# STOCK STATUS UPDATE OF SCALLOP (*PLACOPECTEN MAGELLANICUS*) IN SCALLOP PRODUCTION AREAS 1 TO 6 IN THE BAY OF FUNDY

## Context

Harvesting of Sea Scallop (*Placopecten magellanicus*) in the Bay of Fundy and Approaches includes commercial, commercial communal, and Food, Social, and Ceremonial (FSC) harvesting. Advice on the status of Scallop in Scallop Production Areas (SPAs) 1 to 6 in the Bay of Fundy (BoF) is requested annually by Fisheries and Oceans Canada (DFO) Maritimes Fisheries and Aquaculture Management Branch to help determine a total harvest level. The purpose of this report is to update the stock status of Scallop in SPAs 1 to 6 with data from the 2023 Scallop survey and fishery (October 1 to September 30). The last Regional Advisory Process of the BoF Scallop stocks occurred in 2015 (DFO 2016, Nasmith et al. 2016); updates have been conducted since. The last update was in November 2022 (DFO 2023).

This Science Response Report results from the Regional Peer Review of November 21, 2023, on the Stock Status Update of Bay of Fundy Scallop in Scallop Production Areas (SPAs) 1A, 1B, and 3–6.

## Background

There are three commercial fleets (Full Bay, Mid Bay, and Upper Bay) in the inshore BoF Scallop fishery. Full Bay license holders are permitted to fish throughout the BoF. Mid Bay license holders have access to all areas north of the Mid Bay line. Upper Bay license holders are restricted to the upper reaches of the Bay (Figure A1). The fishery is managed using limited entry, drag gear size limits, seasonal closures, minimum shell height, and meat count. The drag gear width limit is 5.5 metres (m) with a ring size of not less than 82 mm inside diameter. The Full Bay Fleet operates under an Individual Transferable Quota (ITQ) system, while the Mid Bay and Upper Bay fleets fish with competitive quotas. Total Allowable Catches (TACs) and landings are reported in terms of meat weights (adductor muscles).

The Bay of Fundy Inshore Scallop survey is conducted annually by DFO Science. The population dynamics of commercial and recruit Scallops for all SPAs (Figure A1) were modelled using a Bayesian state-space model with modifications presented in Smith et al. (2012) and Smith and Hubley (2014). A detailed description of survey design and strata boundaries is presented in Nasmith et al. (2016). In this report, Scallops with a shell height of 80 mm and greater are referred to as commercial size. Scallops with a shell height of 65–79 mm are referred to as recruits and are expected to grow to be commercial size in the following year. Scallops less than 65 mm are defined as pre-recruits. Scallop removals accounted for in assessments include commercial landings from all three inshore Scallop fleets, commercial communal, and FSC catch by Scallop drag. Landed recreational and FSC catch by dip netting, diving, tongs, and hand are not accounted for in the assessment. Landing values from 2023 are preliminary (Table A1). In 2020 there was no survey. The indices used as input for the model in

2020 are imputed using the 2019 and 2021 values; this approach is consistent with methods used to address missing information in previous years (e.g., Nasmith et al. 2016).

# Analysis and Response

## Indicators of Stock Status

### Scallop Condition and Considerations for 2023–24 Fishing Season

Scallop condition (meat weight given shell height) in 2023, as measured by the Bay of Fundy Inshore Scallop Survey, was the highest observed in the time series. Although Scallop abundance remained similar or declined across all areas, the increase in Scallop condition between 2022 and 2023 resulted in biomass increases ranging from 29% to 52% (Figure 1). Significant declines (up to 38%) in Scallop condition between successive years have previously been observed in the time series (Figure 1); however, the current basis for the science advice to management for 1-year ahead projections assumes condition is unchanged from the current year (Nasmith et al. 2016). Therefore, if Scallop condition declines in 2024, it is likely that the harvest scenario tables presented in this document will overestimate the actual biomass (Table 1–5, Figure A2). Given condition has driven the 2023 biomass increase, that condition is well above historically observed values in each SPA, and that significant change in Scallop condition between successive years has previously been observed, caution is advised when setting the removal limits for 2023–24.
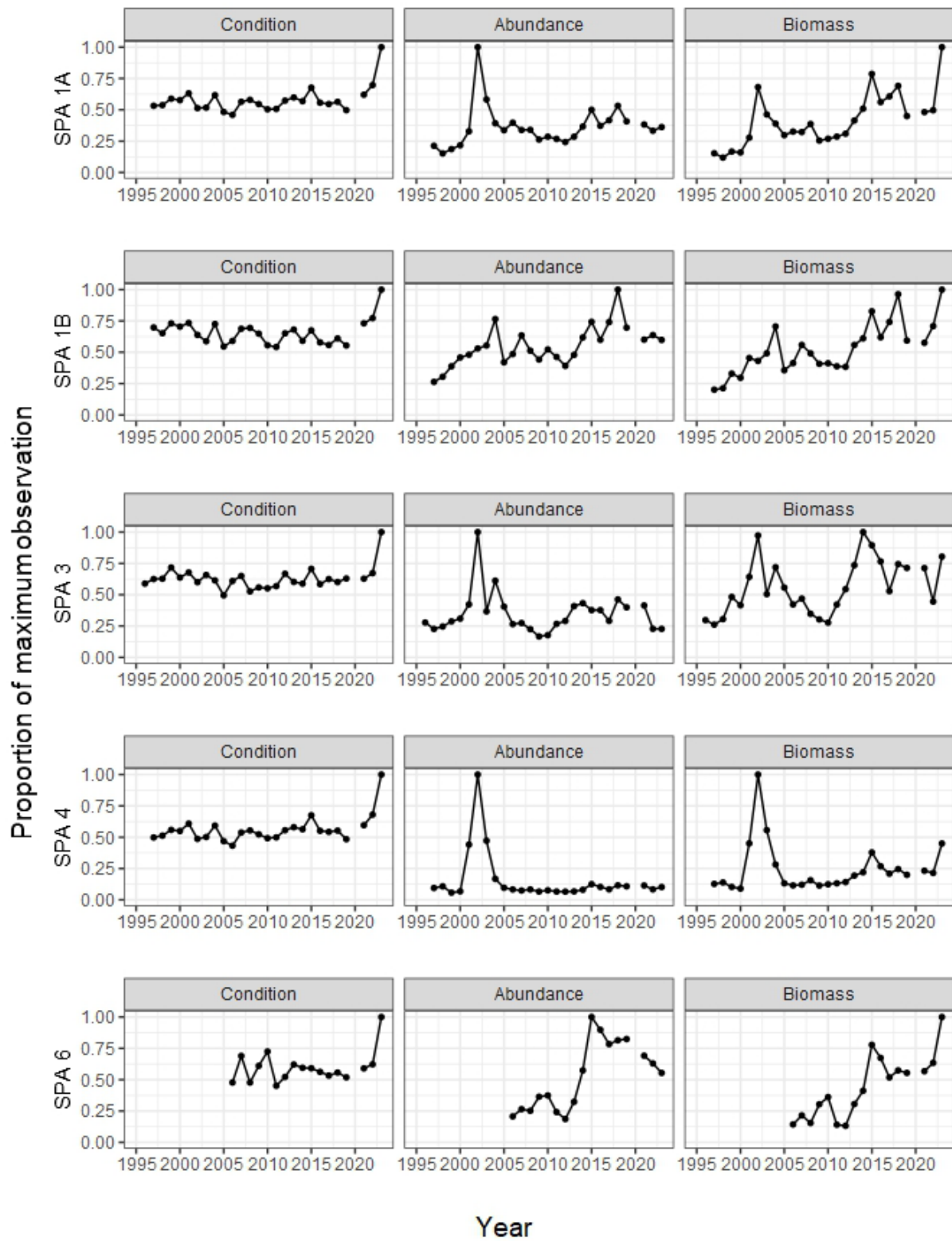
*Figure 1. Survey indices of Scallop condition, abundance, and biomass presented as proportions relative to the time-series maximum for SPAs 1A, 1B, 3, 4, and 6 (SPA 1A, 1B and 4 [1997–2023]; SPA3 [1996–2023]; SPA6 [2006–2023]). There was no survey in 2020.*

**Scallop Production Area 1A Stock Status**

The biomass estimate of commercial Scallops in 2023 was 4,905 t (meats), which is above the long-term (1997–2022) median of 2,011 t; the probability that the 2023 biomass is currently above the USR and in the Healthy Zone is greater than 0.99 (Figure 2). The 2022 commercial biomass estimate was 2,743 t. The biomass estimate of recruit Scallops in 2023 was 43.3 t, which is below the long-term (1997–2022) median of 54.0 t. The 2022 biomass estimate of recruit Scallops was 13.7 t.

Biomass projections use the current year estimates of growth, and natural mortality is the average over the last 5 years. However, in 2023, Scallop condition (meat weight given shell height), which impacts growth rate (Nasmith et al. 2016), was the highest in the time series. Condition was 77% higher in 2023 than the long-term median (1997–2022). If condition declines in 2024 then the realized exploitation rate will be higher than shown in Table 1 (e.g., Figure A2).

Catch scenarios for the 2023–24 fishing season are presented in Table 1. For example, Table 1 is interpreted as follows: a catch of 440 t corresponds to an exploitation of 0.10 and is projected to result in a 19% decline in commercial biomass, the probability of commercial biomass increase is 15%, the probability that a catch of 440 t will result in the population remaining above the Limit Reference Point (LRP) is > 99%, and the probability of the population remaining above the Upper Stock Reference (USR) is > 99%. In the following fishing year (2024–25), a catch of 371 t would have a probability of 10% of exceeding a removal reference exploitation of 0.15.
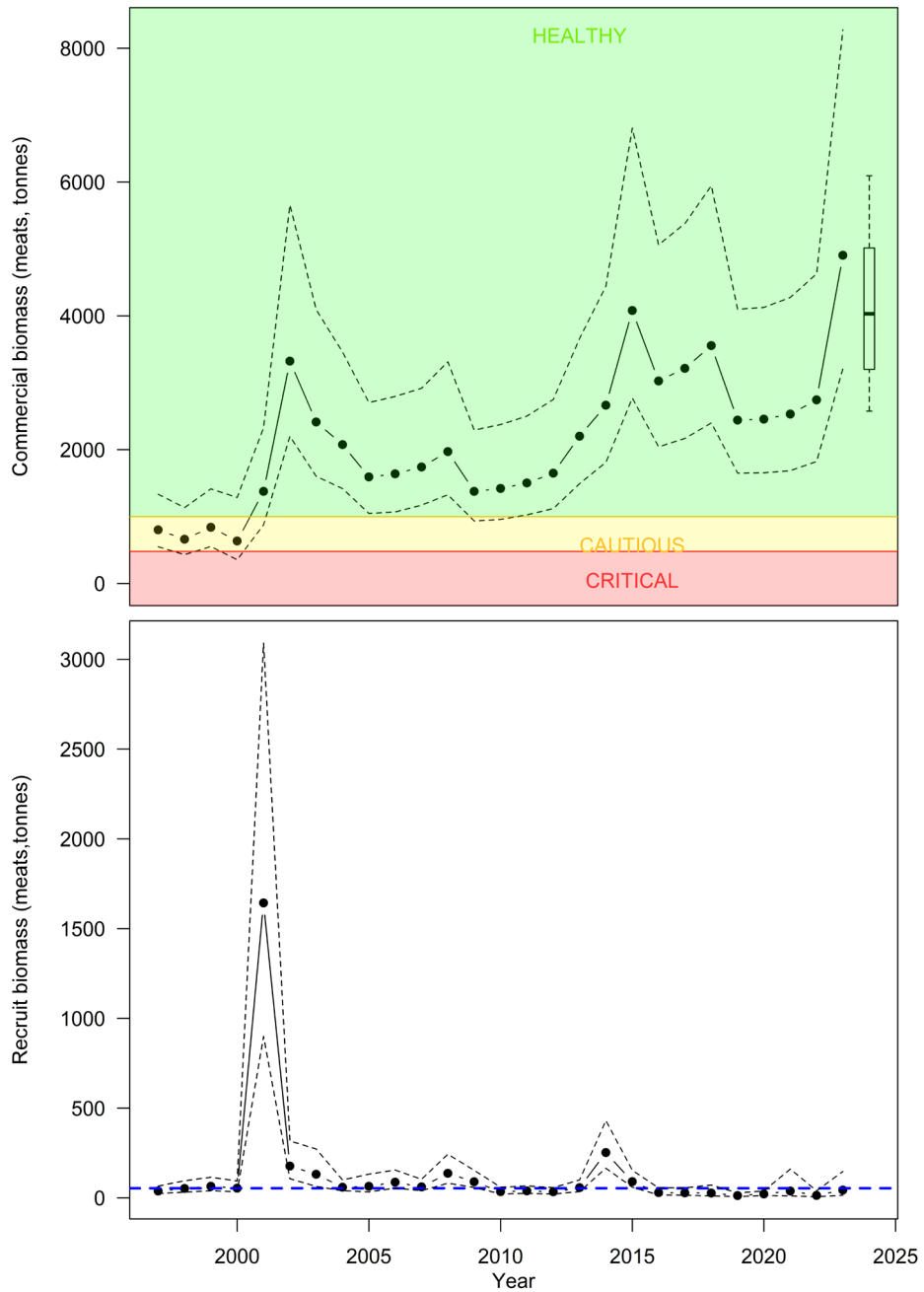
*Figure 2. Median biomass estimates in SPA 1A for commercial (top panel) and recruit (bottom panel) size Scallops in meat weight (tonnes) from the assessment model fit to the survey and commercial data. Dashed lines are the upper and lower 95% credible limits on the estimates. The predicted commercial size biomass for 2024, assuming the 2023–24 interim TAC (250 t), is displayed as a box plot with median, 50% credible limits (box) and 80% credible limits (whiskers). The green-shaded area represents the Healthy Zone (based on an Upper Stock Reference [USR] point of 1,000 t), the yellow-shaded area represents the Cautious Zone, and red-shaded area represents the Critical Zone (based on Limit Reference Point [LRP] of 480 t; Nasmith et al. [2014]). The blue horizontal dashed line in the lower panel represents the long-term median (1997–2022) recruit biomass.*

*Table 1. Harvest scenario table for SPA 1A to evaluate 2023–24 catch levels in terms of resulting exploitation (e), expected changes in commercial biomass (%), probability (Pr) of commercial biomass increase, probability that after removal the stock will be above the Upper Stock Reference (USR; 1,000 t), and above the Limit Reference Point (LRP; 480 t). Potential catches (t) in 2024–25 are evaluated in terms of the posterior probability of exceeding a removal reference exploitation of 0.15.*

| 2023–24 Fishing Season | | | | | | 2024–25 Fishing Season | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Catch (t) | e | % Change | Pr Increase | Pr > LRP | Pr > USR | Probability Exploitation > 0.15 *Potential Catch (t)* | | | | | |
| | | | | | | 0.1 | 0.2 | 0.3 | 0.4 | 0.5 | 0.6 |
| 400 | 0.09 | −19 | 0.15 | > 0.99 | > 0.99 | 375 | 443 | 496 | 545 | 593 | 645 |
| 440 | 0.10 | −19 | 0.15 | > 0.99 | > 0.99 | 371 | 439 | 492 | 542 | 590 | 643 |
| 480 | 0.11 | −20 | 0.14 | > 0.99 | > 0.99 | 366 | 434 | 489 | 537 | 586 | 638 |
| 520 | 0.12 | −21 | 0.14 | > 0.99 | > 0.99 | 364 | 431 | 485 | 534 | 581 | 634 |
| 560 | 0.13 | −21 | 0.13 | > 0.99 | > 0.99 | 361 | 427 | 481 | 530 | 579 | 631 |
| 600 | 0.14 | −22 | 0.12 | > 0.99 | > 0.99 | 359 | 425 | 478 | 526 | 574 | 626 |
| 640 | 0.14 | −22 | 0.12 | > 0.99 | > 0.99 | 354 | 419 | 473 | 522 | 571 | 625 |
| 680 | 0.15 | −23 | 0.11 | > 0.99 | > 0.99 | 349 | 416 | 469 | 518 | 567 | 620 |

### Scallop Production Area 1B Stock Status

The biomass estimate of commercial Scallops in 2023 was 5,477 t (meats), which is above the long-term (1997–2022) median of 2,891 t; the probability that the 2023 biomass is currently above the USR and in the Healthy Zone is greater than 0.99 (Figure 3). The 2022 commercial biomass estimate was 4,023 t. The biomass estimate of recruit Scallops in 2023 was 116.8 t, which is below the long-term (1997–2022) median of 158.4 t. The 2022 biomass estimate of recruit Scallop was 183.6 t.

Biomass projections use the current year estimates of growth and natural mortality is the average over the last 5 years. However, in 2023, Scallop condition (meat weight given shell height), which impacts growth rate (Nasmith et al. 2016), was the highest in the time series. Condition was 54% higher in 2023 than the long-term median (1997–2022). If condition declines in 2024 then the realized exploitation rate will be higher than shown in Table 2 (e.g., Figure A2). See SPA 1A Stock Status section in this document for an example of interpreting the table.
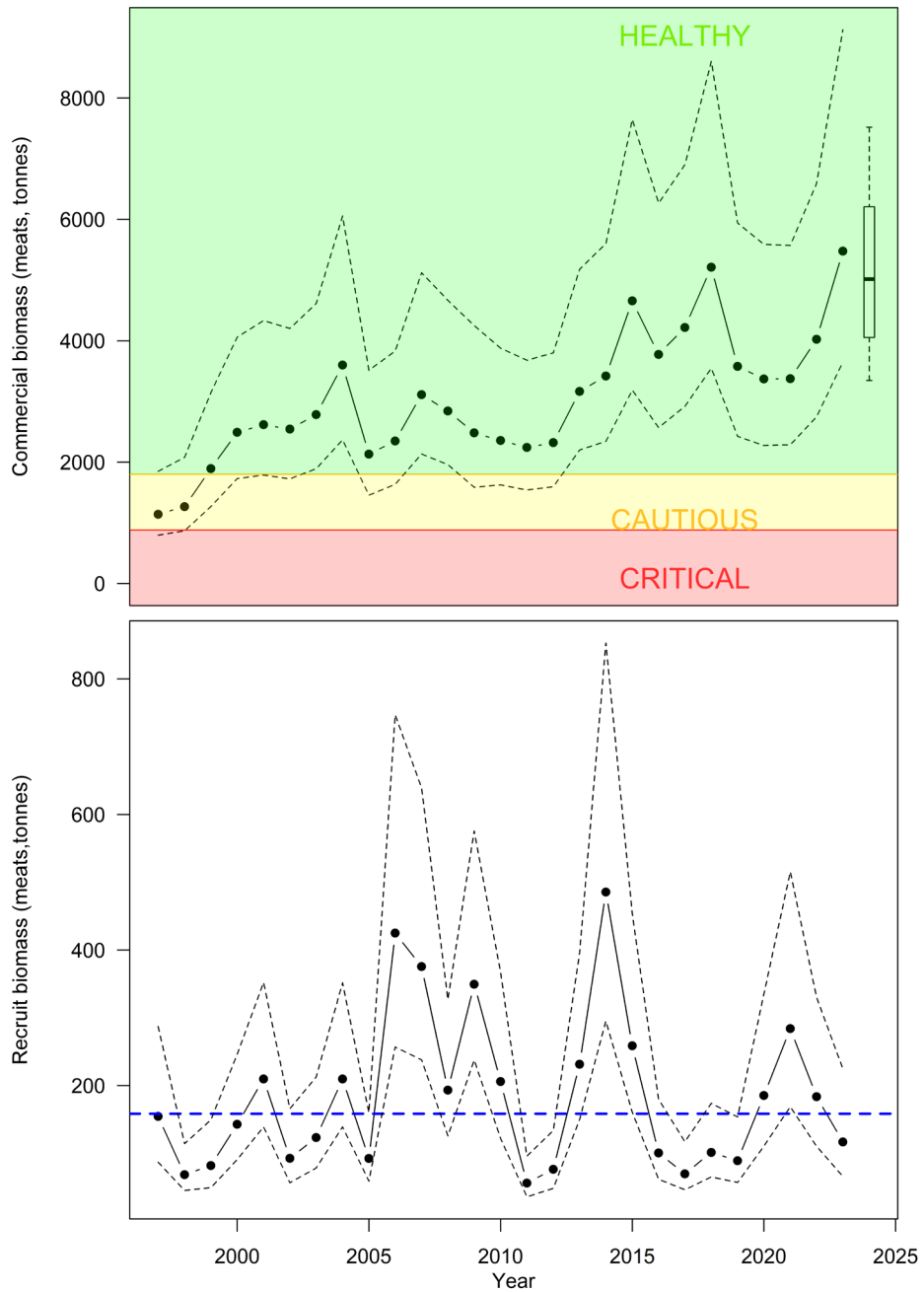
*Figure 3. Median biomass estimates in SPA 1B for commercial (top panel) and recruit (bottom panel) size Scallops in meat weight (tonnes) from the assessment model fit to the survey and commercial data. Dashed lines are the upper and lower 95% credible limits on the estimates. The predicted commercial size biomass for 2024, assuming the 2023–24 interim TAC (200 t), is displayed as a box plot with median, 50% credible limits (box) and 80% credible limits (whiskers). The green-shaded area represents the Healthy Zone (based on an Upper Stock Reference [USR] point of 1,800 t), the yellow-shaded area represents the Cautious Zone, and red-shaded area represents the Critical Zone (based on Limit Reference Point [LRP] of 880 t; Nasmith et al. [2014]). The blue horizontal dashed line in the lower panel represents the long-term median (1997–2022) recruit biomass.*

*Table 2. Harvest scenario table for SPA 1B to evaluate 2023–24 catch levels in terms of resulting exploitation (e), expected changes in commercial biomass (%), probability (Pr) of commercial biomass increase, probability that after removal the stock will be above the Upper Stock Reference (USR; 1,800 t), and above the Limit Reference Point (LRP; 880 t). Potential catches (t) in 2024–25 are evaluated in terms of the posterior probability of exceeding a removal reference exploitation of 0.15.*

| 2023–24 Fishing Season | | | | | | 2024–25 Fishing Season | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Catch (t) | e | % Change | Pr Increase | Pr > LRP | Pr > USR | Probability Exploitation > 0.15 *Potential Catch (t)* | | | | | |
| | | | | | | 0.1 | 0.2 | 0.3 | 0.4 | 0.5 | 0.6 |
| 400 | 0.08 | −12 | 0.27 | > 0.99 | > 0.99 | 480 | 552 | 612 | 668 | 724 | 786 |
| 450 | 0.09 | −13 | 0.25 | > 0.99 | > 0.99 | 474 | 547 | 606 | 663 | 719 | 781 |
| 500 | 0.10 | −14 | 0.24 | > 0.99 | > 0.99 | 468 | 541 | 600 | 656 | 713 | 774 |
| 550 | 0.11 | −15 | 0.23 | > 0.99 | > 0.99 | 461 | 534 | 595 | 650 | 705 | 767 |
| 600 | 0.11 | −16 | 0.22 | > 0.99 | > 0.99 | 457 | 529 | 588 | 643 | 698 | 760 |
| 650 | 0.12 | −16 | 0.20 | > 0.99 | > 0.99 | 451 | 522 | 581 | 636 | 691 | 752 |
| 700 | 0.13 | −17 | 0.19 | > 0.99 | > 0.99 | 445 | 516 | 575 | 630 | 684 | 745 |
| 750 | 0.14 | −18 | 0.18 | > 0.99 | > 0.99 | 441 | 512 | 569 | 623 | 678 | 739 |
| 800 | 0.15 | −19 | 0.17 | > 0.99 | > 0.99 | 433 | 504 | 562 | 616 | 671 | 731 |

### Scallop Production Area 2

Scallop Production Area 2 is considered to be marginal habitat for Scallops and is not monitored regularly. This area was last assessed in 2006 (DFO 2007).

### Scallop Production Area 3 Stock Status

The biomass estimate of commercial Scallops in 2023 was 2,346 t (meats), which is above the long-term (1996–2022) median of 1,622 t; the probability that the 2023 biomass is currently above the USR and in the Healthy Zone is greater than 0.99 (Figure 4). The 2022 commercial biomass estimate was 1,418 t. The biomass estimate of recruit Scallops in 2023 was 18.2 t, which is below the long-term (1996–2022) median of 56.4 t. The 2022 biomass estimate of recruit Scallop was 16.8 t.

Biomass projections use the current year estimates of growth and natural mortality is the average over the last 5 years. However, in 2023, Scallop condition (meat weight given shell height), which impacts growth rate (Nasmith et al. 2016), was the highest in the time series. Condition was 61% higher in 2023 than the long-term median (1996–2022). If condition declines in 2024 then the realized exploitation rate will be higher than shown in Table 3 (e.g., Figure A2). See SPA 1A Stock Status section in this document for an example of interpreting the table.
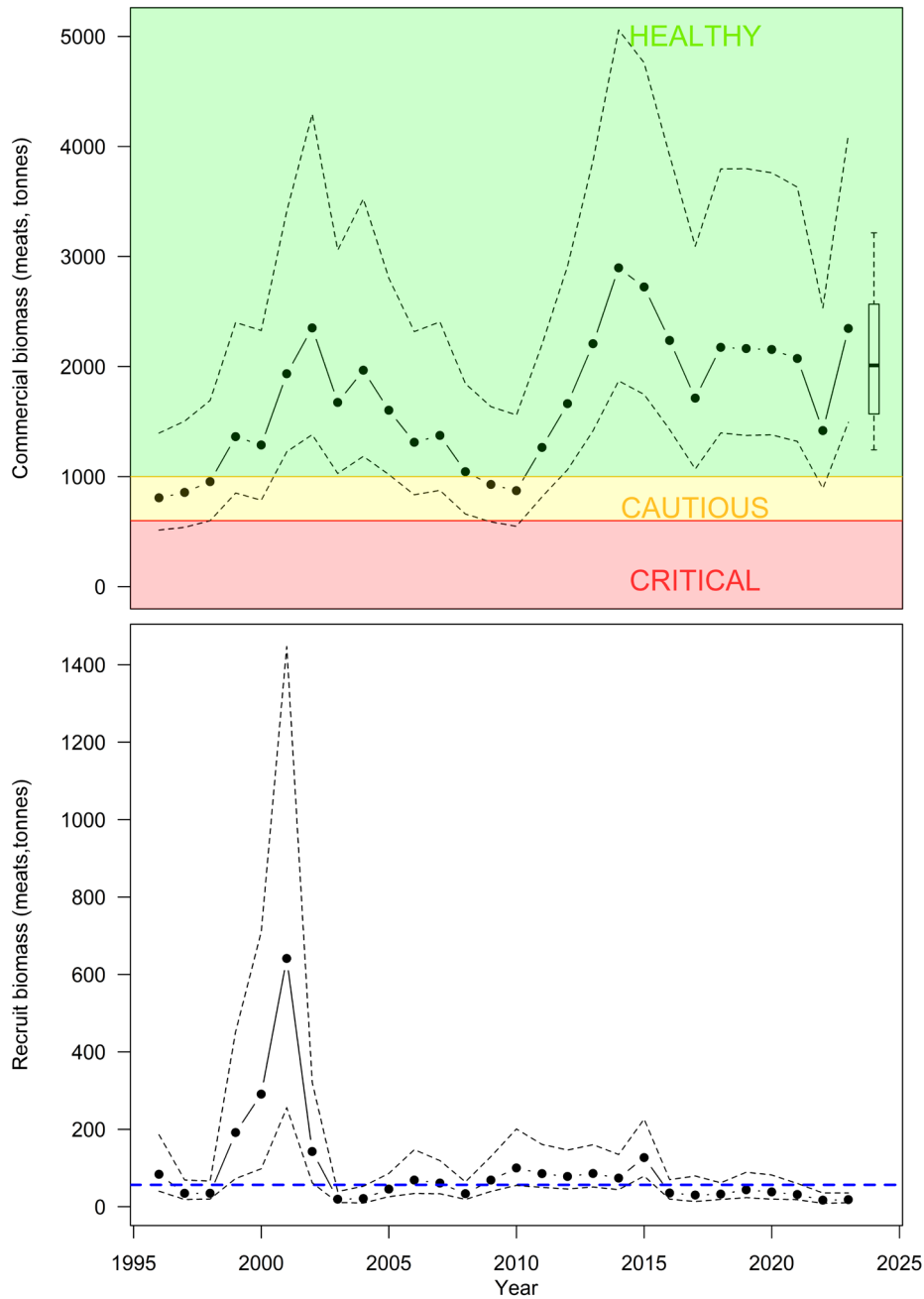
*Figure 4. Median biomass estimates in SPA 3 for commercial (top panel) and recruit (bottom panel) size Scallops in meat weight (tonnes) from the assessment model fit to the survey and commercial data. Dashed lines are the upper and lower 95% credible limits on the estimates. The predicted commercial size biomass for 2024, assuming the 2023–24 interim TAC (100 t), is displayed as a box plot with median, 50% credible limits (box) and 80% credible limits (whiskers). The green-shaded area represents the Healthy Zone (based on an Upper Stock Reference [USR] point of 1,000 t), the yellow-shaded area represents the Cautious Zone, and red-shaded area represents the Critical Zone (based on Limit Reference Point [LRP] of 600 t; Nasmith et al. [2014]). The blue horizontal dashed line in the lower panel represents the long-term median (1997–2022) recruit biomass.*

*Table 3. Harvest scenario table for SPA 3 to evaluate 2023–24 catch levels in terms of resulting exploitation (e), expected changes in commercial biomass (%), probability (Pr) of commercial biomass increase, probability that after removal the stock will be above the Upper Stock Reference (USR; 1,000 t), and above the Limit Reference Point (LRP; 600 t). Potential catches (t) in 2024–25 are evaluated in terms of the posterior probability of exceeding a removal reference exploitation of 0.15.*

| 2023–24 Fishing Season | | | | | | 2024–25 Fishing Season | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Catch (t) | *e* | % Change | Pr Increase | Pr > LRP | Pr > USR | **Probability Exploitation > 0.15** *Potential Catch (t)* | | | | | |
| | | | | | | 0.1 | 0.2 | 0.3 | 0.4 | 0.5 | 0.6 |
| 160 | 0.08 | −18 | 0.22 | > 0.99 | 0.96 | 181 | 214 | 241 | 267 | 294 | 322 |
| 180 | 0.09 | −19 | 0.21 | > 0.99 | 0.96 | 178 | 211 | 239 | 264 | 290 | 319 |
| 200 | 0.09 | −19 | 0.20 | > 0.99 | 0.96 | 177 | 210 | 237 | 262 | 288 | 317 |
| 220 | 0.10 | −20 | 0.19 | > 0.99 | 0.95 | 174 | 207 | 233 | 259 | 285 | 314 |
| 240 | 0.11 | −21 | 0.18 | > 0.99 | 0.95 | 172 | 205 | 231 | 257 | 283 | 311 |
| 260 | 0.12 | −21 | 0.18 | > 0.99 | 0.94 | 170 | 202 | 229 | 255 | 281 | 309 |
| 280 | 0.13 | −22 | 0.17 | > 0.99 | 0.94 | 168 | 201 | 228 | 253 | 278 | 306 |
| 300 | 0.14 | −23 | 0.16 | > 0.99 | 0.94 | 166 | 198 | 224 | 249 | 275 | 303 |
| 320 | 0.15 | −24 | 0.15 | > 0.99 | 0.93 | 164 | 196 | 222 | 247 | 273 | 300 |

## Scallop Production Area 4 and 5 Stock Status

### SPA 4

The biomass estimate of commercial Scallops in 2023 was 2,809 t (meats), which is above the long-term (1983–2022) median of 1,139 t; the probability that the 2023 biomass is currently above the USR and in the Healthy Zone is greater than 0.99 (Figure 5). The 2022 commercial biomass estimate was 1,389 t. The biomass estimate of recruit Scallops in 2023 was 8.1 t, which is below the long-term (1983–2022) median of 27.4 t. The 2022 biomass estimate of recruit Scallops was 7.6 t.

Biomass projections use the current year estimates of growth and natural mortality is the average over the last 5 years. However, in 2023, Scallop condition (meat weight given shell height), which impacts growth rate (Nasmith et al. 2016), was the highest in the time series. Condition was 82% higher in 2023 than the long-term median (1997–2022). If condition declines in 2024 then the realized exploitation rate will be higher than shown in Table 4 (e.g., Figure A2). See SPA 1A Stock Status section in this document for an example of interpreting the table.
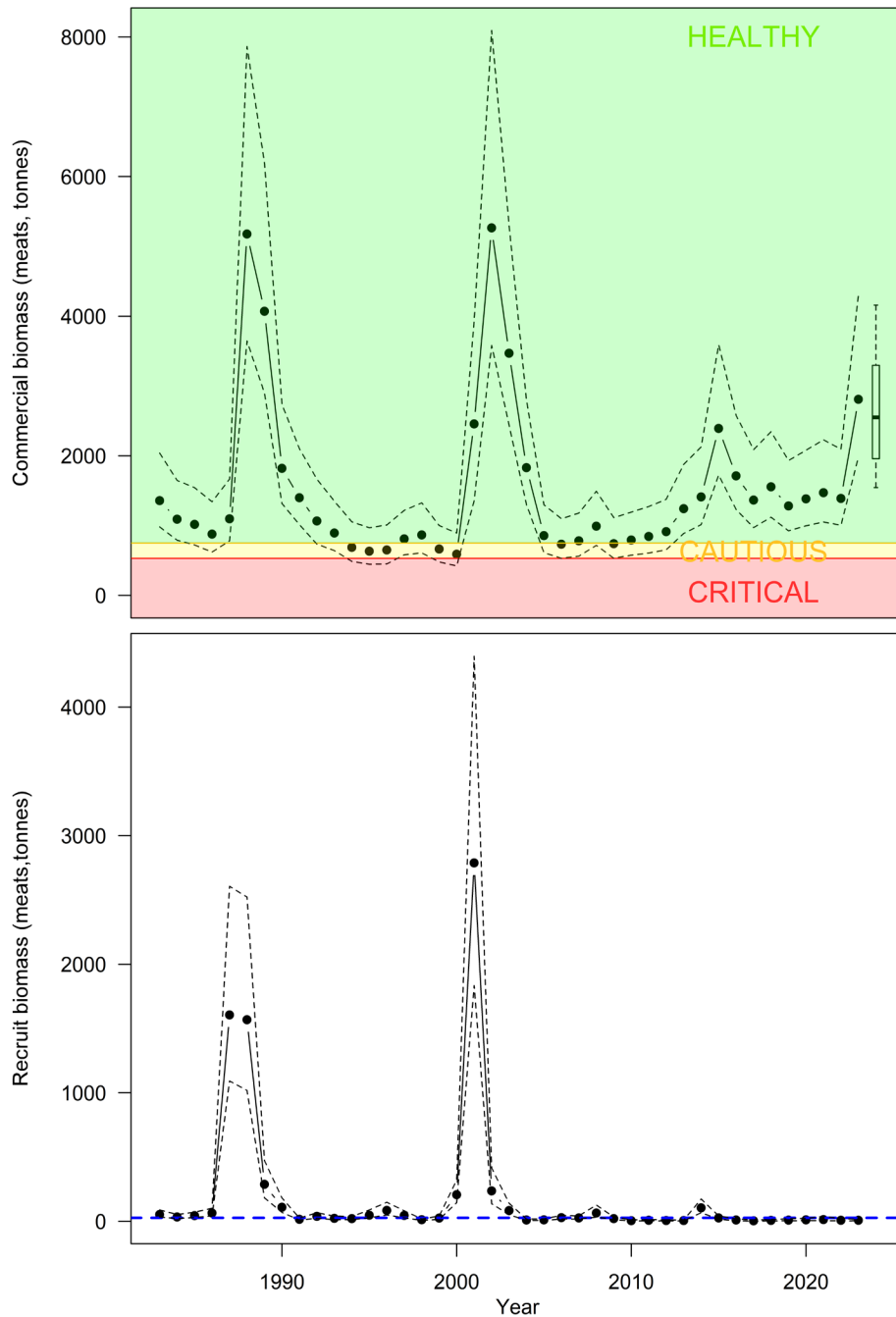
*Figure 5. Median biomass estimates in SPA 4 for commercial (top panel) and recruit (bottom panel) size Scallops in meat weight (tonnes) from the assessment model fit to the survey and commercial data. Dashed lines are the upper and lower 95% credible limits on the estimates. The predicted commercial size biomass for 2024, assuming the 2023–24 interim TAC (150 t), is displayed as a box plot with median, 50% credible limits (box) and 80% credible limits (whiskers). The green-shaded area represents the Healthy Zone (based on an Upper Stock Reference [USR] point of 750 t), the yellow-shaded area represents the Cautious Zone, and red-shaded area represents the Critical Zone (based on Limit Reference Point [LRP] of 530 t; Nasmith et al. [2014]). The blue horizontal dashed line in the lower panel represents the long-term median (1983–2022) recruit biomass.*

*Table 4. Harvest scenario table for SPA 4 to evaluate 2023–24 catch levels in terms of resulting exploitation (e), expected changes in commercial biomass (%), probability (Pr) of commercial biomass increase, probability that after removal the stock will be above the Upper Stock Reference (USR; 750 t), and above the Limit Reference Point (LRP; 530 t). Potential catches (t) in 2024–25 are evaluated in terms of the posterior probability of exceeding a removal reference exploitation of 0.15.*

| 2023–24 Fishing Season | | | | | | 2024–25 Fishing Season | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | **Probability Exploitation > 0.15** | | | | | |
| **Catch (t)** | **e** | **% Change** | **Pr Increase** | **Pr > LRP** | **Pr > USR** | *Potential Catch (t)* | | | | | |
| | | | | | | **0.1** | **0.2** | **0.3** | **0.4** | **0.5** | **0.6** |
| 260 | 0.10 | −13 | 0.33 | > 0.99 | > 0.99 | 222 | 265 | 301 | 334 | 369 | 407 |
| 280 | 0.10 | −14 | 0.32 | > 0.99 | > 0.99 | 219 | 261 | 297 | 330 | 365 | 403 |
| 300 | 0.11 | −15 | 0.31 | > 0.99 | > 0.99 | 218 | 260 | 295 | 329 | 363 | 400 |
| 320 | 0.12 | −16 | 0.30 | > 0.99 | > 0.99 | 215 | 257 | 292 | 325 | 359 | 396 |
| 340 | 0.13 | −16 | 0.30 | > 0.99 | > 0.99 | 213 | 255 | 290 | 322 | 356 | 394 |
| 360 | 0.13 | −17 | 0.29 | > 0.99 | > 0.99 | 211 | 253 | 287 | 319 | 353 | 391 |
| 380 | 0.14 | −18 | 0.28 | > 0.99 | > 0.99 | 208 | 249 | 284 | 317 | 350 | 388 |
| 400 | 0.15 | −18 | 0.27 | > 0.99 | > 0.99 | 207 | 248 | 282 | 314 | 347 | 385 |

*SPA 5*

The annual survey in SPA 5 was discontinued in 2009 after consultation with industry, and the sampling effort was redirected to other areas in the BoF. Since the 2014 survey, a small number (n = 5) of tows have been conducted in SPA 5 annually, with the exception of 2020. Survey trends are compared to the historic long-term medians (1990–2008). The commercial weight per tow in 2023 was 1.6 kilograms per tow (kg/tow) which is above the historic long-term (1990–2008) median (1.4 kg/tow); commercial weight per tow in 2022 was 1.4 kg/tow. Recruit weight per tow in 2023 was 0.02 kg/tow and below the historic long-term (1990–2008) median (0.1 kg/tow); in 2022, no recruits were observed.

### Scallop Production Area 6 Stock Status

For SPA 6, biomass based candidate reference points were recommended by the Inshore Scallop Advisory Committee (ISAC) and approved by DFO in December, 2022. The USR is 471 t and the LRP is 236 t. The removal reference exploitation is 18%. Prior to 2023, SPA 6 used catch based reference points (Nasmith et al. 2016, DFO 2023).

The productivity of Scallops is tied closely to habitat suitability and in the absence of detailed habitat information, the spatial distribution of fishing effort can be a good indicator of suitable habitat (Smith et al. 2009, Brown et al. 2012, Sameoto et al. 2014, Smith et al. 2015). The modelled area for SPA 6 corresponds to an area of historically high fishing intensity as described in Nasmith et al. (2016). However, unlike other SPAs in the Bay of Fundy, the modelled area of SPA 6 represents a subset of the core Scallop habitat (Nasmith et al. 2016). The proportion of landings associated with the modelled area ranged from 64–81% between 2006 and 2022.

In 2023, the proportion of landings that came from the modelled area was 59%. The biomass estimate of commercial Scallops in the modelled area in 2023 was 1,940 t (meats), which is above the long-term (2006–2022) median of 821 t; the probability that the 2023 biomass is currently above the USR and in the Healthy Zone is greater than 0.99 (Figure 6). The 2022 commercial biomass estimate was 1,262 t. The biomass estimate of recruit Scallops in 2023 was 8.2 t, which is below the long-term (2006–2022) median of 40.5 t. The 2022 biomass estimate of recruit Scallop was 12.5 t.

Biomass projections use the current year estimates of growth and natural mortality is the average over the last 5 years. However, in 2023, Scallop condition (meat weight given shell height), which impacts growth rate (Nasmith et al. 2016), was the highest in the time series. Condition was 74% higher in 2023 than the long-term median (2006–2022). If condition declines in 2024 then the realized exploitation rate will be higher than shown in Table 5 (e.g., Figure A2). SPA 6 does not have an interim TAC; the biomass projections assume the same catch removals as the current year. Catch scenarios for 2023–24 are presented in Table 5. Table 5 is interpreted as follows, a catch of 250 t in the modelled area of SPA 6 would correspond to an exploitation of 0.14 and is projected to result in a 20% decline in commercial biomass in the modelled area, the probability of commercial biomass increase in the modelled area is 19%. The probability that a catch of 250 t will result in the population remaining above the LRP is > 99%, and the probability of the population remaining above the USR is 99%. Conditional on the proportion of catch from the modelled area staying the same in 2024 as 2023, a catch of 250 t from the modelled area would correspond to a total SPA 6 catch of 424 t.
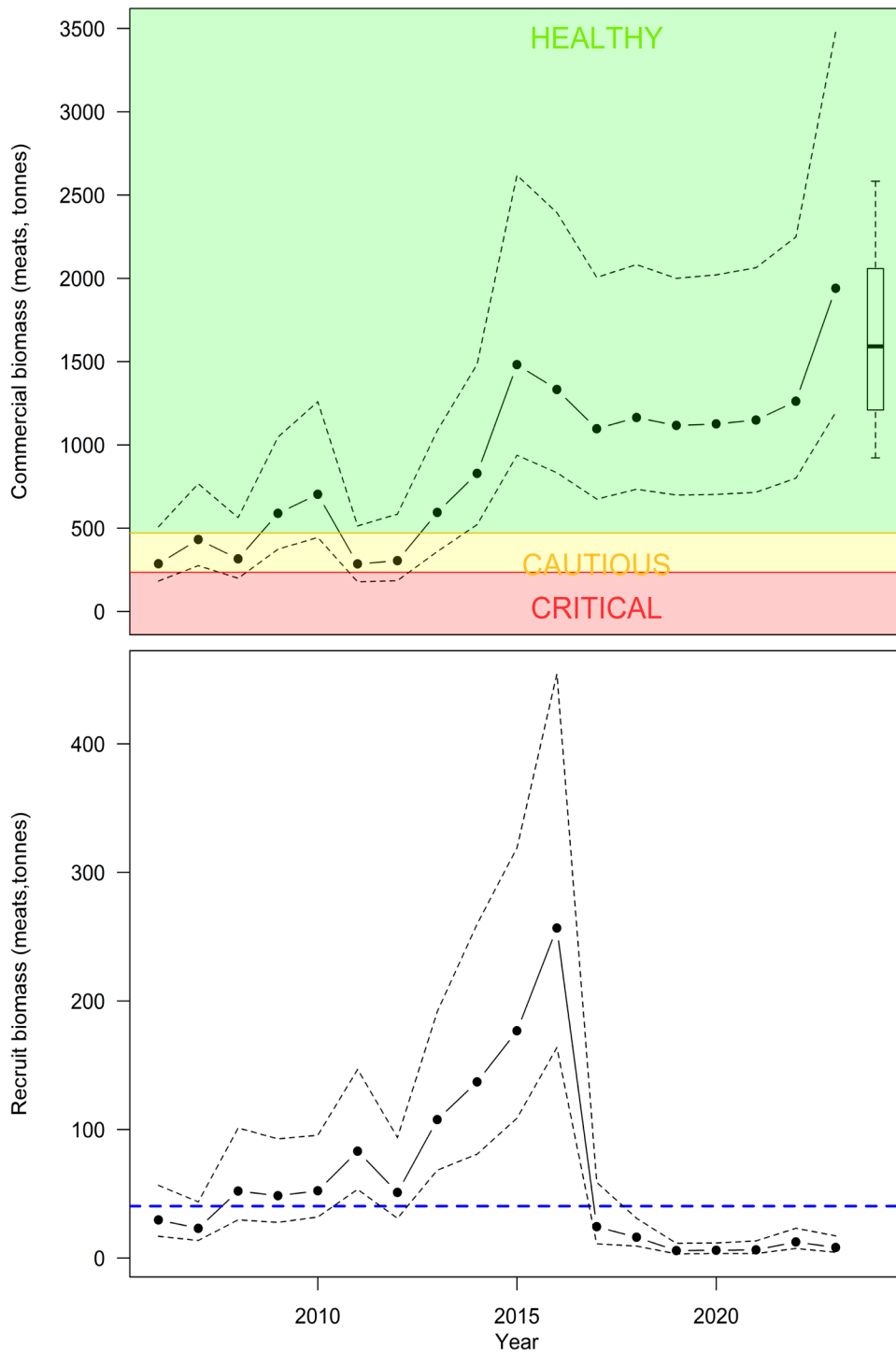
*Figure 6. Median biomass estimates (solid line) in the SPA 6 modelled area for commercial (top panel) and recruit (bottom panel) size Scallops in meat weight (tonnes) from the assessment model fit to the survey and commercial data. Dashed lines are the upper and lower 95% credible limits on the estimates. The predicted commercial size biomass for 2024, assuming a catch of 204 t in 2024, is displayed as a box plot with median, 50% credible limits (box) and 80% credible limits (whiskers). The blue horizontal dashed line represents the long-term median (2006–2022) recruit biomass.*

*Table 5. Harvest scenario table for the SPA 6 modelled area to evaluate 2023–24 catch levels in terms of resulting exploitation (e), expected changes in commercial biomass (%), probability (Pr) of commercial biomass increase. The probability that after removal the stock will be above the Upper Stock Reference (USR; 471 t), and above the Limit Reference Point (LRP; 236 t). Corresponding catch levels for the whole area of SPA 6 are conditional on the proportion of catch from the modelled area staying the same in 2024 as in 2023 (59%).*

| 2023–24 Fishing Season | | | | | | |
|---|---|---|---|---|---|---|
| *Modelled Area* | | | | | | *Whole Area* |
| Catch (t) | *e* | % Change | Pr Increase | Pr > LRP | Pr > USR | Catch (t) |
| 240 | 0.13 | −19 | 0.20 | > 0.99 | 0.99 | 407 |
| 250 | 0.14 | −20 | 0.19 | > 0.99 | 0.99 | 424 |
| 260 | 0.14 | −20 | 0.19 | > 0.99 | 0.99 | 441 |
| 270 | 0.15 | −20 | 0.19 | > 0.99 | 0.99 | 458 |
| 280 | 0.15 | −21 | 0.18 | > 0.99 | 0.99 | 475 |
| 290 | 0.16 | −21 | 0.18 | > 0.99 | 0.99 | 492 |
| 300 | 0.16 | −21 | 0.18 | > 0.99 | 0.99 | 508 |
| 310 | 0.17 | −22 | 0.17 | > 0.99 | 0.99 | 525 |
| 320 | 0.18 | −22 | 0.17 | > 0.99 | 0.99 | 542 |
| 330 | 0.18 | −23 | 0.16 | > 0.99 | 0.99 | 559 |

## Ecosystem Considerations

Currently, there is no DFO requirement that SPAs 1–6 trips be observed. Refer to Sameoto and Glass (2012) for past analysis of discards from the Inshore Scallop fishery.

# Conclusions

In 2023, all SPAs remained in the Healthy Zone. For all SPAs, the biomass estimates of commercial Scallop were above their respective long-term medians. The biomass estimates of recruit Scallop for all SPAs were below their respective long-term medians. In 2023, Scallop abundance remained similar or declined across all areas; however, Scallop condition was well above historically observed values and caused substantial increases in biomass across the Bay of Fundy. If condition declines in 2024 then the realized exploitation rates will be higher than in the tables presented here. Given condition has driven the 2023 biomass increase, that condition is well above historically observed values in each SPA, and that significant change in Scallop condition between successive years has previously been observed, caution is advised when setting the removal limits for 2023–24.

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# Sources of Information

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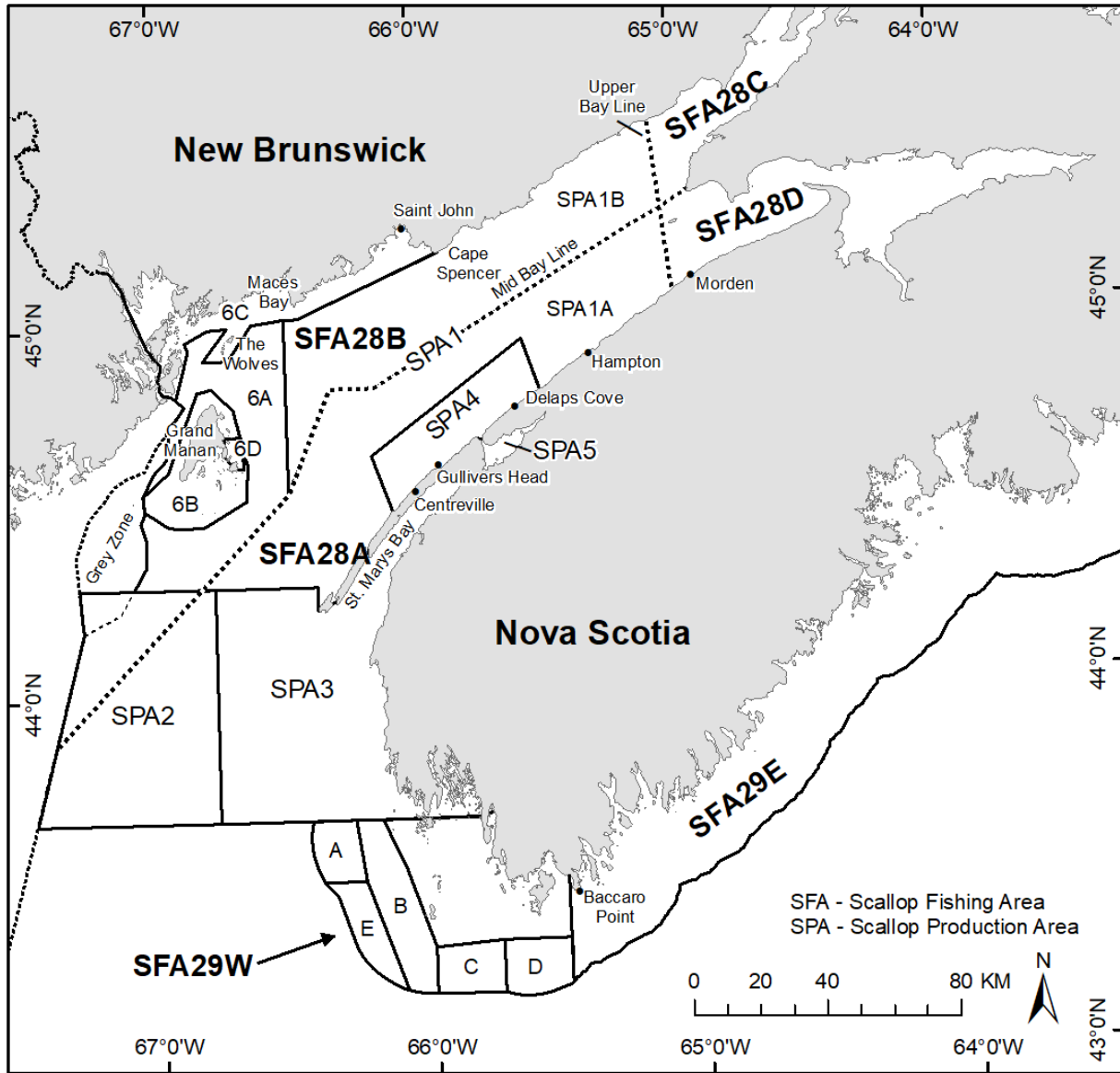
# Appendix



*Figure A1. Map of Scallop Production Areas (SPAs) and Scallop Fishing Areas (SFAs) in the Bay of Fundy and approaches.*
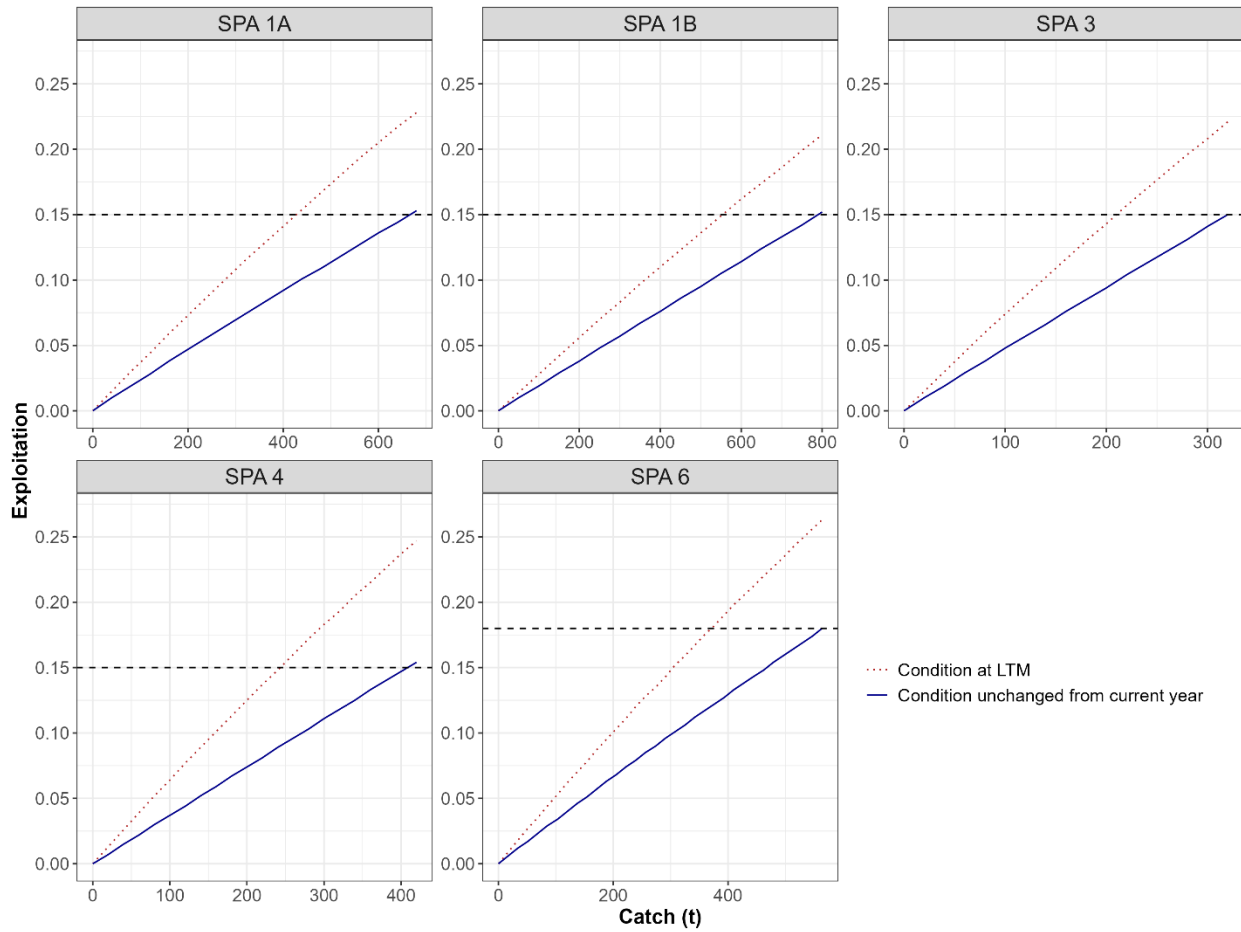
*Figure A2. Catch (tonnes) and Exploitation scenarios for SPAs 1A, 1B, 3, 4, and 6 for the 2023–24 fishing season assuming Scallop condition is unchanged from the current year (blue solid line, Tables 1–5), and if condition declines to the SPA's respective long-term median (LTM; dotted red line). The black horizontal dashed lines indicate the removal reference exploitations.*

*Table A1. Commercial Scallop fishery landings, Total Allowable Catch (TAC), and landings for Food, Social and Ceremonial purposes (FSC) by First Nations (meats, t) for Scallop Production Areas (SPAs) in the Bay of Fundy from 2021 to 2023. TAC values are pre-quota reconciliation. Landing values in 2023 are preliminary (as of October 18, 2023). Dash (-) indicates no catch. \* indicates preliminary data.*

| Year | SPA | TAC (t) | Landings (t) | FSC (t) | Total Landings (t) |
|------|-----|---------|--------------|---------|--------------------|
| 2021 | 1A | 270 | 271.7 | - | 271.7 |
| | 1B | 400 | 417.1 | - | 417.1 |
| | 3 | 200 | 249.2 | - | 249.2 |
| | 4&5 | 175 | 168.5 | - | 168.5 |
| | 6 | 210 | 190.5 | - | 190.5 |
| 2022 | 1A | 350 | 350.2 | - | 350.2 |
| | 1B | 450 | 441.3 | - | 441.3 |
| | 3 | 200 | 201.1 | - | 201.1 |
| | 4&5 | 200 | 189.7 | - | 189.7 |
| | 6 | 265 | 283.9 | - | 283.9 |
| 2023* | 1A | 375 | 390.9 | - | 390.9 |
| | 1B | 550 | 545.8 | - | 545.8 |
| | 3 | 135 | 144.5 | - | 144.5 |
| | 4&5 | 190 | 195.4 | - | 195.4 |
| | 6 | 330 | 333.6 | 12.2 | 345.8 |

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