Northwest Atlantic Fisheries Organization

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Canadian Research Report for 2021

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A. STATUS OF FISHERIES

Nominal landings from 2016 to 2021 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. An LRP was established in 2012, and the status of the stock was updated in 2019. The stock remains below the LRP, in the critical zone of the Canadian PA framework. Preliminary Canadian landings of this species were 6 t in 2021 and averaged 4 t during the period 2017 to 2020.

Tables 2 & 3 show the total catch length distributions for Divs. 2+3K were available from 17 samples with a total of 626 measured individuals. Lengths varied from 10 cm to 52 cm with a mean of 31.1 cm.

Atlantic cod–Divisions 2GH, Divisions 2J3KL

Although the Atlantic cod stock in Div. 2GH has been under a moratorium on directed fishing since 1996, 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 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 10,876 t in 2021 and averaged 10,709 t during the period 2017 to 2020. This stock is currently below its established LRP and is considered to be within the Critical Zone of the Canadian Precautionary Approach (PA) framework.

Tables 6, 7, & 8 show the total catches. Length distributions for Divs 2J3KL cod were available from 95 samples with a total of 7,807 measured individuals. Lengths varied from 15 cm to 117 cm with a mean of 53.53 cm.

There are no direct estimates of recreational landings for eight of the past 10 years; therefore reported landings are less than total catch in those years. Evidence from tagging data shows that although removals by the recreational fishery have been substantial in some years since 1997, they have been about 25% of the commercial catch in recent 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 31,050 to 71,726 salmon). There are no preliminary estimates of recreational Atlantic salmon catch for Subarea 2. Estimated Labrador Aboriginal and subsistence fisheries harvest was inferred from logbook returns (63% return rate) at 13,712 salmon in 2020 (7,558 small and 6,154 large), which was 3% above the previous seven-year mean (2013-2019) of 13,369 salmon. In 2020, two of three assessed rivers in Subarea 2 were above the upper stock reference point (healthy zone) and one was 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 4,593 t in 2021 and averaged 5,768 t during the period 2017 to 2020.

Tables 11, 12, & 13 show the total catches. Length distributions for Divs. Subarea 2 + Divisions 3KLMNO Greenland halibut were available from 84 samples with a total of 16,218 measured individuals. Lengths varied from 8 cm to 100 cm with a mean of 46.86 cm.

Iceland scallop–Divisions 2HJ

Preliminary Canadian landings for the Divs. 2HJ Iceland scallop stock were 25 t in 2021 and averaged 13 t during the period 2017 to 2020.

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 6,200 t in 2021 and averaged 12,724 t during the period 2017 to 2020.

SFA 5 (Hopedale and Cartwright Channels)

Preliminary Canadian landings for the SFA 5 shrimp stock were 7,399 t in 2021 and averaged 20,846 t during the period 2017 to 2020.

SFA 6 (Hawke Channel + NAFO Division 3K)

Preliminary Canadian landings for the SFA 6 shrimp stock were 8,470 t in 2021 and averaged 8,022 t during the period 2017 to 2020.

Redfish–Subarea 2 + Division 3K

The Div. 2+3K redfish stock remains under moratorium. Preliminary Canadian landings of this species were 11 t in 2021 and averaged 30 t during the period 2016 to 2020.

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 15 & 16 show the total catches. Length distributions for Divs. 2+3K redfish were available from 26 samples with a total of 4,307 measured individuals. Lengths varied from 5 cm to 48 cm with a mean of 14.78 cm.

Snow crab–Divisions 2HJ

Preliminary Canadian landings for the Divs. 2HJ snow crab stock were 1,180 t in 2021 and averaged 1,663 t during the period 2017 to 2020.

Size-at-terminal molt in males has precipitously declined in recent years and the maturation of 50% of males remains well below exploitable size. A continuation of this trend can dampen short-term recruitment prospects.

Squid–Subarea 2+3

Preliminary Canadian landings for the Subarea 2+3 squid stock were 10,551 t in 2021 and averaged 1,816 t during the period 2017 to 2020.

Witch flounder-Divisions 2J3KL

The Div. 2J3KL witch flounder stock has been under moratorium since 1994. Preliminary Canadian landings of this species were 151 t in 2021 and averaged 88 t during the period 2017 to 2020.

This stock is currently below its established LRP and is considered to be within the Critical Zone of the Canadian Precautionary Approach (PA) framework.

Table 24 shows the total catches. Length distributions for Divs. 2J3KL witch flounder were available from 5 samples with a total of 314 measured individuals. Lengths varied from 8 cm to 58 cm with a mean of 31.67 cm.

SUBAREA 3

American plaice–Divisions 3LNO

The Div. 3LNO American plaice stock remains under moratorium. Preliminary Canadian landings of this species were 546 t in 2021 and averaged 443 t during the period 2017 to 2020.

Table 5 shows the total catches for Division 3N. No sampling was available for Division 3O. Length distributions for Divs. 3LNO American plaice were available from 54 samples with a total of 10,847 measured individuals. Lengths varied from 16 cm to 74 cm with a mean of 40.09 cm.

American plaice-Subdivision 3Ps

Preliminary Canadian landings for the Subdiv. 3Ps American plaice stock were 17 t in 2021 and averaged 124 t during the period 2017 to 2020.

No length samples were available at this time from Subdivision 3Ps.

Atlantic cod–Divisions 3NO

The Div. 3NO Atlantic cod stock remains under moratorium. Preliminary Canadian landings of this species were 94 t in 2021 and averaged 154 t during the period 2017 to 2020, 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.

Table 9 shows the total catches for Division 3N. No sampling was available for Division 3O. Length distributions for Divs. 3NO cod were available from 30 samples with a total of 533 measured individuals. Lengths varied from 24 cm to 141 cm with a mean of 78.46 cm.

Atlantic cod-Subdivision 3Ps

Preliminary Canadian landings for the Subdiv. 3Ps Atlantic cod stock were 753 t in 2021 and averaged 3,929 t during the period 2017 to 2020.

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 10 shows the total catches. Length distributions for Subdiv. 3Ps cod were available from 11 samples with a total of 355 measured individuals. Lengths varied from 45 cm to 117 cm with a mean of 71.67 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 31,050 to 71,726 salmon). There are no preliminary estimates of recreational Atlantic salmon catch for Subarea 3. Of the ten rivers assessed in Subarea 3 in 2020, seven were below their limit reference point (critical zone), two were above their upper stock reference point (healthy zone), and one fell between the two reference points (cautious zone).

Capelin–2+3KL

Capelin landings in Subarea 2 + Div. 3KL were 13,945 t in 2021

Iceland scallop–Divisions 3LNO and Subdivision 3Ps

Preliminary Canadian landings for the Divs. 3LNO Iceland scallop stock were 0 t in 2021 and averaged 0 t during the period 2017 to 2020.

Preliminary Canadian landings for the Divs. 3Ps Iceland scallop stock were 15 t in 2021 and averaged 158 t during the period 2017 to 2020.

Redfish – Divisions 3LN

Preliminary Canadian landings for the Divs. 3LN redfish stock were 2,373 t in 2021 and averaged 3,303 t during the period 2017 to 2020.

Table 17 shows the total catches for Division 3L. No sampling was available for Division 3N. Length distributions for Divs. 3LN redfish were available from 66 samples with a total of 16,649 measured individuals. Lengths varied from 17 cm to 71 cm with a mean of 31.94 cm.

Redfish – Division 3O

Preliminary Canadian landings for the Divs. 3O redfish stock were 358 t in 2021 and averaged 205 t during the period 2017 to 2020.

Length frequencies were not available for this stock.

Redfish–Unit 2 (3Ps4Vs, 3Pn4Vn-June to December, 4Wfgi)

Preliminary Canadian landings for the Unit 2 redfish stock were 5,219 t in 2021 and averaged 2,273 t during the period 2017 to 2020.

Table 18 shows the total catches. Length distributions for Unit 2 redfish were available from 2 samples with a total of 588 measured individuals. Lengths varied from 19 cm to 48 cm with a mean of 27.86 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 4 t in 2021 and averaged 0 t during the period 2017 to 2020.

Sea scallop–Subdivision 3Ps

Preliminary Canadian landings for the Divs. 3Ps sea scallop stock were 946 t in 2021 and averaged 773 t during the period 2017 to 2020.

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

Preliminary Canadian landings for the Divs. 3LNO Northern shrimp stock were 0 t in 2021 and averaged 0 t during the period 2017 to 2020.

Snow crab–Divisions 3KLNO and Subdivision 3Ps

Preliminary Canadian landings for the Divs. 3KLNO snow crab stock were 31,505 t in 2021 and averaged 12,308 t during the period 2017 to 2020.

Size-at-terminal molt in males has increased slightly in the last two years from previous lows in 3K, however the maturation of 50% of males remains below exploitable size.

Preliminary Canadian landings for the Divs. 3Ps snow crab stock were 5,079 t in 2021 and averaged 2,323 t during the period 2017 to 2020.

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 7 t in 2021 and averaged 5 t during the period 2017 to 2020.

Tables 19 shows the total catches for Division 3N. No sampling was available for Divisions 3L or 3O. Length distributions for Divs. 3LNO thorny skate were available from 5 samples with a total of 63 measured individuals. Lengths varied from 23 cm to 80 cm with a mean of 66.3 cm.

Preliminary Canadian landings for the Subdiv. 3Ps thorny skate stock were 536 t in 2021 and averaged 676 t during the period 2017 to 2020.

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 125 t in 2021 and averaged 230 t during the period 2017 to 2020.

Table 20 shows the total catches. Length distributions for Divs. 3NO white hake were available from 2 samples with a total of 6 measured individuals. Lengths varied from 21 cm to 78 cm with a mean of 30.88 cm.

Preliminary Canadian landings for the Subdiv. 3Ps white hake stock were 114 t in 2021 and averaged 204 t during the period 2017 to 2020.

Table 21 shows the total catches. Length distributions for Subdiv. 3Ps white hake were available from 3 samples with a total of 113 measured individuals. Lengths varied from 45 cm to 80 cm with a mean of 63.14 cm.

Witch flounder-Divisions 3NO

Preliminary Canadian landings for the Divs. 3NO witch flounder stock were 386 t in 2021 and averaged 434 t during the period 2017 to 2020.

Tables 25 & 26 show the total catches. Length distributions for Divs. 3NO witch flounder were available from 18 samples with a total of 4,357 measured individuals. Lengths varied from 16 cm to 58 cm with a mean of 39.96 cm.

Witch flounder-Subdivision 3Ps

Preliminary Canadian landings for the Subdiv. 3Ps witch flounder stock were 16 t in 2021 and averaged 329 t during the period 2017 to 2020.

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 13,467 t in 2021 and averaged 9,602 t during the period 2017 to 2020.

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 27 & 28 show the total catches. Length distributions for Divs. 3LNO yellowtail flounder were available from 294 samples with a total of 74,915 measured individuals. Lengths varied from 14 cm to 56 cm with a mean of 37.95 cm.

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 31,050 to 71,726 salmon). There are no preliminary estimates of recreational Atlantic salmon catch for Subarea 4. In 2020, three of four assessed rivers in Subarea 4 were above their upper stock reference point (healthy zone) and one was between the upper stock reference point and limit reference point (cautious zone).

Iceland scallop–Div. 4R

Preliminary Canadian landings for the Div. 4R Iceland scallop stock were 76 t in 2021 and averaged 82 t during the period 2017 to 2020.

Sea scallop–Div. 4R

Preliminary Canadian landings for the Div. 4R sea scallop stock were 9 t in 2021 and averaged 6 t during the period 2017 to 2020.

Snow crab–Div. 4R

Preliminary Canadian landings for the Div. 4R snow crab stock were 313 t in 2021 and averaged 302 t during the period 2017 to 2020.

B. SPECIAL RESEARCH STUDIES

Environmental Studies

The Atlantic Zonal Monitoring Program (AZMP) initiated in 1998 continued during 2021. 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. Important reduction of ship times of various origins resulted in the cancellation of our 2021 spring and fall surveys , limiting data collection to summer only. During the summer survey (29 June - 19 July), the FC, BB, WB, SI and MB sections were sampled. In addition, the high-frequency monitoring station S27 was occupied only once monthly from April through December. The reduction in sampling frequency at S27 and seasonal coverage of the FC and BB sections – which are normally sampled in spring, summer and fall – impacted the

annual indices normally presented in this report and results from these locations should be interpreted with care.

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 negative for the first time in 8 years. The large majority of the environmental parameters presented in this report were above normal (defined as the average over the 1991-2020 climatological period). The air temperatures across the NW Atlantic were above normal in all regions. The sea-ice season volume and area across the Newfoundland and Labrador shelf was at its third lowest level (after 2010 and 2011) since the beginning of the time series in 1969. Sea surface temperatures averaged over the ice-free months were normal to above normal across the different divisions, and above-normal on average across the zone for the second consecutive year, at +0.9 SD. Observations from the summer AZMP oceanographic survey indicate that the cold intermediate layer area along Seal Island, Bonavista Bay and Flemish Cap section was at its third lowest since 1950. Spatially-averaged bottom temperatures in NAFO divisions 3Ps (spring) and 2J3K (fall) were at their second warmest since 1980, including a record in 3Ps. There were no spring or fall measurements in 3LNO due to limited ship availability. The transport on the Scotian Slope in 2021 remained below normal for eight consecutive years at -1.4 sd.

Biological Studies

Multispecies Trawl Surveys

Biological and oceanographic data from fall (Div. 2HJ3KLNO) and spring (3LNOP) multi-species research vessel surveys are collected annually since the early 1970s in order to support stock assessment, distribution and abundance studies, and detailed biological sampling were conducted on important commercial species (e.g. Atlantic cod, American plaice, Greenland halibut, redfish, yellowtail flounder, white hake, thorny skate, northern shrimp, snow crab), as well as a suite of indicators for non-commercial species of the NL Region. In 2021, the annual spring survey was impacted by time constraints largely due to mechanical issues with the primary survey platform. The survey completed 143 of 493 sets planned in Divs. 3LNOP. All completed sets were in Subdiv. 3Ps, representing 80% of the planned sets for this division. The fall 2021 survey was also impacted by time constraints related to mechanical issues of the primary survey platforms, as well as unfavorable weather conditions. The fall survey completed a total of 207 of 674 sets planned in Divs. 2HJ3KLNO (including 63%, 60% and 52% of sets planned in Divisions 2H, 2J and 3K respectively. No sets were conducted in Divs. 3LNO). Depending upon the species, sampling occurs for length, age, growth, maturity stage, condition, 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 as needed. For further details see Rideout et al. (2022).

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 2021 for Divs. 2J3KL Atlantic Cod, and in the fall 2021 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 2021, with 4142 cod tagged and released with Floy tags in Div. 2J3KL. This tagging program provides critical information on mortality to the Northern Cod Assessment Model and an estimate of the recreational fishery catch.

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 2021, 131 Atlantic cod were tagged with acoustic transmitters in Div. 3KL, for an approximate total of 700 Atlantic cod carrying active transmitters in Newfoundland and Labrador waters. DFO-NL Groundfish and partners maintain a network of 170 acoustic receivers in the region, including 36 inshore and 78 offshore in Divisions 2J3KL.

Capelin

The spring acoustic offshore 3L capelin survey targets the primary area of distribution of the age 2 (non-migratory) portion of the capelin stock and produces abundance and biomass indices. A modified survey was conducted in June 2021 using two fishing vessels as a large research vessel was unavailable. While biological data was collected, due to incomplete coverage of the survey area the abundance and biomass indices could not be updated. In 2021, monitoring of beach spawning of capelin was conducted through logbook recordings by citizen scientists and researchers at a number of beaches around the province of Newfoundland, biological samples were collected at various sites. Recently emerged larvae into the Bellevue Beach inshore area of Trinity Bay (Div. 3L) were monitored in July and August 2021. Larval surveys were also conducted in August and September 2021 in Trinity Bay to map capelin larval abundance and dispersal in the Bay. In 2021, acoustic data was collected during the fall multispecies bottom trawl survey in Divs. 2J3K, along with enhanced sampling of the biology and feeding of forage fishes. Analysis of acoustic data is ongoing.

Snow crab

A trap survey for snow crab was conducted in the northern portion of Div. 2J and Div. 2H in the summers of 2013-2020. 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. Long-term trap surveys in White Bay (3K), Notre Dame Bay (3K), Bonavista Bay (3L), and Conception Bay (3L) were continued in 2020. 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) in NL snow crab. Similar surveys were initiated in Fortune Bay (3Ps) in 2007, and Trinity Bay (3L) and St. Mary's Bay (3L) in 2013. The Fortune and St. Mary's Bay surveys did not occur in 2020. A post-season trap survey, conducted by snow crab harvesters, which began throughout most of 2J3KLNOPs4R in 2004 was continued in 2020. These surveys have expanded in spatial scale over the past 5 years and 2020 represented the broadest spatial coverage of the survey throughout the Region in the time series. The frequency of small-mesh pots in this survey has also increased in the past 5 years, with about 80% of the 1200 allocated stations having a small-mesh pot included in 2020. All trap survey series are integral components of the annual stock assessment and are used to monitor present biomass along with recruitment prospects and reproductive capacity of the stock.

Northern shrimp

A Canadian Science Advisory Secretariat framework meeting took place in May 2019 to provide peer review for a population model. The model incorporated North Atlantic Oscillation and predation effects on the Shrimp stocks in SFAS 4-6 and NAFO Divisions 3LNO. While the model was tentatively accepted to provide the direction of change in 1 year, it was not deemed ready for use in setting quotas or implementing new harvest control rules. Some modifications and testing are required and currently underway. Two research studies on larval drift and dispersal have been completed; one for SFAs 4-6 and NAFO Divs. 3LNO and another incorporating SFAs 4-6, NAFO Divs. 3LMNO and North of SFA 4, including West Greenland. The research includes a simulated release of 100 larvae from 100 sites in a biophysical model. The larvae are then permitted to drift and disperse for 85 days, approximately the period it takes for larvae to settle, and vertically behave as larval shrimp in the water column. The research within SFAs 4-6 and NAFO Divs. 3LNO indicated strong downstream larval connectivity and that a majority of recruits in a particular SFA may come from SFAs farther north. It also indicated low larval shrimp retention in SFAs 4, 5 and NAFO Divs. 3LNO, and higher larval retention in SFA 6. Preliminary genomics research demonstrates localized genetically-distinct pools that may be linked to smaller-scale oceanographic profiles (i.e., gyres).

Tables

Table 1. Summary of preliminary catches (t) for stocks within the DFO, Newfoundland and Labrador Region. Note that unless otherwise specified, this table presents Newfoundland and Labrador landings only. Catches are totaled for a Jan 01- Dec 31 calendar year.

Species	Stock	2016	2017*	2018*	2019*	2020*	2021*
American plaice	2+3K	1	3	11	0	1	6
	3LNO	745	226	464	633	448	546
	3Ps	170	207	132	99	58	17
Atlantic cod	2GH	0	0	0	0	0	0
	2J3KL	9,931	12,781	9,448	10,452	10,153	10,876
	3NO	134	287	118	129	83	94
	3Ps	5,273	5,800	4,495	3,397	2,025	753
Capelin	2J3KL	27,708	19,917	19,840	19,509	16,109	13,945
	3NO	0	0	0	0	0	0
Greenland halibut	2+3KLMNO	6,073	5,360	6,071	6,065	5,576	4,593
Haddock	3LNO	184	228	28	73	10	10
	3Ps	252	334	188	168	70	47
Iceland scallop	2HJ	5	5	6	6	34	25
	3LNO	--	0	0	0	0	0
	3Ps	368	527	53	51	0	15
	4R	192	115	140	48	24	76
Lobster	3K	76	77	82	116	136	175
	3L	92	95	102	163	125	145
	3PN	157	162	216	297	356	440
	3Ps	1,199	1,088	1,263	1,572	1,750	1,601
	4R	1,354	1,488	1,756	2,511	2,549	2,623
Pollock	3LNO	14	1	11	0	--	0
	3Ps	366	580	280	119	79	66
Redfish	2+3K	20	104	9	4	4	11
	3LN	2,713	4,177	4,536	2,982	1,518	2,373
	3O	22	60	80	213	468	358
	Unit 2	380	1,203	1,735	2,410	3,743	5,219
Sea scallop	3KLNO	3	0	1	0	0	4
	3Ps	883	846	414	924	909	946
	4R	7	10	6	3	7	9
Shrimp	3L	0	0	0	0	0	0
	3M	0	0	0	0	0	795
	SFA 4	14,377	16,439	15,697	11,232	7,526	6,200
	SFA 5	22,552	26,102	23,257	23,440	10,587	7,399

Species	Stock	2016	2017*	2018*	2019*	2020*	2021*
	SFA 6	25,143	10,065	8,702	8,638	4,683	8,470
Snow crab	2HJ	1,700	1,758	1,753	1,768	1,372	1,180
	3K	5,550	5,509	5,984	6,047	6,541	7,554
	3LNO	32,316	23,230	17,787	15,583	17,786	23,951
	3P	1,188	1,173	2,082	2,789	3,249	5,079
	4R	694	524	302	186	196	313
Squid	2+3	104	313	1,322	2,540	3,088	10,551
Thorny skate	3LNO	3	6	2	7	4	7
	3Ps	401	413	916	891	487	536
White hake	3LNO	94	558	57	159	148	125
	3Ps	271	239	277	186	116	114
Witch flounder	2J3KL	53	98	138	35	83	151
	3NO	798	349	478	479	427	386
	3Ps	481	394	277	535	109	16
Yellowtail flounder	3LNO	6,327	6,262	7,134	11,541	13,469	13,467
	3Ps	5	16	5	5	1	0

*Includes DFO Maritimes landings

Table 2. Length composition (0/000) of American plaice from Canadian commercial landings in NAFO Division 2J in 2021.

Length	Jan	Feb	Mar
10	10.81	--	--
18	10.81	--	--
20	63.32	28.32	--
22	63.82	--	--
24	370.92	--	--
26	312.65	50.48	6.96
28	111.96	50.48	17.71
30	17.88	66.24	38.51
32	35.13	41.37	35.86
34	--	88.49	87.52
36	--	182.16	142.90
38	2.70	169.51	219.05
40	--	167.79	214.83
42	--	77.57	118.42
44	--	37.92	61.18
46	--	12.64	33.25
48	--	12.64	13.69
50	--	--	10.12
52	--	14.37	--
SNPT	1000	1000	1000
AL	34.8	23.4	36.8
ALMF			
AW	0.43	0.12	0.49
N	4	8	4
SLF	73	46	486

Table 3. Length composition (0/000) of American plaice from Canadian commercial landings in NAFO Division 3K in 2021.

Length	Jan
22	142.86
24	571.43
26	142.86
28	47.62
30	47.62
34	47.62
SNPT	1000
AL	23.4
ALMF	
AW	0.1
N	1
SLF	21

Table 4. Length composition (0/000) of American plaice from Canadian commercial landings in NAFO Division 3L in 2021.

Length	Apr	Mar
22	8.25	1.27
24	51.64	--
26	75.34	33.23
28	50.86	72.35
30	56.56	43.41
32	90.35	68.80
34	102.06	119.44
36	165.25	89.70
38	125.01	110.80
40	104.74	161.30
42	58.57	132.37
44	49.50	98.20
46	43.70	46.62
48	9.91	17.89
50	8.25	4.62
SNPT	1000	1000
AL	33.8	36
ALMF		
AW	0.39	0.48
N	3	5
SLF	214	208

Table 5. Length composition (0/000) of American plaice from Canadian commercial landings in NAFO Division 3N in 2021.

Length	Nov	Sep	Oct	Dec	May	Apr	Jun
16	1.46	--	--	--	--	--	--
18	1.66	--	--	--	--	--	--
20	2.01	1.43	--	--	--	--	--
22	2.72	1.43	0.74	--	--	--	--
24	3.83	--	--	--	--	--	--
26	2.74	3.77	2.14	1.32	--	--	--
28	4.66	6.83	5.27	21.17	2.13	--	--
30	5.35	15.06	10.62	47.96	12.55	8.02	12.10
32	19.88	27.20	20.61	13.43	61.20	64.26	24.19
34	45.55	42.94	44.89	9.76	117.29	84.37	108.87
36	86.14	85.57	72.66	30.22	166.49	193.91	125.00
38	138.85	127.48	96.37	71.79	153.86	213.52	161.29
40	172.65	158.12	159.66	140.66	130.37	155.55	137.10
42	188.41	156.03	161.91	130.76	101.69	88.20	125.00
44	154.53	137.84	149.24	133.58	83.89	82.52	104.84
46	61.80	96.97	119.38	123.83	67.89	28.12	72.58
48	43.44	81.60	75.09	92.47	37.46	31.21	52.42
50	31.05	33.38	38.41	64.89	19.83	19.61	28.23
52	15.92	13.08	26.48	33.20	15.76	15.17	12.10
54	6.50	9.66	10.40	22.47	10.25	2.22	12.10
56	5.05	--	2.65	26.65	7.22	4.44	4.03
58	2.53	0.78	3.32	14.25	4.70	4.44	8.06
60	1.48	--	0.16	6.94	1.07	2.22	4.03
62	0.51	--	--	5.24	1.07	2.22	--
64	0.76	--	--	6.88	3.84	--	8.06
66	0.24	0.80	--	1.65	--	--	--
68	0.28	--	--	--	--	--	--
72	--	--	--	0.88	0.35	--	--
74	--	--	--	--	1.09	--	--
SNPT	1000	1000	1000	1000	1000	1000	1000
AL	37.7	42.1	39.3	38.3	39.6	40.6	39.9
ALMF							
AW	0.55	0.81	0.61	0.58	0.63	0.71	0.65
N	2	5	1	4	16	13	5
SLF	352	1159	248	878	3864	2537	1387

Table 6. Length composition (0/000) of Atlantic cod from Canadian commercial landings in NAFO Division 2J in 2021.

Length	Apr	Jan	Feb	Mar
15	132.53	10.61	--	--
18	108.43	159.17	131.78	--
21	512.05	630.25	608.53	--
24	234.94	181.54	236.43	--
27	12.05	18.42	19.38	--
30	--	--	3.88	11.56
33	--	--	--	11.56
36	--	--	--	9.18
39	--	--	--	76.27
42	--	--	--	156.56
45	--	--	--	115.43
48	--	--	--	241.91
51	--	--	--	63.49
54	--	--	--	180.14
57	--	--	--	106.20
60	--	--	--	9.23
63	--	--	--	9.23
72	--	--	--	9.23
SNPT	1000	1000	1000	1000
AL	18.7	19.5	19.1	46.3
ALMF				
AW	0.05	0.06	0.06	0.98
N	1	1	18	6
SLF	166	258	956	99

Table 7. Length composition (0/000) of Atlantic cod from Canadian commercial landings in NAFO Division 3K in 2021.

Length	Jan	Aug	Sep	Oct	Jul	Nov
15	83.33	--	--	--	--	--
18	500.00	--	--	--	--	--
21	416.67	--	--	--	--	--
36	--	0.60	--	--	--	--
39	--	0.24	0.58	--	--	--
42	--	0.62	1.00	1.71	--	--
45	--	6.82	14.80	49.87	1.24	47.62
48	--	5.44	13.70	103.40	3.84	190.48
51	--	6.07	25.08	135.50	2.46	142.86
54	--	18.68	52.99	165.23	14.73	95.24
57	--	48.57	100.22	154.27	41.59	174.60
60	--	123.07	153.15	127.29	131.86	190.48
63	--	202.94	195.54	97.25	197.86	31.75
66	--	196.85	183.03	65.79	208.51	47.62
69	--	165.75	110.45	44.90	140.87	63.49
72	--	107.02	75.63	28.18	113.24	--
75	--	53.61	25.76	12.17	53.96	--
78	--	21.43	20.18	3.79	32.05	--
81	--	13.98	6.09	3.03	13.18	--
84	--	9.98	8.39	5.39	15.87	--
87	--	10.22	5.44	--	10.70	15.87
90	--	4.74	3.54	--	7.35	--
93	--	1.58	3.55	--	5.32	--
96	--	1.00	0.91	1.33	--	--
99	--	0.27	--	0.91	4.06	--
102	--	0.54	--	--	--	--
105	--	--	--	--	1.32	--
SNPT	1000	1000	1000	1000	1000	1000
AL	64.3	17	65.1	54	55.2	61.8
ALMF						
AW	2.43	0.04	2.58	1.47	1.6	2.1
N	22	1	8	1	13	11
SLF	2576	12	714	63	810	984

Table 8. Length composition (0/000) of Atlantic cod from Canadian commercial landings in NAFO Division 3L in 2021.

Length	Aug	Nov	Feb	Sep	Mar
42	2.59	4.88	--	--	--
45	5.58	24.01	--	--	--
48	3.49	4.78	76.92	--	--
51	9.93	19.13	--	--	--
54	8.24	38.74	76.92	--	--
57	16.18	29.18	38.46	12.82	--
60	42.02	67.92	192.31	25.64	--
63	111.73	63.14	153.85	38.46	300.49
66	145.89	76.26	115.39	76.92	--
69	150.96	124.68	269.23	153.85	--
72	182.37	104.66	--	153.85	--
75	97.03	99.78	--	102.56	233.17
78	65.22	85.24	38.46	51.28	--
81	63.18	76.30	--	51.28	--
84	33.19	33.06	--	102.56	--
87	20.39	38.15	38.46	76.92	233.17
90	12.34	33.27	--	89.74	233.17
93	9.77	38.55	--	25.64	--
96	9.20	--	--	25.64	--
99	1.25	14.35	--	--	--
102	3.21	9.56	--	--	--
105	1.25	9.56	--	12.82	--
108	1.25	--	--	--	--
111	3.76	--	--	--	--
117	--	4.78	--	--	--
SNPT	1000	1000	1000	1000	1000
AL	69.2	61.9	74.7	70.4	74.9
ALMF					
AW	3.05	2.22	4.16	3.46	4.01
N	6	1	2	3	1
SLF	852	26	4	209	78

Table 9. Length composition (0/000) of Atlantic cod from Canadian commercial landings in NAFO Division 3N in 2021.

Length	Dec	Nov	Oct	Jan	May	Jun
24	63.86	--	--	--	--	--
27	108.64	--	--	--	--	--
30	107.05	--	--	--	--	--
36	14.53	3.87	--	--	--	--
39	--	19.34	31.12	--	--	--
42	--	14.76	62.25	--	--	--
45	4.20	29.92	84.45	--	--	--
48	4.20	73.09	84.45	--	--	--
51	4.20	65.29	44.41	--	--	--
54	72.81	59.89	53.33	--	--	--
57	13.64	24.22	44.41	61.97	--	--
60	108.97	31.57	22.21	185.91	--	--
63	65.63	25.54	31.12	123.94	--	--
66	135.94	36.86	168.91	85.45	--	--
69	28.16	61.73	22.21	--	--	--
72	64.57	141.52	62.25	123.94	--	--
75	26.79	146.93	--	--	--	--
78	47.53	95.92	31.12	--	--	--
81	24.51	28.31	53.33	--	97.76	--
84	4.20	22.90	31.12	--	--	45.45
87	4.24	11.05	31.12	--	--	45.45
90	4.20	23.14	53.33	85.45	--	136.37
93	10.33	2.06	22.21	61.97	97.76	90.91
96	5.66	12.53	--	85.45	97.76	136.36
99	8.06	11.43	22.21	--	347.76	90.91
102	4.20	18.07	--	61.97	206.73	90.91
105	20.22	15.30	--	--	--	90.91
108	19.77	6.71	22.21	--	97.76	181.82
111	5.66	5.92	--	61.97	54.48	45.45
114	4.20	5.45	22.21	61.97	--	--
117	9.85	--	--	--	--	--
123	--	--	--	--	--	45.45
126	4.20	--	--	--	--	--
129	--	1.58	--	--	--	--
132	--	1.58	--	--	--	--
141	--	3.54	--	--	--	--
SNPT	1000	1000	1000	1000	1000	1000
AL	56.2	77	97.5	96.7	67.3	64
ALMF						
AW	3.69	4.46	8.77	8.69	3.53	3.23
N	7	2	1	2	16	2
SLF	101	15	22	12	346	37

Table 10. Length composition (0/000) of Atlantic cod from Canadian commercial landings in NAFO Division 3Ps in 2021.

Length	Feb	Jul	Jan
45	2.99	--	--
48	28.22	24.39	--
51	76.24	24.39	--
54	160.96	73.17	--
57	181.42	121.95	--
60	151.85	121.95	--
63	155.47	219.51	--
66	80.31	292.68	117.65
69	64.56	48.78	--
72	37.05	73.17	--
75	20.81	--	--
78	6.41	--	58.82
81	10.62	--	--
84	13.26	--	58.82
87	3.42	--	176.47
90	2.99	--	--
93	3.42	--	294.12
102	--	--	58.82
108	--	--	176.47
117	--	--	58.82
SNPT	1000	1000	1000
AL	58.7	89.9	60.5
ALMF			
AW	1.79	6.53	2
N	8	2	1
SLF	297	17	41

Table 11. Length composition (0/000) of Greenland halibut from Canadian commercial landings in NAFO Division 2J in 2021.

Length	Jan	Feb	Apr	Mar	May	Jul
8	0.26	--	--	--	--	--
10	26.76	0.74	--	--	--	--
12	244.09	9.31	--	--	--	--
14	91.30	4.00	--	--	--	--
16	25.02	3.20	--	--	--	--
18	179.37	29.54	--	--	--	--
20	175.36	59.91	--	--	--	--
22	144.62	20.45	0.52	--	--	--
24	75.56	1.65	0.29	0.29	--	--
26	12.13	4.63	1.37	0.40	--	--
28	13.04	1.27	1.37	1.03	--	--
30	10.83	--	2.81	1.35	--	--
32	0.90	--	5.02	2.53	--	--
34	--	6.09	11.18	6.49	0.82	--
36	--	3.04	15.23	12.68	0.71	--
38	0.75	9.55	31.40	27.23	5.20	--
40	--	38.63	49.16	40.43	5.53	--
42	--	64.57	93.40	77.11	32.18	--
44	--	84.32	145.71	128.46	88.88	--
46	--	72.05	155.09	127.49	126.63	1.93
48	--	85.68	139.19	110.82	141.75	3.50
50	--	60.91	96.64	101.75	121.16	4.71
52	--	90.19	74.57	92.36	112.18	3.75
54	--	86.30	57.37	88.41	125.93	10.39
56	--	81.15	39.13	57.98	98.03	18.84
58	--	52.49	25.33	39.33	81.22	23.68
60	--	43.36	15.78	23.87	33.24	26.34
62	--	20.79	13.80	16.81	8.37	61.73
64	--	26.04	7.75	8.71	6.84	72.12
66	--	13.86	4.96	9.20	3.17	107.75
68	--	7.77	4.16	6.15	2.13	101.84
70	--	1.68	1.79	2.76	--	89.15
72	--	5.57	3.51	4.28	0.71	93.14
74	--	3.46	0.21	2.29	3.07	99.90
76	--	0.42	0.72	4.37	--	74.77
78	--	0.42	0.94	1.03	2.25	57.75
80	--	0.42	1.36	1.04	--	41.80
82	--	0.42	--	0.90	--	37.09
84	--	3.04	--	1.10	--	27.54
86	--	--	--	0.88	--	6.04

Length	Jan	Feb	Apr	Mar	May	Jul
88	--	3.04	0.21	--	--	11.72
90	--	--	--	--	--	12.56
92	--	--	--	--	--	5.32
94	--	--	--	0.48	--	2.54
96	--	--	--	--	--	4.11
SNPT	1000	1000	1000	1000	1000	1000
AL	46.1	45.6	16.2	69.3	47.8	49.5
ALMF						
AW	0.92	0.75	0.04	3.14	1.04	1.11
N	19	5	10	3	11	4
SLF	4187	834	881	691	2626	973

Table 12. Length composition (0/000) of Greenland halibut from Canadian commercial landings in NAFO Division 3K in 2021.

Length	Jan	Jul	May	Jun
12	250.00	40.20	--	--
14	142.86	160.51	--	--
16	--	254.17	--	--
18	--	103.92	--	--
20	71.43	105.34	--	--
22	392.86	189.73	--	--
24	71.43	70.99	--	--
26	71.43	29.58	--	--
28	--	25.23	--	--
30	--	13.61	--	--
32	--	6.70	--	--
34	--	--	2.17	--
36	--	--	3.43	--
38	--	--	6.72	--
40	--	--	15.50	--
42	--	--	41.88	--
44	--	--	75.45	--
46	--	--	108.26	--
48	--	--	127.33	--
50	--	--	109.90	0.41
52	--	--	101.81	1.65
54	--	--	114.59	17.94
56	--	--	115.48	15.03
58	--	--	73.61	23.02
60	--	--	47.52	35.08
62	--	--	21.02	70.90
64	--	--	13.16	121.30
66	--	--	5.14	134.63
68	--	--	6.05	134.95
70	--	--	0.96	107.11
72	--	--	4.62	90.18
74	--	--	0.74	61.72
76	--	--	1.05	42.34
78	--	--	0.64	42.97
80	--	--	0.64	37.43
82	--	--	0.64	17.87
84	--	--	0.64	19.11
86	--	--	1.05	11.72
88	--	--	--	6.82
90	--	--	--	4.69

Length	Jan	Jul	May	Jun
92	--	--	--	1.19
94	--	--	--	1.17
98	--	--	--	0.77
SNPT	1000	1000	1000	1000
AL	17.1	17.1	67.6	50.1
ALMF				
AW	0.05	0.04	2.8	1.12
N	1	2	4	8
SLF	28	339	1068	2048

Table 13. Length composition (0/000) of Greenland halibut from Canadian commercial landings in NAFO Division 3L in 2021.

Length	Apr	Mar	May	Jul	Aug
34	3.82	27.42	--	--	--
36	15.27	164.52	1.23	--	--
38	22.90	82.26	4.82	--	--
40	45.80	116.12	17.18	1.41	--
42	61.07	137.10	32.52	--	--
44	68.70	54.84	77.37	5.69	--
46	80.15	164.52	95.80	9.90	--
48	61.07	82.26	84.79	32.63	--
50	99.24	27.42	110.92	55.12	10.18
52	103.05	54.84	94.68	110.63	5.49
54	80.15	--	117.61	142.94	22.82
56	64.89	27.42	114.60	170.36	10.88
58	41.98	27.42	88.78	143.32	15.92
60	38.17	--	61.20	104.47	45.61
62	57.25	33.86	34.47	100.86	57.83
64	34.35	--	21.77	48.82	118.47
66	45.80	--	13.28	27.38	121.12
68	22.90	--	9.68	19.82	149.29
70	11.45	--	6.05	8.54	127.15
72	11.45	--	4.86	4.47	65.62
74	22.90	--	3.64	3.56	65.97
76	--	--	1.18	3.84	50.87
78	3.82	--	1.23	0.76	35.30
80	3.82	--	--	1.44	27.95
82	--	--	1.18	1.41	19.29
84	--	--	--	--	18.58
86	--	--	1.18	--	13.45
88	--	--	--	--	5.49
90	--	--	--	2.62	7.61
92	--	--	--	--	2.57
100	--	--	--	--	2.57
SNPT	1000	1000	1000	1000	1000
AL	51.4	67.4	55.7	42.2	51.2
ALMF					
AW	1.29	2.81	1.52	0.76	1.23
N	1	3	6	2	4
SLF	262	377	868	38	993

Table 14. Length composition (0/000) of Greenland halibut from Canadian commercial landings in NAFO Division 3N in 2021.

Length	Dec
30	400.00
32	200.00
34	200.00
38	200.00
SNPT	1000
AL	31.6
ALMF	
AW	0.25
N	1
SLF	5

Table 15. Length composition (0/000) of redfish from Canadian commercial landings in NAFO Division 2J in 2021.

Length	Feb	Jan	Apr	Mar
5	2.88	3.07	--	--
6	33.32	10.58	--	--
7	94.19	12.47	0.99	--
8	74.70	16.77	18.47	--
9	137.54	103.32	32.89	--
10	359.71	324.85	224.15	--
11	244.03	328.44	410.42	--
12	53.64	189.39	238.24	--
13	--	3.84	71.12	--
14	--	5.50	2.48	--
15	--	0.38	1.24	--
16	--	0.31	--	--
17	--	0.06	--	--
18	--	1.01	--	--
27	--	--	--	17.47
30	--	--	--	14.51
31	--	--	--	86.71
32	--	--	--	124.30
33	--	--	--	138.81
34	--	--	--	92.32
35	--	--	--	153.31
36	--	--	--	147.38
37	--	--	--	72.21
38	--	--	--	57.70
39	--	--	--	60.67
40	--	--	--	11.54
42	--	--	--	11.54
48	--	--	--	11.54
SNPT	1000	1000	1000	1000
AL	11	9.6	10.5	34.7
ALMF				
AW	0.02	0.01	0.01	0.66
N	4	3	14	2
SLF	927	307	2191	103

Table 16. Length composition (0/000) of redfish from Canadian commercial landings in NAFO Division 3K in 2021.

Length	Feb	Jul
8	6.68	7.46
9	80.45	11.19
10	317.25	37.31
11	301.62	238.81
12	294.00	384.33
13	--	253.73
14	--	63.43
15	--	3.73
SNPT	1000	1000
AL	10.8	12
ALMF		
AW	0.02	0.02
N	2	1
SLF	511	268

Table 17. Length composition (0/000) of redfish from Canadian commercial landings in NAFO Division 3L in 2021.

Length	Feb	Mar	Apr	Dec	Jul	May
17	1.11	--	--	--	--	--
18	1.30	0.30	--	--	--	--
19	2.58	1.11	--	--	--	--
20	3.75	3.42	3.43	--	--	--
21	6.36	4.09	2.09	--	--	--
22	5.77	4.15	7.26	1.06	--	--
23	4.23	6.26	3.70	1.06	1.22	--
24	10.79	13.13	17.97	4.89	2.98	--
25	19.03	37.42	37.21	16.24	13.99	1.79
26	25.73	70.28	84.96	30.82	29.72	16.36
27	42.38	98.10	123.07	48.56	57.70	22.01
28	54.14	112.66	140.37	61.33	48.60	32.43
29	54.73	102.33	110.44	85.18	91.50	38.97
30	69.07	100.04	97.73	71.57	69.52	59.78
31	80.01	81.70	75.99	87.06	98.48	77.04
32	111.61	77.90	68.44	105.57	126.81	114.50
33	112.63	61.83	46.46	145.64	90.62	99.05
34	97.55	52.45	52.24	100.91	109.58	110.94
35	96.22	37.32	34.48	80.00	74.44	122.25
36	53.09	32.63	35.54	63.09	49.33	94.89
37	45.90	19.73	20.73	30.93	52.47	71.98
38	26.65	21.73	17.52	28.48	26.58	47.29
39	20.07	16.48	5.33	16.18	16.97	35.69
40	11.98	12.97	5.87	14.52	21.88	27.96
41	7.80	7.43	2.30	4.16	7.92	18.15
42	4.55	6.00	1.08	1.70	1.25	4.47
43	2.60	3.94	1.42	1.06	1.25	2.68
44	3.48	2.20	0.29	--	0.55	--
45	3.62	1.90	--	--	1.22	0.89
46	2.61	1.42	0.46	--	1.28	0.89
47	1.23	1.24	0.34	--	--	--
48	1.82	0.86	--	--	1.32	--
49	2.92	1.52	--	--	--	--
50	1.83	0.53	0.34	--	1.28	--
51	0.92	0.97	--	--	0.77	--
52	1.10	0.77	0.51	--	--	--
53	0.29	0.43	0.51	--	--	--
54	0.10	0.83	0.40	--	--	--
55	0.29	0.34	--	--	--	--
56	0.16	0.29	0.34	--	--	--

Length	Feb	Mar	Apr	Dec	Jul	May
57	0.29	0.51	0.17	--	0.77	--
58	0.38	0.19	--	--	--	--
59	2.79	--	0.34	--	--	--
60	1.34	0.30	0.51	--	--	--
62	0.19	--	--	--	--	--
63	0.96	0.10	0.17	--	--	--
64	1.44	--	--	--	--	--
67	--	0.10	--	--	--	--
70	--	0.10	--	--	--	--
71	0.62	--	--	--	--	--
SNPT	1000	1000	1000	1000	1000	1000
AL	30	32.1	32.7	32.4	30.8	33.8
ALMF						
AW	0.48	0.58	0.55	0.54	0.55	0.53
N	9	3	11	5	36	2
SLF	2281	831	2676	1139	9166	556

Table 18. Length composition (0/000) of redfish from Canadian commercial landings in NAFO Division 3Ps in 2021.

Length	Jul	Mar
19	3.45	--
20	6.90	3.36
21	10.35	--
22	3.45	6.71
23	17.24	23.49
24	96.55	13.42
25	168.97	57.05
26	220.69	117.45
27	210.34	100.67
28	162.07	164.43
29	55.17	107.38
30	27.59	83.89
31	3.45	114.09
32	10.35	30.20
33	3.45	60.40
34	--	26.85
35	--	30.20
36	--	23.49
37	--	6.71
38	--	13.42
43	--	3.36
45	--	3.36
46	--	3.36
47	--	3.36
48	--	3.36
SNPT	1000	1000
AL	26.4	29.4
ALMF		
AW	0.25	0.33
N	1	1
SLF	290	298

Table 19. Length composition (0/000) of thorny skate from Canadian commercial landings in NAFO Division 3N in 2021.

Length	Nov	Jan
23	31.02	--
33	--	29.41
34	--	29.41
40	--	29.41
45	--	29.41
48	--	29.41
51	--	58.82
53	--	29.41
55	--	29.41
56	35.00	29.41
60	--	58.82
63	--	29.41
64	35.84	--
65	107.33	--
66	35.00	58.82
67	31.02	--
68	69.18	29.41
69	35.00	--
70	--	29.41
71	66.02	--
72	109.83	58.82
73	62.04	58.82
74	35.84	--
75	101.86	88.23
76	35.00	29.41
77	35.00	88.23
78	35.00	58.82
79	--	29.41
80	--	29.41
SNPT	1000	1000
AL	65.6	70.4
ALMF		
AW	2.47	3.57
N	1	4
SLF	34	29

Table 20. Length composition (0/000) of white hake from Canadian commercial landings in NAFO Division 3N in 2021.

Length	Dec
21	252.05
22	252.05
27	252.05
54	81.28
78	81.28
SNPT	1000
AL	35.6
ALMF	
AW	2.22
N	2
SLF	6

Table 21. Length composition (0/000) of white hake from Canadian commercial landings in NAFO Division 3Ps in 2021.

Length	Feb	Mar
45	17.84	--
50	35.67	--
51	35.67	--
52	64.80	16.13
53	46.97	--
54	23.48	--
55	59.16	--
56	59.16	16.13
57	107.02	--
58	94.83	16.13
59	71.34	64.52
60	41.32	48.39
61	76.99	16.13
62	59.16	--
63	41.32	64.52
64	35.67	32.26
65	23.48	16.13
66	23.48	16.13
67	17.84	32.26
69	23.48	--
70	23.48	48.39
72	17.84	48.39
74	--	16.13
75	--	48.39
76	--	80.64
77	--	48.39
78	--	48.39
80	--	80.64
SNPT	1000	1000
AL	58.5	74.9
ALMF		
AW	1.67	4.2
N	2	1
SLF	51	62

Table 22. Length composition (0/000) of witch flounder from Canadian commercial landings in NAFO Division 2J in 2021.

Length	Apr
26	12.08
28	27.02
30	26.28
32	57.54
34	103.00
36	143.39
38	198.73
40	145.35
42	113.52
44	53.21
46	55.33
48	34.03
50	13.46
52	9.96
56	2.12
58	4.98
SNPT	1000
AL	37.1
ALMF	
AW	0.34
N	2
SLF	303

Table 23. Length composition (0/000) of witch flounder from Canadian commercial landings in NAFO Division 3K in 2021.

Length	Jan
8	500.00
18	500.00
SNPT	1000
AL	11.5
ALMF	
AW	0.01
N	1
SLF	2

Table 24. Length composition (0/000) of witch flounder from Canadian commercial landings in NAFO Division 3L in 2021.

Length	Mar
32	21.82
34	21.82
38	21.82
40	21.82
42	21.82
44	847.25
46	21.82
48	21.82
SNPT	1000
AL	41.5
ALMF	
AW	0.39
N	2
SLF	9

Table 25. Length composition (0/000) of witch flounder from Canadian commercial landings in NAFO Division 3N in 2021.

Length	Nov
16	2.55
18	6.44
20	7.64
22	6.44
24	2.55
26	5.09
28	7.64
30	12.40
32	40.60
34	62.20
36	124.66
38	209.12
40	240.32
42	122.27
44	73.42
46	44.85
48	23.32
50	8.50
SNPT	1000
AL	37.2
ALMF	
AW	0.34
N	4
SLF	588

Table 26. Length composition (0/000) of witch flounder from Canadian commercial landings in NAFO Division 3O in 2021.

Length	Mar
28	0.47
30	1.47
32	2.63
34	14.12
36	49.77
38	155.47
40	252.00
42	261.75
44	154.54
46	72.47
48	23.48
50	7.80
52	2.71
54	0.88
56	0.25
58	0.17
SNPT	1000
AL	39.8
ALMF	
AW	0.44
N	14
SLF	3769

Table 27. Length composition (0/000) of yellowtail flounder from Canadian commercial landings in NAFO Division 3N in 2021.

Length	Nov	Oct	Dec	Sep	Jun	Jan	May	Feb	Apr
14	0.12	0.04	--	--	--	--	--	--	--
16	0.58	0.62	1.08	0.49	--	--	--	--	--
18	1.49	1.37	5.08	0.43	0.38	--	--	--	--
20	2.37	5.09	5.64	3.04	1.90	0.29	0.50	--	--
22	2.98	6.69	9.30	5.17	1.38	0.96	--	--	--
24	3.77	8.65	14.93	5.70	2.23	0.22	0.19	0.24	--
26	7.30	12.70	15.42	8.33	3.16	1.16	1.75	1.31	0.29
28	9.19	15.71	9.67	22.00	23.32	12.79	16.39	15.16	1.73
30	19.16	32.00	30.55	57.30	50.63	40.06	43.60	46.78	4.70
32	47.72	56.62	62.90	78.42	77.73	76.60	75.09	67.09	44.11
34	123.34	119.53	105.72	139.12	128.23	142.41	116.18	138.26	119.06
36	216.84	190.33	169.66	185.36	175.98	203.75	200.72	203.46	206.10
38	232.95	213.74	178.31	184.61	199.65	188.69	208.89	198.58	245.92
40	180.31	179.92	158.11	143.75	178.08	162.09	177.64	168.00	206.71
42	100.77	93.50	128.47	86.67	104.62	107.05	102.98	97.69	109.69
44	35.64	43.16	70.67	48.58	39.25	42.66	40.08	42.78	51.78
46	11.42	13.81	26.34	21.73	8.33	14.65	12.78	13.35	8.00
48	2.21	4.04	5.65	7.97	4.42	4.52	2.62	5.81	1.74
50	1.13	2.02	1.38	1.20	0.71	1.36	0.61	1.05	0.16
52	0.61	0.32	1.12	0.13	--	0.67	--	0.25	--
54	0.03	0.15	--	--	--	0.08	--	0.18	--
56	0.06	--	--	--	--	--	--	--	--
SNPT	1000	1000	1000	1000	1000	1000	1000	1000	1000
AL	36.5	35.8	35.8	35.8	35.5	35.8	35.9	35.5	35.3
ALMF									
AW	0.45	0.43	0.41	0.42	0.39	0.42	0.42	0.44	0.43
N	17	24	17	23	27	15	55	62	30
SLF	4280	6160	4520	6314	6666	3907	13991	15745	7578

Table 28. Length composition (0/000) of yellowtail flounder from Canadian commercial landings in NAFO Division 3O in 2021.

Length	Jun	Jan	Sep	Aug
24	9.01	--	--	--
26	9.01	--	--	--
28	9.01	3.28	0.04	--
30	13.51	14.54	0.23	2.56
32	130.63	31.13	31.63	28.48
34	45.05	77.88	93.07	78.10
36	144.15	138.84	170.33	155.24
38	193.69	156.96	187.49	175.62
40	130.63	184.35	181.28	168.25
42	108.11	148.25	152.44	143.21
44	72.07	120.63	91.26	133.09
46	54.05	69.47	55.48	77.85
48	72.07	25.20	35.23	37.60
50	9.01	19.93	1.28	--
52	--	6.67	0.23	--
54	--	2.08	--	--
56	--	0.81	--	--
SNPT	1000	1000	1000	1000
AL	38.4	38.4	37.2	37.9
ALMF				
AW	0.46	0.53	0.45	0.47
N	6	7	1	10
SLF	1497	1763	222	2272