



Fisheries and Oceans
Canada

Pêches et Océans
Canada

Ecosystems and
Oceans Science

Sciences des écosystèmes
et des océans

Canadian Science Advisory Secretariat (CSAS)

Research Document 2026/047

Newfoundland and Labrador Region

Update on Catch and Survey Information for Atlantic Cod in Northwest Atlantic Fisheries Organization (NAFO) Subdivision 3Ps to 2025

Wheeland, L., Munro, H., Novaczek, E., Rideout, R.M., and Trueman, S.

Fisheries and Oceans Canada
Science Branch
PO Box 5667
St. John's, NL A1C 5X1

Foreword

This series documents the scientific basis for the evaluation of aquatic resources and ecosystems in Canada. As such, it addresses the issues of the day in the time frames required and the documents it contains are not intended as definitive statements on the subjects addressed but rather as progress reports on ongoing investigations.

Published by:

Fisheries and Oceans Canada
Canadian Science Advisory Secretariat
200 Kent Street
Ottawa ON K1A 0E6

[http://www.dfo-mpo.gc.ca/csas-sccs/
DFO.CSAS-SCAS.MPO@dfo-mpo.gc.ca](http://www.dfo-mpo.gc.ca/csas-sccs/DFO.CSAS-SCAS.MPO@dfo-mpo.gc.ca)



© His Majesty the King in Right of Canada, as represented by the Minister of the
Department of Fisheries and Oceans, 2026

This report is published under the [Open Government Licence - Canada](#)

ISSN 1919-5044

ISBN 978-0-662-40715-7 Cat. No. Fs70-5/2026-047E-PDF

Correct citation for this publication:

Wheeland, L., Munro, H., Novaczek, E., Rideout, R.M., and Trueman, S. 2026. Update on Catch and Survey Information for Atlantic Cod in Northwest Atlantic Fisheries Organization (NAFO) Subdivision 3Ps to 2025. DFO Can. Sci. Advis. Sec. Res. Doc. 2026/047. iv + 59 p.

Aussi disponible en français :

Wheeland, L., Munro, H., Novaczek, E., Rideout, R.M. et Trueman, S. 2026. Mise à jour des renseignements sur les prises et les relevés relatifs au stock de morue franche de l'Organisation des pêches de l'Atlantique Nord-Ouest (OPANO) jusqu'en 2025. Secr. can. des avis sci. du MPO. Doc. de rech. 2026/047. iv + 63 p.

TABLE OF CONTENTS

ABSTRACT	iv
INTRODUCTION	1
FISHERY	1
RECREATIONAL CATCH ESTIMATES.....	2
CATCH-AT-AGE	2
Estimation of catch numbers at age	2
2024 Catch-at-age	3
Size-at-age.....	4
LOGBOOKS	4
RESEARCH VESSEL (RV) SURVEYS	4
RV SURVEY IN 2025	5
BIOMASS AND ABUNDANCE	5
BIOLOGICAL CHARACTERISTICS.....	6
Length and Age	6
Distribution	6
Condition	6
Maturity	7
Size-at-age.....	7
DIET	7
STOCK WEIGHTS	8
CONCLUSIONS.....	9
ACKNOWLEDGMENTS	9
REFERENCES CITED.....	9
TABLES	11
FIGURES	19

ABSTRACT

The status of the cod stock in the Northwest Atlantic Fisheries Organization (NAFO) Subdivision 3Ps was assessed during a Fisheries and Oceans Canada (DFO) Regional Peer Review Process meeting held November 4–7, 2025. The stock is assessed through an examination of information from research vessel surveys, tagging, and sentinel and commercial fisheries, with stock status determined using a custom state-space assessment model. This document details the catch and research vessel considered with the assessment. Gaps in length and age sampling from the commercial fishery continue to increase uncertainty in the estimation and interpretation of catch-at-age. We continue to observe very few older fish in the survey or the fishery. Research vessel (RV) survey indices indicate the stock remains at a low level, despite recent improvements in fish condition and higher than average numbers of recruits observed in recent surveys. There has been a significant change in the distribution of Atlantic Cod (*Gadus morhua*) at the time of the RV survey: there is a scarcity of fish in the offshore, with a large proportion of the stock observed inshore at the time of the survey since 2022. These cod inshore are typically smaller, with slower growth rates and lower growth potential. As a larger proportion of the stock is composed of slow growing fish, the growth potential of the stock itself is limited.

This document supports the conclusions and advice presented in the Fisheries Science Advisory Report (FSAR), and should be considered alongside the other documents output from this meeting.

INTRODUCTION

This document gives a detailed account of the catch, survey, and tagging and telemetry information presented at the 2025 assessment of the Atlantic Cod (*Gadus morhua*) stock in North Atlantic Fisheries Organization (NAFO) Subdivision (subDiv.) 3Ps, located off the south coast of Newfoundland, Canada (Figure 1).

The French overseas territory of St. Pierre et Miquelon also lies within the boundaries of NAFO subDiv. 3Ps and only Canada and France have fished in this area since the extension of jurisdiction by each country to 200 miles in the late-1970s. The stock is jointly managed by Canada and France through formal agreements. Data from commercial and sentinel fisheries and Fisheries and Oceans Canada (DFO) Research Vessel (RV) surveys are integrated with other data in an age-structured state space model for the assessment of this stock (HYBRID; Varkey et al 2022). A complementary State-Space Assessment Model (SAM; Champagnat et al. 2024) is also examined in this assessment. Stock status is determined from the output of the HYBRID model. This document supports the conclusions and advice presented in the Fisheries Science Advisory Report (FSAR), and should be considered alongside the other documents output from this meeting.

FISHERY

A description of the history of the fishery for this stock can be found in Ings et al. 2023. From 1959 through 1970 landings were near 60,000 t (Figure 2). Total Allowable Catch (TAC) regulation began in 1973 with an initial TAC of 70,500 t, which was quickly reduced and was near 30,000–40,000 t through the 1980s and early-1990s until a moratorium on all directed fishing was declared from August 1993 to the end of 1996. The fishery reopened in 1997 with a TAC of 10,000 t, increasing to 30,000 t in 1999 before being reduced back to 15,000 t by 2001. TACs remained near this level until 2017 when they were reduced again. Since 2021 the TAC for this fishery has been <2,000 t (Table 1, Figure 2).

Under the terms of the 1994 Canada France agreement, the Canadian and French shares of the TAC are 84.4% and 15.6%, respectively. Beginning in 2000, TACs have been established for seasons beginning April 1 and ending March 31 of the following year, though values for catch reported here and used in the assessment model are based on calendar year.

A [Rebuilding Plan](#) for this stock was adopted in 2024 and includes a management procedure (MP) which informs the negotiations which set the TAC for this stock. Under this MP, the maximum level of fishing mortality remains fixed while the 3Ps cod stock is in the Critical zone. However, the Rebuilding Plan notes that given current stock status, low productivity, and sources of uncertainty, the TAC level established during the rebuilding plan implementation period may be lower for conservation purposes than the recommended maximum TAC determined by the MP. In the calculation of the MP, fishing mortality at the fully selected ages (9+) is set at 0.065, and decreases with age according to the average selectivity from 2019–21 estimated for this stock, as tested within the rebuilding simulation framework (DFO 2023).

Since 1997, most of the TAC has been landed by Canadian inshore fixed gear fishermen (Table 2, Table 3, Table 4) (where inshore is typically defined as unit areas 3Psa, 3Psb, and 3Psc; refer to Figure 1), with remaining catch taken mainly by the mobile gear sector fishing the offshore, i.e., unit areas 3Psd, 3Pse, 3Psf, 3Psg, and 3Psh. Most of the recent catches have come from unit area 3Psc (Placentia Bay) (Figure 3). In 2024 there was a decline in the relative proportion of landings being taken in 3Psc, with some harvesters noting decreased catches in this area, and an absence of cod from some areas where they are typically found in Placentia

Bay. Harvesters have also noted a deeper than typical distribution of cod in recent years, likely attributed to warmer temperatures in shallow waters.

RECREATIONAL CATCH ESTIMATES

There are no direct measures of recreational fishery catches for 3Ps cod. Estimates of these catches based on mark-recapture tag returns are updated here following the method described in Wheeland et al. (2025). However, only two tag returns from recreational fisheries were available for this analysis for the 2024 fishing season at the time of the assessment below the level that was sensitivity tested for the application of this method in 3Ps ($n = 6$). Due to this low level of tag returns no estimate is provided for 2024. As tags are sometimes returned well after the active fishing year, this estimate will be revisited in the future. We cannot determine at this time whether these low returns are an outlier for a single year or whether a decline in reporting numbers or rate has occurred that may cause more challenges for 3Ps recreational catch estimation in the long-term. Low tag returns are compounded with incomplete return information which precludes the use of some tags. Some tag returns are routinely omitted from this analysis if there is insufficient spatial information provided to assign the area of recapture.

Tag-estimates of recreational catch are between 125 t and 308 t (95% Confidence Interval [CI]), with a geometric mean of 212 t based on values from 2016–23 (Figure 5), the period for which the current recreational fishery season has been in place, with 2023 estimated at 80 t (SD = 36 t).

There is no length or age sampling from the recreational fishery, and these removals are not included in calculated catch-at-age or reported landings.

CATCH-AT-AGE

Estimation of catch numbers at age

Sampling (length frequencies, otolith collection for aging) of the commercial fishery occurs through observers and port sampling. Sampling data are applied to catch data by gear, unit area, and quarter to estimate the age distribution of commercial catch. The amount of landings sampled is highly variable among gear types and years, but generally the otter trawl fleet is sampled well compared to other fleets while inshore and offshore line trawl landings are sampled poorly (Table 5). Coverage of commercial sampling decreased in 2020–21 given restrictions associated with the COVID-19 pandemic, and gaps have continued since. As not all commercial catches are sampled, catch-at-age is generally calculated by applying sampling based on the closest match of conditions by gear, location (unit area), and timing (quarter of the year) to estimate the total age distribution of commercial catches. In the absence of appropriate commercial sampling to apply, sentinel fishery sampling may be used and/or an age length key from the RV survey applied. While these assumptions are necessitated by the availability of commercial sampling data, they can add considerable uncertainty to the estimation and interpretation of catch-at-age.

Age composition of the catch from 2017 through the early 2020s was dominated by the prevalence of a single relatively strong cohort. In 2021 and 2022 catch numbers at ages shifted back towards a more typical distribution, marking an end to the dominance of the 2011 cohort.

Catch-at-age in 2023 had a higher than typical proportion of young (age two,three) fish. This was partially attributed to the assumptions used to inform catch length distribution, but may also be a reflection of incoming year classes. This unusual age distribution in the catch resulted in high uncertainty in recruitment estimated in the analytical assessment model, and contributed to a decision to only provide one-year projections in the 2024 assessment (DFO 2025). Note that

catch-at-age in 2023 is re-estimated here following a slight correction in how catches were summed in the previous assessment (Figure 6, Figure 7, Table 6) and will differ somewhat from those reported in Varkey et al. (in press).

2024 Catch-at-age

In 2024 there was sampling for length, and in some cases for age, from the offshore otter trawl catch in quarter one and the gillnet fishery was sampled in 3Psc (Placentia Bay) in quarters one and three (Table 5).

As there was once again no sampling of the commercial line trawl fishery, two options were considered for how to address this sampling gap: assume length and age distribution of the commercial line trawl fishery follows

1. that of the sentinel line trawl fishery, as was done in 2023, or
2. follows that of the catch-at-age combined for commercial gillnet and otter trawl fleets.

Neither is a perfect substitute or assumption. The first option is the “nearest” match in terms of gear catchability, but sampling is limited spatially, while the second option covers a broader area but assumes line trawl selectivity is equal to that combined for gillnets and otter trawls, which is unlikely to be true.

Given no new evidence to change the decision from 2023 and a prioritization of properly attributing gear catchability, catch-at-age used in this year’s assessment maintains the same assumption decided on in the previous assessment (i.e. that commercial line trawl follows the same size and age distribution as sentinel line trawl). However, to explore the sensitivity of estimated catch-at-age to these assumptions, here we apply both methods to 2023 and 2024 catch-at-age (Figure 7). This comparison indicated that applying the sentinel assumption skews catch numbers-at-age towards younger ages than if this assumption is not applied. The impact of this is further explored in Varkey et al. in prep¹. through a sensitivity run of the HYBRID assessment model.

Catch numbers at age in 2024 were composed largely of ages six to eight (Figure 8, Table 7), and overall distribution is similar to 2023. The signal from age 3 cod in the 2023 catch has carried over into 2024 with a relatively high number and proportion of age 4 cod in the catch. This tracking of a cohort in the catch suggests that these high proportions of young fish are indicative of an incoming year class(es), rather than just a sampling artifact – though the two cannot be fully disentangled.

Overall, ~44% of the commercial catch was represented by length sampling in 2024. Based on this and the use of length and age information from the sentinel fishery, catch-at-age was considered to be representative and appropriate for use in the assessment model. However, the meeting noted that further reductions in sampling are likely to lead to a situation where it is no longer considered representative of actual removals and cannot be reliably incorporated into the assessment or population model. Additional uncertainty was noted given the lack of length or age information collected from recreational/food fishery catches.

¹ Varkey, et al. In preparation. Stock assessment and application of Atlantic cod (*Gadus morhua*) stock in NAFO Subdivision 3Ps in 2025. Can. Sci. Advis. Dec. Res. Doc.

Size-at-age

Estimates of mean catch weights-at-age are also derived from this commercial sampling. Mean size of fish ages eight+ have been declining since the mid-1980s (Figure 9). Commercial catch weights (Table 8) are used in the HYBRID assessment model and inform stock projections.

LOGBOOKS

Logbooks are completed by commercial fishers to record fishing effort and catches. Previous assessments of this stock have examined standardized catch indices (see Ings et al. 2023), however, in the 2021 assessment the standardization models showed poor fit and were not considered acceptable for use. Additionally, small sample size for the >35 foot log books was identified as a barrier to interpretation. These issues have not been remedied, and therefore standardized logbook catch rates are not presented in the current assessment.

In lieu of this, unstandardized catch rates are provided by unit area for >35 foot vessels (Figure 10) and by community for <35-foot vessels (Figure 11). These continue to highlight differences across space; in any given year some areas may experience relatively high catch rates, while others are low. However, we note that an increasing proportion of <35-foot logbooks do not report the specific area that they are fishing in with books instead indicating simply “3Ps”, and the number of reported fishing sets has declined (Figure 12). Records lacking location are not presented.

Harvesters have noted a deeper than typical distribution of cod in recent years. This is reflected in reported depth fished in commercial logbooks (>35-foot vessels) where a deepening is evident over the last few years in Placentia Bay for gillnets (Figure 13). Depth information is not recorded in <35-foot vessels.

There is considerable uncertainty in the interpretation of fishery catch rate data and these data are often more reflective of changes in fishery performance or the nature of the fishery than differences in stock size.

RESEARCH VESSEL (RV) SURVEYS

Data from three bottom trawl surveys are used in the assessment of this stock: Canadian RV Surveys conducted since 1972, ERHAPS (Evaluation des Ressources Halieutiques de la région 3PS) surveys by France that were conducted from 1978–92, and an Industry-led bottom trawl survey was conducted from 1997–2005 and in 2007 (see McClintock 2010 and references therein). Updates are only provided here for Canadian RV survey as it is the only active research vessel survey for this stock. Data from the ERHAPS and industry surveys used within the assessment are provided in Varkey et al. in prep¹.

Stratified-random surveys (Figure 14) have been conducted in the offshore areas of subDiv. 3Ps during the winter-spring period by Canada since 1972. Canadian surveys were conducted using the research vessels Canadian Coast Guard Ship (CCGS) *A.T. Cameron* (1972–82), CCGS *Alfred Needler* (1983–84; 2009–19), CCGS *Wilfred Templeman* (1985–2008), CCGS *Teleost* (2016, 2021), and CCGS *John Cabot* (2022, 2024, 2025) and CCGS *Capt Jacques Cartier* (2025). The current random stratified survey series for 3Ps began in 1983 and covers depths to 731 m.

Surveys from 1983–95 employed an Engel 145 high-rise bottom trawl. In 1996, research surveys began using the Campelen 1800 shrimp trawl, and in 2022 a modified Campelen trawl was introduced with the new research vessels CCGS *John Cabot* and CCGS *Capt Jacques Cartier*. Engel trawl catches for 1983–95 were converted to Campelen 1800 shrimp

trawl-equivalent catches using a length-based conversion formulation derived from comparative fishing experiments (Warren 1996; Warren et al. 1997; Stansbury 1996, 1997). Cadigan et al. (2006) found no significant differences in catchability for several species, including Atlantic Cod, between the CCGS *Wilfred Templeman* and CCGS *Alfred Needler* fishing the Campelen trawl. Additionally, Wheeland and Trueman (2024) showed no significant difference in catchability for Atlantic Cod between the CCGS *Alfred Needler* and CCGS *Teleost* fishing the Campelen 1800 trawl and the CCGS *Capt Jacques Cartier* and CCGS *John Cabot* using the modified Campelen trawl. Data across these vessels and gears are therefore presented as a single comparable series.

The timing of the survey has varied considerably over the time series (Table 9, Figure 15). In 1983 and 1984 the mean date of sampling was in April, in 1985–87 it was in March, and from 1988–92 it was in February. Both a February and an April survey were carried out in 1993; subsequently, the survey has generally been carried out in April. The change to April was aimed at reducing the possibility of stock mixing with cod from the adjacent northern Gulf (Div. 3Pn4RS) stock in the western portion of 3Ps (e.g., Bratley et al. 2007).

Five inshore strata were added to the survey in 1994 (strata 779–783) and a further eight inshore strata were added in 1997 (strata 293–300) (Figure 14). Two survey time series are calculated to inform the assessment: indices from the expanded surveyed area from 1997 onward (i.e. including all inshore strata) are referred to as “All index strata”, and the original surveyed area is referred to as the “Offshore” survey index (strata added in 1994 are excluded from these offshore indices from 1994–96). The assessment model uses the “offshore” index to 1996, and “all index strata” from 1997 to present. Any comparisons presented here between “inshore” and “offshore” areas are used as a coarse metric of spatial variability and focus on 1997 onwards, the period after which the full set of inshore strata are included in the survey design.

Due to extensive mechanical problems with the main research vessel, the survey in 2006 was not completed. There was no survey of 3Ps in 2020 due to the COVID-19 pandemic. The 2022 survey was completed by the CCGS *John Cabot* at an approximate 80% allocation of the full survey design. There was no survey in subDiv. 3Ps in 2023, primarily due to limited vessel availability. In 2024 the survey in subDiv. 3Ps was completed with the CCGS *John Cabot* at a 70% set allocation.

RV SURVEY IN 2025

The RV survey of subDiv. 3Ps in 2025 was completed at a 70% set allocation, with 125 successful sets (full allocation=178 sets) (Figure 16). Stratum 293 was incomplete as only one successful set occurred in this stratum. All other strata are considered “complete” (i.e. at least two successful sets). This survey was undertaken between April 5–27, 2025, with the CCGS *Capt Jacques Cartier*, with two sets that could not be fished on these earlier trips completed May 10th and 11th in stratum 318 and stratum 708, respectively, by the CCGS *John Cabot*.

Atlantic cod were caught in 90 of the 125 sets (72% of sets), at depths ranging from 36 to 456 m and bottom temperatures ranging from 0.1–7.3°C.

BIOMASS AND ABUNDANCE

Survey indices of abundance and biomass are shown in Figure 17. The biomass index (Table 10) was variable but exhibited a downward trend from the mid-1980s to the early-1990s. Values for most of the post-moratorium period from 1997–2004 were higher than those of the early-1990s, but remained below levels of the 1980s. Biomass indices have been consistently low since the mid-2010s (below the 1997–2025 average since 2014), reaching a time series low in

2022. Biomass increased slightly from 2024–25 but remains well below average and is still amongst the lowest in the series. Mean weight per tow in the survey catches has been highest in and around Fortune Bay for the last three surveys (2022, 2024, 2025) (Figure 24). Biomass indices for this stock used to be highly variable due to localized large catches, primarily offshore. These large catches are generally no longer encountered in the survey in 3Ps, and resulting indices are consistently low.

The survey abundance index (Figure 17, Table 11) has been highly variable across the time series. However, over the last decade variability has decreased substantially, with indices slightly below average through the late-2010s and at or near average in the last four surveys. The most recent peak was observed in 2012 and 2013 associated with the entry of the 2011 year class. There have been no clear peaks observed since then.

The proportion of both abundance and biomass occurring in inshore strata during the survey has increased substantially, reaching a time series high in 2024 (Figure 18); proportion of these indices inshore has been near 40% over the last three surveys. This is a reflection of both a small increase in abundance and biomass inshore, and overall declines in the offshore strata (Figure 19). Inshore, the increase in abundance has been more evident than an increase in biomass as these fish are relatively young (~age 6 and under) and small (see Size-at-age below).

BIOLOGICAL CHARACTERISTICS

Length and Age

Abundance at age (Figure 20, Figure 21) and at length (Figure 22) shows cohorts tracking through the survey indices. Length frequencies indicated a pulse of small (<20 cm) fish in 2021, coinciding with an increase in abundance at age two in the survey. Abundance at age two in the survey in 2021 was the highest since the emergence of the 2011 year class, but remains well below that level (age two survey abundances in 2021 = ~48% of age two abundance in 2013). While recent abundance at age two in the survey has been higher than average, relatively large pulses associated with the 2019 and 2020 cohorts have not carried forward to large numbers at age five and six in the current survey (Figure 23).

Generally, there is a scarcity of older fish in the survey catches. Indices at ~eight+ are consistently low, and there are often no cod caught in the survey at ages >10. As a result, sample sizes for biological characteristics at age for older fish are generally low. Notably, only two fish aged 14+ (the ages of the plus group in the assessment model) were sampled for both age and length in the RV survey between 2015–25.

Distribution

Figure 24, Figure 25, and Figure 26 show the distribution of cod in 3Ps at the time of the RV survey since the late-1990s. Previous years can be found in earlier assessment documents. Distribution of catches across surveys highlights a change from a broad distribution with occasional large catches offshore, to consistent very low catches offshore, and occasional relatively large sets inshore. Survey distribution at age (Figure 27) highlights an absence of older fish (~age eight+) in the survey.

Condition

Mean cod condition (relative gutted condition) in the RV survey was below the time series (1993–2024) average from 2014–19, but showed improvement in 2021 and has been at or above average in the last three surveys (Figure 28). This recent period of low condition was

most evident in fish caught in offshore strata (Figure 29), with mean condition consistently higher inshore than offshore from 2010–19, though we note considerable variability in condition across the stock area and known spatial differences in weight at age (Cadigan et al. 2022).

Maturity

Estimates of age at 50% mature (A50) (Figure 30, Figure 31) showed a precipitous decline from the 1981–88 cohorts, changing from an A50 near seven years to near five years, and has remained near five years since. Currently, Atlantic cod in subDiv 3Ps start to mature around age four or five, with around 75% of age six fish being mature. There was a notable year-over-year increase in the estimated proportion of age five fish maturing in 2025, from ~25% in 2024 to ~45% in 2025. These estimates of proportion mature at age from the survey are used in the estimation of spawning stock biomass (SSB) in the HYBRID assessment model and the SAM model.

Decreases in size-at-age combined with relatively stable age-at-maturity result in smaller mature fish. Smaller fish typically have lower fecundity, and this has been demonstrated for Atlantic cod (e.g. Stares et al. 2007; Rideout and Morgan 2010); therefore these conditions are expected to have resulted in lower overall reproductive potential of the population.

Size-at-age

Weight-at-length (Figure 32) in the RV survey is largely consistent year over year, while mean length-at-age and in turn weight-at-age have shown declines (Figure 33). However, size-at-age is highly variable (Figure 34, Figure 35), and estimates for older ages are based on very few observations. There is a high degree of interannual variation in estimated mean weight-at-age in the RV survey for ages 5+, with this variability increasing with age (Figure 36). The variability observed – particularly in weight-at-age – has primarily been from fish caught in the offshore survey strata, whereas cod measured inshore in the RV survey are consistently smaller across ages (Figure 37, Figure 38).

Mean survey weights-at-age from offshore strata are used in the estimation of stock weights (see below) which are used in the assessment model.

DIET

The composition of diet by of Atlantic cod is described here based on stomachs collected in the RV survey and dissected onshore, and for stomachs “called” at sea based on quick visual identification of main prey present in stomachs. For all descriptions here we have only included information when there was a minimum sample size of 30 (e.g. by size and area). As few large fish are encountered and therefore sampled, there are gaps in information presented particularly for large fish inshore. A break at 50 cm is used here to split “large” and “small” cod as a proxy for age five to correspond with the ages for which natural mortality in the assessment model is linked to fish condition, however we note that this rough division does not account for differences in size-at-age across the stock area or through the time series. Inshore and offshore align with strata in Figure 14.

Detailed analysis of dissected stomachs show that Atlantic cod diet in 3Ps is highly variable (Figure 39, Figure 40). At the time of the RV survey, smaller cod in the inshore tend to feed on more capelin (*Mallotus villosus*), whereas smaller cod in the offshore tend to feed more on sand lance (*Ammodytes spp.*). All small cod feed on small invertebrates, and in some years also consume a relatively high proportion of snow crab (*Chionoecetes opilio*). Large fish in the offshore show a high proportion of crab and flatfish. The diets of small fish regardless of if they are inshore or offshore are more similar than small vs large fish offshore. This indicates that size

of fish is important in determining diet, but also habitat and therefore available prey. There was a reduction of snow crab in the diets of both small and large cod in 2017, in large cod this coincided in the increase in flatfish, while no specific prey item compensated for this crab reduction for the small cod.

Proportions of empty stomachs from cod where diet was called at-sea has decreased in recent years (Figure 41), which may indicate an improvement in foraging conditions. The highest levels of empty stomachs were seen in the mid 1990's in both large and small cod and both in the inshore and offshore. After a period of relative stability the proportion of empty stomachs have been the lowest in the time series since 2021. Using these diets called at-sea, where only the two main prey are identified, we see similar patterns to the full diet analysis, with differences both between inshore and offshore small cod, and between large and small cod offshore (Figure 42, Figure 43).

STOCK WEIGHTS

Stock weights-at-age are modelled as described in Cadigan (2023), based on bias corrected length-at-age in the RV survey. There have been considerable declines in weight-at-age across the time series. Weights for all ages have been at or near time series lows since the late 2010s.

Length-at-age in the survey along with resulting stock weights have been calculated based only on offshore strata in past assessments. With a high (>40%) proportion of survey biomass observed in the inshore strata since 2022 the impact of excluding inshore strata from estimations of size-at-age was examined at the 2024 assessment and is further explored here. The 2024 meeting made a recommendation for further work to re-estimate stock weights including the full stock area to inform the next Framework for this stock. However, given the sudden change in distribution and scale of difference in estimates, and with more detailed information presented on observations of size-at-age across the survey area in the current assessment, the decision was taken to adopt a new stock-weight series that incorporates inshore data alongside previously used offshore measurements. We show here the recalculation of stock weights with inshore and offshore strata combined, as well as weights based on offshore strata only to show the scale of this change. Going forward, stock weights will be estimated using all index strata.

Model fit (Figure 44, Figure 45, Figure 46, Figure 47) for the estimation of these weight continues to be considered acceptable, with fit to observations improved by the inclusion of inshore measurements. However, we note the limited number of observations informing size-at-age for older fish, particularly for ages 14+.

When inshore strata are included, length-at-age and resulting stock weight estimates are consistently lower since the mid-2000s than those estimated based on samples from offshore strata only (Figure 48). These differences are more pronounced for older fish and for the most recent years. These differences reflect a change in cod growth in 3Ps, a difference in stock distribution during the survey (higher proportion inshore), and a difference in size of across the stock area (Figure 25; Figure 33, Figure 34, Cadigan et al. 2022). Stock weights from all index strata are used in the assessment model to provide advice in the current assessment (DFO 2026).

This inclusion of inshore observations in this calculation has resulted in a significant reduction in estimates of recent size-at-age. This change in the perception of recent cod growth is considered to be a major change in our understanding of current stock dynamics and growth potential.

CONCLUSIONS

Gaps in length and age sampling from the commercial fishery continue to increase uncertainty in the estimation and interpretation of catch-at-age. Estimated catch numbers at age provided here are considered the best available information, but results are sensitive to assumptions which shift the estimated age distribution of the catch, and further reductions in sampling risk these data no longer being representative.

We continue to observe very few older fish in the survey or the fishery. RV survey indices indicate the stock remains at a low level, despite recent improvements in fish condition and higher than average numbers of recruits (age two) observed in recent surveys. There has been a significant change in the distribution of Atlantic Cod at the time of the RV survey: there is a scarcity of fish in the offshore, with a large proportion of the stock observed inshore at the time of the survey since 2022. These cod inshore are typically smaller, with slower growth rates and lower growth potential. As a larger proportion of the stock is composed of slow growing fish, the growth potential of the stock itself is limited.

ACKNOWLEDGMENTS

This assessment is supported by the extensive efforts by DFO personnel who participate in collection of data during annual research surveys or sampling of the 3Ps commercial cod fishery. Additionally, data processing by L. Simms, age reading efforts of J. Thomson, and F. Tulk, and tagging program dedication from D. Pittman are gratefully acknowledged.

REFERENCES CITED

- Bratley, J., Cadigan, N.G., Healey, B.P., Murphy, E.F., and Mahé, J. C. 2007. [Assessment of the cod \(*Gadus morhua*\) stock in NAFO subDiv. 3Ps in October 2006](#). DFO Can. Sci. Advis. Sec. Res. Doc. 2007/053.
- Cadigan, N.G., Walsh, S.J., and Brodie, W. 2006. [Relative efficiency of the Wilfred Templeman and Alfred Needler research vessels using a Campelen 1800 shrimp trawl in NAFO SubDivision 3Ps and Divisions 3LN](#). DFO Can. Sci. Advis. Sec. Res. Doc. 2006/085.
- Cadigan, N. 2023. [A Simple Mixed-Effects Model to Smooth and Extrapolate Weights-at-Age for 3Ps Cod](#). DFO Can. Sci. Advis. Sec. Res. Doc. 2023/024. iv + 49 p.
- Cadigan, N., Robertson, M.D., Nirmalkanna, K. and Zheng, N., 2022. [The complex relationship between weight and length of Atlantic cod off the south coast of Newfoundland](#). Can. J. Fish. Aquat. Sci. 79(11): 1798–1819.
- Champagnat, J., Vigneau, J., Varkey, D.A., Regular, P., Ings, D.W., Babyn, J., and Morgan, J. 2024. [Development of a State Space Assessment Model for Cod \(*Gadus morhua*\) in NAFO SubDivision 3Ps](#). DFO Can. Sci. Advis. Sec. Res. Doc. 2024/015. iv + 98 p.
- DFO. 2023. [Review of Rebuilding Plan Simulations for Northwest Atlantic Fisheries Organization \(NAFO\) SubDivision 3Ps Atlantic Cod](#). DFO Can. Sci. Advis. Sec. Sci. Advis. Rep. 2023/007.
- DFO. 2025. [NAFO SubDivision 3Ps Atlantic Cod \(*Gadus morhua*\) Stock Assessment in 2024](#). DFO Can. Sci. Advis. Sec. Sci. Advis. Rep. 2025/007.
- DFO. 2026. [NAFO Subdivision 3Ps Atlantic Cod \(*Gadus morhua*\) Stock Assessment in 2025](#). DFO Can. Sci. Advis. Sec. Sci. Advis. Rep. 2026/004.

-
- Healey, B.P., Murphy, E.F., Bratney, Morgan, M.J., Maddock Parsons, and Mahé, J.-C. 2013. [Assessing the status of the cod \(*Gadus morhua*\) stock in NAFO SubDivision 3Ps in 2012](#). DFO Can. Sci. Advis. Sec. Res. Doc. 2013/087. vi + 89 p.
- Ings, D. W., Varkey, D.A., Regular, P.R., Kumar, R.M., and J. Vigneau. 2023. [Assessing the status of cod \(*Gadus morhua*\) stock in NAFO subDivision 3Ps in 2020](#). DFO Can. Sci. Advis. Sec. Res. Doc. 2023/025.
- McClintock, J. 2010. [The fall 2007 NAFO SubDivision 3Ps GEAC survey: catch results for Atlantic cod \(*Gadus morhua*\), American plaice \(*Hippoglossoides platessoides* F.\), witch flounder \(*Glyptocephalus cynoglossus* L.\), and haddock \(*Melanogrammus aeglefinus*\)](#). DFO Can. Sci. Advis. Sec. Res. Doc. 2010/056.
- Rideout, R.M. and Morgan, M.J., 2010. [Relationships between maternal body size, condition and potential fecundity of four north-west Atlantic demersal fishes](#). J. Fish Biol. 76(6): 1379–1395.
- Stansbury, D.E. 1996. Conversion factors from comparative fishing trials for Engels 145 otter trawl on the FRV *Gadus Atlantica* and the Campelen 1800 shrimp trawl on the FRV *Teleost*. NAFO SCR Doc. 96/77, Ser. No. N2752. 15 p.
- Stansbury, D.E. 1997. Conversion factors for cod from comparative fishing trials for Engel 145 otter trawl and the Campelen 1800 shrimp trawl used on research vessels. NAFO SCR Doc. 97/73, Ser. No. N2907. 10 p.
- Stares, J.C., Rideout, R.M., Morgan, M.J., and Bratney, J. 2007. [Did population collapse influence individual fecundity of Northwest Atlantic cod](#). ICES J. Mar. Sci. 64: 1338–1347.
- Varkey, D.A., Babyn, J., Regular, P.R., Ings, D.W., Kumar, R., Rogers, B., Champagnat, J. and Morgan, M.J. 2022. [A state-space model for stock assessment of cod \(*Gadus morhua*\) stock in NAFO SubDivision 3Ps](#). DFO Can. Sci. Advis. Sec. Res. Doc. 2022/022. v + 77p.
- Varkey, D, Wheeland, L., du Pontavice, H., Kumar, R., Munro, H., Novaczek, E., Rideout, R., Regular, P., Trueman, S., and Vigneau, J. In press. Assessment of Northwest Atlantic Fisheries Organization (NAFO) SubDivision 3Ps Atlantic Cod in 2024. DFO Can. Sci. Advis. Sec. Res. Doc.
- Warren, W.G. 1996. Report on the Comparative Fishing Trial between the *Gadus Atlantica* and *Teleost*. NAFO SCR Doc. 96/28, Ser. No. N2701.
- Warren, W., Brodie, W., Stansbury, D., Walsh, S., Morgan, J. and Orr, D. 1997. Analysis of the 1996 Comparative Fishing Trial between the Alfred Needler with the Engel 145' Trawl and the Wilfred Templeman with the Campelen 1800 Trawl. NAFO SCR Doc. 97/68, Ser. No. N2902.
- Wheeland, L., and Trueman, S. 2024. [On the relative catchability of Atlantic cod in the Newfoundland and Labrador multispecies trawl surveys](#). DFO Can. Sci. Advis. Sec. Res. Doc. 2024/038. iv + 21 p.
- Wheeland, L., Hatefi, F., Novaczek, E., Perreault, A., Rideout, R.M., and Rogers, B. 2025. [Update on Catch and Survey Information for Atlantic Cod \(*Gadus morhua*\) Stock in NAFO SubDivision 3Ps to 2023](#). DFO Can. Sci. Advis. Sec. Res. Doc. 2025/047. iv + 52 p.

TABLES

Table 1. Reported landings of cod (t) from NAFO subDiv. 3Ps. Landings are presented by calendar year but note that since 2000 the TAC has been established for April 1-March 31. Catch estimates for 2025 are not provided as the year is in progress at the time of the assessment. See Healey et al. (2013) for pre-1980 data. Note that 1996 through 2006 include recreational and sentinel catch, while 2007 onwards does not include recreational catch.

Year	Total (Calendar year)	TAC (calendar year to 1999, Quota year onwards)
1980	37,568	28,000
1981	38,892	30,000
1982	33,902	33,000
1983	38,451	33,000
1984	36,950	33,000
1985	51,367	41,000
1986	57,990	41,000
1987	59,204	41,000
1988	43,382	41,000
1989	39,540	35,400
1990	41,405	35,400
1991	43,589	35,400
1992	35,895	35,400
1993	15,216	20,000
1994	661	0
1995	821	0
1996	1,057	0
1997	9,420	10,000
1998	20,156	20,000
1999	27,997	30,000
2000	25,100	20,000
2001	16,546	15,000
2002	15,319	15,000
2003	15,260	15,000
2004	14,414	15,000
2005	14,776	15,000
2006	13,157	13,000
2007	12,959	13,000
2008	11,773	13,000
2009	9,762	11,500
2010	8,299	11,500
2011	6,876	11,500
2012	5,087	11,500
2013	4,366	11,500
2014	6,887	13,225
2015	6,460	13,490
2016	7,196	13,043
2017	6,641	6,500
2018	4,722	5,980
2019	3,529	5,980
2020	2,228	2,691
2021	826	1,346
2022 ¹	909	1,346
2023 ¹	805	1,304
2024 ¹	621	1,550
2025	-	1,251

¹Catches reported for the most recent three years are considered provisional and subject to change

Table 2. Reported fixed gear catches of cod (t) from NAFO subDiv. 3Ps by gear type (includes non-Canadian and recreational catch). See Healey et al. (2013) for pre-1980 data.

Year	Gillnet	Longline	Handline	Trap	Total
1980	5,493	19,331	2,545	2,077	29,446
1981	4,998	20,540	1,142	948	27,628
1982	6,283	13,574	1,597	1,929	23,383
1983	6,144	12,722	2,540	3,643	25,049
1984	7,275	9,580	2,943	3,271	23,069
1985	7,086	10,596	1,832	5,674	25,188
1986	8,668	11,014	1,634	4,073	25,389
1987	9,304	11,807	1,628	4,931	27,670
1988	6,433	10,175	1,469	2,449	20,526
1989	5,997	10,758	1,657	5,996	24,408
1990	6,948	8,792	2,217	3,788	21,745
1991	6,791	10,304	1,832	4,068	22,995
1992	5,314	10,315	1,330	3,397	20,356
1993	3,975	3,783	1,204	3,557	12,519
1994	90	0	381	0	471
1995	383	182	0	5	570
1996	467	158	137	10	772
1997	3,760	1,158	1,172	1,167	7,258
1998	10,116	2,914	308	92	13,430
1999	17,976	3,714	503	45	22,237
2000	14,218	3,100	186	56	17,561
2001	7,377	2,833	2,089	57	12,357
2002	7,827	2,309	775	119	11,030
2003	8,313	2,044	546	35	10,937
2004	7,910	2,167	415	15	10,508
2005	8,112	2,016	626	6	10,760
2006	7,590	2,698	314	2	10,603
2007 ²	7,287	2,374	445	11	10,116
2008 ²	6,636	2,482	341	21	9,480
2009 ²	4,052	1,644	612	36	6,344
2010 ²	4,013	1,182	296	2	5,493
2011 ²	2,910	882	221	19	4,032
2012 ²	3,089	670	192	10	3,961
2013 ²	1,939	457	270	14	2,680
2014 ²	2,760	1,066	331	38	4,195
2015 ²	3,065	326	299	9	3,699
2016 ²	2,779	283	268	10	3,340
2017 ²	3,658	352	359	23	4,392
2018 ²	3,547	254	257	0	4,057
2019 ²	2,299	285	209	0	2,792
2020 ^{1,2}	1,348	267	135	37	1,787
2021 ^{1,2}	515	121	51	0	686
2022 ^{1,2}	595	120	60	0	775
2023 ^{1,2}	494	134	55	0	683
2024 ^{1,2}	306	99	0	0	621

¹provisional

²excluding recreational catch

Table 3. Reported Canadian (NL) monthly landings (t) of cod per unit area in NAFO subDiv. 3Ps in 2024. Landings are provisional.

Month	3Psa	3Psb	3Psc	3Psd	3Pse	3Psf	3Psg	3Psh	Total
Jan	0.92	15.06	19.84	9.31	-	-	-	-	45.12
Feb	0.16	3.93	6.15	27.42	-	-	3.53	62.38	103.57
Mar	3.56	-	-	27.04	-	-	-	0.37	30.97
Apr	-	-	-	-	-	-	-	-	20.45
May	8.23	11.99	0.23	-	-	-	-	-	20.45
Jun	9.50	34.55	23.66	-	-	-	-	0.10	67.82
Jul	2.28	31.23	46.56	0.92	-	-	0.33	0.51	81.83
Aug	0.09	6.58	19.95	0.09	-	0.57	0.15	-	27.43
Sep	0.90	10.33	41.66	-	-	0.67	0.35	-	53.91
Oct	0.82	1.93	14.84	-	-	12.07	-	-	29.66
Nov	2.04	2.66	15.06	-	-	-	-	-	19.76
Dec	6.40	29.08	26.99	-	-	-	-	-	62.47
Total	34.91	147.34	214.93	64.78	-	13.31	4.35	63.36	542.97

Table 4. Reported Canadian (NL) monthly landings (t) of cod per unit area in NAFO subDiv. 3Ps in 2025, available at the time of the assessment (as of Oct 10, 2025) with cells marked as to be determined (TBD) where the fishery is ongoing. Landings are provisional.

Month	3Psa	3Psb	3Psc	3Psd	3Pse	3Psf	3Psg	3Psh	Total
Jan	1.06	25.72	0.52	-	-	-	-	-	27.30
Feb	10.05	3.39	-	45.28	-	-	-	-	58.72
Mar	22.02	-	-	43.20	-	2.31	-	-	67.53
Apr	0.84	-	-	9.54	-	-	1.35	0.14	11.87
May	7.73	13.05	0.09	-	-	-	-	-	20.87
Jun	11.43	25.69	38.97	-	-	-	-	-	76.09
Jul	3.99	30.37	55.97	-	-	-	-	-	90.33
Aug	0.43	8.27	29.63	-	-	-	-	-	38.33
Sep	1.36	2.49	43.85	-	-	-	-	-	47.69
Oct	0.33	0.63	17.29	-	-	-	-	-	18.25
Nov	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
Dec	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
Total, year to date	59.23	109.61	186.32	98.01	-	2.31	1.35	0.14	456.97

Table 5. Summary of sampling conducted on 3Ps cod landings during 2024.

Gear	Proportion of landings that were unsampled (%)	Number of Length measurements	Number of Otoliths collected
Inshore Handline	100%	0	0
Inshore Gillnet	79	1134	178
Inshore Line trawl	100%	0	0
Inshore Otter Trawl	0%	303	43
Offshore Gillnet	100%	0	0
Offshore Line trawl	100%	0	0
Offshore Otter trawl	31	1031	176

Table 6. Corrected estimates of average weight, average length and the total numbers and weight of 3Ps cod caught at age from Canadian and French landings during 2023 (excludes recreational catch). Sum of products for catch at age = 0.93.

Age	Total Catch (numbers)	Average Weight (kg)	Average Length (cm)	Total Catch std error	Total Catch CV	Total Catch Weight (t)
1	0	-	-	-	-	0
2	1007	0.610	40.2	0.52	0.51	614
3	20802	0.731	43.3	2.70	0.13	15206
4	34838	0.703	42.9	2.64	0.08	24491
5	60096	1.404	53.0	4.88	0.08	84375
6	76027	1.876	58.4	5.42	0.07	142627
7	89983	2.149	61.5	5.80	0.06	193373
8	59970	2.285	62.3	5.06	0.08	137031
9	20642	2.394	62.8	2.79	0.14	49417
10	15235	2.642	64.3	3.30	0.22	40251
11	6596	2.862	65.7	1.30	0.20	18878
12	10199	3.118	68.4	1.91	0.19	31800
13	2653	3.258	70.2	0.98	0.37	8643
14	1	2.680	67.0	0	1.03	3
15	229	6.872	90.9	0.14	0.63	1574
16	784	3.955	76.0	0.48	0.62	3101
17	235	6.220	88.0	0.17	0.73	1462
18	0	-	-	-	-	0
19	0	-	-	-	-	0
20	0	-	-	-	-	0

Table 7. Estimates of average weight, average length and the total numbers and weight of 3Ps cod caught at age from Canadian and French landings during 2024 (excludes recreational catch). Sum of products for catch at age = 0.98.

Age	Total Catch (numbers)	Average Weight (kg)	Average Length (cm)	Total Catch std error	Total Catch CV	Total Catch Weight (t)
1	0	-	-	-	-	0
2	122	0.131	25.1	0.09	0.75	0.02
3	7,812	0.390	35.4	0.91	0.12	3.05
4	26,368	0.861	45.2	2.18	0.08	22.70
5	42,793	1.155	49.8	3.21	0.07	49.43
6	52,668	1.659	55.7	4.26	0.08	87.38
7	60,166	1.980	59.5	4.87	0.08	119.13
8	52,489	2.505	64.0	4.52	0.09	131.48
9	26,818	2.594	64.5	3.40	0.13	69.57
10	20,350	2.569	64.8	3.42	0.17	52.28
11	12,547	2.617	65.5	2.37	0.19	32.84
12	5,062	4.058	73.1	1.15	0.23	20.54
13	3,389	3.609	70.8	1.29	0.38	12.23
14	1,733	3.053	69.4	0.91	0.53	5.29
15	300	4.641	78.3	0.17	0.55	1.39
16	59	3.068	70.0	0.04	0.67	0.18
17	0	-	-	-	-	-
18	0	-	-	-	-	0
19	0	-	-	-	-	0
20	0	-	-	-	-	0

Table 8. Mean annual weights-at-age (kg) calculated from lengths-at-age based on samples from commercial fisheries (including food fisheries and sentinel surveys where available) in subDiv. 3Ps since 1974.

Year	Age 3	Age 4	Age 5	Age 6	Age 7	Age 8	Age 9	Age 10	Age 11	Age 12	Age 13	Age 14
1974	0.399	0.624	1.064	1.813	2.429	3.349	3.927	4.832	5.438	7.558	9.337	8.466
1975	0.543	0.827	1.281	1.75	2.355	3.182	3.509	5.381	4.971	6.417	10.185	10.185
1976	0.537	1.005	1.455	2.284	3.032	4.267	5.439	7.395	7.426	9.873	11.45	16.628
1977	0.606	0.684	1.367	1.992	2.765	3.703	4.684	5.452	6.701	6.741	9.225	11.753
1978	0.545	0.763	1.111	2.03	2.888	3.929	4.612	6.058	7.233	6.981	9.747	10.954
1979	0.422	0.668	1.056	1.692	2.694	3.776	4.125	5.942	7.65	10.423	10.032	10.987
1980	0.511	0.776	1.147	1.715	2.357	3.561	5.474	7.193	7.219	9.872	9.566	8.527
1981	0.516	0.877	1.366	1.839	2.303	3.359	4.893	6.991	7.52	10.414	8.871	12.302
1982	0.462	0.809	1.171	1.82	2.396	2.819	3.756	4.853	6.814	8.394	8.805	11.688
1983	0.583	0.853	1.472	2.019	2.525	3.099	3.523	4.952	6.486	7.968	10.613	12.076
1984	0.671	1.201	1.485	2.105	2.741	4.26	5.369	6.314	8.081	10.55	7.704	8.682
1985	0.588	0.821	1.2	1.783	2.626	3.373	5.149	5.941	6.74	7.94	11.32	7.876
1986	0.532	0.691	1.15	1.744	2.327	3.075	4.96	6.132	6.293	7.489	9.41	12.003
1987	0.472	0.701	1.251	1.707	2.27	3.248	4.299	5.523	6.867	7.072	7.73	10.514
1988	0.63	0.799	1.016	1.637	2.169	3.122	4.256	5.976	6.885	7.342	8.277	9.126
1989	0.559	0.79	1.166	1.709	2.441	3.531	4.58	6.081	6.529	7.448	7.889	8.98
1990	0.543	0.753	1.346	1.932	2.562	2.958	3.923	3.959	6.185	7.509	7.836	7.231
1991	0.435	0.7	1.135	1.877	2.608	3.234	4.382	5.15	6.894	8.143	8.065	10.071
1992	0.459	0.665	1.023	1.658	2.514	3.251	4.665	7.621	7.861	9.296	11.49	13.43
1993	0.417	0.848	1.344	1.945	2.08	2.652	3.701	4.286	7.307	6.585	7.378	7.435
1994	0.417	0.848	1.344	1.945	2.08	2.652	3.701	4.286	7.307	6.585	7.378	7.435
1995	0.497	0.681	1.966	2.21	2.499	2.434	2.513	-	-	-	-	-
1996	0.576	0.878	1.383	1.879	2.389	2.709	3.862	4.374	8.354	6.57	10.112	13.097
1997	0.519	0.984	1.153	1.417	2.285	3.233	3.903	3.863	4.585	9.272	5.847	12.044
1998	0.598	0.984	1.736	1.982	2.361	3.158	4.087	3.994	4.439	4.458	5.717	5.459
1999	0.789	0.924	1.543	2.263	2.52	2.784	3.822	5.389	4.985	5.333	6.041	7.166
2000	0.442	1.23	1.219	1.949	2.763	2.808	3.337	4.858	6.799	6.719	6.717	8.679
2001	0.722	1.063	1.478	1.964	2.579	3.379	3.347	3.538	5.472	8.75	7.591	8.118
2002	0.586	1.053	1.531	1.972	2.289	3.013	4.023	3.627	3.751	6.198	9.153	7.133
2003	0.673	0.971	1.531	2.067	2.316	2.621	3.836	4.581	4.066	5.251	7.968	10.317
2004	0.619	0.996	1.409	2.091	2.479	2.709	2.901	4.45	6.298	5.331	6.88	8.703
2005	0.681	0.967	1.381	1.832	2.438	2.87	3.165	3.37	4.944	6.296	6.136	8.697
2006	0.643	1.012	1.53	1.898	2.175	2.732	3.405	3.89	3.213	5.147	7.014	7.387
2007	0.642	1.085	1.517	1.991	2.3	2.556	3.535	4.912	5.425	4.765	6.897	8.299
2008	0.912	0.961	1.349	1.949	2.202	2.522	2.717	4.073	5.214	5.041	5.257	8.153
2009	0.722	0.952	1.446	1.933	2.385	2.506	2.423	3.257	5.567	7.026	8.189	8.303
2010	0.805	1.128	1.334	1.966	2.161	2.523	2.605	2.85	5.562	7.751	9.753	10.329
2011	0.845	1.017	1.355	1.574	2.125	2.386	2.745	2.598	2.769	2.864	4.728	7.567
2012	0.836	0.965	1.418	1.982	2.019	2.206	2.82	3.305	3.559	2.665	2.849	2.897
2013	0.819	1.149	1.487	1.732	2.034	2.067	2.56	2.733	2.926	3.104	2.364	2.583
2014	0.93	1.03	1.832	2.046	2.097	2.731	2.49	3.281	3.826	2.644	4.532	4.873
2015	0.766	1.144	1.532	2.067	2.416	2.727	2.991	3.116	3.997	5.79	5.072	-
2016	0.837	1.184	1.506	1.787	2.261	2.385	2.958	3.575	4.038	4.749	4.14	7.625
2017	0.481	0.852	1.338	1.816	1.932	2.361	2.528	2.396	3.937	4.07	3.654	3.158
2018	0.688	1.414	1.549	1.904	2.148	2.336	3.286	3.151	3.624	5.37	5.806	6.422
2019	0.849	1.071	1.432	1.737	2.011	2.294	2.361	3.086	2.902	3.468	7.89	4.388
2020	0.726	1.210	1.731	1.966	2.055	2.134	2.368	2.776	2.666	3.134	4.577	3.206
2021	0.616	0.915	1.302	1.748	2.043	2.409	2.286	2.171	2.591	3.654	4.32	2.672
2022	0.657	1.438	1.750	2.147	2.325	2.414	2.555	2.552	2.703	3.171	2.588	3.955
2023	0.731	0.703	1.404	1.876	2.149	2.285	2.394	2.642	2.862	3.118	3.258	2.68
2024	0.390	0.861	1.155	1.659	1.980	2.505	2.594	2.569	2.617	4.058	3.609	3.053

Table 9. Details of annual DFO research vessel surveys of NAFO subDiv. 3Ps. Further information can be found in Rideout (2022), Wheeland et al. (2023) and references therein. Note that the 2025 survey was primarily completed between April 5th–27th, with two additional sets completed May 10th–11th.

Year	Vessel	Start Date	End Date	Days	Sets	Sets with Cod	Proportion of sets with cod
1983	AN 9	23-Apr-83	8-May-83	15	164	117	0.71
1984	AN 26	10-Apr-84	17-Apr-84	7	93	59	0.63
1985	WT 26	8-Mar-85	25-Mar-85	17	109	78	0.72
1986	WT 45	6-Mar-86	23-Mar-86	17	136	88	0.65
1987	WT 55-56	13-Feb-87	22-Mar-87	37	130	95	0.73
1988	WT 68	27-Jan-88	14-Feb-88	18	146	106	0.73
1989	WT 81	1-Feb-89	16-Feb-89	15	146	90	0.62
1990	WT 91	1-Feb-90	19-Feb-90	18	108	66	0.61
1991	WT 103	2-Feb-91	20-Feb-91	18	158	104	0.66
1992	WT 118	6-Feb-92	24-Feb-92	18	137	63	0.46
1993.1	WT 133	6-Feb-93	23-Feb-93	17	136	52	0.38
1993.4	WT 135	2-Apr-93	20-Apr-93	18	130	63	0.48
1994	WT 150-151	6-Apr-94	26-Apr-94	20	166	73	0.44
1995	WT 166-167	04-Apr-95	28-Apr-95	24	161	65	0.40
1996	WT 186-187	10-Apr-96	01-May-96	22	148	105	0.71
1997	WT 202-203	02-Apr-97	23-Apr-97	22	158	104	0.66
1998	WT 219-220	10-Apr-98	05-May-98	25	177	113	0.64
1999	WT 236-237	13-Apr-99	06-May-99	23	175	128	0.73
2000	WT 313-315	08-Apr-00	11-May-00	34	171	136	0.80
2001	WT 364-365, Tel 351	07-Apr-01	29-Apr-01	23	173	134	0.77
2002	WT 418-419	05-Apr-02	27-Apr-02	21	177	117	0.66
2003	WT 476-477	05-Apr-03	02-May-03	23	176	117	0.66
2004	WT 523, WT 546, Tel 522	11-Apr-04	11-May-04	30	177	107	0.60
2005	WT 617-618, AN 656	17-Apr-05	09-May-05	22	178	134	0.75
2006	WT 688	13-Apr-06	18-Apr-06	5.1	48	43	-
2007	WT 757-759	04-Apr-07	02-May-07	29	178	135	0.76
2008	WT 824-827	10-Apr-08	23-May-08	44	169	115	0.68
2009	AN 902-904	08-Apr-09	13-May-09	35	175	137	0.78
2010	AN 930-932	08-Apr-10	08-May-10	31	177	132	0.75
2011	AN 401-403	07-Apr-11	08-May-11	32	174	131	0.75
2012	AN 415-417	31-Mar-12	26-Apr-12	27	177	137	0.77
2013	AN 430-432	26-Mar-13	23-Apr-13	29	179	133	0.74
2014	AN 445-446, Tel 130	05-Apr-14	10-May-14	36	156	105	0.67
2015	AN 450-452	11-Apr-15	10-May-15	30	173	116	0.67
2016	Tel 157, 158, 169	02-Apr-16	01-May-16	30	157	110	0.70
2017	AN 476-478	06-Apr-17	08-May-17	33	179	121	0.68
2018	AN 494-496	28-Apr-18	27-May-18	30	167	115	0.69
2019	AN 506-508	30-Mar-19	4-May-19	35	169	106	0.63
2020	No Survey	-	-	-	-	-	-
2021	TEL 218, 219	24-Apr-21	17-May-21	24	141	92	0.65
2022	CAB 21, 22, 23, 24	8-Apr-22	27-May-23	49	129	83	0.64
2023	No Survey	-	-	-	-	-	-
2024	CAB 48, 49, 50	14-Apr-24	7-May-24	21	125	93	0.74
2025	CAR 45, 46, CAB 61	5-Apr-25	11-May-25	23	125	90	0.72

Table 10. Survey biomass estimates for Atlantic cod from DFO research vessel surveys in NAFO subDiv. 3Ps. NF = strata not fished. There was no survey in 2020 or 2023. See Bratley et al. (2007) and Ings et al. (2023) for previous years.

Stratum	Depth (m)	sq. nm	2019	2020	2021	2022	2023	2024	2025
314	<55	974	8	NF	222	465	NF	2081	484
320	<55	1320	1580	NF	1216	363	NF	1961	1758
293	56-91	159	23	NF	NF	81	NF	186	NF
308	56-91	112	56	NF	1011	1231	NF	367	510
312	56-91	272	71	NF	93	1520	NF	237	1043
315	56-91	827	452	NF	3216	687	NF	600	4797
321	56-91	1189	257	NF	6066	99	NF	579	163
325	56-91	944	31	NF	124	337	NF	34	26
326	56-91	166	0	NF	21	1	NF	1	33
783	56-91	229	2	NF	71	67	NF	4	65
294	92-183	135	85	NF	2050	3056	NF	1826	242
297	92-183	152	1668	NF	835	4636	NF	3150	74
307	92-183	395	3345	NF	832	1735	NF	5073	2780
311	92-183	317	274	NF	1663	471	NF	567	3166
317	92-183	193	862	NF	0	0	NF	29	17
319	92-183	984	8662	NF	1157	923	NF	1573	688
322	92-183	1567	217	NF	2055	1384	NF	817	624
323	92-183	696	33	NF	42	2015	NF	133	170
324	92-183	494	34	NF	350	691	NF	5	89
781	92-183	446	94	NF	517	139	NF	251	111
782	92-183	183	23	NF	37	127	NF	20	84
295	184-274	209	124	NF	1063	339	NF	692	613
298	184-274	171	0	NF	126	245	NF	5830	9225
300	184-274	217	37	NF	64	61	NF	23	37
306	184-274	363	231	NF	85	0	NF	31	78
309	184-274	296	3591	NF	37	44	NF	69	15
310	184-274	170	103	NF	0	25	NF	41	62
313	184-274	165	15	NF	0	0	NF	0	11
316	184-274	189	0	NF	0	0	NF	15	19
318	184-274	129	59	NF	0	0	NF	0	1178
779	184-274	422	54	NF	8	492	NF	141	473
780	184-274	403	138	NF	33	528	NF	11	153
296	275-366	71	69	NF	39	168	NF	37	61
299	275-366	212	0	NF	0	17	NF	7	92
705	275-366	195	1	NF	5	3	NF	18	8
706	275-366	476	19	NF	0	0	NF	166	236
707	275-366	74	47	NF	11	0	NF	2	110
715	275-366	128	39	NF	0	42	NF	140	388
716	275-366	539	0	NF	0	190	NF	0	812
708	367-549	126	13	NF	0	0	NF	390	20
711	367-549	593	135	NF	0	0	NF	30	0
712	367-549	731	5	NF	0	13	NF	28	0
713	367-549	851	31	NF	0	0	NF	0	0
714	367-549	1074	0	NF	0	0	NF	42	48
Total	Offshore	-	20173	-	18205	12238	-	15027	19331
Total	In/Offshore	-	22491	-	23048	22194	-	27204	30561
Std	In/Offshore	-	5939	-	5925	3149	-	6922	10651

Table 11. Survey abundance estimates for Atlantic cod from DFO vessel surveys in NAFO subDiv. 3Ps. NF = strata not fished. There was no survey in 2020 or 2023. See Bratney et al. (2007) and Ings et al. (2023) for previous years.

Stratum	Depth (m)	sq. nm	2019	2020	2021	2022	2023	2024	2025
314	<55	974	22	NF	1644	2970	NF	3725	1599
320	<55	1320	838	NF	2651	1253	NF	3969	3839
293	56-91	159	197	NF	NF	580	NF	1629	NF
308	56-91	112	169	NF	2773	2550	NF	1114	995
312	56-91	272	206	NF	1029	3367	NF	1278	3835
315	56-91	827	861	NF	3104	4238	NF	2247	9414
321	56-91	1189	1276	NF	7900	537	NF	1554	495
325	56-91	944	487	NF	1336	1436	NF	108	182
326	56-91	166	0	NF	91	13	NF	11	129
783	56-91	229	44	NF	621	221	NF	16	284
294	92-183	135	1367	NF	4330	9946	NF	8183	2539
297	92-183	152	5499	NF	3251	5876	NF	6200	502
307	92-183	395	6466	NF	1386	3559	NF	6874	5343
311	92-183	317	2384	NF	3336	1112	NF	1573	11294
317	92-183	193	5031	NF	0	0	NF	226	53
319	92-183	984	22102	NF	5631	4250	NF	5008	1149
322	92-183	1567	2867	NF	5266	4742	NF	6143	3981
323	92-183	696	447	NF	432	14060	NF	662	1265
324	92-183	494	702	NF	8931	8053	NF	210	856
781	92-183	446	1242	NF	2851	1135	NF	2485	859
782	92-183	183	712	NF	730	1661	NF	239	868
295	184-274	209	1624	NF	6411	1877	NF	2602	3023
298	184-274	171	12	NF	24	247	NF	5918	13377
300	184-274	217	90	NF	119	119	NF	149	57
306	184-274	363	316	NF	125	0	NF	54	57
309	184-274	296	5366	NF	48	41	NF	224	20
310	184-274	170	160	NF	0	12	NF	35	94
313	184-274	165	20	NF	0	0	NF	0	15
316	184-274	189	0	NF	0	0	NF	13	39
318	184-274	129	27	NF	0	0	NF	0	754
779	184-274	422	916	NF	264	2922	NF	1509	4533
780	184-274	403	1285	NF	83	5802	NF	416	1501
296	275-366	71	587	NF	91	200	NF	68	335
299	275-366	212	0	NF	0	58	NF	58	117
705	275-366	195	13	NF	13	13	NF	13	13
706	275-366	476	15	NF	0	0	NF	131	360
707	275-366	74	31	NF	14	0	NF	5	110
715	275-366	128	23	NF	0	44	NF	62	138
716	275-366	539	0	NF	0	99	NF	0	890
708	367-549	126	8	NF	0	0	NF	612	9
711	367-549	593	87	NF	0	0	NF	31	0
712	367-549	731	17	NF	0	29	NF	23	0
713	367-549	851	50	NF	0	0	NF	0	0
714	367-549	1074	0	NF	0	0	NF	42	39
Total	Offshore	-	49991	-	45709	52378	-	35947	46967
Total	In/Offshore	-	63565	-	64486	83022	-	65419	74961
Std	In/Offshore	-	13133	-	11629	15032	-	10125	19227

FIGURES

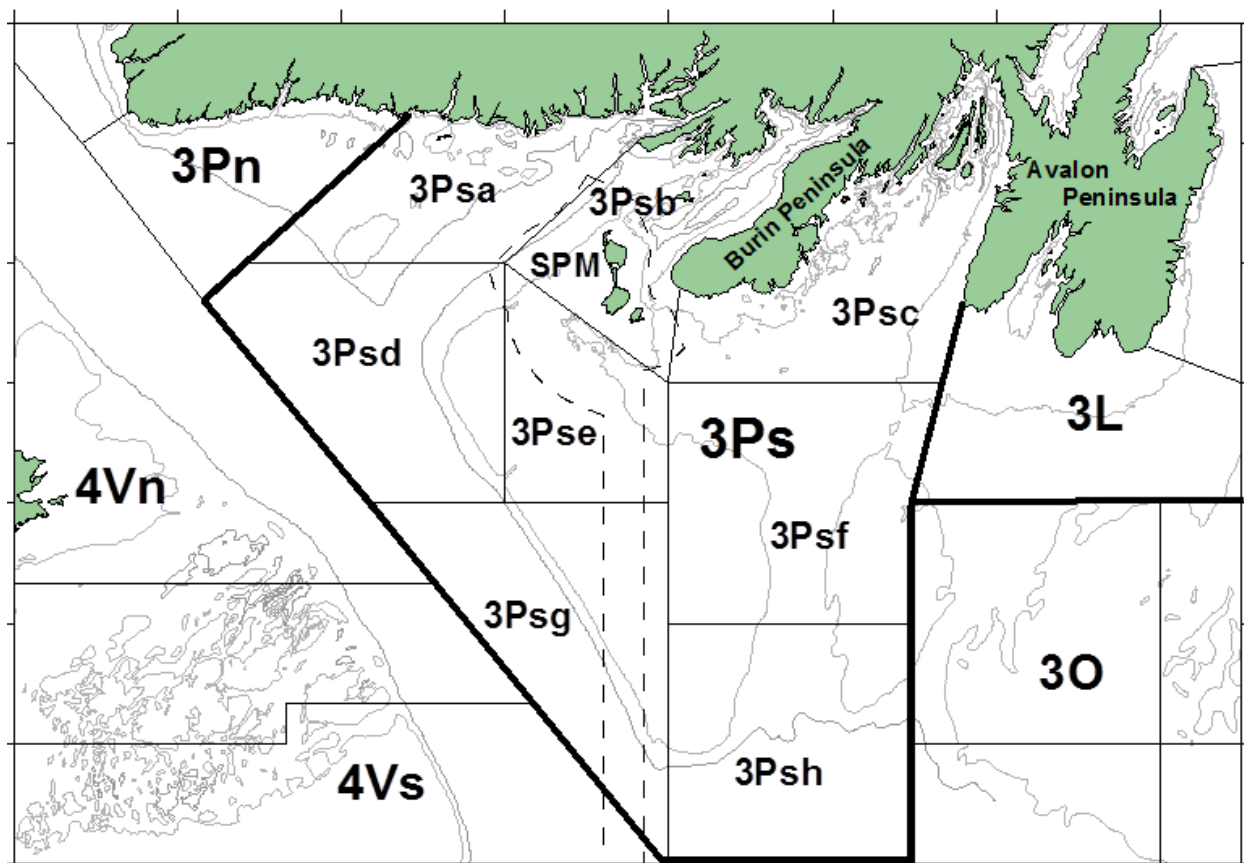


Figure 1. NAFO subDiv. 3Ps management zone showing the economic zone around the French islands of St. Pierre et Miquelon (SPM, dashed line), the 100 m and 250 m depth contours (grey lines) and the boundaries of the statistical unit areas (solid lines).

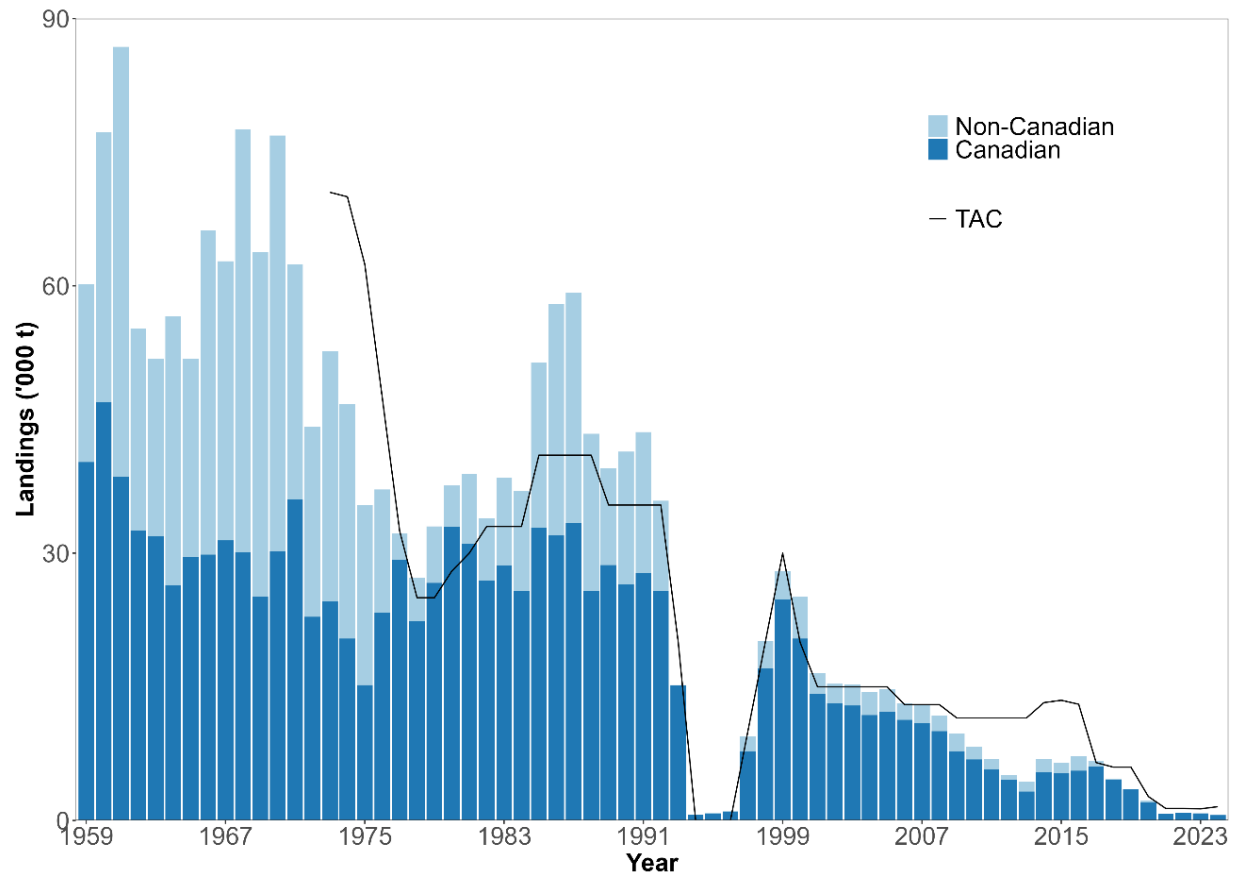


Figure 2. Reported landings of cod by calendar year (Jan-Dec) by Canadian and non-Canadian vessels in NAFO SubDiv. 3Ps. Note that TACs since 2000 have been established for “quota years” April 1-March 31.

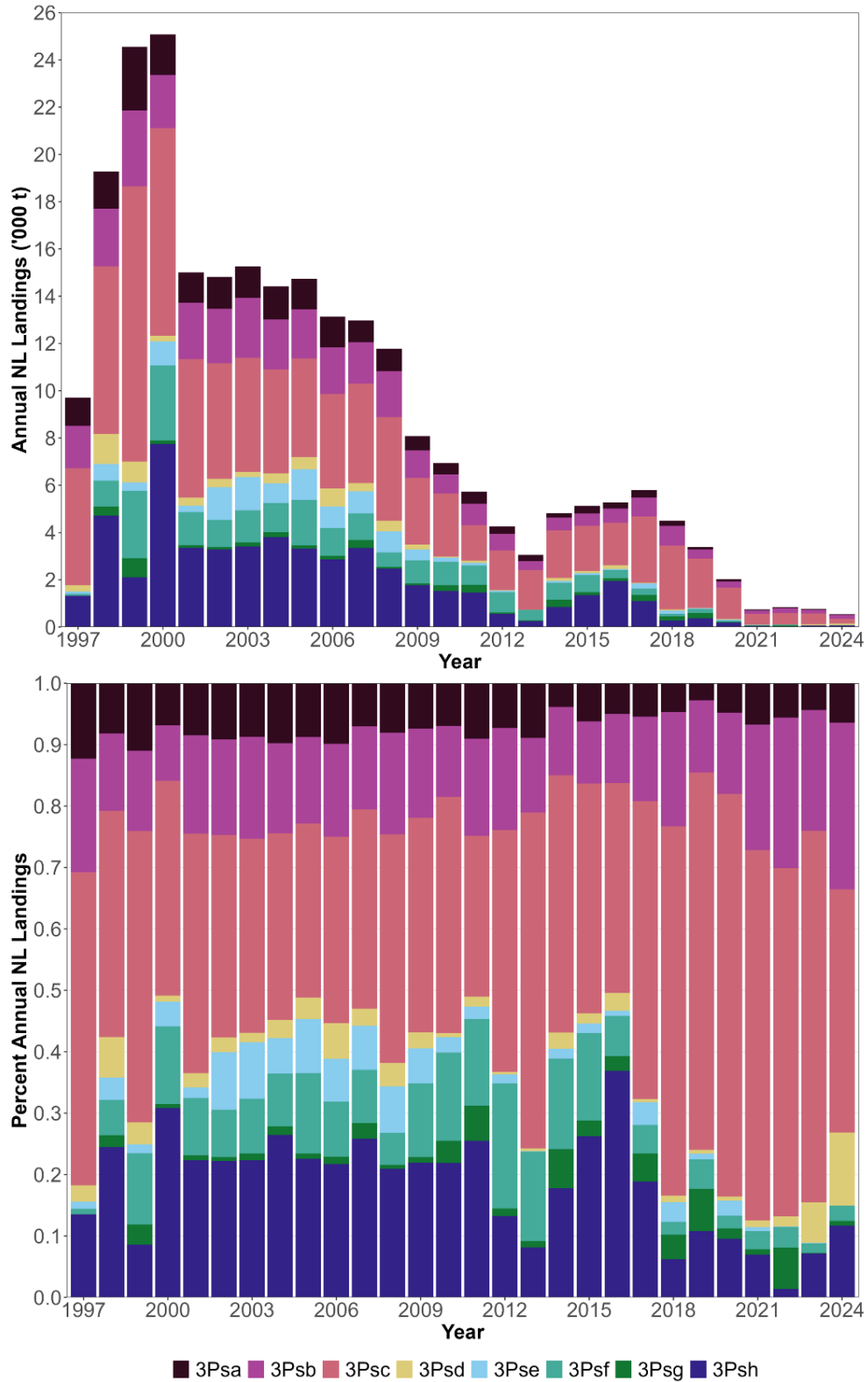


Figure 3. Breakdown of recent Canadian annual landings of 3Ps cod by statistical unit areas. Both landings (upper panel) and percent of total landings (lower panel) are presented. Refer to Figure 1 for locations of unit areas.

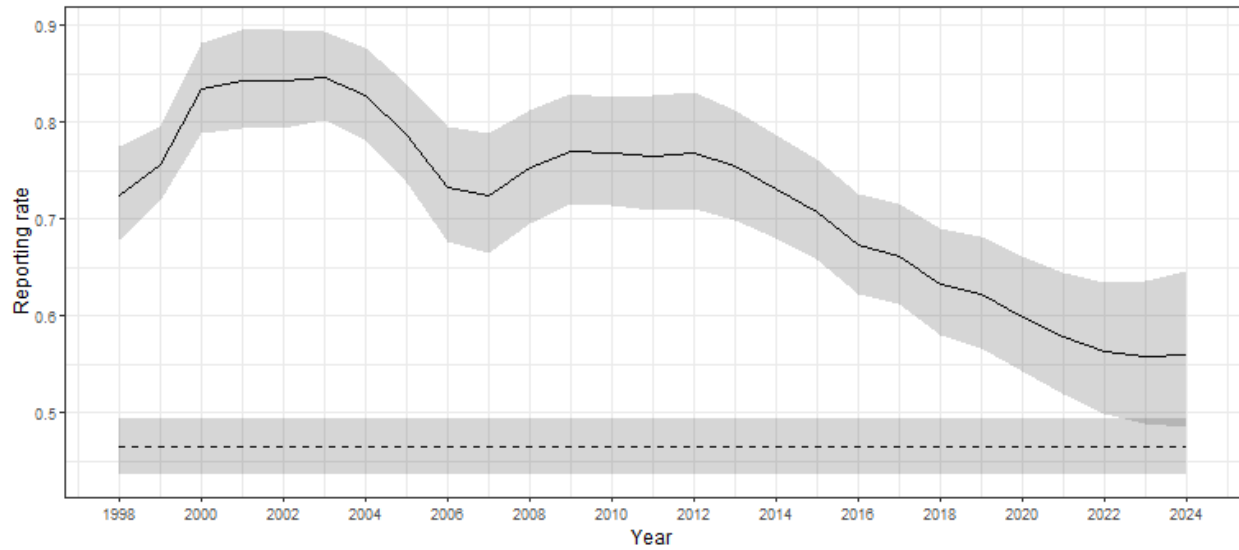


Figure 4. Reporting rate for tag returns from the commercial fishery (solid line) and recreational fishery (dashed line) from 1998–2024 with 95% confidence intervals (shaded area).

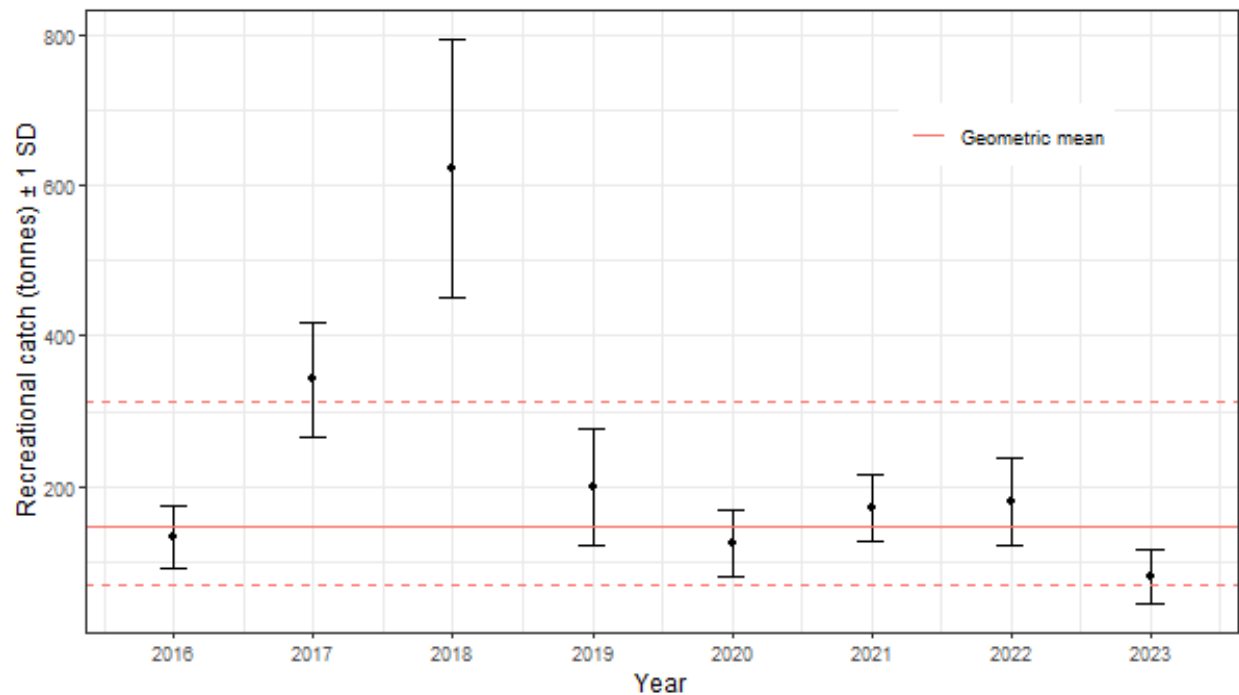


Figure 5. Recreational catch in tonnes (± 1 SD) from 2016–23 with geometric mean for the recreational management period (solid line; 212 t) and 95% confidence intervals (dashed line; 125–308 t). 2024 estimates have been excluded due to low tag returns at the time of the assessment.

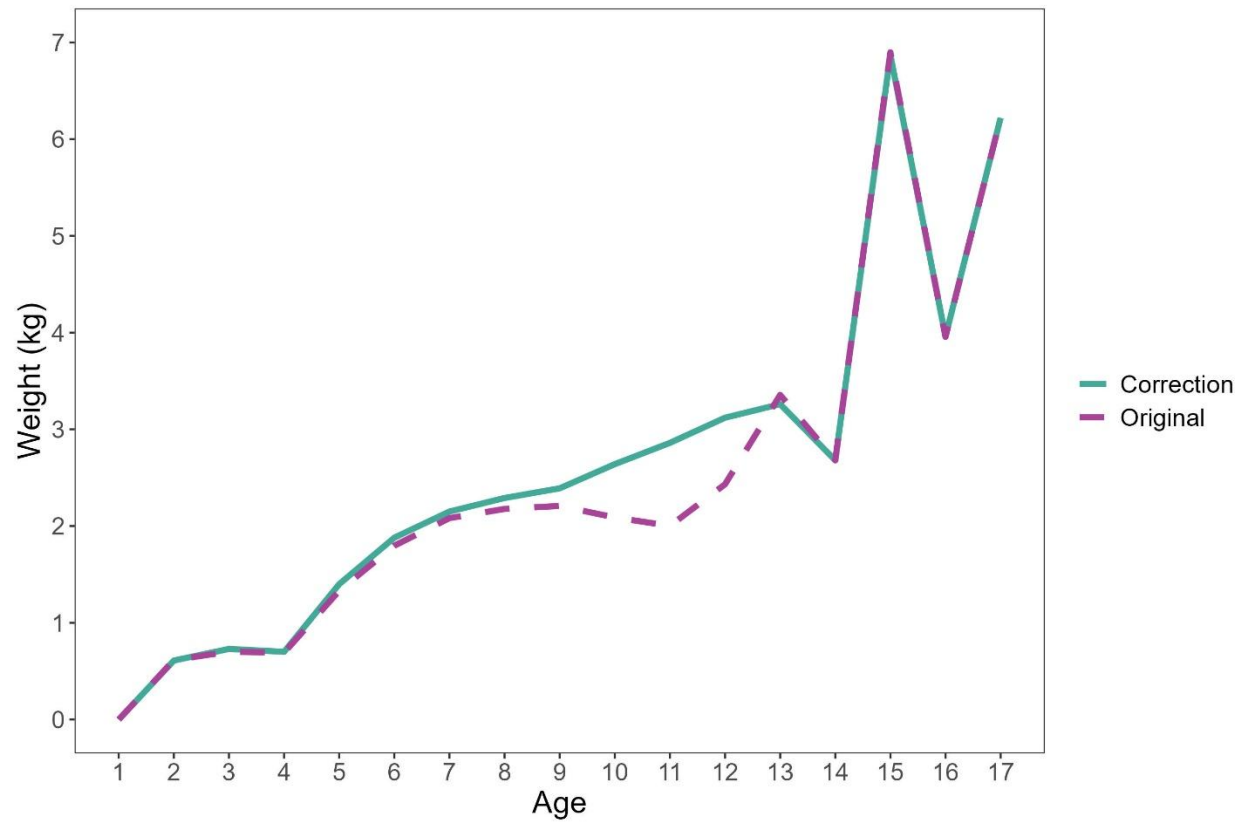


Figure 6. Estimated weight (kg) at age for 3Ps cod in 2023 with the original estimated values used for the 2024 assessment and the corrected values.

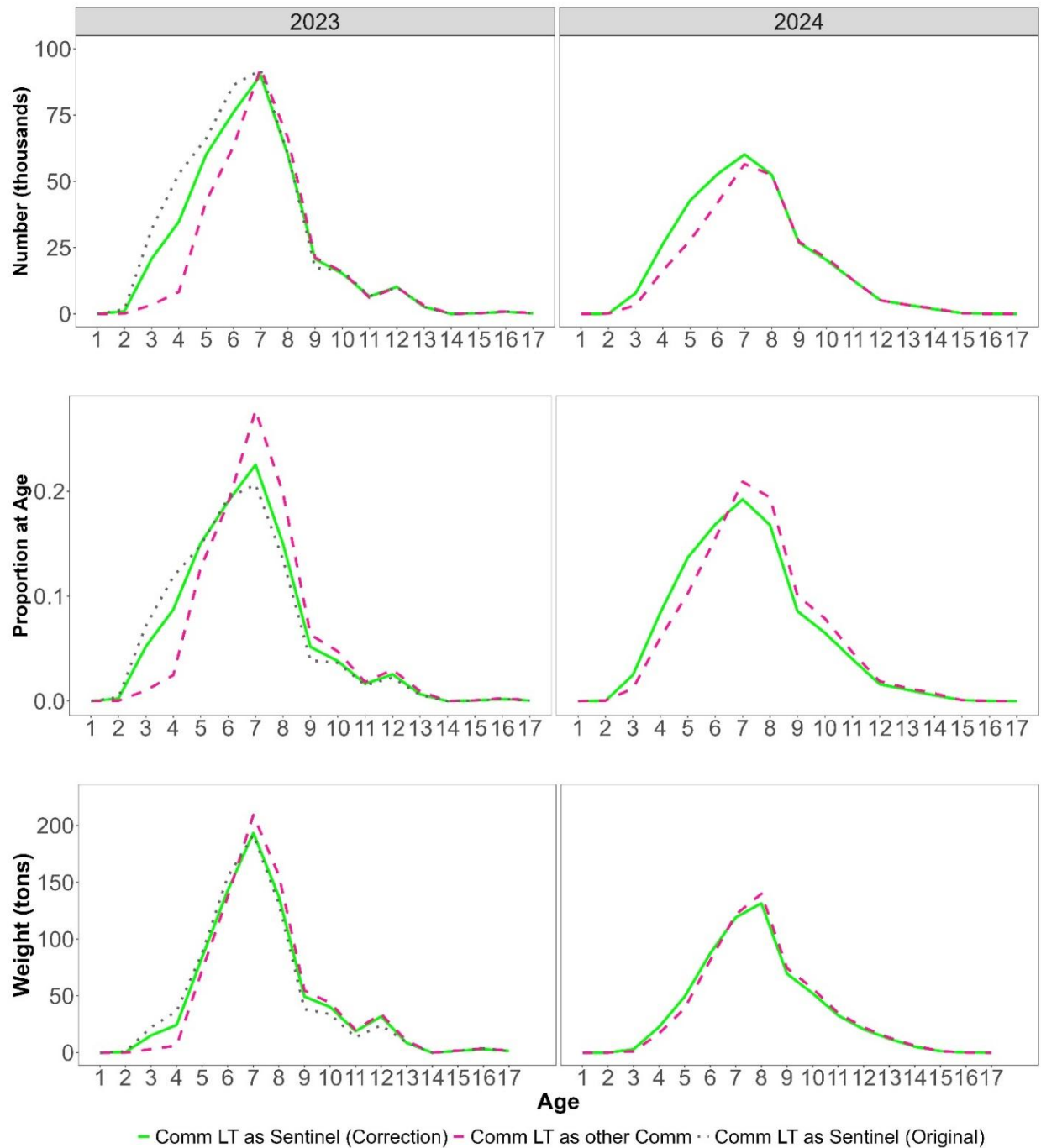


Figure 7. Catch at age for 2023 (left) and 2024 (right) assuming the commercial line trawl (LT) catch with the same length-age distribution as the sentinel LT (original [grey dashed line] for 2023, and corrected [green solid line]), and assuming commercial LT with the same age distribution as the other commercial catch (pink dashed line). Top panel shows number (thousands) at age, middle panel is proportion at age, and bottom plot is weight (tons) at age.

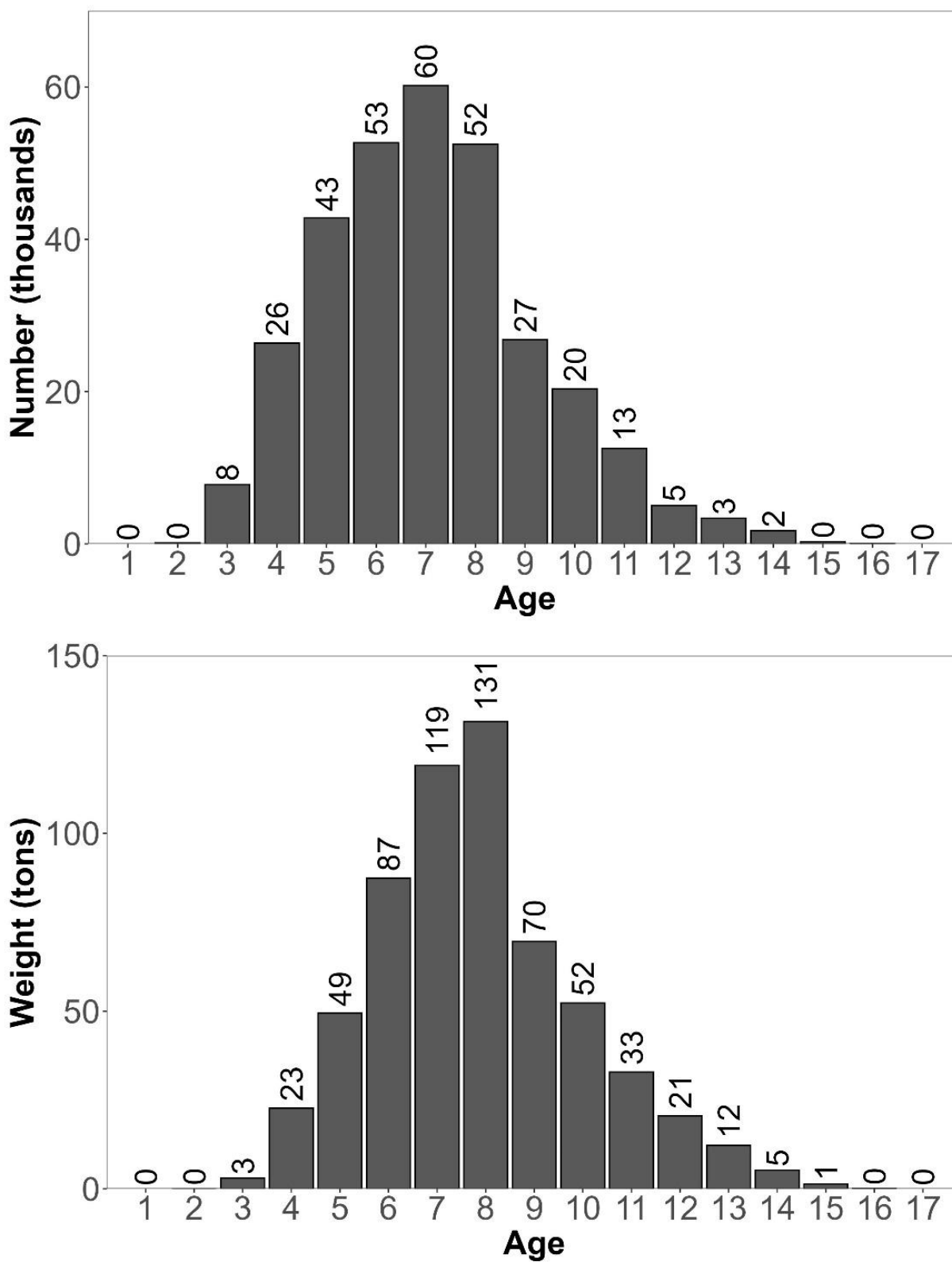


Figure 8. Catch numbers (top) and weight (bottom) at age from commercial and sentinel fisheries in 2024.

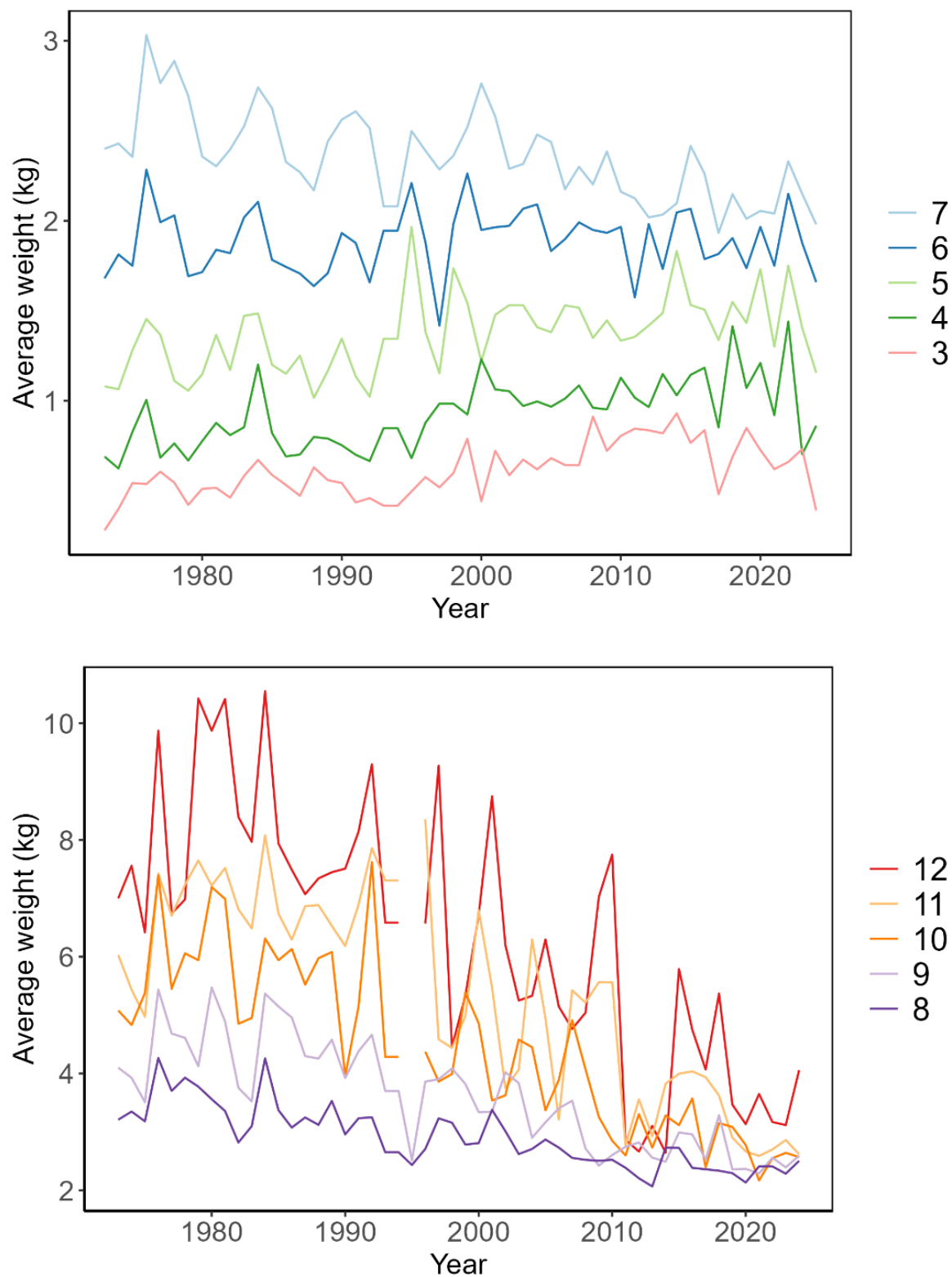


Figure 9. Mean weights-at-age calculated from mean lengths-at-age (upper panel: ages 3–7; lower panel: ages 8–12, colours show different ages) from the commercial catch of cod in SubDiv. 3Ps during 1973–2024.

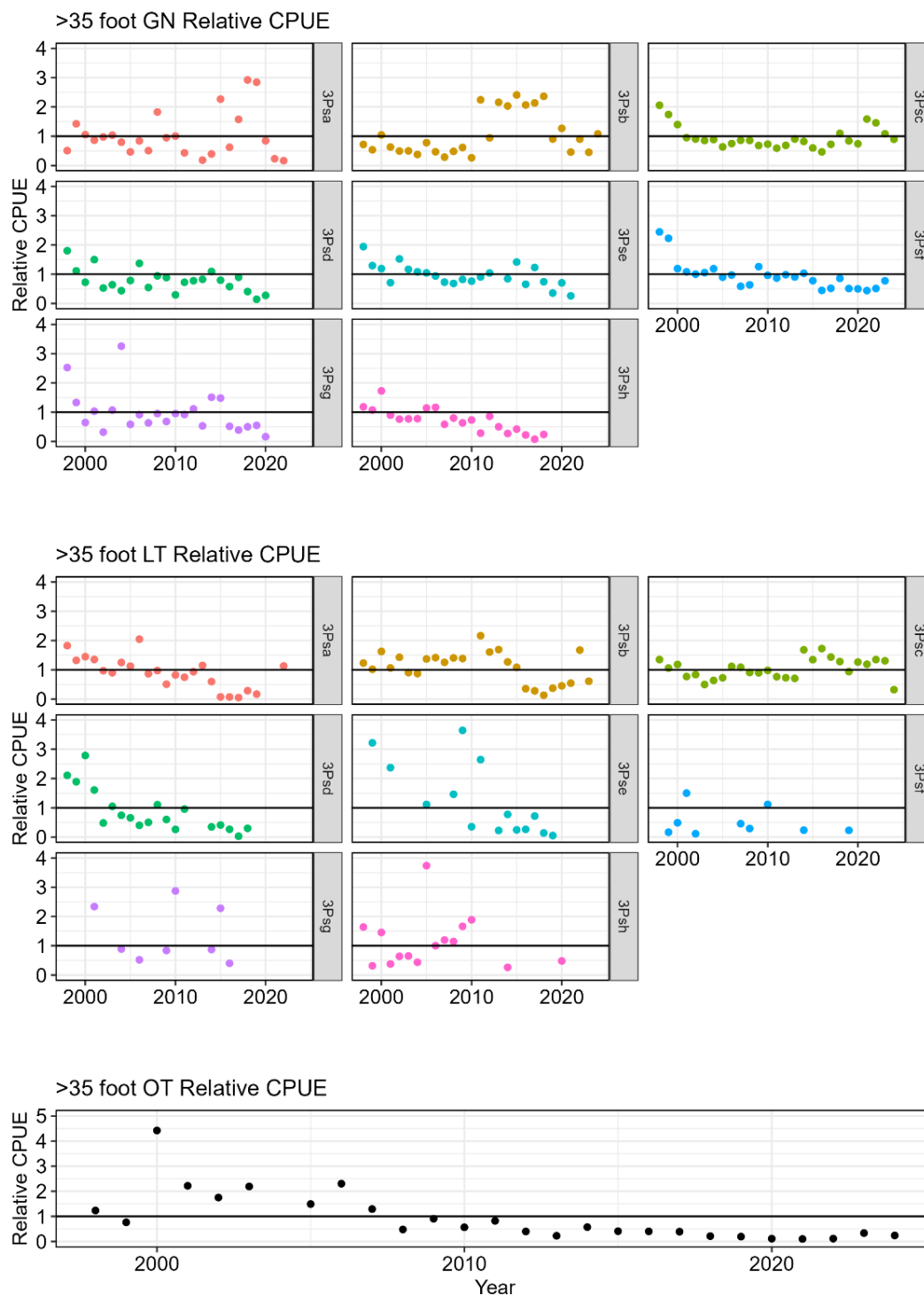


Figure 10. Unstandardized CPUE for >35 foot vessels in 3Ps by year and unit area for gillnet (GN; top) and linetrawl (LT, middle) vessels, and combined across 3Ps for otter trawls (OT; bottom). CPUE is presented as relative to each area's series mean. Area-year combinations with <3 reported sets are not included here.

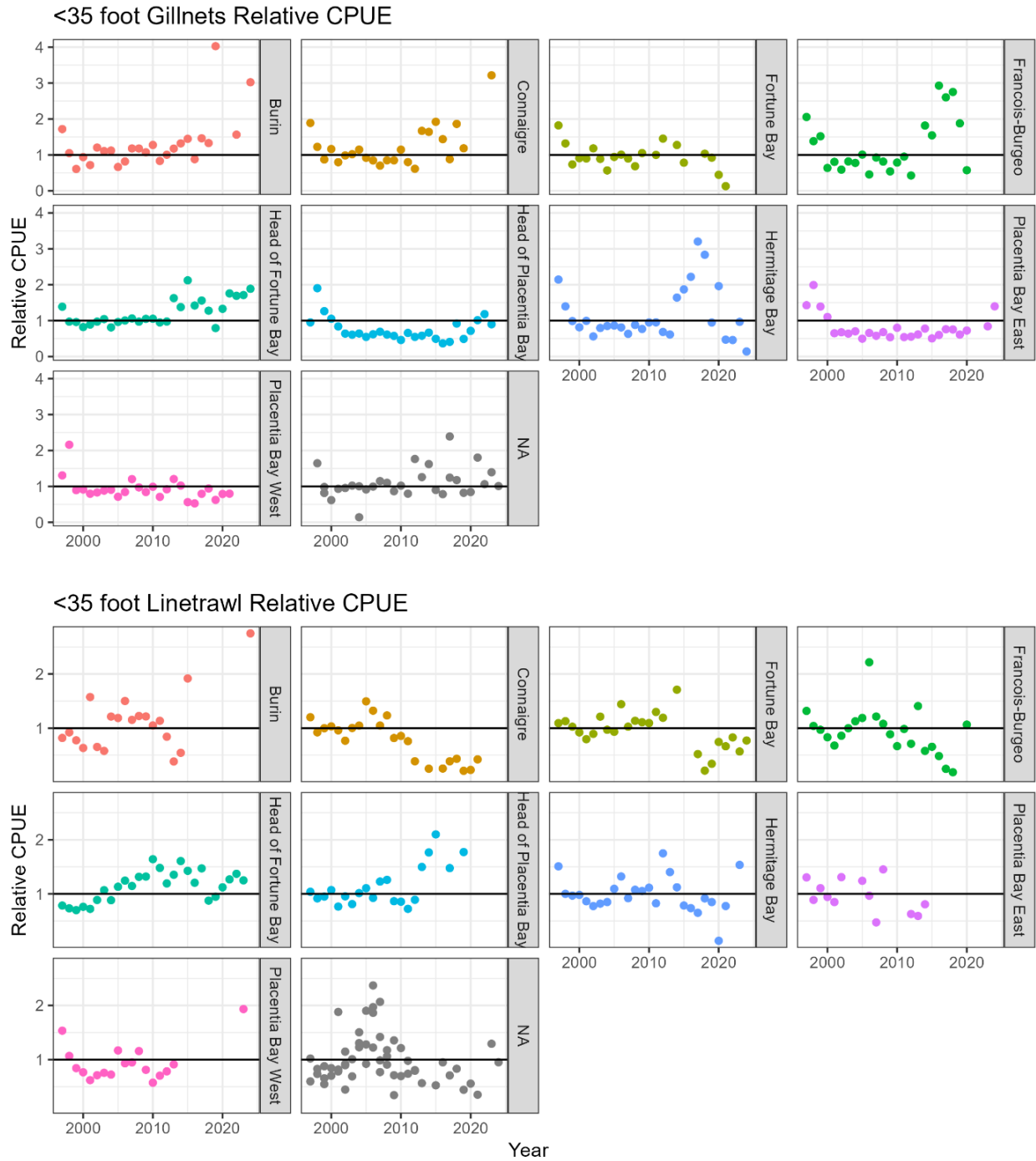


Figure 11. Unstandardized CPUE for <35 foot vessels in 3Ps by year and community. CPUE is presented as relative to each community's series mean (>1 indicated higher than average catch rate for that area, <1 lower). Community-year combinations with <3 reported sets are not included here. NA indicates that community level information was not provided in the logbook record.

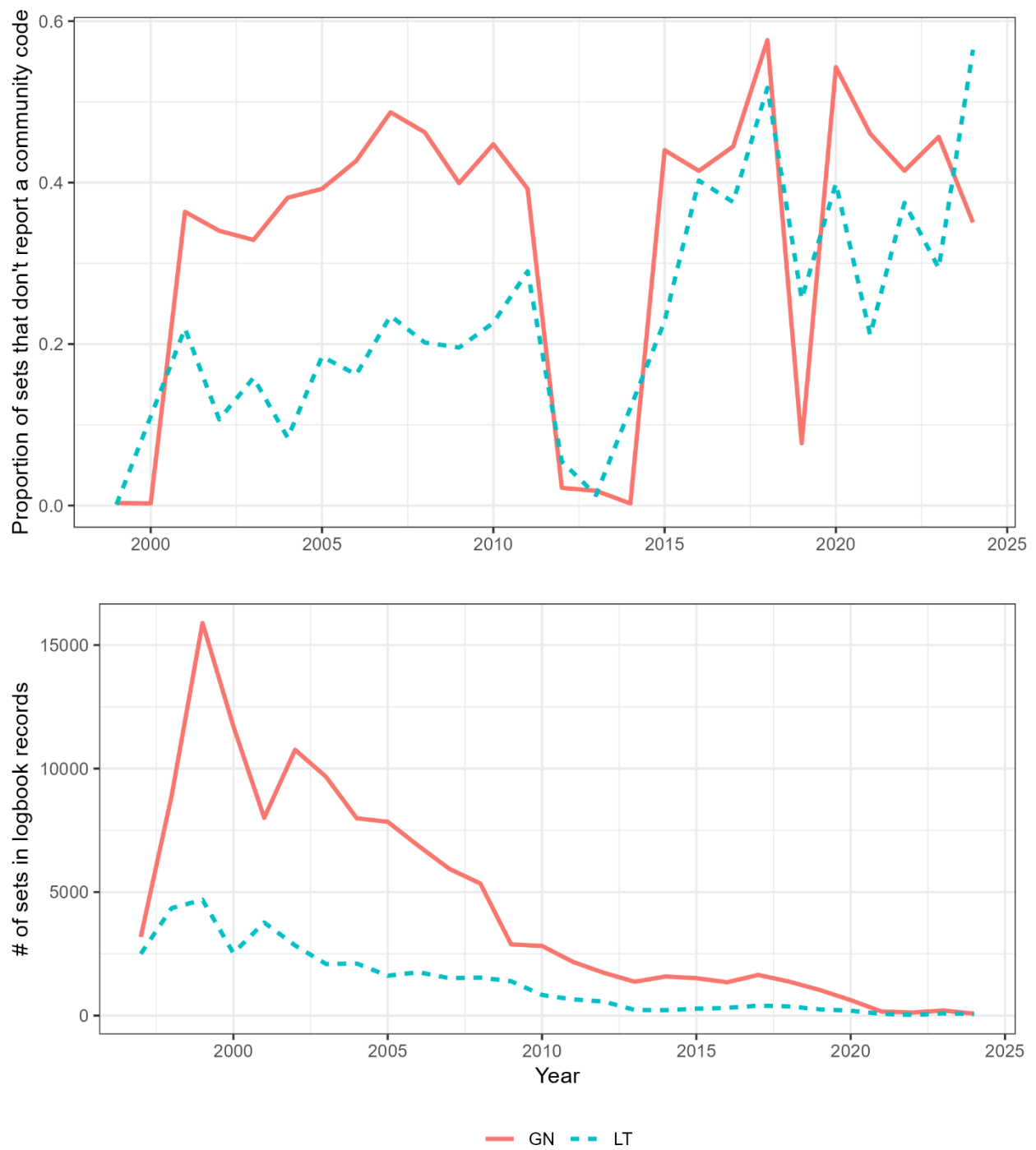


Figure 12. Increasing proportion (top) of sets that do not have community identifiers associated with set records is accompanied by a decrease in total number (below) of set records for <35 foot logbooks.

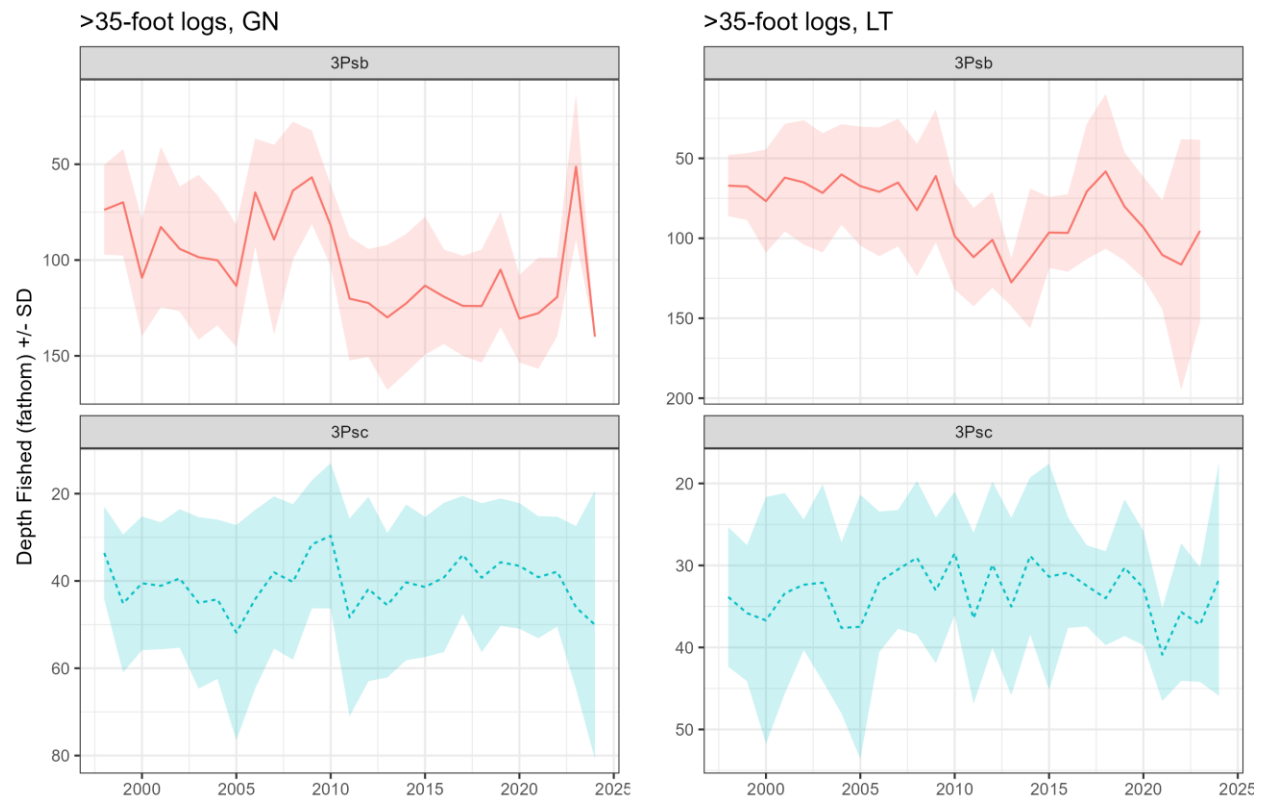


Figure 13. Reported depth fished (fathoms) from commercial cod logbooks in 3Psb and 3Psc for >35-foot logbooks. Depth information is not recorded in <35-foot science logs.

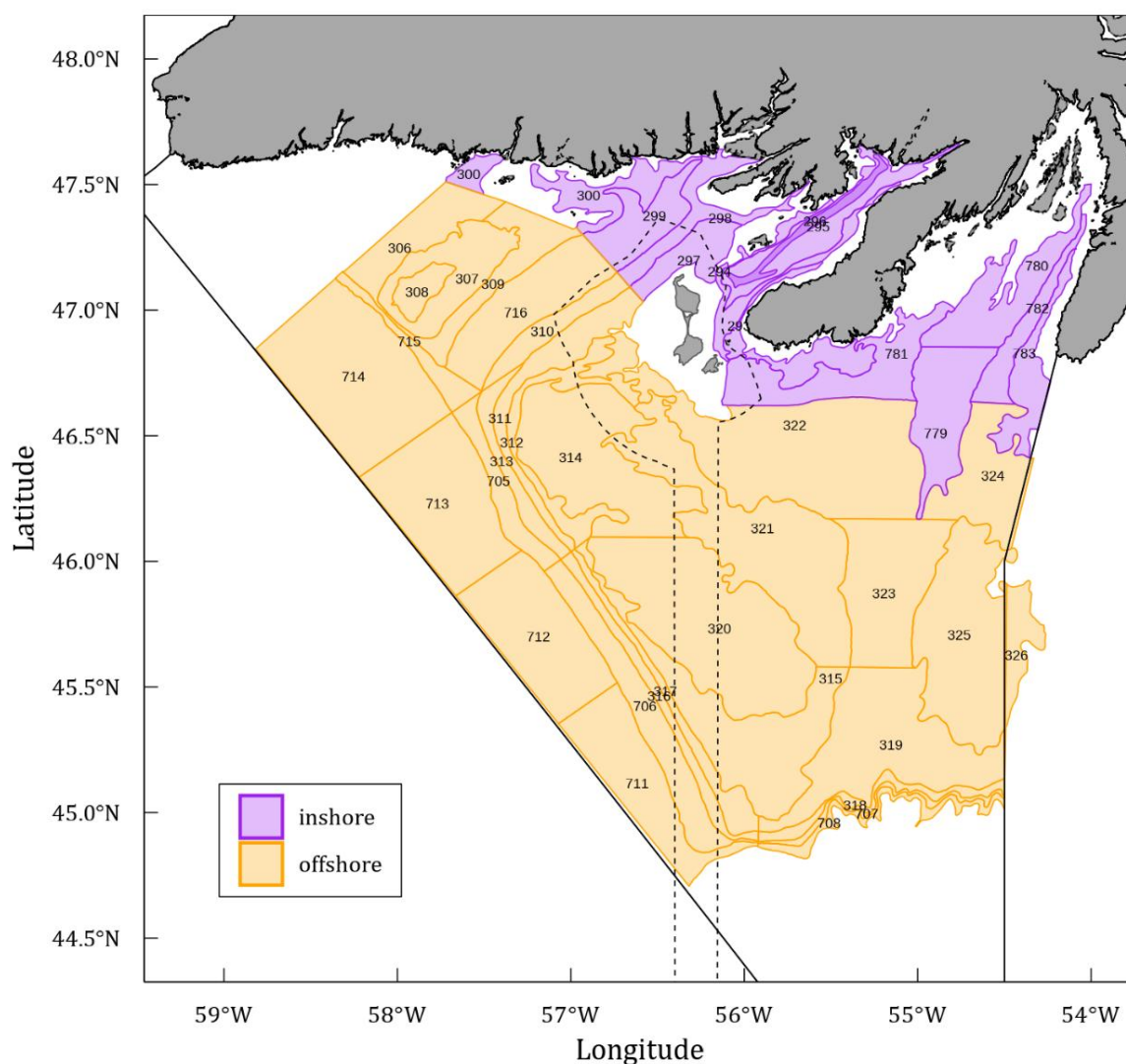


Figure 14. Stratum area boundaries and area surveyed during the DFO research vessel bottom-trawl survey of NAFO subDiv. 3Ps. Offshore strata are shaded blue, inshore strata were added in 1994 (strata 779–783) and 1997 (strata 293–300) and are shaded green, grey strata are not included in the index strata for 3Ps cod. The dashed line shows the boundary of the French economic zone.

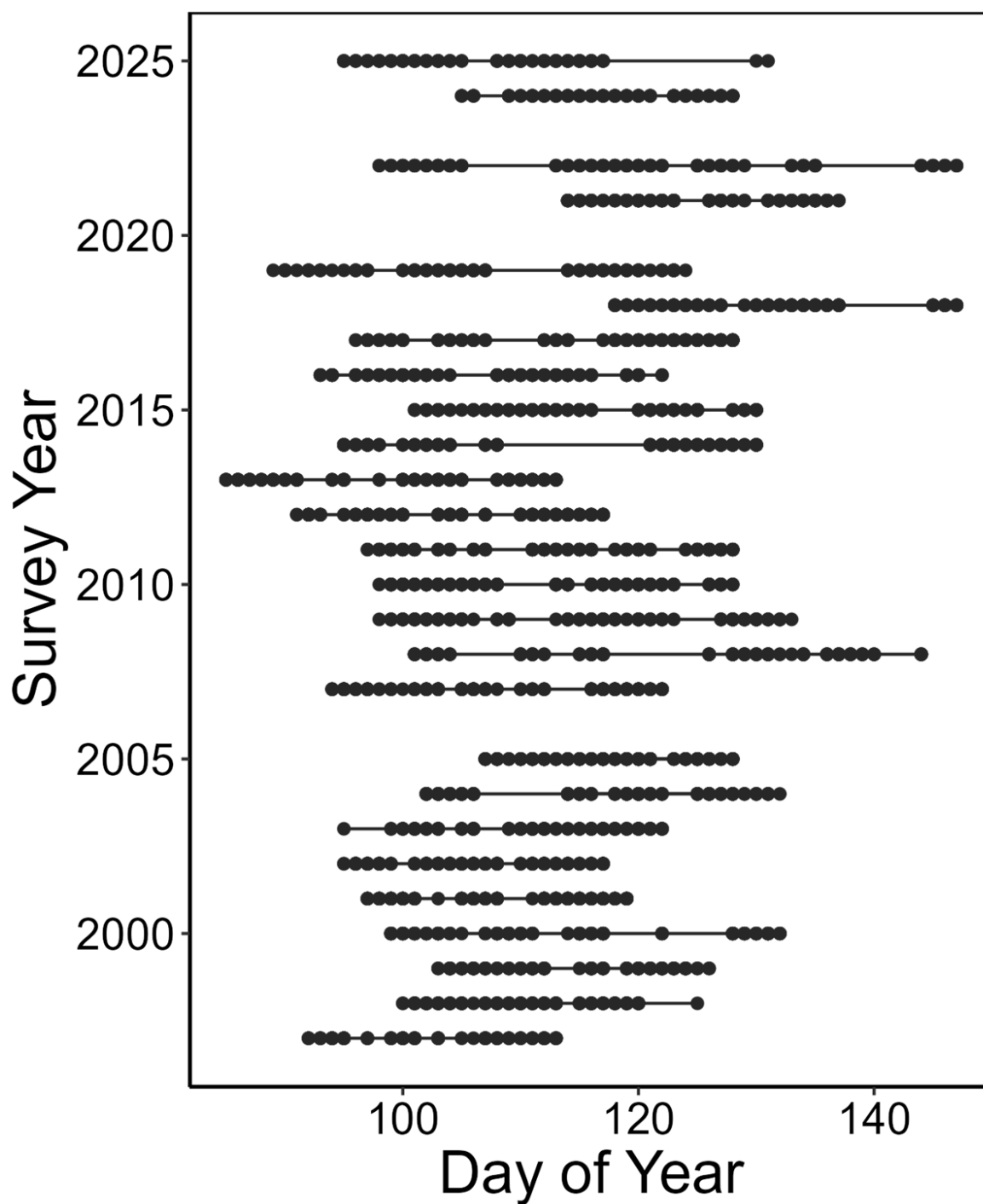


Figure 15. Timing of the survey in subDiv. 3Ps by day of the year. The survey was incomplete in 2006 and there was no survey in 2020 or 2023.

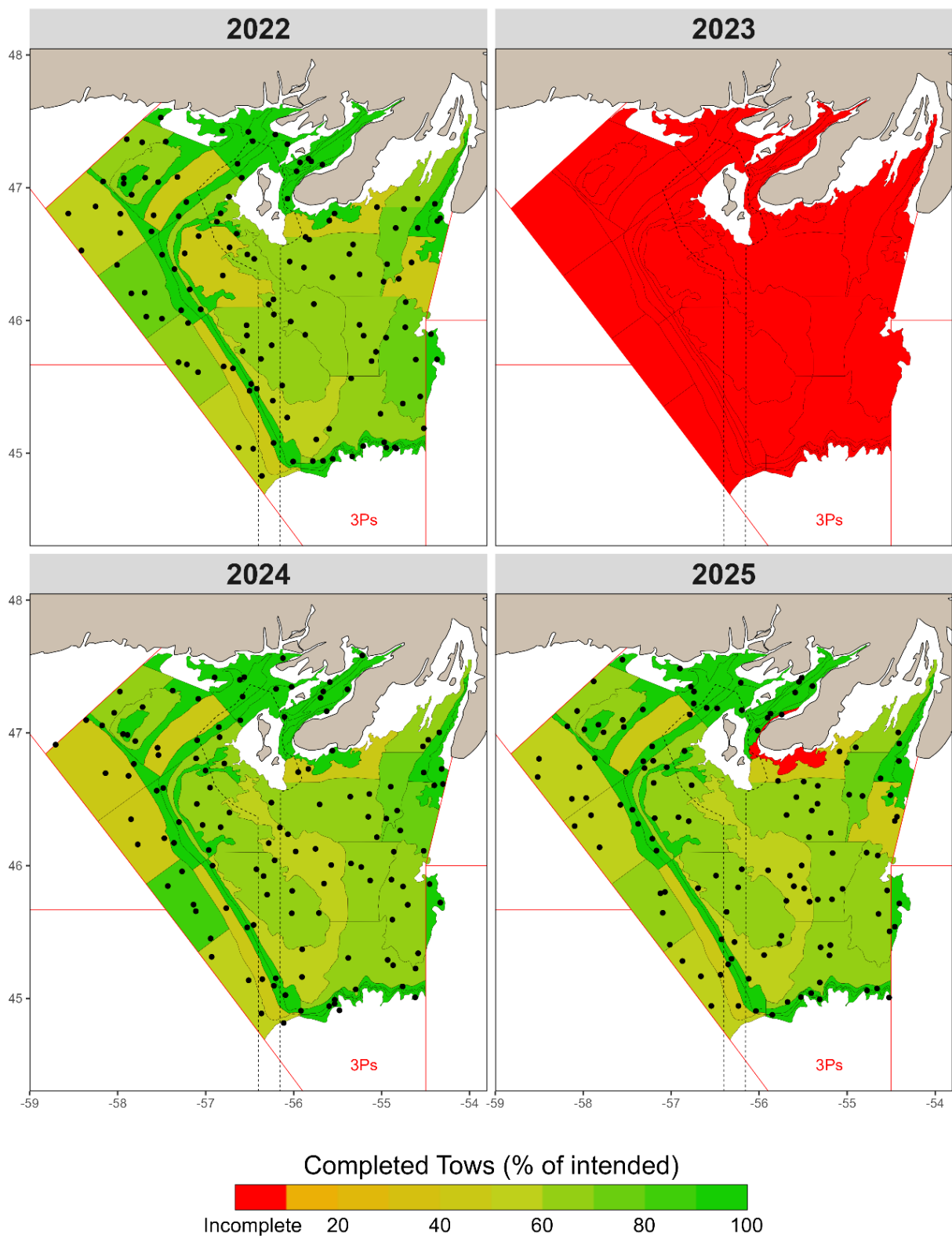


Figure 16. Coverage of the 2022–25 RV Surveys in subDiv. 3Ps. Points indicate set locations, strata are coloured based on percent of intended tows completed. There was no survey in 2023 in subDiv. 3Ps.

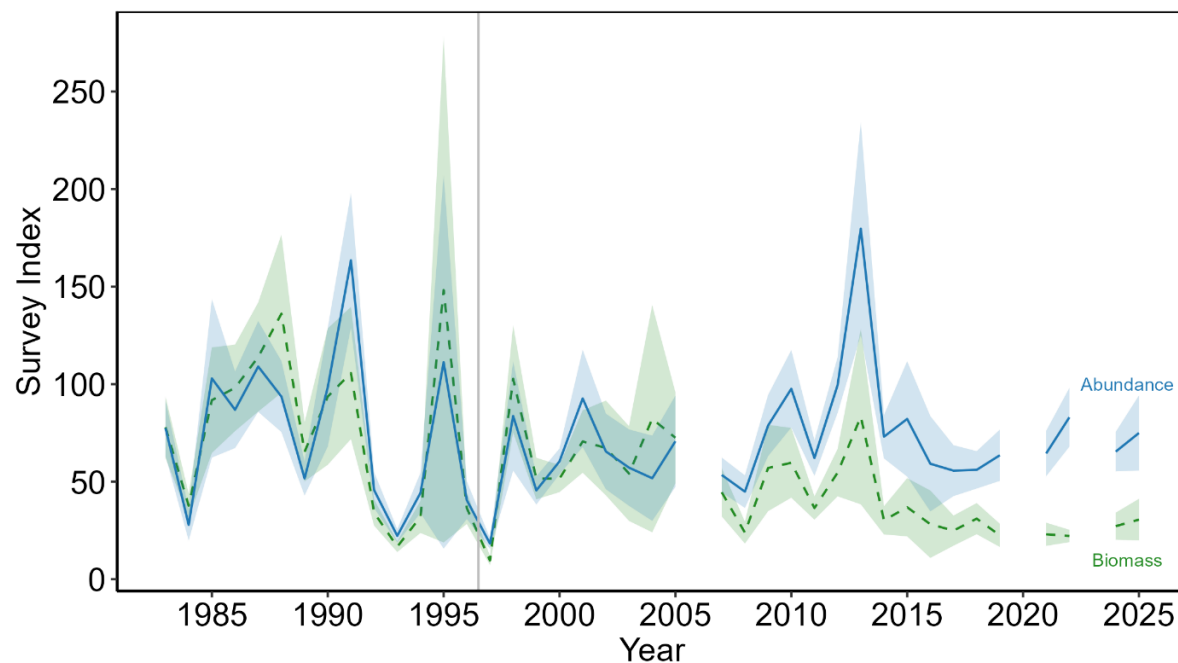


Figure 17. Campelen-equivalent survey indices of abundance (solid blue) and biomass (dashed green) from the annual 3Ps RV survey. Surveys prior to 1994 did not cover inshore areas, from 1994–97 have varying inshore coverage, and include inshore and offshore areas since 1997 (vertical grey line). Indices are relative values and are therefore presented here without units. The survey was incomplete in 2006 and there was no survey in 2020 or 2023.

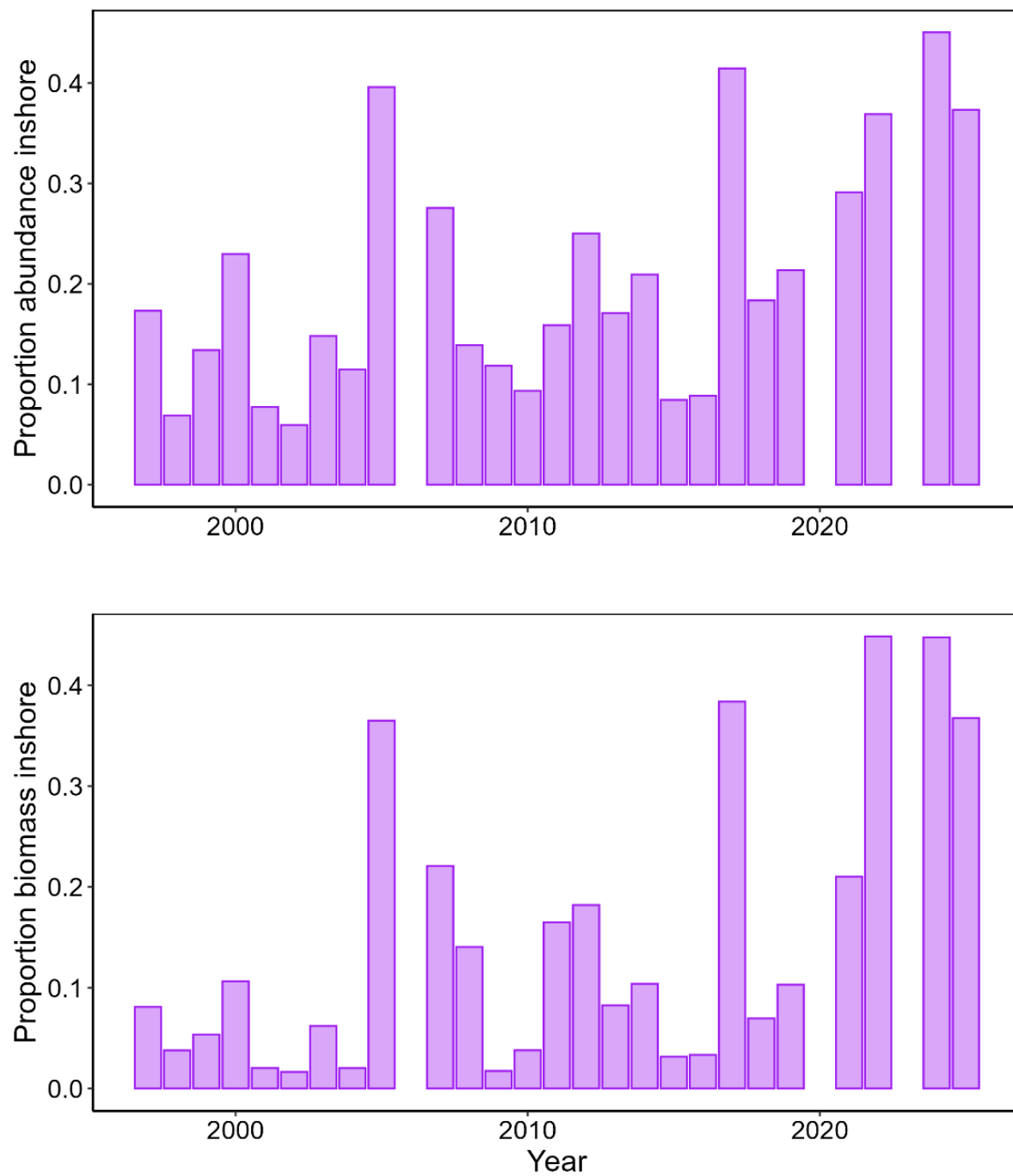


Figure 18. Proportion of survey abundance (top) and biomass (bottom) caught in the inshore strata of subDiv. 3Ps since 1997. The survey was incomplete in 2006 and there was no survey in 2020 or 2023.

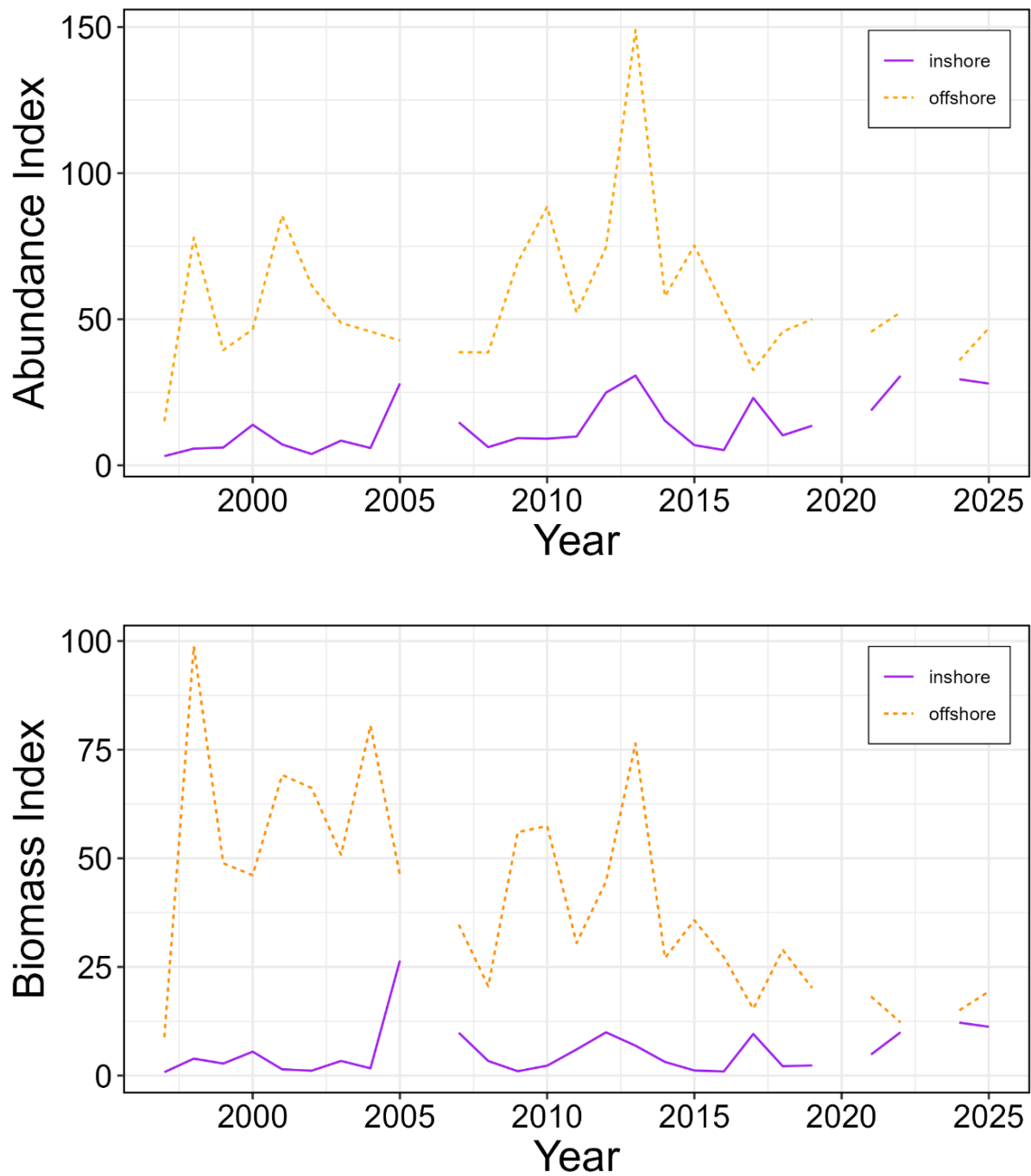


Figure 19. Comparison of abundance (upper panel) and biomass (lower panel) indices for cod in NAFO SubDiv. 3Ps in offshore strata (orange dashed line) and in inshore strata only (purple solid line).



Figure 20. Bubble plot of survey mean number per tow (mnpt) at age from 1997–2025. Bubble area is proportional to the mnpt, and colours coincide with cohorts. The survey was incomplete in 2006 and there was no survey in 2020 or 2023.

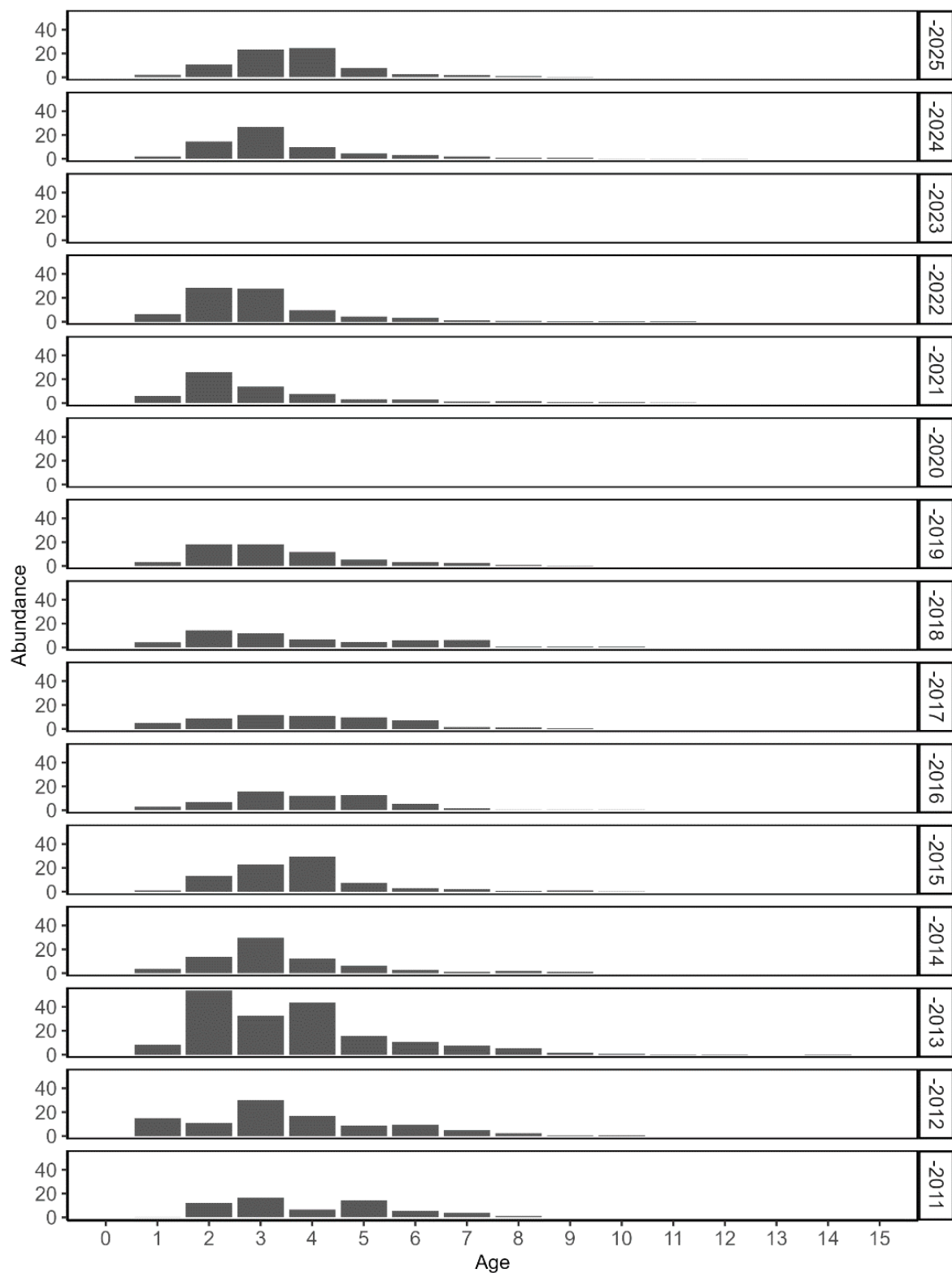


Figure 21. Survey abundance at age from 2011–25. The survey was incomplete in 2006 and there was no survey in 2020 or 2023.

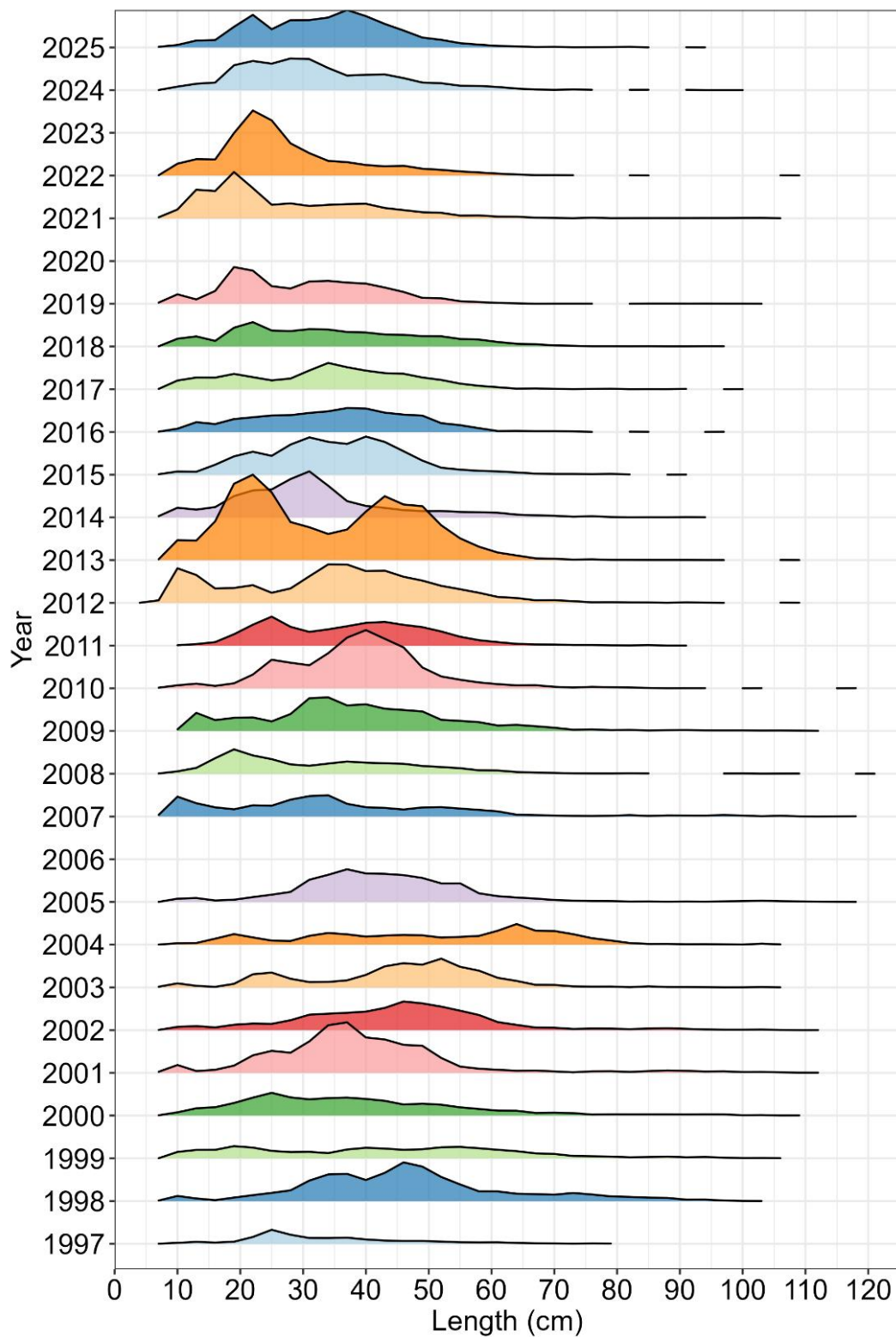


Figure 22. Length frequencies from the spring RV survey in NAFO SubDivision 3Ps from 1997–2025. The survey was incomplete in 2006 and there was no survey in 2020 or 2023.

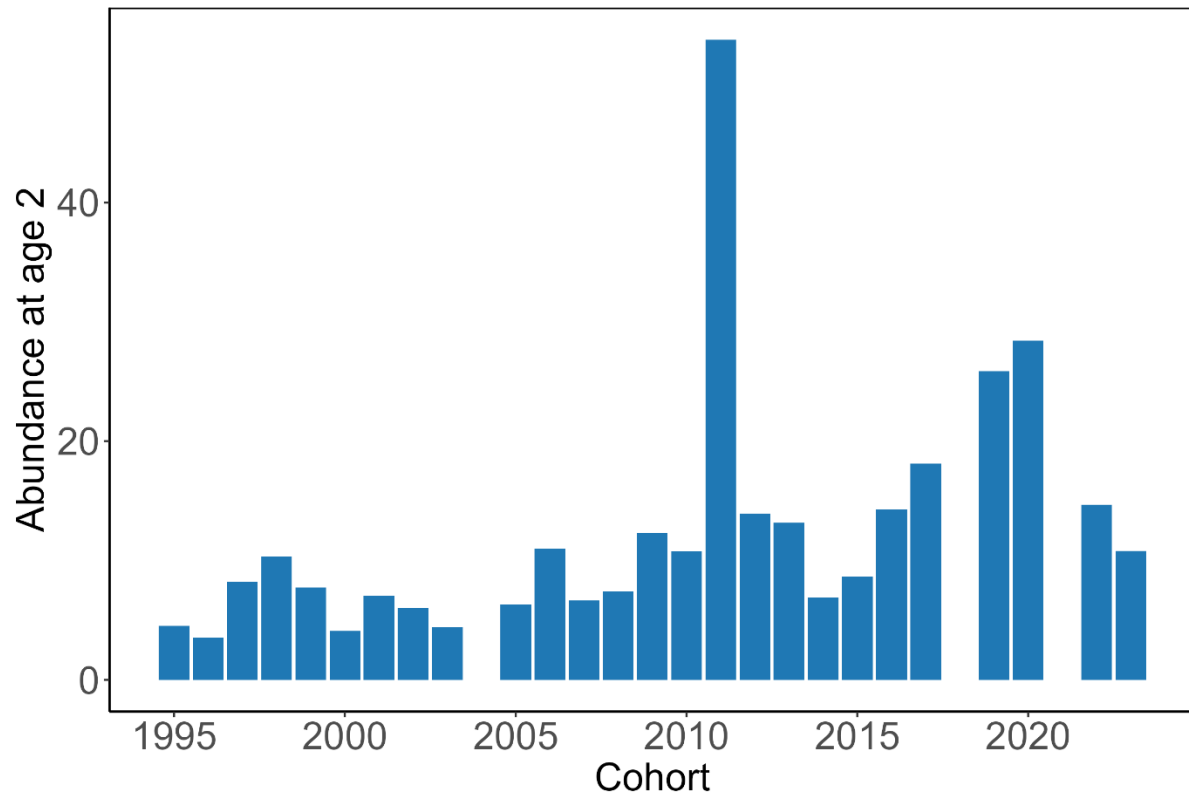


Figure 23. RV survey abundance at age 2 by cohort for surveys since 1997.

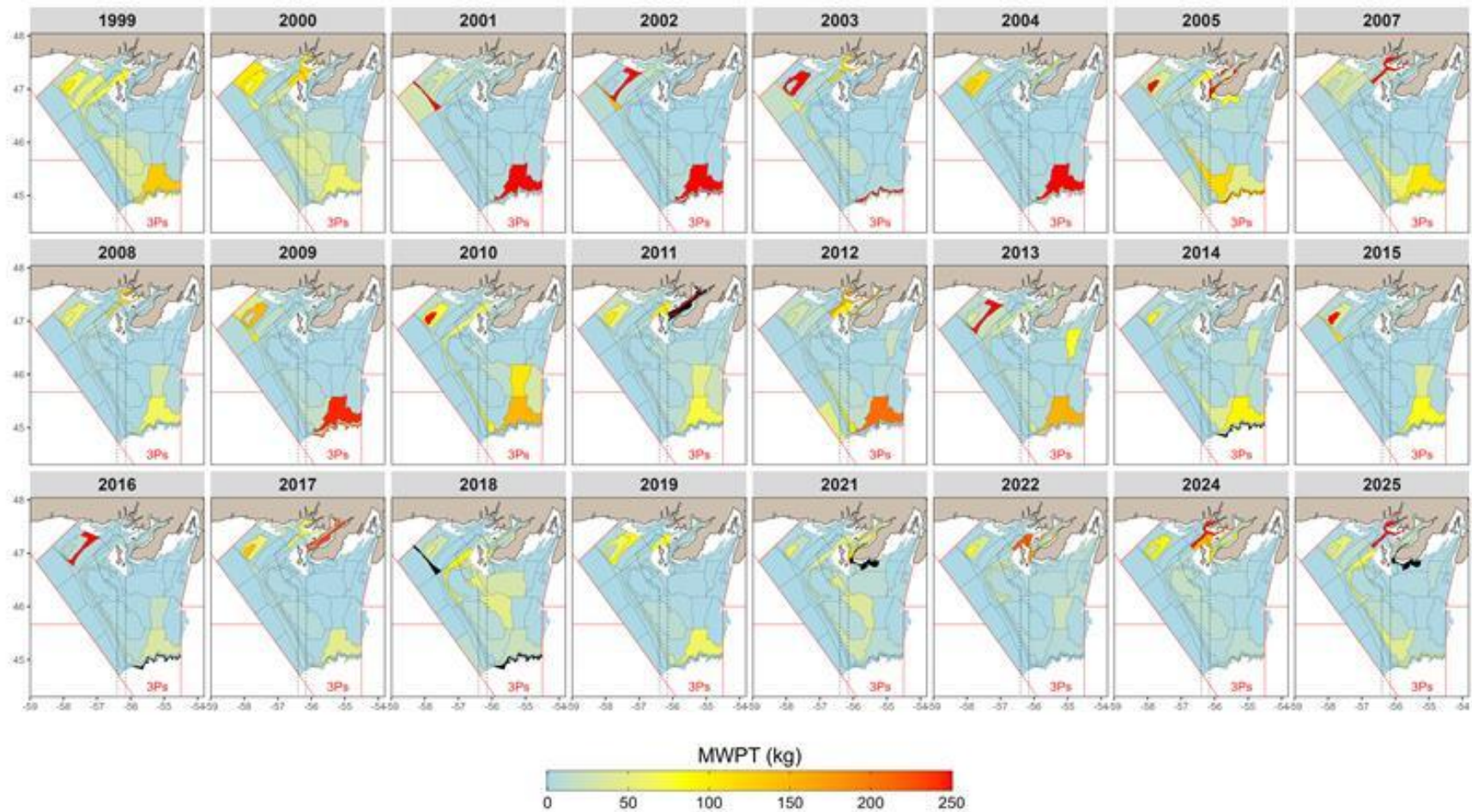


Figure 24. Distribution of survey biomass (mwpt = mean weight per tow) from 1999–2025 by strata. Black shading indicates the strata was incomplete. Years that were incomplete (2006) or not surveyed (2020, 2023) are not shown.

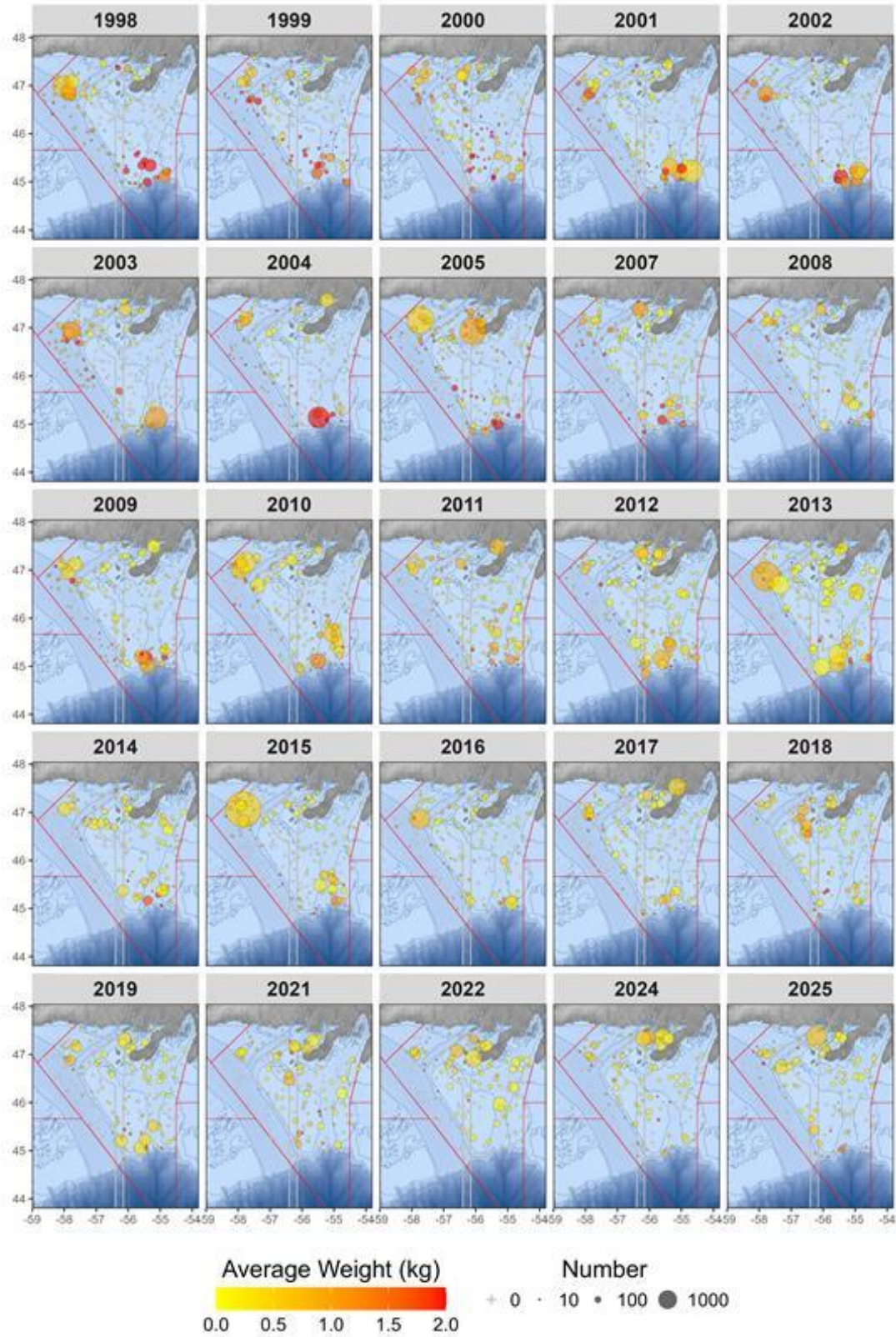


Figure 25. Number of fish (shown by bubble size) per 15 min tow from since 1997. Bubbles are coloured to indicate average individual fish weight (kg) within each set. Years that were incomplete (2006) or not surveyed (2020, 2023) are not shown.

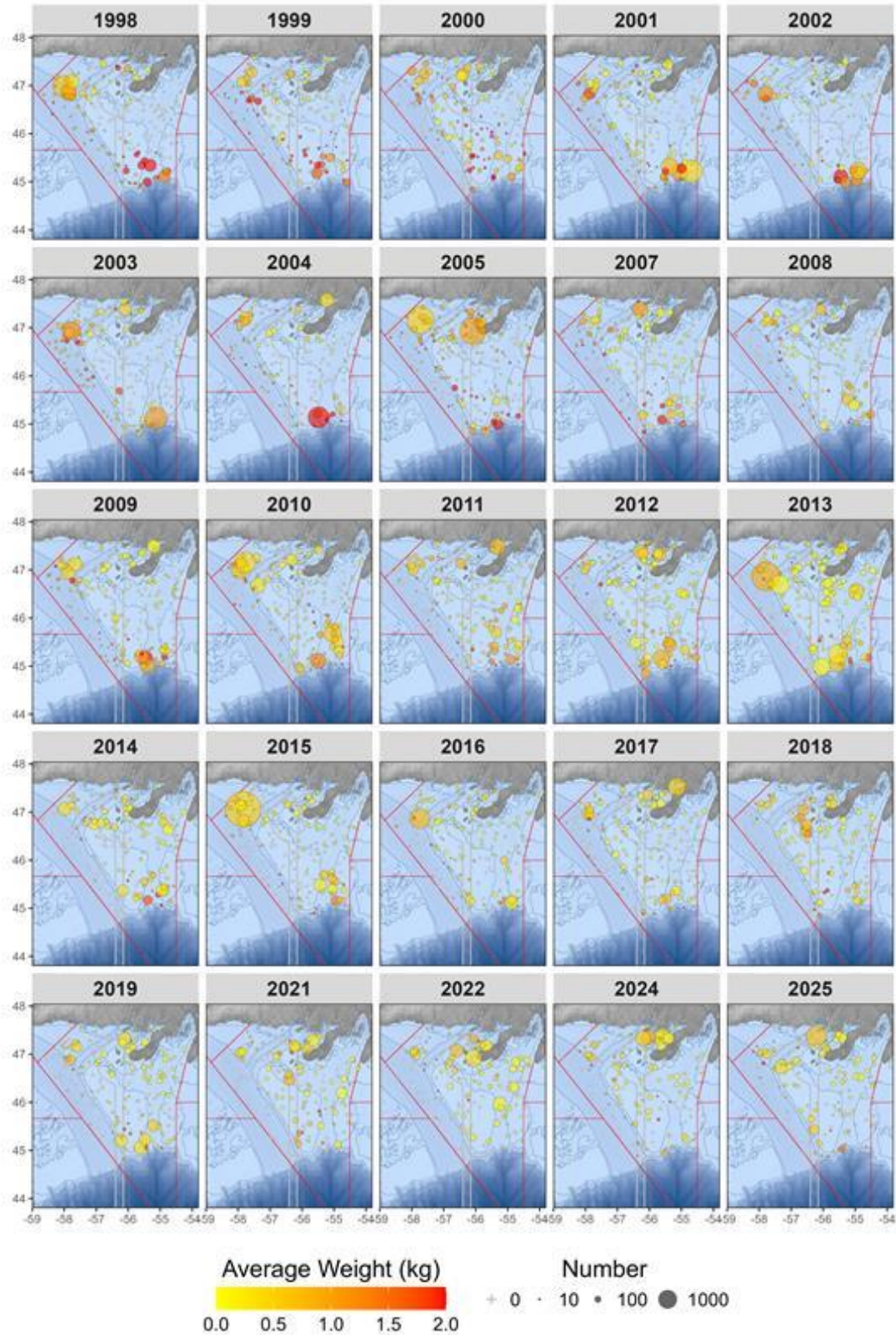


Figure 26. Weight of fish (shown by bubble size) per 15 min tow from since 1993. Bubbles are coloured to indicate average individual fish weight (kg) within each set. Years that were incomplete (2006) or not surveyed (2020, 2023) are not shown.

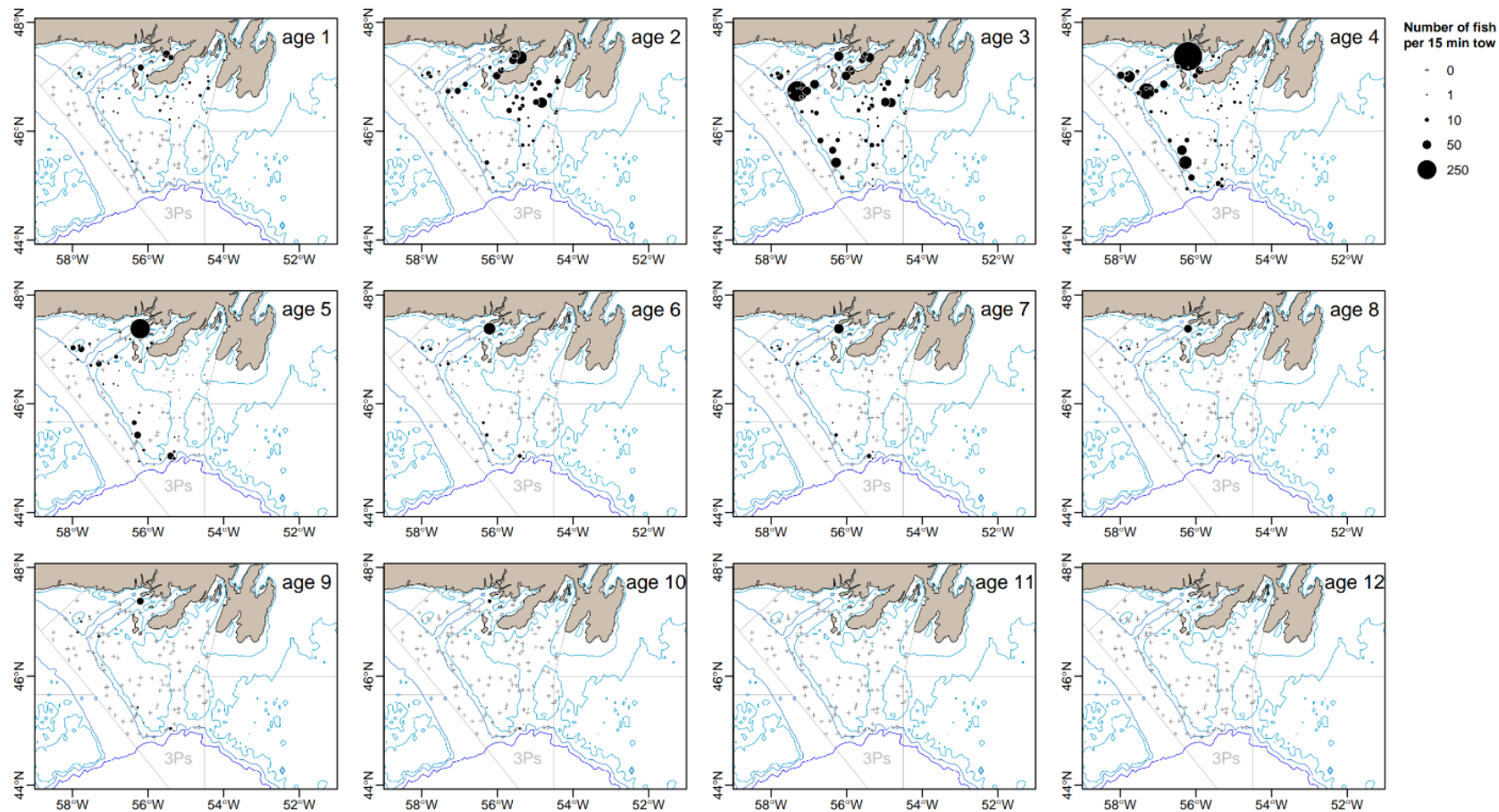


Figure 27. Distribution of number of fish (points) at age (panels) in the 2025 RV Survey.

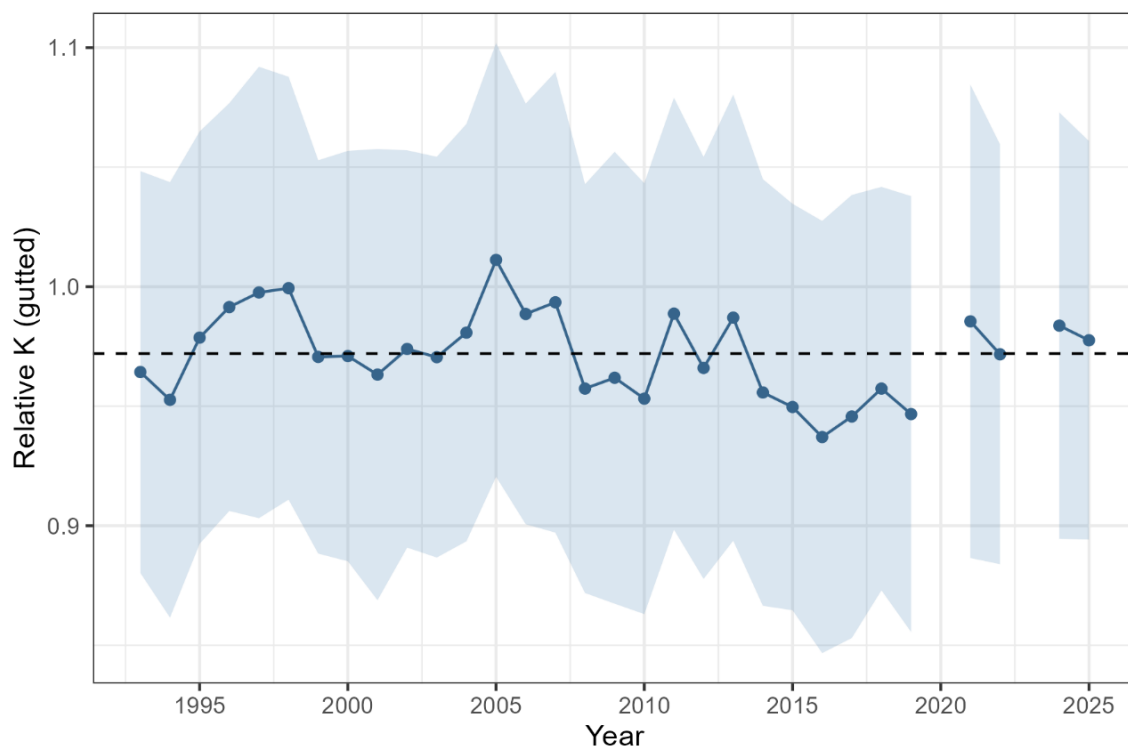


Figure 28. Relative gutted condition (relative K $\pm$ 1SD) calculated from RV survey data. Horizontal dashed line shows the time series average.

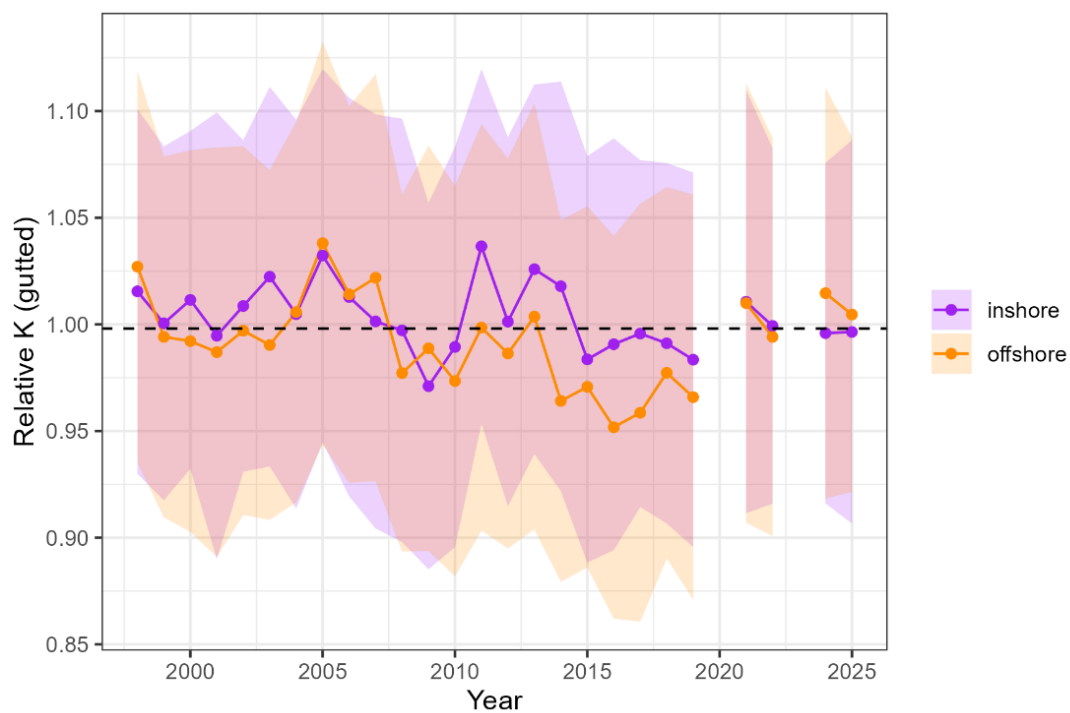


Figure 29. Relative gutted condition (relative K $\pm$ 1SD) calculated from RV survey data separated for inshore (purple) and offshore (orange) strata. Horizontal dashed line shows the time series average for the survey area combined.

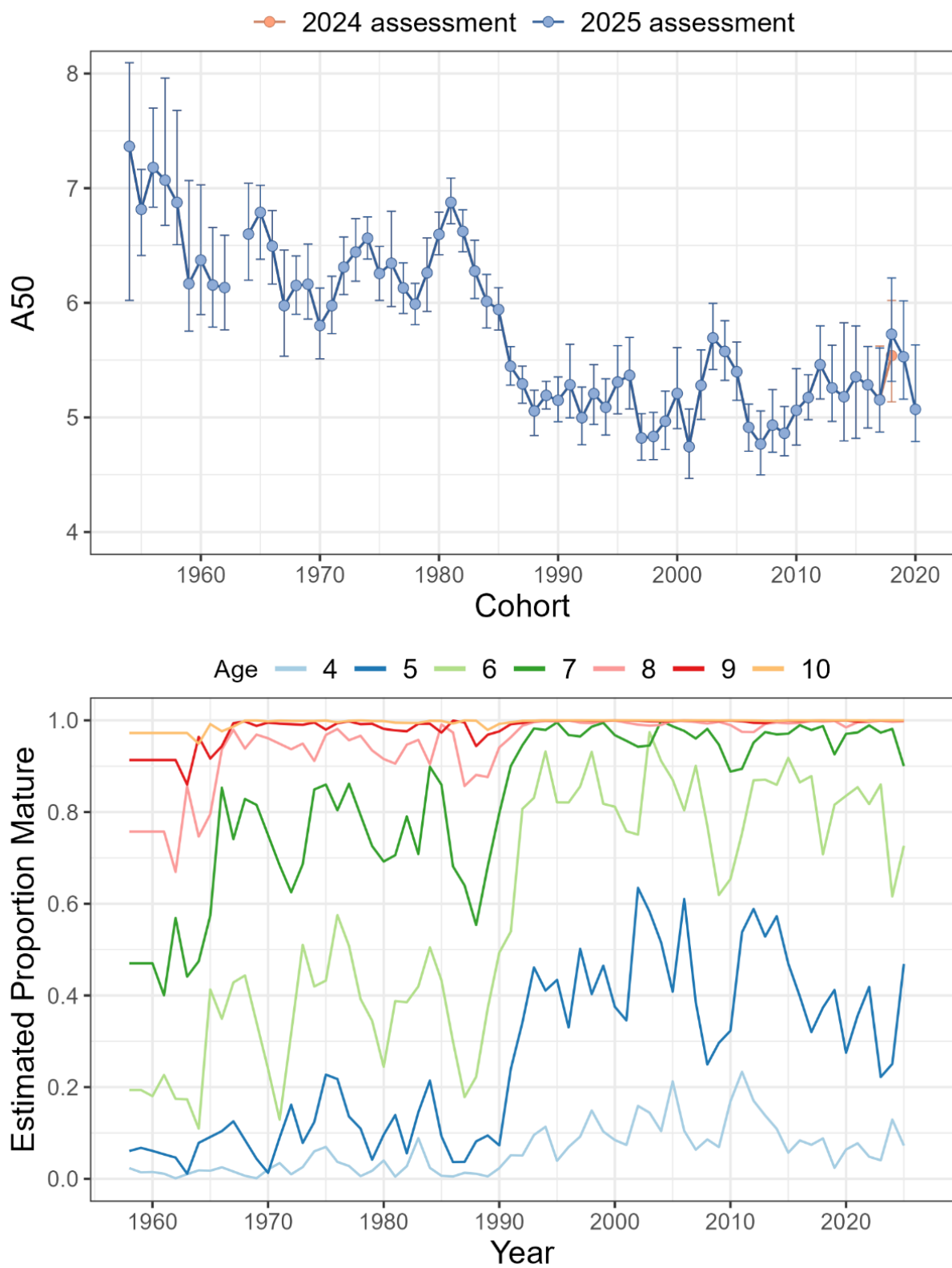


Figure 30. Estimated age at 50% mature by cohort (top; red points show estimates from the previous assessment – given limited change, red points are minimally visible), and proportion mature by age (bottom) for Atlantic cod in 3Ps.

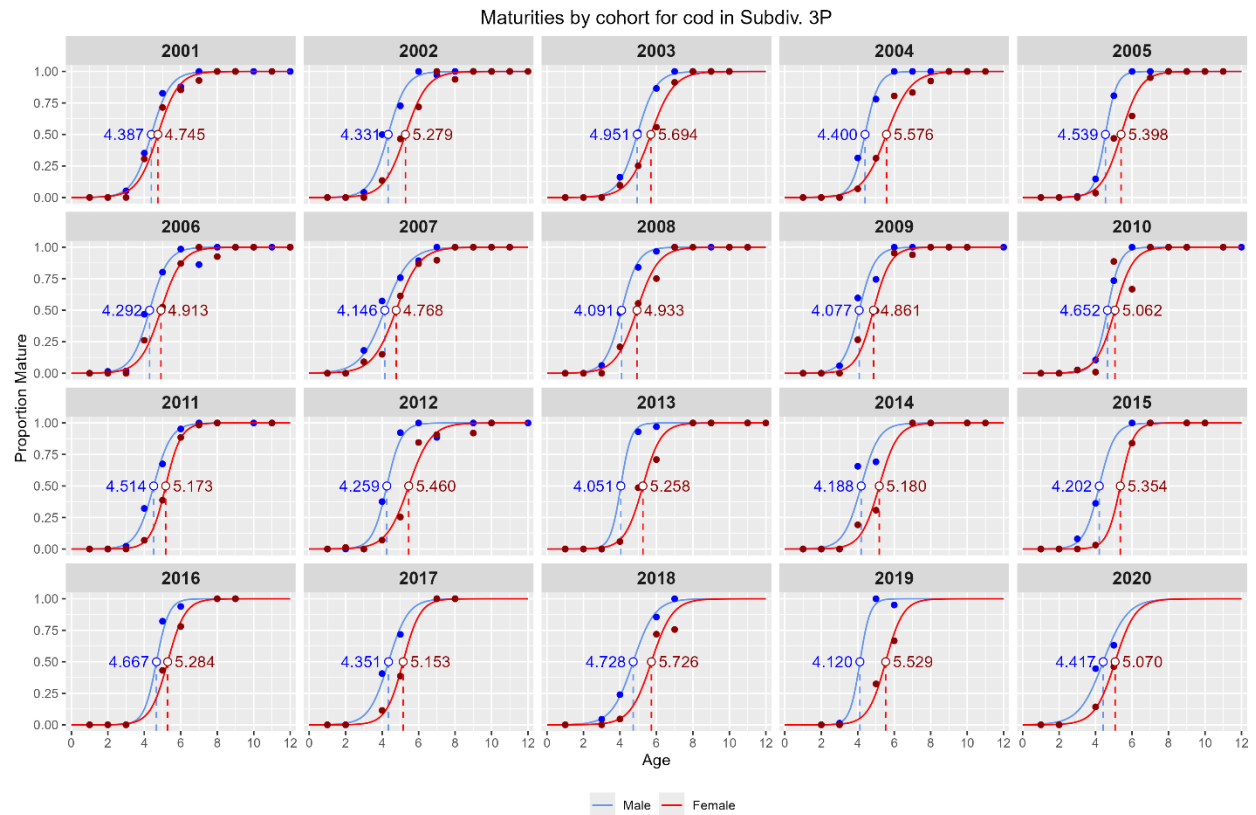


Figure 31. Maturity ogives for male (blue) and female (red) cod in the subDiv. 3Ps RV Survey by cohort (panels). Estimates of age at 50% mature are noted for each sex.

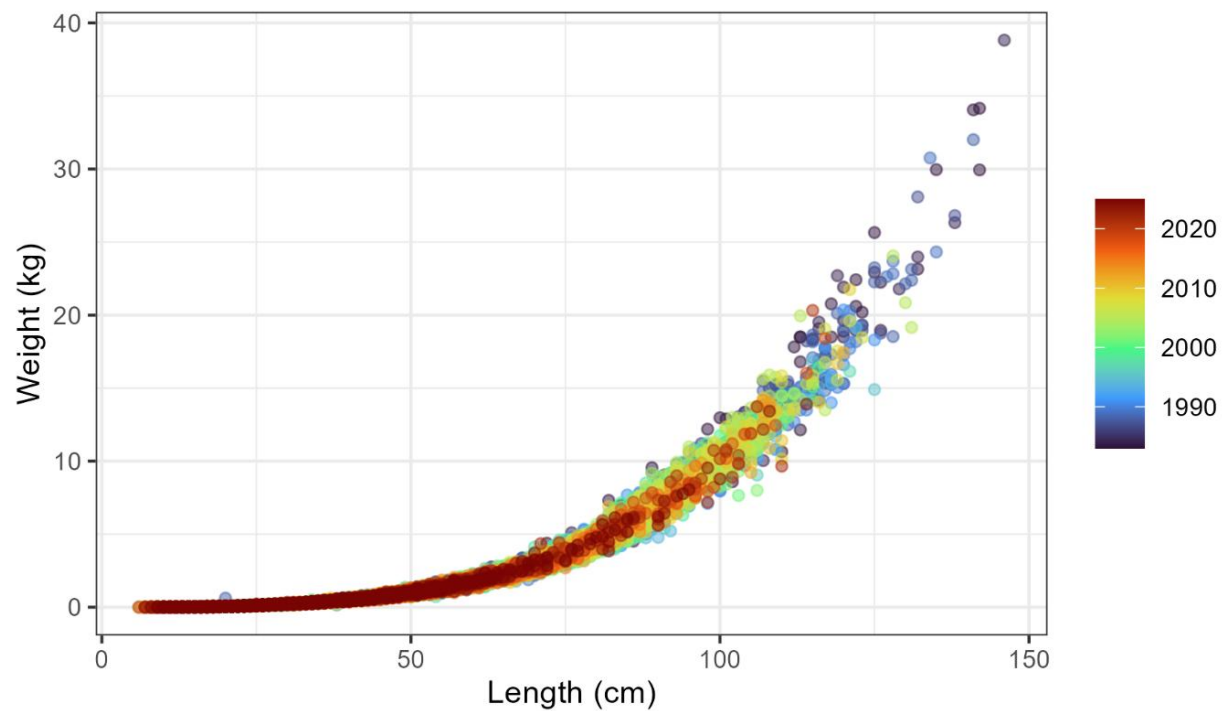


Figure 32. Weight at length measured in the RV survey, 1983–2025.

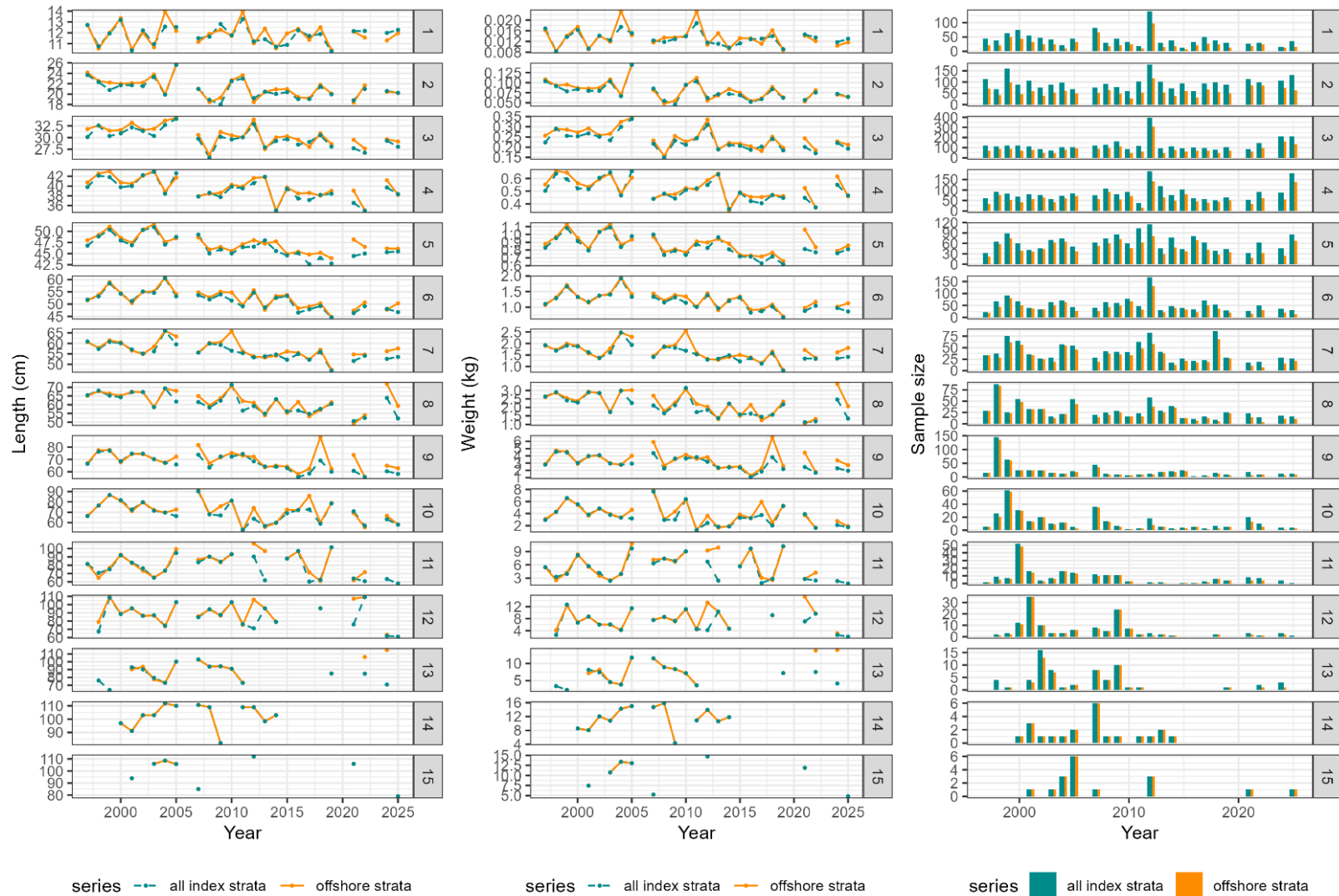


Figure 33. Mean survey length at age (left) and weight at age (middle), including sample size (i.e. number of fish measurements with both age and length (right) using offshore strata only (black =) and with all index strata (orange).

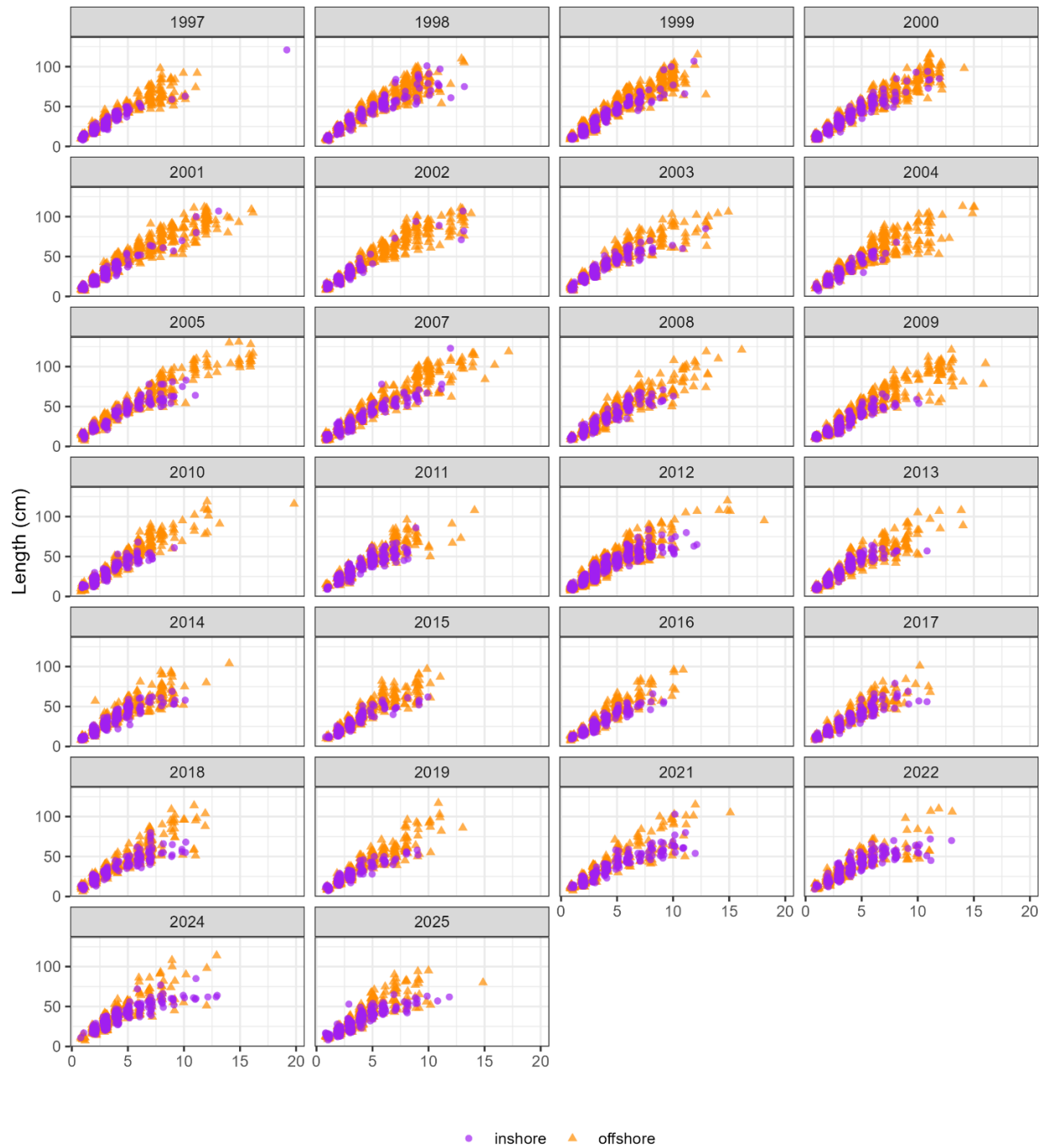


Figure 34. Observed length at age of cod in inshore (purple circles) and offshore (orange triangles) strata in the RV survey since 1997.

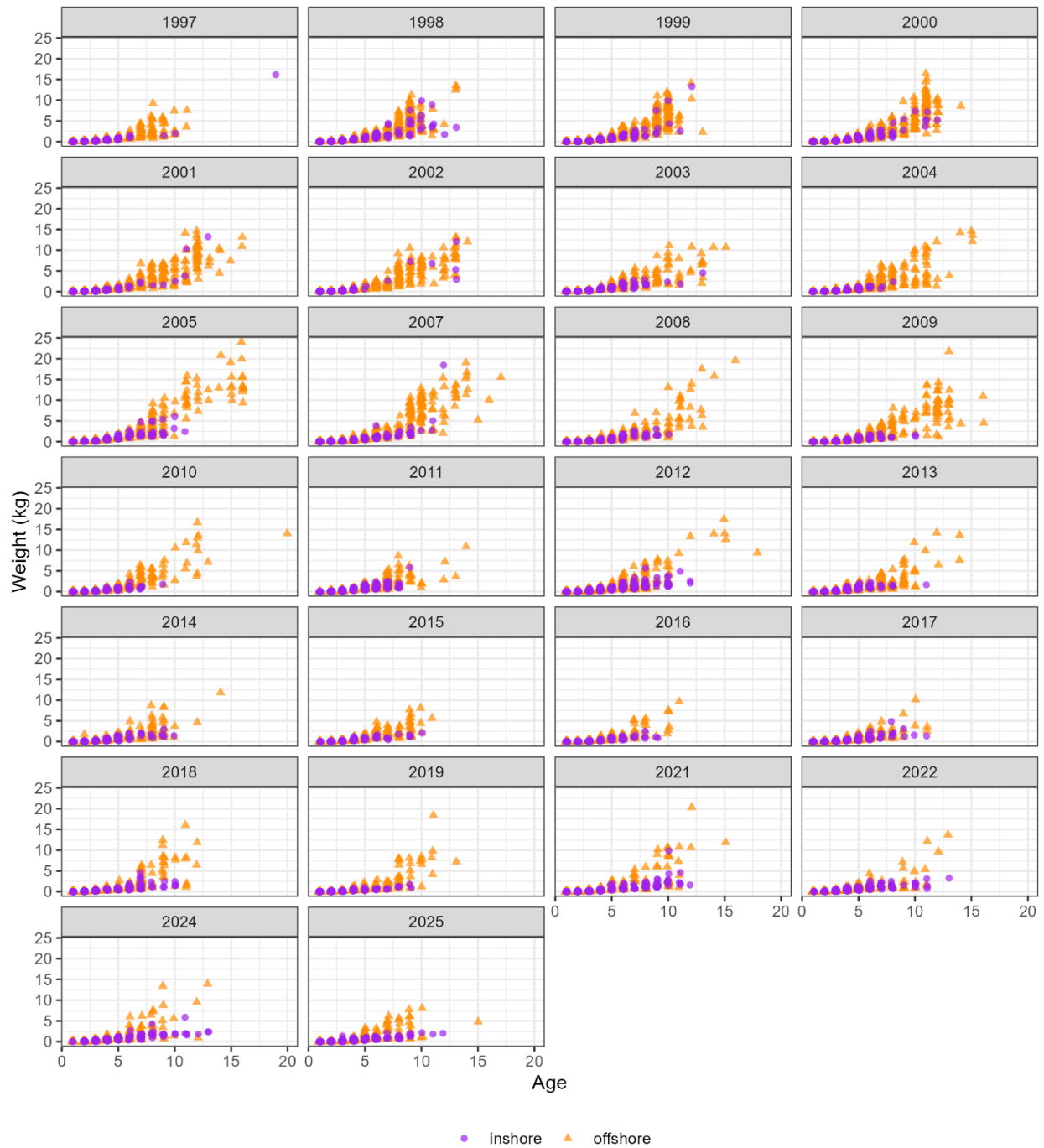


Figure 35. Observed weight at age of cod in inshore (purple circles) and offshore (orange triangles) strata in the RV survey since 1997.

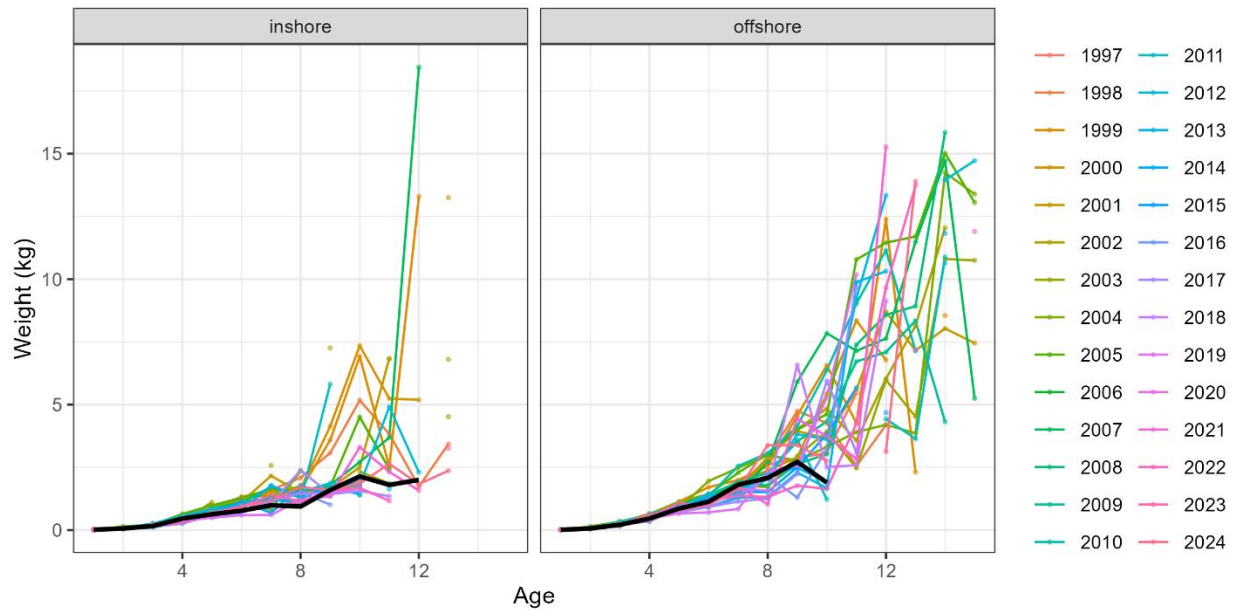


Figure 36. Estimated mean weight at age in the RV survey for cod in inshore and offshore strata in the RV survey since 1997. The most recent estimates (2025) are shown in black.

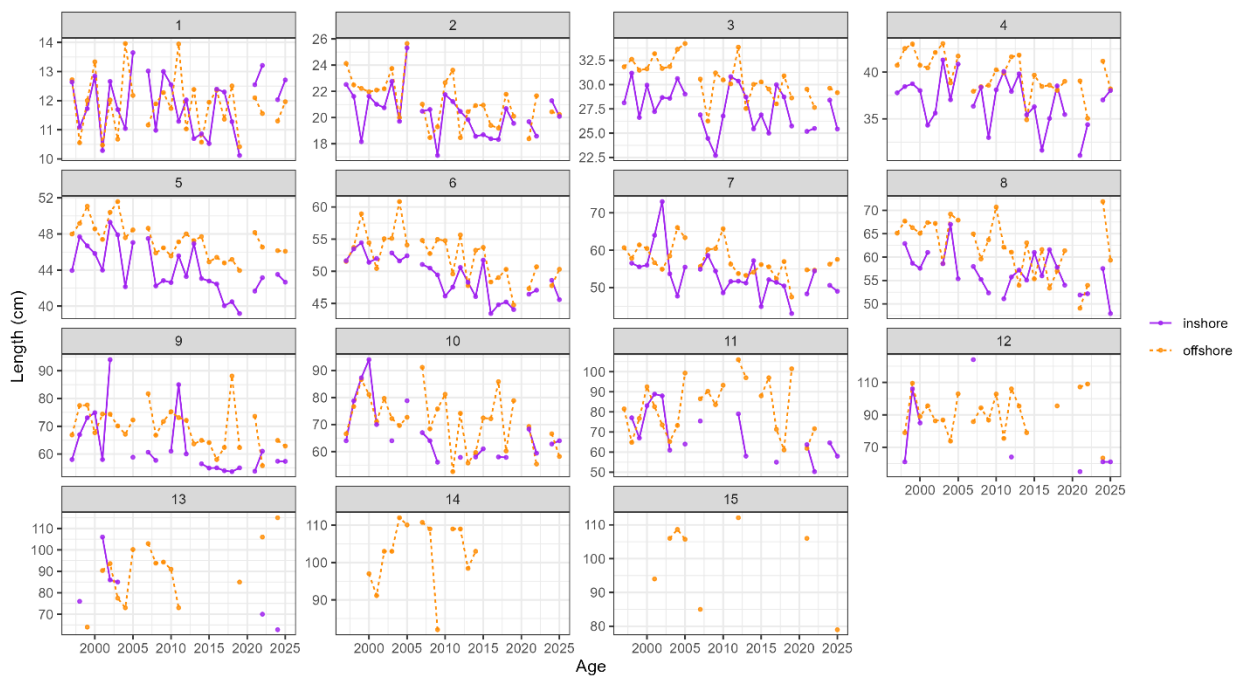


Figure 37. Estimated mean length at age of fish in inshore strata (purple) and offshore strata (orange) in the RV survey since 1997. Note that the y-axis for each panel is individually scaled.

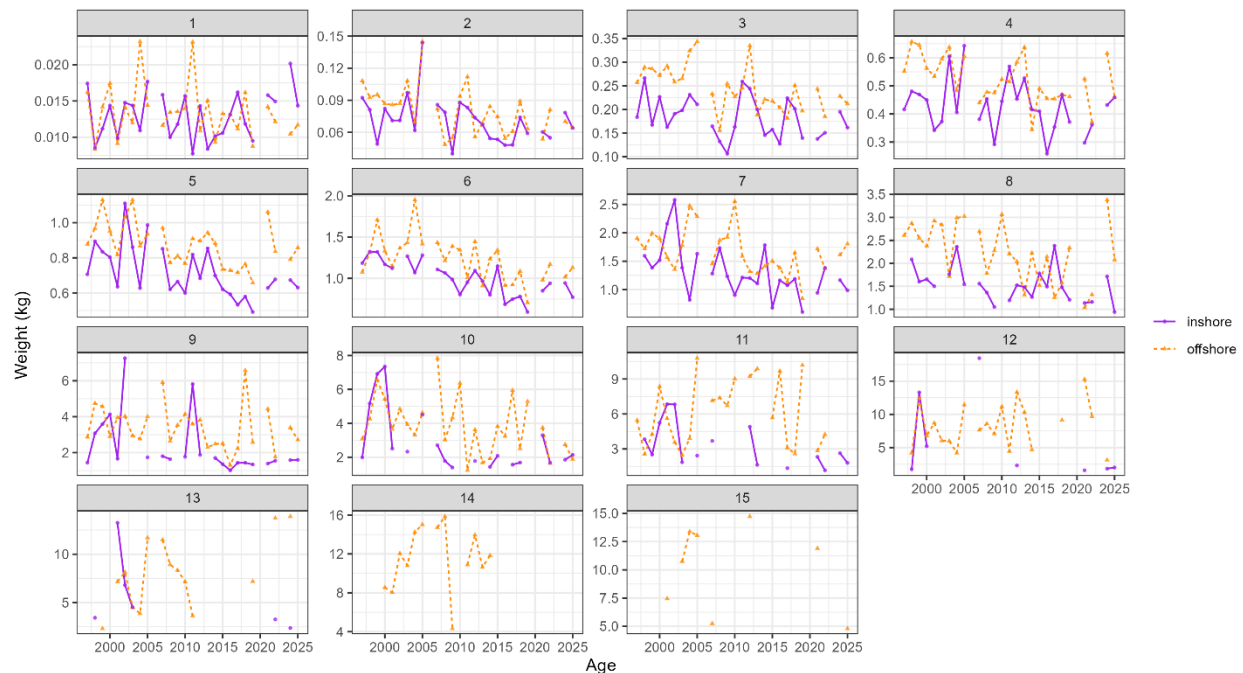


Figure 38. Estimated mean weight at age of fish in inshore strata (purple, solid) and offshore strata (orange, dashed) in the RV survey since 1997. Note that the y-axis for each panel is individually scaled.

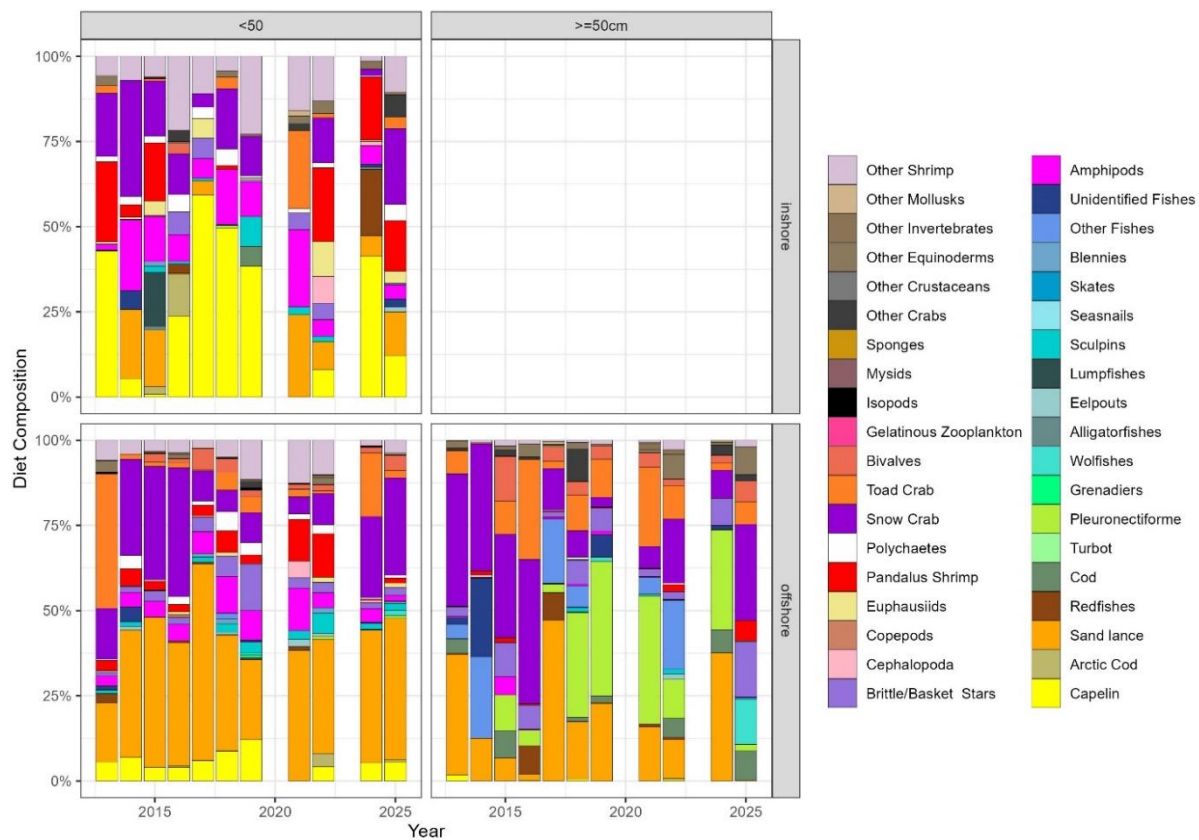


Figure 39. Diet composition of Atlantic Cod < 50 cm (left) and > 50 cm (right) from inshore (top) and offshore (bottom) strata in 3Ps.

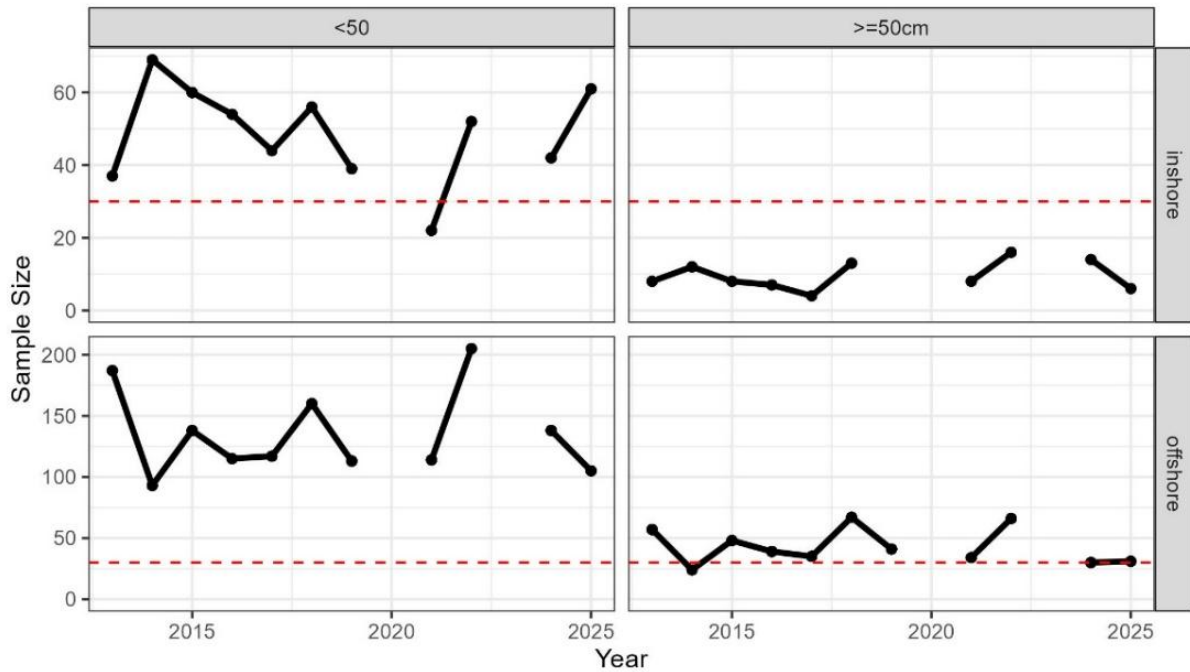


Figure 40. Sample size for diet composition of Atlantic Cod by size group and area within the survey, Red dashed line represents 30 which is the cut-off for inclusion in diet composition analysis.

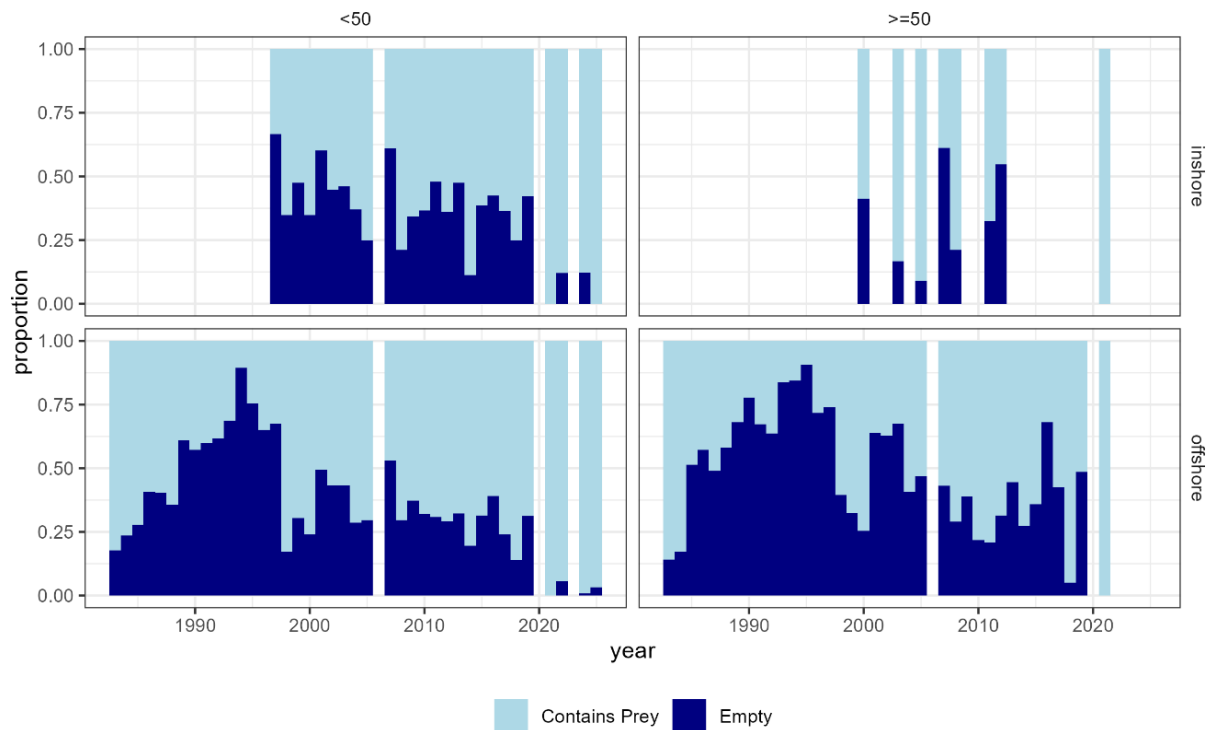


Figure 41. Proportion of empty (dark blue) stomachs from cod where diet was called at-sea. Note proportions are only shown for year x size x area combination when sample size was at least 20.

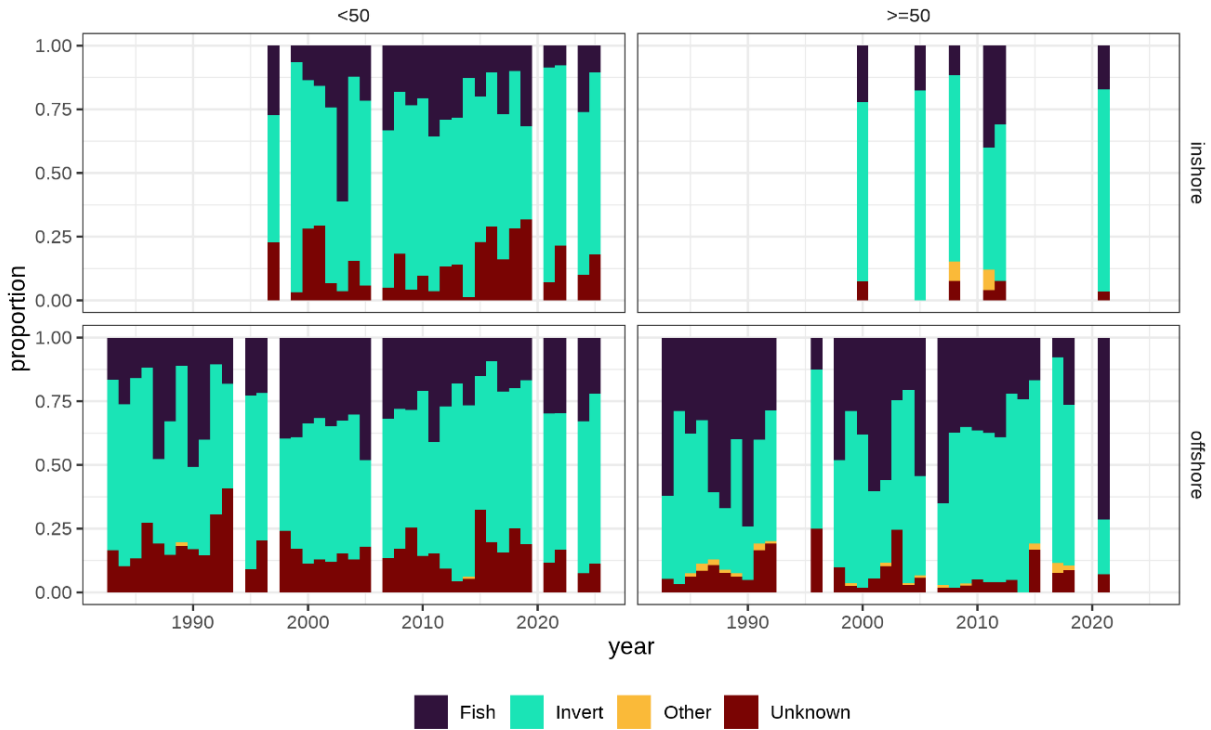


Figure 42. Proportion of main prey item identified at sea by taxonomic group. "Unknown" indicates the main prey item was too digested to identify. "Other" includes rocks, plant material, fish spawn, offal, etc.

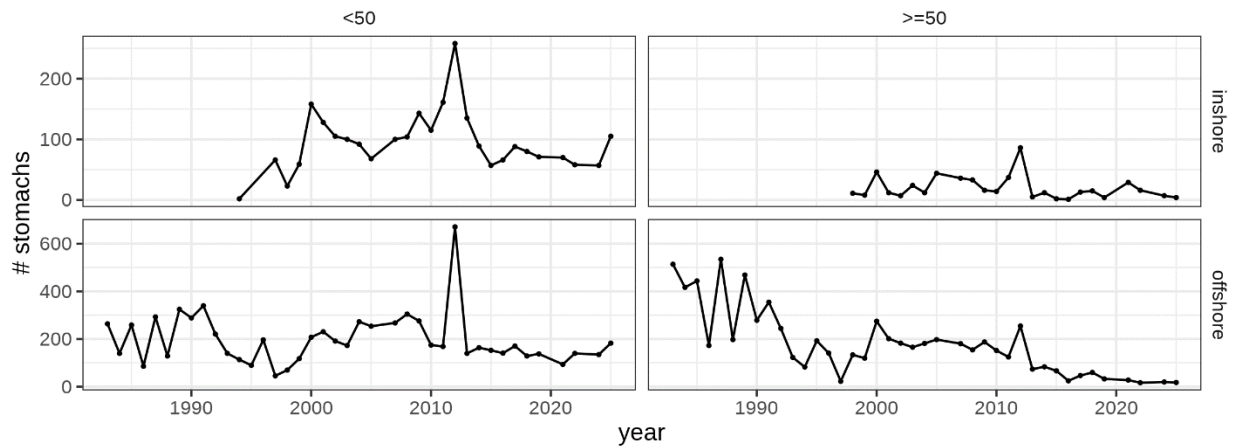


Figure 43. Sample size for diets called at sea by size group and area within the survey.

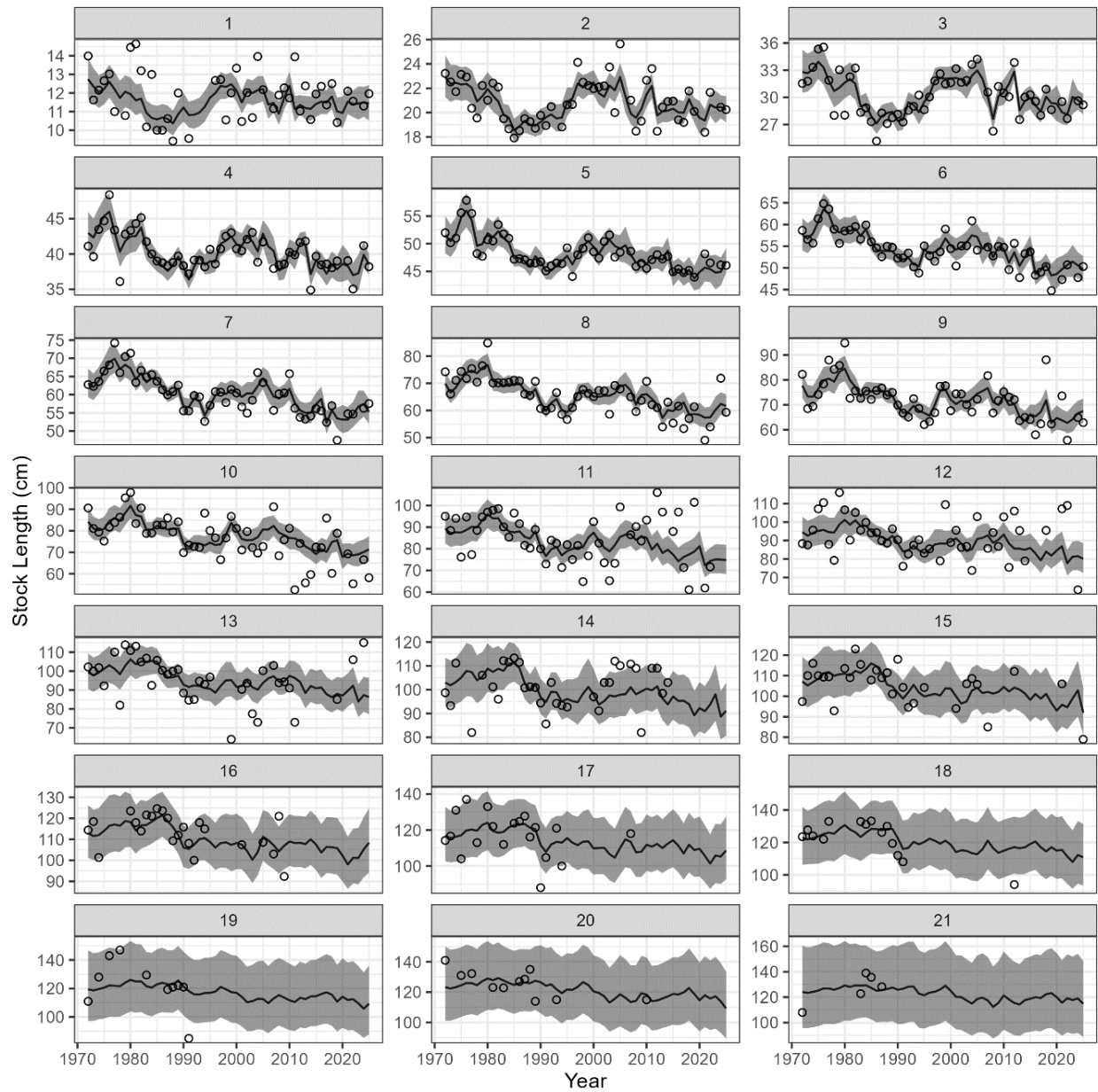


Figure 44. Observed (points) and model-predicted (lines) weight-at-age using offshore strata. Ages are listed at the top of each panel. Shaded regions indicate 95% confidence intervals.

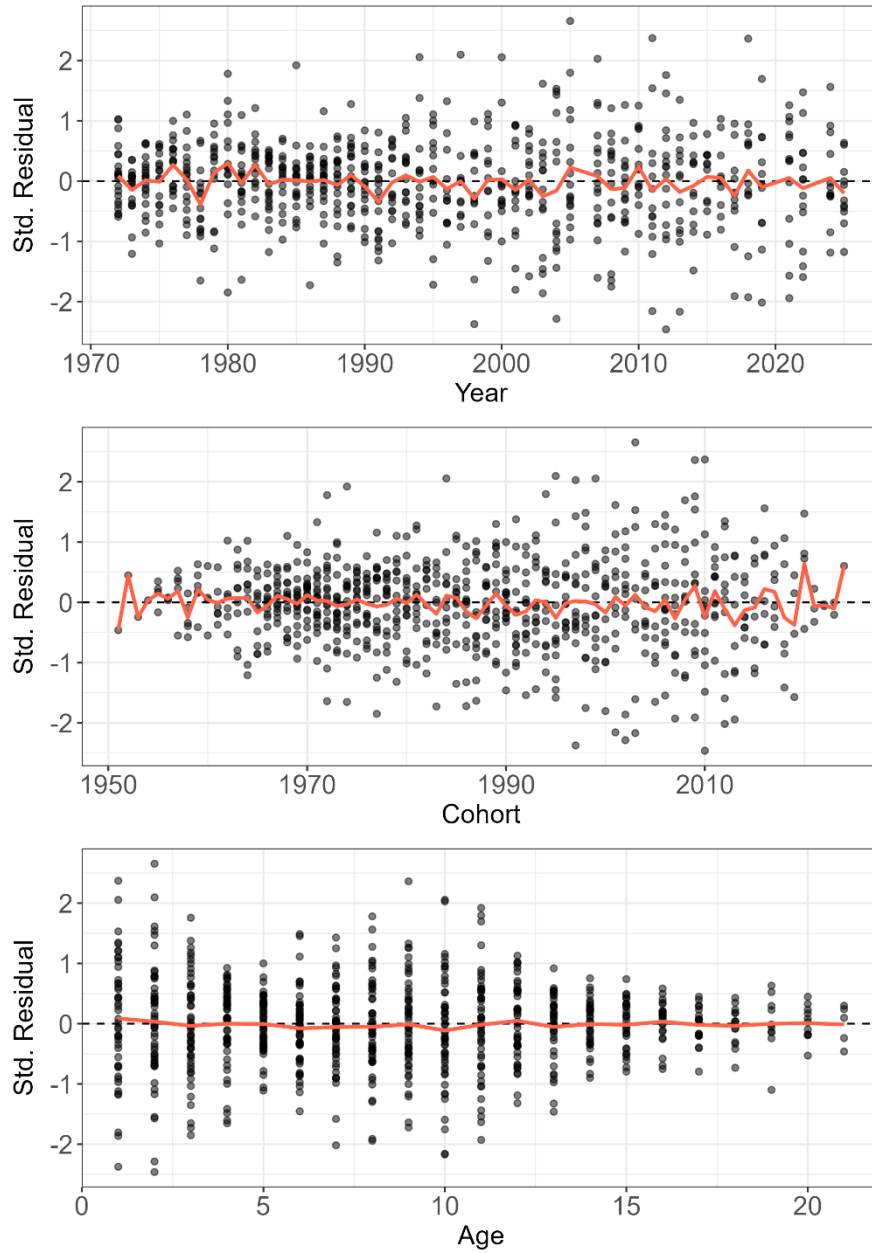


Figure 45. Standardized weight-at-age residuals versus year (top), cohort (middle) and age (bottom) for models using offshore strata. Solid red lines indicate the average residual by year, cohort, or age.

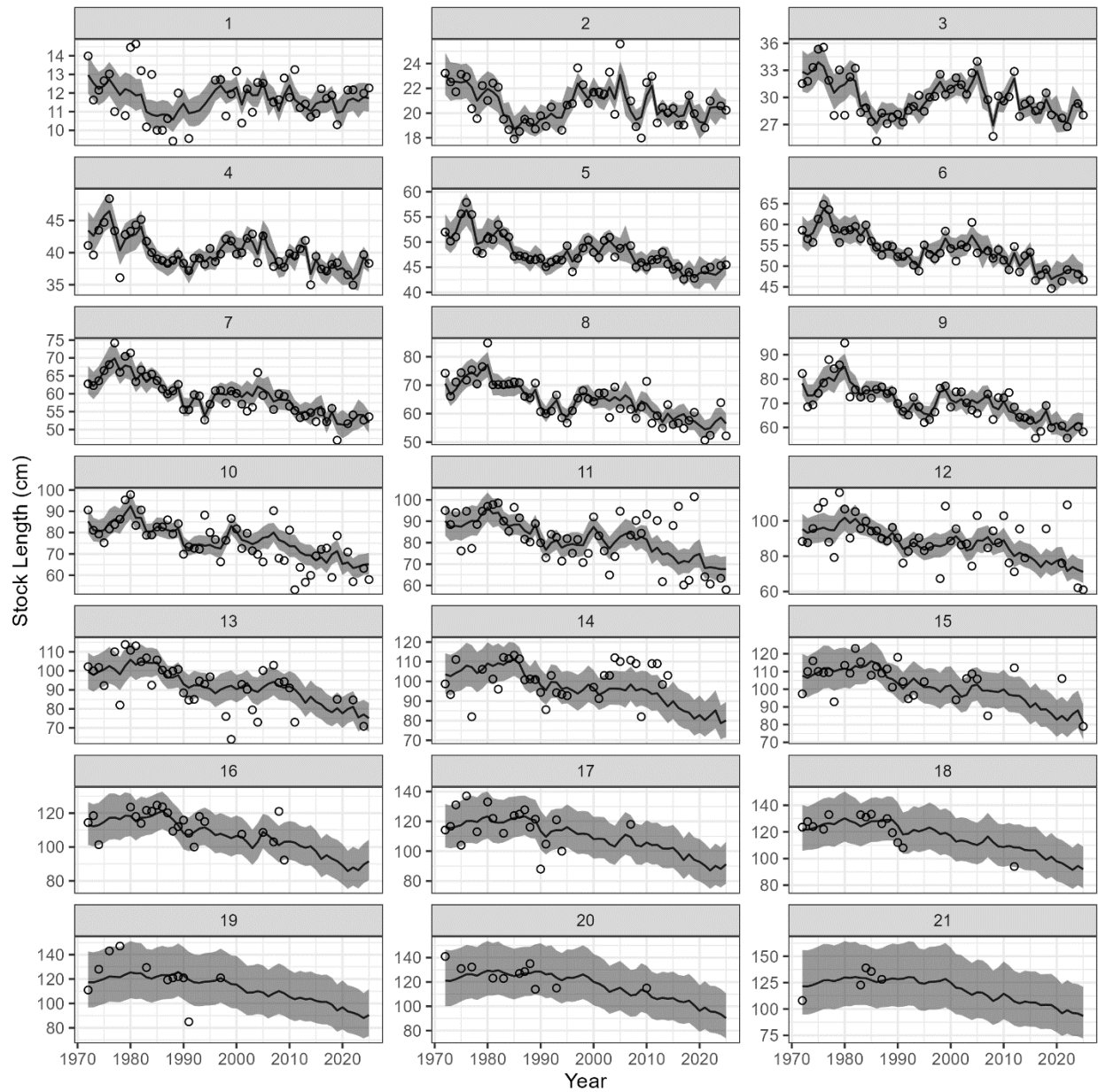


Figure 46. Observed (points) and model-predicted (lines) weight-at-age using all index strata from 1997 onwards. Ages are listed at the top of each panel. Shaded regions indicate 95% confidence intervals.

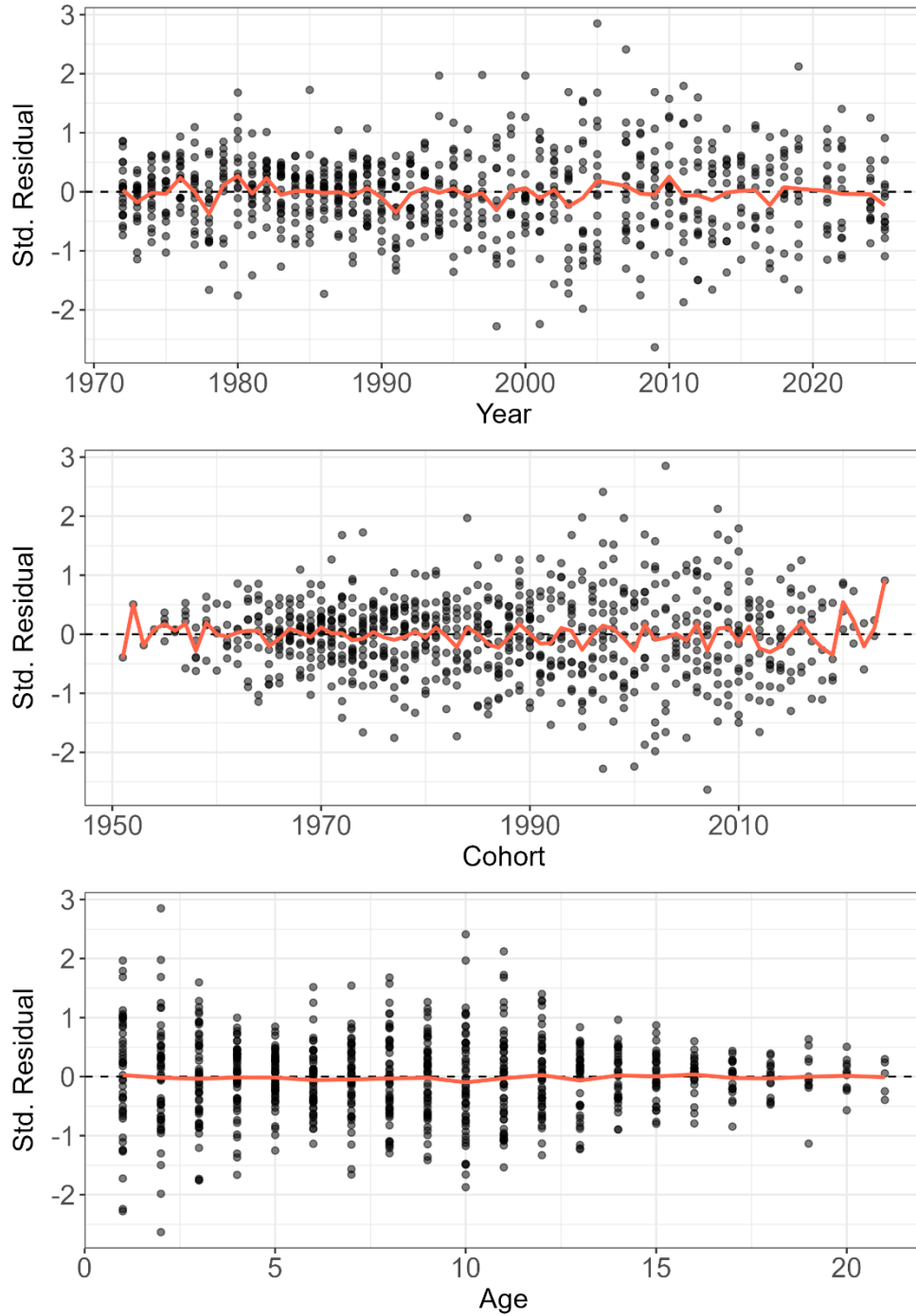


Figure 47. Standardized weight-at-age residuals versus year (top), cohort (middle) and age (bottom) for models using all index strata from 1997 onwards. Solid red lines indicate the average residual by year, cohort, or age.

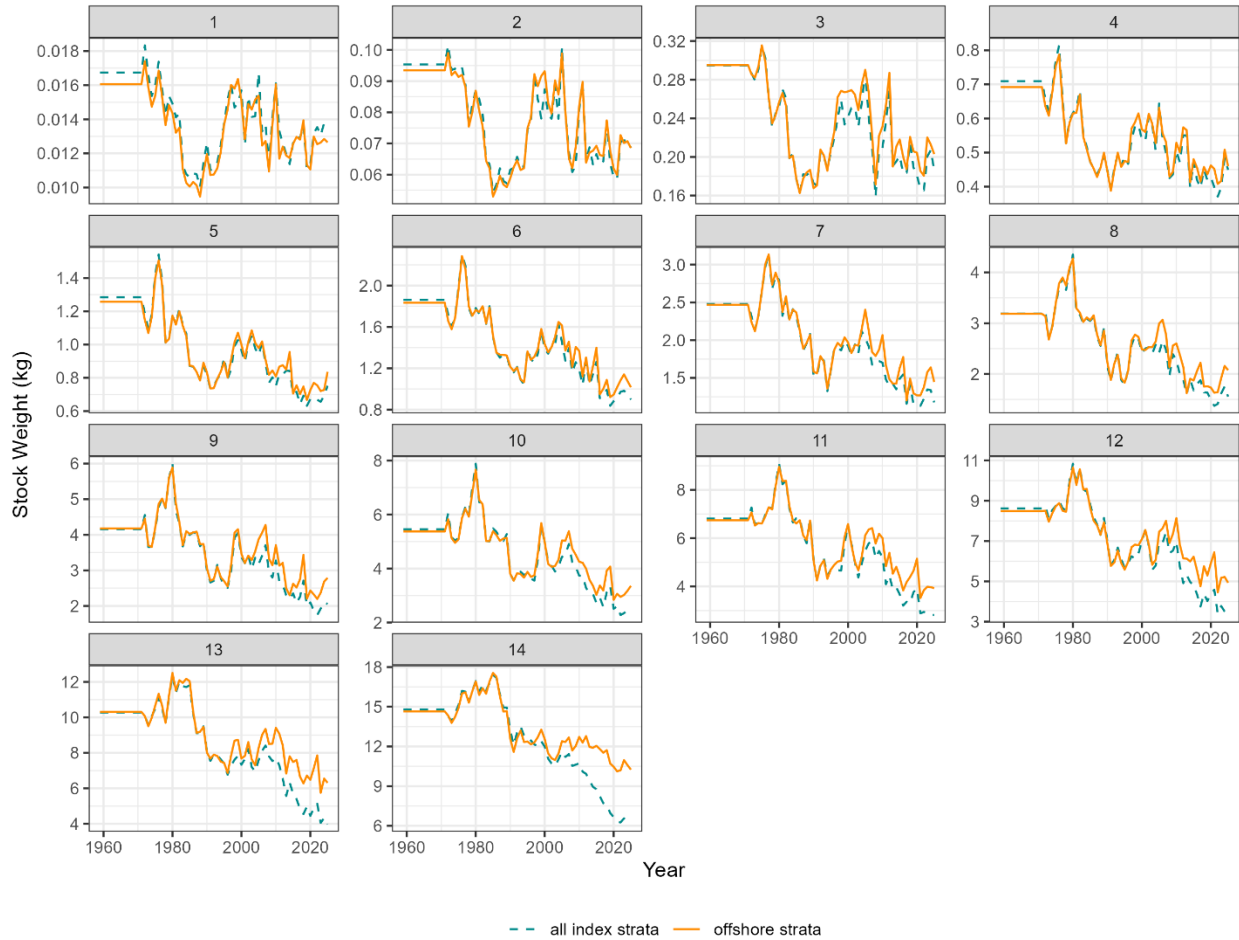


Figure 48. Comparison of model estimated stock weights at age based on RV survey observations from offshore strata only (orange, solid) and including inshore strata (blue, dashed) from 1997 onwards. Starting in the current assessment, and going forward, stock weights used in the assessment model will now be based on all index strata.