Jun
5	0.14	22.10	--
6	2.68	104.76	--
7	5.54	44.35	--
8	7.44	32.91	66.65
9	22.29	148.47	109.61
10	164.23	156.18	96.86
11	303.78	100.10	94.27
12	263.63	110.00	161.90
13	180.17	96.56	134.22
14	20.83	75.57	161.35
15	16.58	55.66	96.86
16	8.62	30.24	78.27
17	0.25	16.44	--
18	2.46	4.01	--
19	1.35	1.32	--
20	--	1.32	--
SNPT	1000	1000	1000
AL	11.6	10.7	12.2
ALMF	0.00	0.00	0.00
AW	0.02	0.02	0.03
N	6	4	2
SLF	909	755	500

Table 25. Length composition (0/000) of Redfish from Canadian commercial landings in NAFO Division 3K in 2023.

Length	Mar	Aug	Feb	May
7	4.08	--	--	--
8	8.16	5.69	--	--
9	8.16	7.48	4.22	--
10	4.08	1.79	4.22	11.83
11	12.24	5.69	21.10	20.71
12	53.06	11.22	126.58	25.15
13	134.69	26.34	147.68	47.34
14	151.02	20.81	130.80	66.57
15	102.04	33.98	97.05	81.36
16	187.76	43.25	130.80	72.48
17	240.82	91.06	223.63	137.57
18	81.63	142.60	92.83	217.46
19	12.24	269.59	16.88	214.50
20	--	222.76	--	69.53
21	--	110.57	4.22	19.23
22	--	3.58	--	5.92
23	--	1.79	--	2.96
24	--	1.79	--	2.96
25	--	--	--	2.96
26	--	--	--	1.48
SNPT	1000	1000	1000	1000
AL	18.3	15	15.2	17.1
ALMF	0.00	0.00	0.00	0.00
AW	0.08	0.05	0.05	0.06
N	2	1	1	2
SLF	535	237	245	460

Table 26. Length composition (0/000) of Redfish from Canadian commercial landings in NAFO Division 3L in 2023.

Length	Apr
14	1.60
17	1.60
20	1.60
21	3.21
23	3.10
24	12.51
25	12.53
26	45.85
27	51.60
28	74.29
29	101.24
30	91.43
31	88.33
32	101.11
33	104.23
34	102.89
35	76.36
36	44.74
37	31.32
38	26.59
39	14.24
40	5.60
41	2.39
42	1.60
SNPT	1000
AL	31.5
ALMF	0.00
AW	0.49
N	3
SLF	770

Table 27. Length composition (0/000) of Redfish from Canadian commercial landings in NAFO Division 3Pn in 2023.

Length	Apr
20	2.06
21	4.87
22	25.95
23	145.60
24	279.61
25	291.07
26	153.47
27	53.17
28	11.64
29	5.74
30	5.74
31	1.92
32	1.92
33	5.74
35	1.92
36	3.83
38	1.92
40	1.92
58	1.92
SNPT	1000
AL	24.9
ALMF	0.00
AW	0.21
N	3
SLF	661

Table 28. Length composition (0/000) of Redfish from Canadian commercial landings in NAFO Division 3Ps in 2023.

Length	Mar	Jan
19	0.05	--
20	0.36	--
21	1.03	--
22	11.65	--
23	32.00	6.58
24	80.84	46.39
25	137.40	87.03
26	199.05	148.00
27	189.83	185.42
28	182.85	179.55
29	102.41	153.87
30	44.52	112.00
31	11.72	55.29
32	3.41	14.36
33	0.85	1.65
34	0.78	3.29
36	0.60	--
37	0.12	--
38	0.27	3.29
39	0.12	3.29
44	0.16	--
SNPT	1000	1000
AL	27.7	26.7
ALMF	0.00	0.00
AW	0.28	0.27
N	2	20
SLF	500	5973

Table 29. Length composition (0/000) of Redfish from Canadian commercial landings in NAFO Division 4R in 2023.

Length	Nov	Apr	Oct
16	0.90	--	--
18	0.24	0.41	--
19	2.02	0.60	--
20	3.58	1.08	--
21	10.96	9.27	--
22	52.48	63.22	--
23	161.55	208.50	32.26
24	234.98	331.06	201.61
25	269.50	220.87	362.90
26	167.91	109.89	205.65
27	62.27	40.24	149.19
28	16.30	9.87	48.39
29	13.58	2.41	--
30	1.79	0.80	--
31	--	0.33	--
32	0.65	0.41	--
33	--	0.20	--
34	0.65	--	--
35	--	0.20	--
36	0.65	0.39	--
40	--	0.27	--
SNPT	1000	1000	1000
AL	24.3	24.6	25.4
ALMF	0.00	0.00	0.00
AW	0.2	0.22	0.24
N	11	5	1
SLF	2775	1353	248

Table 30. Length composition (0/000) of Redfish from Canadian commercial landings in NAFO Division 4Vs in 2023.

Length	Feb	Mar
20	0.81	--
21	7.57	--
22	19.70	11.11
23	45.81	33.33
24	91.92	111.11
25	169.24	125.93
26	234.68	166.67
27	202.44	218.52
28	122.05	188.89
29	48.89	81.48
30	30.46	37.04
31	11.54	18.52
32	4.84	--
33	3.47	--
34	1.07	3.70
35	1.59	3.70
36	0.79	--
37	1.18	--
38	1.22	--
39	0.33	--
40	0.10	--
41	0.08	--
43	0.20	--
SNPT	1000	1000
AL	26.3	26.6
ALMF	0.00	0.00
AW	0.26	0.26
N	17	1
SLF	4891	270

Table 31. Length composition (0/000) of Thorny skate from Canadian commercial landings in NAFO Division 2H in 2023.

Length	Jun	May
12	113.10	--
15	480.64	--
18	164.27	318.76
21	91.48	291.14
24	105.28	296.79
27	23.94	45.82
30	21.29	47.50
SNPT	1000	1000
AL	15.1	19.5
ALMF	0.00	0.00
AW	0.03	0.08
N	5	4
SLF	365	16

Table 32. Length composition (0/000) of Thorny skate from Canadian commercial landings in NAFO Division 2J in 2023.

Length	Apr	Jun
18	250	333.41
21	500	333.41
24	250	249.91
27	--	83.26
SNPT	1000	1000
AL	19.2	19.2
ALMF	0.00	0.00
AW	0.06	0.06
N	1	2
SLF	4	12

Table 33. Length composition (0/000) of Witch flounder from Canadian commercial landings in NAFO Division 3O in 2023.

Length	Mar
32	0.89
34	22.14
36	64.27
38	113.33
40	146.64
42	170.73
44	183.76
46	152.08
48	84.62
50	44.84
52	16.70
SNPT	1000
AL	41.2
ALMF	0.00
AW	0.46
N	7
SLF	1858

Table 34. Length composition (0/000) of Yellowtail flounder from Canadian commercial landings in NAFO Division 3L in 2023.

Length	May
24	5.69
26	3.79
28	3.95
30	21.67
32	49.02
34	108.01
36	237.71
38	200.39
40	161.79
42	127.00
44	57.09
46	15.97
48	3.95
50	3.95
SNPT	1000
AL	36.4
ALMF	0.00
AW	0.44
N	2
SLF	506

Table 35. Length composition (0/000) of Yellowtail flounder from Canadian commercial landings in NAFO Division 3N in 2023.

Length	Jul	Apr	Jun	May	Sep	Dec
16	0.24	--	--	--	--	--
18	0.49	--	--	--	--	--
20	3.69	0.32	1.50	0.23	--	--
22	9.06	0.12	3.76	0.47	1.96	--
24	28.50	12.56	6.76	0.23	8.73	--
26	51.84	19.59	21.04	0.70	43.26	37.44
28	80.94	51.49	30.82	3.05	50.96	99.30
30	78.52	77.51	40.96	22.60	55.52	89.26
32	78.97	140.28	64.27	41.04	71.79	94.26
34	157.68	325.42	115.39	57.11	117.00	100.60
36	177.08	503.11	158.57	127.23	179.60	129.51
38	143.03	385.06	170.62	184.70	176.64	154.47
40	101.78	243.85	141.23	193.69	156.62	87.92
42	60.98	152.37	115.90	154.13	75.36	107.99
44	20.29	57.54	67.78	104.66	37.64	64.35
46	6.47	22.06	36.16	66.23	16.97	21.72
48	--	5.97	22.60	40.97	5.63	6.84
50	0.42	2.76	2.63	2.96	1.68	4.34
52	--	--	--	--	0.31	1.50
54	--	--	--	--	0.31	0.50
SNPT	2000	1000.00	1000.00	1000.00	1000.00	1000.0
AL	70	34.49	32.98	35.98	38.14	34.7
ALMF	0.00	0.00	0.00	0.00	0.00	0.0
AW	0.81	0.39	0.36	0.48	0.50	0.4
N	18	2.00	20.00	11.00	7.00	5.0
SLF	2847	521.00	5770.00	2944.00	1985.00	1201.0

Table 36. Length composition (0/000) of Yellowtail flounder from Canadian commercial landings in NAFO Division 3O in 2023.

Length	May	Jul	Sep
24	4.50	--	--
26	6.07	3.68	--
28	7.74	3.68	6.12
30	39.95	58.82	15.78
32	83.74	80.88	42.03
34	137.19	113.97	102.54
36	200.25	176.47	118.01
38	172.99	220.59	124.13
40	129.20	172.79	141.26
42	81.15	62.50	168.24
44	75.96	66.18	121.74
46	34.77	29.41	98.91
48	18.33	7.35	42.86
50	6.49	3.68	16.60
52	0.84	--	--
54	0.83	--	1.76
SNPT	1000	1000	1000
AL	36	36.1	38.6
ALMF	0.00	0.00	0.00
AW	0.45	0.47	0.53
N	1	4	2
SLF	272	983	507