



STOCK STATUS UPDATE FOR SCALLOP (*PLACOPECTEN MAGELLANICUS*) IN SCALLOP FISHING AREA 29 WEST OF LONGITUDE 65°30'

Context

Advice on the status of Scallops in Scallop Fishing Area (SFA) 29 West of Longitude 65°30' (herein referred to as SFA 29 West) is requested annually by Fisheries and Oceans Canada (DFO) Resource Management to help determine a Total Allowable Catch (TAC) and estimate risk of different harvest scenarios. The last full assessment of SFA 29 West was conducted in 2015 (DFO 2015, Sameoto et al. 2015); since then, updates have been conducted annually except in 2021.

The objectives of this Science Response are to update the status of the SFA 29 West Scallop stocks in 2021, evaluate the bycatch of non-target species from available information for the 2021 fishery, and evaluate the consequence of various potential harvest levels for the 2022 fishery.

This Science Response Report results from the Regional Science Response Process of March 23, 2022, on the Stock Status Update of Scallop in Scallop Fishing Area (SFA) 29 West of 65°30'.

Background

The SFA 29 West fishery operates under an Individual Transferable Quota (ITQ), has occurred since 2001, and generally runs from the third week of June to the end of August. Post-fishery surveys in September/October are conducted annually by DFO Science. The current survey design uses the Scallop habitat suitability map developed by Brown et al. (2012). Habitat suitability represents a relative scale of suitable Scallop habitat, with the lowest suitable habitat indicated by 0 and the highest suitable habitat indicated by 1. These probabilities are grouped into three categories defined by the following ranges: Low [0, 0.3), Medium [0.3, 0.6), and High [0.6, 1.0). The population dynamics of commercial and recruit Scallops are modelled using the state-space habitat-based assessment model as defined by Smith et al. (2015). Throughout this update, Scallops with a shell height of 100 mm and greater are referred to as commercial size. Scallops with a shell height of 90–99 mm are referred to as recruits and are expected to grow to commercial size in the following year. Scallops with a shell height of less than 90 mm are considered pre-recruits. Since there was no survey in 2020, the indices used as input for the models in 2020 are imputed using the 2019 and 2021 values; this approach is consistent with methods used to address missing information in previous years for other inshore scallop stocks (Nasmith et al. 2016).

Maritimes Region

In this update, Scallop removals include all commercial landings from SFA 29 West and Food, Social, and Ceremonial (FSC) catch by scallop drag. Landed recreational and FSC catch by dip netting, diving, tongs, and hand are not available and not accounted for in this assessment.

Description of the Fishery

Scallop Fishing Area 29 encompasses a large area inside the 12-mile territorial sea, from south of Yarmouth (latitude 43°40'N) to Cape North in Cape Breton. This update refers to only that portion of SFA 29 West of longitude 65°30'W continuing north to Scallop Production Area 3 at latitude 43°40'N (Figure 1). This area is fished by the Full Bay (FB) Fleet and the inshore East of Baccaro licence holders who are authorized to fish in SFA 29 West (hereafter referred to as the EoB Fleet). The fishery is managed using limited entry, seasonal closures, minimum shell height, and meat count. The TACs are set, and landings are reported in terms of meat weights (adductor muscles).

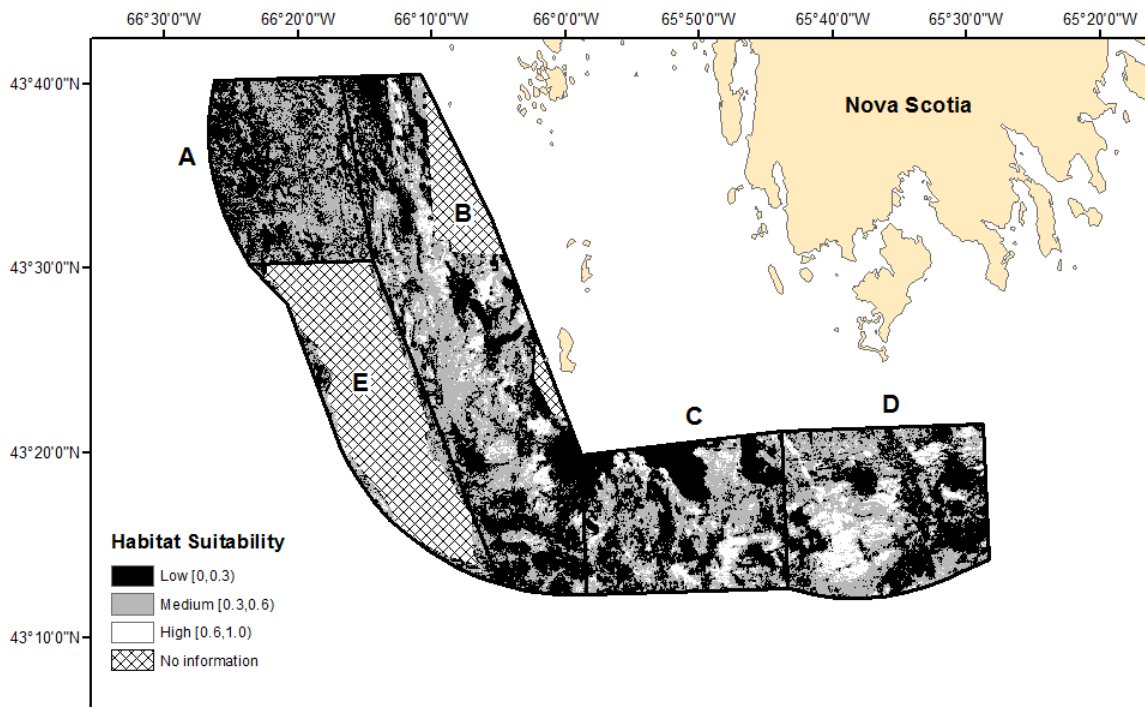


Figure 1. The SFA 29 West Subareas A to E. Shaded areas show habitat suitability probability categories: Low in black, Medium in grey, and High in white (see Brown et al. 2012). Note: SFA 29 extends along the shoreline to Cape North in Cape Breton.

Analysis and Response

Commercial Fishery

Since 2002, the TAC has been shared between the FB and EoB fleets. As of 2010, the TAC and landings are reported for both fleets combined. In 2021, a total of 138.5 tonnes (t) were landed

Maritimes Region

against the TAC of 145 t. There was an additional FSC catch of 2.8 t, which does not count against the TAC (Figure 2).

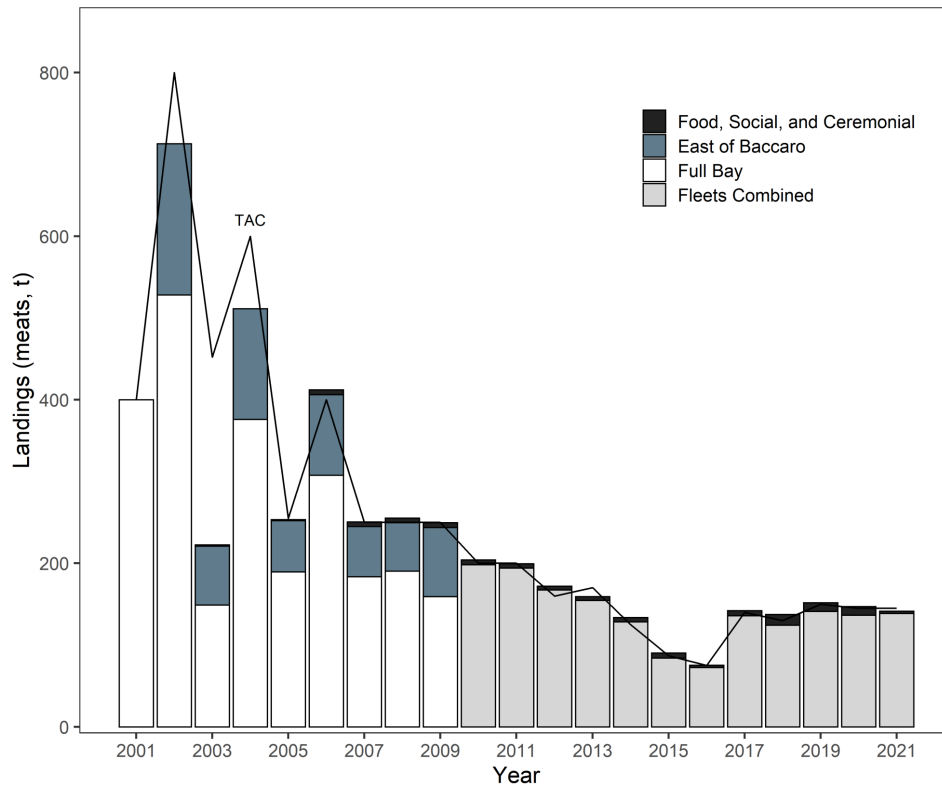


Figure 2. Annual Scallop landings (meats, t) from 2001 to 2021 for Scallop Fishing Area 29 West and the Total Allowable Catch (TAC, black line). Note that the Food, Social, and Ceremonial landings do not count against the TAC.

In 2021, all subareas (A–E) in SFA 29 West were open but no fishing occurred in Subarea E (Tables A1–A2). For Subarea A, commercial biomass has been projected to decline annually since 2015, even with zero catch in this Subarea (DFO 2015, 2016, 2017, 2018, 2019). The fishery in Subarea A was closed in 2015 and 2016, and since 2017 has adopted a fishing plan that includes a dedicated catch limit and vessels fishing Subarea A cannot fish another subarea during the same trip.

For the FB fleet, in Subarea A, the catch rate calculated from fishing logs was 11.7 kg/h in 2021 and 12.0 kg/h in 2020. In Subarea B, the catch rate was 29.0 kg/h in 2021 and 31.8 kg/h in 2020. In Subarea C, the catch rate was 32.7 kg/h in 2021 and 30.7 kg/h in 2020. In Subarea D, the catch rate was 78.6 kg/h in 2021 and 70.4 kg/h in 2020.

For the EoB fleet, there was no fishing in Subarea A in 2021, and the catch rate from 2020 cannot be reported due to *Privacy Act* considerations. In Subarea B, the catch rate was 32.3 kg/h in 2021 and 42.5 kg/h in 2020. In Subarea C, the catch rate was 36.1 kg/h in 2021 and 36.7 kg/h in 2020. In Subarea D, the catch rate for in 2021 cannot be reported due to *Privacy Act* considerations, and was 64.0 kg/h in 2020. No fishing occurred in Subarea E in 2021, or 2020, by either fleet.

Research Survey

The distribution of commercial, recruit, and pre-recruit size Scallop abundances were patchy throughout SFA 29W (Figures 3–5). A description of abundance values for 2019 and 2021 are presented in the Appendix.

Subarea E was not surveyed between 2005–2012, as it was considered a marginal area and less of a survey priority. Since 2012, a small number of stations (5–8 per year) have been surveyed each year a survey took place. Since 2014 the tows have been allocated within a portion of Subarea E known to have been historically fished; therefore, trends in survey abundance in Subarea E may not be indicative of trends in the Subarea as a whole. In 2021, commercial size abundances were 147.8 per tow, recruit size abundances were 2.7 per tow, and pre-recruit size abundances were 40.9 per tow. In 2019, commercial size abundances were 109.7 per tow, recruit size abundance were 3.3 per tow, and pre-recruit size abundances were 25.2 per tow.

Throughout SFA 29 West, scallop condition (defined as meat weight, in grams, of a 100 mm shell height scallop) at the time of the 2021 survey ranged from 10.6 g (Subarea A) to 11.0 g (Subarea C). During the 2019 survey, scallop condition ranged from 10.8 g (Subarea A) to 12.1 g (Subarea C).

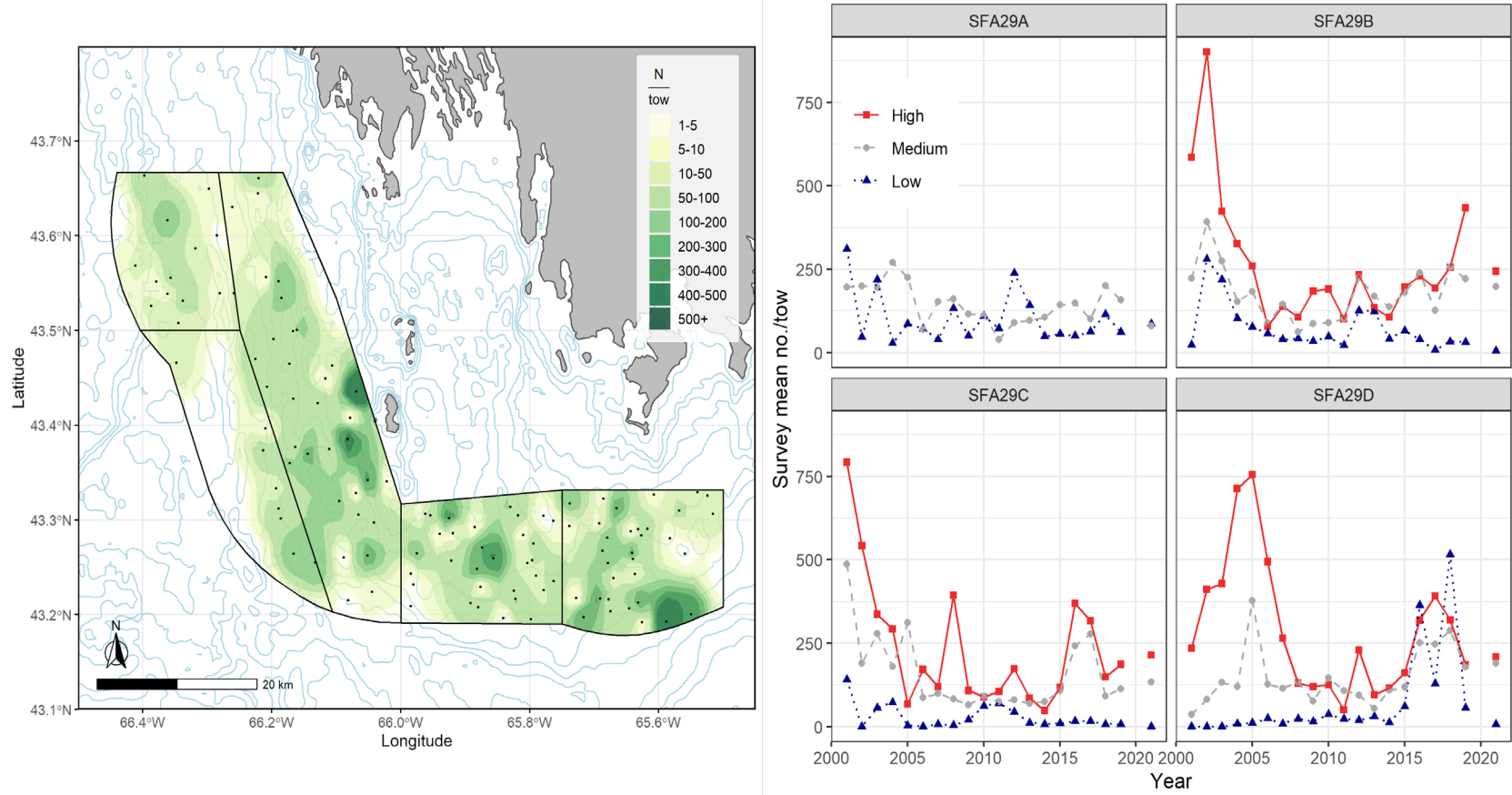


Figure 3. Commercial Scallops (≥ 100 mm shell height). On left: spatial density (numbers/tow) distribution interpolated from the 2021 survey for SFA 29 West. Points represent tow locations. On right: mean number per tow by subarea from 2001 to 2021 for Low (dark blue triangles), Medium (grey circles), and High (red squares) categories of habitat suitability. There was no survey in 2020.

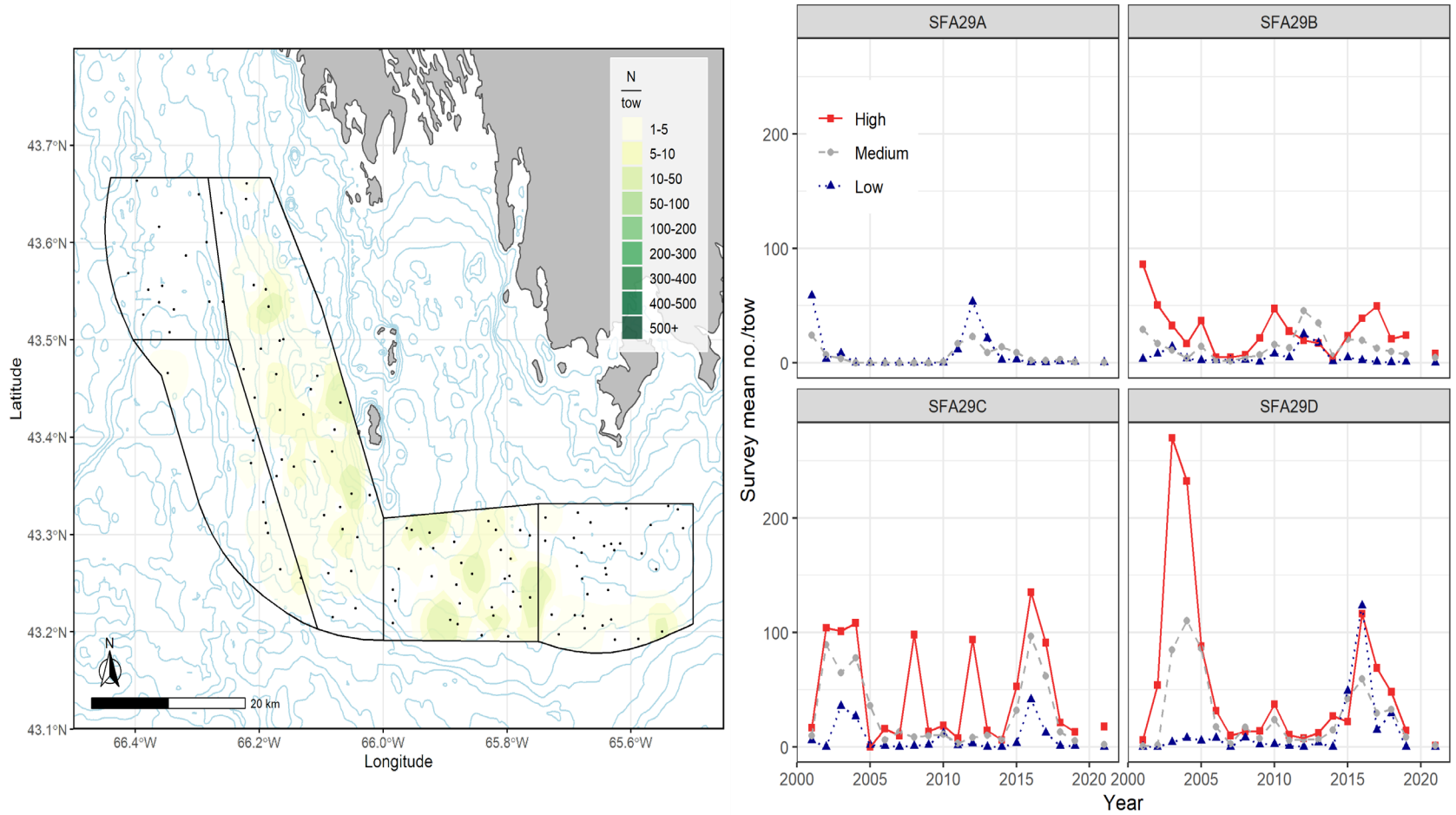


Figure 4. Recruit Scallops (90–99 mm shell height). On left: spatial density (numbers/tow) distribution interpolated from the 2021 survey for SFA 29 West. Points represent tow locations. On right: mean number per tow by subarea from 2001 to 2021 for Low (dark blue triangles), Medium (grey circles), and High (red squares) categories of habitat suitability. There was no survey in 2020.

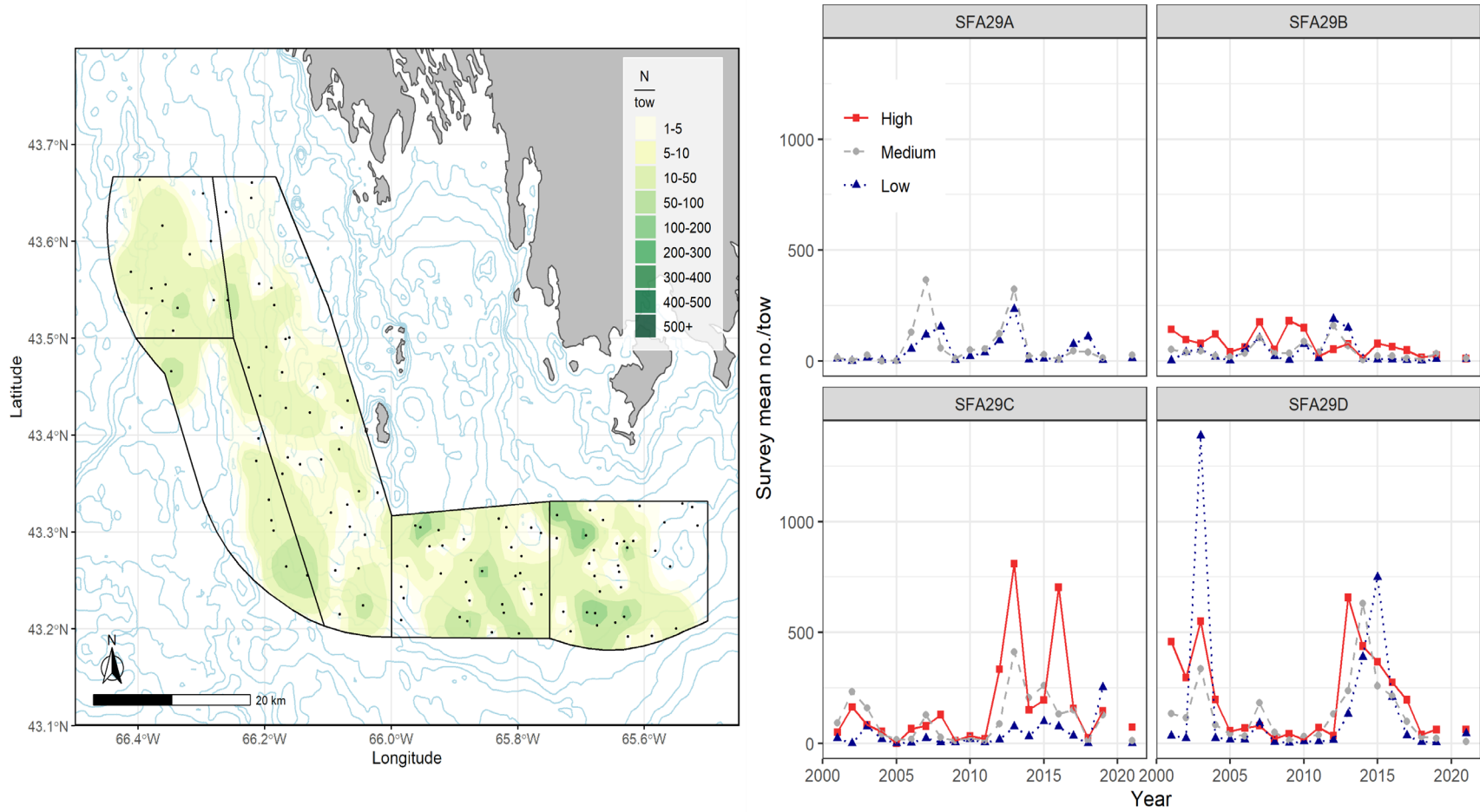


Figure 5. Pre-recruit Scallops (< 90 mm shell height). On left: spatial density (numbers/tow) distribution interpolated from the 2021 survey for SFA 29 West. Points represent tow locations. On right: mean number per tow by subarea from 2001 to 2021 for Low (dark blue triangles), Medium (grey circles), and High (red squares) categories of habitat suitability. There was no survey in 2020.

Assessment Model

The state-space habitat-based population model accepted at the framework assessment in February 2014 (Smith et al. 2015) was fit within each habitat suitability category for Subareas A to D. The model was fit to the commercial catch, effort derived from vessel monitoring systems, and survey data. Subarea E is not covered by the habitat suitability map and is not modelled.

Indicators of the Stock Status

The index associated with stock productivity for the DFO precautionary approach for SFA 29 West is commercial biomass density (t/km^2) in the Medium habitat suitability area for Subarea A and the High habitat suitability areas of Subareas B, C, and D (Figure 6); exploitation is managed in these associated habitat areas (Smith and Sameoto 2016). Removal references and Harvest Control Rules (HCRs) are established for Subareas B, C, and D. There are no reference points for Subareas A or E. If the biomass density is above the respective biomass density at Maximum Sustainable Yield (where $D_{MSY} = 3.75, 4.68, 4.32 t/km^2$ for Subareas B, C, and D, respectively) then the maximum exploitation would be 0.16, 0.17, and 0.22, for Subareas B, C, and D, respectively. If the biomass density is below D_{MSY} then the maximum exploitation would be 0.06, 0.06, and 0.09 for Subareas B, C, and D, respectively. In Subarea A, in 2021, commercial biomass density was $0.8 t/km^2$ in the Medium habitat category. In Subarea B, in 2021, commercial biomass density was $3.1 t/km^2$ in the High habitat category and above the USR. In Subarea C, in 2021, commercial biomass density was $4.4 t/km^2$ in the High habitat category and above the USR. In Subarea D, in 2021, commercial biomass density was $3.4 t/km^2$ in the High habitat category and above the USR (Figure 6).

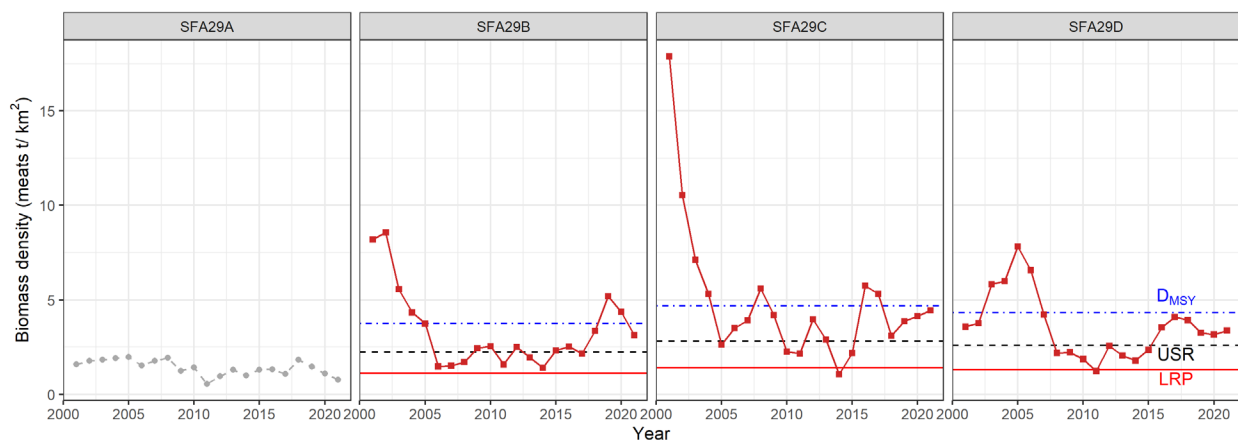


Figure 6. Commercial biomass densities (t/km^2) in SFA 29 West. In Subarea A the Medium suitability category is shown, while the High suitability categories are shown for Subareas B, C, and D. The Lower Reference Points (LRPs) are indicated by the solid (red) line and Upper Stock References (USRs) indicated by the dashed (black) line and the density associated with Maximum Sustainable Yield (D_{MSY}) is indicated by the dot-dashed (blue) line for Subareas B, C, and D. The LRP and USRs are $1.12 t/km^2$ and $2.24 t/km^2$ for Subarea B, $1.41 t/km^2$ and $2.82 t/km^2$ for Subarea C, and $1.3 t/km^2$ and $2.6 t/km^2$ for Subarea D, respectively. The D_{MSY} values are $3.75, 4.68, 4.32 t/km^2$ for Subareas B, C, and D, respectively.

Maritimes Region

Exploitation

In Subarea A, in 2021, the exploitation was 0.06 (6%) in the Medium habitat category. In Subarea B, in 2021, the exploitation was 0.13 (13%) in the High habitat category. In Subarea C, in 2021, the exploitation was 0.05 (5%) in the High habitat category. In Subarea D, in 2021, the exploitation was 0.10 (10%) in the High habitat category (Figure 7).

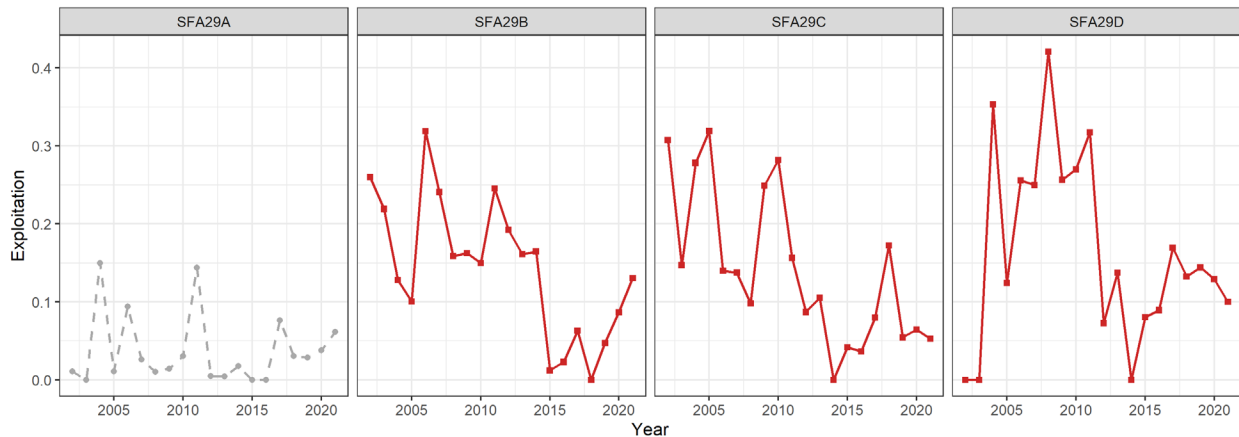


Figure 7. Model estimates of exploitation for the Medium habitat category in Subarea A, and for the High habitat category in Subareas B, C, and D in SFA 29 West.

Natural mortality

In 2021, in Subareas A and B, the natural mortality (instantaneous) model estimates were above their respective long-term medians (2001–2020) and above their respective 5-year means. In Subareas C and D, the natural mortality (instantaneous) model estimates were below their respective long-term medians (2001–2020) and well below their respective 5-year means (Figure 8). Indications are that natural mortality has been declining in Subareas C and D since 2017. In Subarea A, in 2021, natural mortality was 0.36 in the Medium habitat category. In Subarea B, in 2021, natural mortality was 0.30 in the High habitat category. In Subarea C, in 2021, natural mortality was 0.12 in the High habitat category. In Subarea D, in 2021, natural mortality was 0.09 in the High habitat category (Figure 8).

Maritimes Region

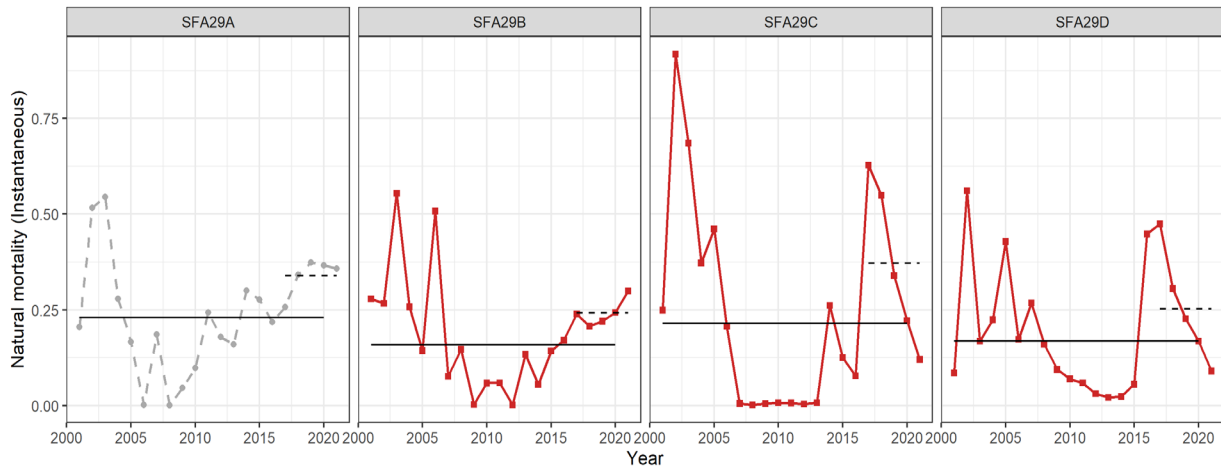


Figure 8. Modeled natural mortality (instantaneous rate) in SFA 29 West. In Subarea A the Medium suitability category is shown, while the High suitability categories are shown for Subareas B, C, and D. The 5-year (2017–2021) mean natural mortality is indicated by the dashed black line and the long-term median (2001–2020) is indicated by the solid black line.

Harvest Level Scenarios for 2022

Catch scenarios for the 2022 fishing season for Subareas A–D are presented in Tables 1–4. Model projections assume 2021 estimates of growth, recruit abundance, and that natural mortality is the mean over the last 5 years (2017–2021) within each subarea. Note that the harvest decision scenarios for Subareas C and D are likely conservative since natural mortality has been declining since 2017 and is below the 5-year mean (Figure 8). An example of how to interpret the catch scenarios in Tables 1–4 is presented using Table 2 for Subarea B. In this Subarea, a total Subarea catch of 24 t corresponds to an exploitation of 0.06 (6%) in the High habitat category, this is projected to result in a 18.7% biomass decrease in the High habitat category, and the probability of a biomass increase in the High habitat category is 0.34. This is associated with a predicted 16.6% biomass decline in all of Subarea B; the associated probability of biomass increase for all of Subarea B is 0.29. After 24 t of catch is removed, the probability of being above the LRP is 0.91, and the probability of being above the USR is 0.60.

Table 1. Catch scenario table for SFA 29 West Subarea A to evaluate 2022 total subarea catch levels in terms of exploitation (*e*), expected changes in biomass (%), and probability (*Pr.*) of biomass increase. Note, Subarea A has no High suitability habitat.

Catch (t)	Medium Habitat Suitability Category			Whole Subarea	
	<i>e</i>	Expected % Change	Pr. Increase	Expected % Change	Pr. Increase
0	0	-23.9	0.30	-21.5	0.28
2	0.02	-25.4	0.29	-22.8	0.27
5	0.04	-26.7	0.28	-23.9	0.26

**Science Response: Stock Status Update
for Scallop in SFA 29 West of 65°30'**

Maritimes Region

Catch (t)	Medium Habitat Suitability Category			Whole Subarea	
	<i>e</i>	Expected % Change	Pr. Increase	Expected % Change	Pr. Increase
7	0.06	-28.7	0.26	-25.5	0.24
10	0.08	-29.9	0.25	-26.6	0.23
12	0.10	-31.5	0.24	-27.9	0.22
14	0.12	-33.0	0.23	-29.3	0.21
17	0.14	-34.5	0.22	-30.5	0.20
19	0.16	-35.8	0.21	-31.9	0.18
21	0.18	-37.5	0.19	-33.4	0.17

*Table 2. Catch scenario table for SFA 29 West Subarea B to evaluate 2022 total subarea catch levels in terms of exploitation (*e*), expected changes in biomass (%), probability (*Pr.*) of biomass increase, and probability of being above the Lower Reference Point (LRP: 1.12 t/km²) and Upper Stock Reference (USR: 2.24 t/km²).*

Catch (t)	High Habitat Suitability Category					Whole Subarea	
	<i>e</i>	Expected % Change	Pr. Increase	Pr. > LRP	Pr. > USR	Expected % Change	Pr. Increase
0	0	-13.8	0.38	0.93	0.64	-14.1	0.32
8	0.02	-16.0	0.36	0.92	0.62	-15.3	0.31
16	0.04	-17.7	0.35	0.92	0.61	-16.0	0.30
24	0.06	-18.7	0.34	0.91	0.60	-16.6	0.29
31	0.08	-21.3	0.32	0.91	0.58	-18.1	0.27
39	0.10	-22.5	0.30	0.90	0.57	-18.9	0.26
47	0.12	-24.5	0.29	0.90	0.55	-19.7	0.25
55	0.14	-26.3	0.27	0.89	0.54	-20.8	0.24
63	0.16	-28.1	0.26	0.88	0.52	-21.8	0.23
71	0.18	-29.7	0.24	0.88	0.51	-22.5	0.22

*Table 3. Catch scenario table for SFA 29 West Subarea C to evaluate 2022 total subarea catch levels in terms of exploitation (*e*), expected changes in biomass (%), probability (*Pr.*) of biomass increase, and probability of being above the Lower Reference Point (LRP: 1.41 t/km²) and Upper Stock Reference (USR: 2.82 t/km²).*

Catch (t)	High Habitat Suitability Category					Whole Subarea	
	<i>e</i>	Expected % Change	Pr. Increase	Pr. > LRP	Pr. > USR	Expected % Change	Pr. Increase
0	0	-24.2	0.35	0.86	0.60	-15.0	0.34
5	0.02	-24.6	0.35	0.86	0.59	-16.3	0.33
10	0.04	-26.6	0.33	0.85	0.58	-17.4	0.31
16	0.06	-27.4	0.33	0.85	0.58	-18.0	0.30
21	0.08	-29.1	0.31	0.84	0.56	-19.7	0.29
26	0.10	-31.4	0.30	0.84	0.55	-20.4	0.28

**Science Response: Stock Status Update
for Scallop in SFA 29 West of 65°30'**

Maritimes Region

Catch (t)	High Habitat Suitability Category					Whole Subarea	
	<i>e</i>	Expected % Change	Pr. Increase	Pr. > LRP	Pr. > USR	Expected % Change	Pr. Increase
31	0.12	-31.5	0.30	0.83	0.54	-21.5	0.27
37	0.14	-33.9	0.29	0.82	0.53	-22.7	0.25
42	0.16	-36.0	0.27	0.81	0.51	-24.3	0.24
47	0.18	-37.1	0.26	0.80	0.50	-24.8	0.23

Table 4. Catch scenario table for SFA 29 West Subarea D to evaluate 2022 total subarea catch levels in terms of exploitation (*e*), expected changes in biomass (%), probability (*Pr.*) of biomass increase, and probability of being above the Lower Reference Point (LRP: 1.3 t/km²) and Upper Stock Reference (USR: 2.6 t/km²).

Catch (t)	High Habitat Suitability Category					Whole Subarea	
	<i>e</i>	Expected % Change	Pr. Increase	Pr. > LRP	Pr. > USR	Expected % Change	Pr. Increase
0	0	-17.9	0.33	0.92	0.57	-20.0	0.23
6	0.02	-18.8	0.31	0.91	0.55	-20.4	0.23
13	0.04	-20.5	0.29	0.91	0.54	-21.3	0.22
19	0.06	-22.3	0.28	0.90	0.52	-22.8	0.21
26	0.08	-24.7	0.26	0.89	0.50	-24.1	0.19
32	0.10	-26.1	0.24	0.89	0.48	-24.7	0.18
39	0.12	-27.2	0.23	0.88	0.47	-25.5	0.17
45	0.14	-29.2	0.22	0.88	0.45	-26.7	0.16
51	0.16	-30.4	0.20	0.87	0.43	-27.9	0.15
58	0.18	-32.2	0.19	0.86	0.42	-28.5	0.14
64	0.20	-33.6	0.18	0.85	0.40	-29.5	0.13
71	0.22	-35.4	0.16	0.84	0.38	-30.5	0.13
77	0.24	-36.9	0.15	0.83	0.36	-31.8	0.12

Bycatch Considerations

Data from observed trips were not available in time for inclusion in this report and as a result the 2021 bycatch discard rates cannot be reported at this time.

Conclusions

In 2021, commercial biomass densities in Subareas B, C, and D are above their respective USRs and are considered to be in the Healthy Zone. In Subarea A, indications are that the commercial abundance is relatively stable at the current level of removals. In Subarea E, indications are that commercial abundance has increased since 2019. For all Subareas, biomass declines are predicted, even if no catch is taken in 2022.

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Date: 1 April 2022

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Maritimes Region

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Appendix

Table A1. Total Allowable Catch (TAC), commercial scallop fishery landings, and landings for Food, Social and Ceremonial purposes (FSC) (meats, t) for Scallop Fishing Area (SFA) 29 West from 2017 to 2021. Asterisk () indicates preliminary data. Note that the Food, Social, and Ceremonial landings do not count against the TAC.*

Year	TAC (t)	Commercial Landings (t)	FSC Landings (t)	Total Landings (t)
2017	140	135.9	9.9	145.8
2018	130	124.3	13.1	137.4
2019	150	141.2	10.5	151.7
2020	145	136.5	10.6	147.1
2021*	145	138.5	2.8	141.3

Table A2. Catch Limits, commercial scallop fishery landings, and landings for Food, Social and Ceremonial purposes (FSC) (meats, t) for Scallop Fishing Area (SFA) 29 West Subareas from 2017 to 2021. The Catch Limits for Subareas A and E are sometimes combined. Dash (-) indicates no catch. Asterisk () indicates preliminary data. Note that the Food, Social, and Ceremonial landings do not count against the Catch Limits.*

Year	Subarea	Catch Limit (t)	Commercial Landings (t)	FSC Landings (t)	Total Landings (t)
2017	A	15	13.2	-	13.2
	E	20	0.1	-	0.1
	B	29	21.7	-	21.7
	C	30	26.3	-	26.3
	D	46	74.6	9.9	84.5
2018	A	10	8.7	-	8.7
	E	20	12.8	-	12.8
	B	0	-	-	-
	C	50	46.8	-	46.8
	D	50	56.0	13.1	69.1
2019	A	10	6.8	-	6.8
	E	15	2.2	-	2.2
	B	35	41.2	-	41.2
	C	15	15.0	-	15.0
	D	75	76.0	10.5	86.5
2020	A	10	6.6	-	6.6
	E	15	0.0	-	0.0
	B	75	54.9	-	54.9
	C	15	20.4	-	20.4
	D	30	54.6	10.6	65.2
2021*	A	10	8.1	-	8.1
	E	15	0.0	-	0.0
	B	75	67.4	-	67.4
	C	15	17.3	-	17.3
	D	30	45.7	2.8	48.5

Survey abundances for commercial, recruit and pre-recruit size scallop in 2019 and 2021

In reference to Figure 3: In Subarea A, in 2021, commercial abundances were 79.6 per tow in the Medium habitat category and 86.1 per tow in the Low habitat category (there is no High category habitat in Subarea A). In 2019, commercial abundances were 158.5 per tow in the Medium habitat category and 60.9 per tow in the Low habitat category. In Subarea B, in 2021, commercial abundances were 243.9 per tow in the High habitat category, 198.3 per tow in the Medium habitat category, and 4.8 per tow in the Low habitat category. In 2019, commercial abundances were 434.1 per tow in the High habitat category, 221.2 per tow in the Medium habitat category, and 32.0 per tow in the Low habitat category. In Subarea C, in 2021, commercial abundances were 214.2 per tow in the High habitat category, 133.5 per tow in the Medium habitat category, and 0.4 per tow in the Low habitat category. In 2019, commercial abundances were 186.3 per tow in the High habitat category, 113.7 per tow in the Medium habitat category, and 6.9 per tow in the Low habitat category. In Subarea D, in 2021, commercial abundances were 209.2 per tow in the High habitat category, 190.2 per tow in the Medium habitat category, and 7.5 per tow in the Low habitat category. In 2019, commercial abundances were 185.8 per tow in the High habitat category, 179.3 per tow in the Medium habitat category, and 56.7 per tow in the Low habitat category.

In reference to Figure 4: In Subarea A, in 2021, recruit abundances were 0.2 per tow in the Medium habitat category and 0.4 per tow in the Low habitat category (there is no High category habitat in Subarea A). In 2019, recruit abundances were 0.7 per tow in the Medium habitat category and 0.9 per tow in the Low habitat category. In Subarea B, in 2021, recruit abundances were 8.0 per tow in the High habitat category, 4.5 per tow in the Medium habitat category, and 0 per tow in the Low habitat category. In 2019, recruit abundances were 24.1 per tow in the High habitat category, 7.3 per tow in the Medium habitat category, and 1.0 per tow in the Low habitat category. In Subarea C, in 2021, recruit abundances were 17.7 per tow in the High habitat category, 2.0 per tow in the Medium habitat category, and 0 per tow in the Low habitat category. In 2019, recruit abundances were 13.1 per tow in the High habitat category, 5.2 per tow in the Medium habitat category, and 0.9 per tow in the Low habitat category. In Subarea D, in 2021, recruit abundances were 1.2 per tow in the High habitat category, 1.3 per tow in the Medium habitat category, and 0 per tow in the Low habitat category. In 2019, recruit abundances were 14.1 per tow in the High habitat category, 8.3 per tow in the Medium habitat category, and 0 per tow in the Low habitat category.

In reference to Figure 5: In Subarea A, in 2021, pre-recruit abundances were 25.6 per tow in the Medium habitat category and 12.1 per tow in the Low habitat category (there is no High category habitat in Subarea A). In 2019, pre-recruit abundances were 14.0 per tow in the Medium habitat category and 3.2 per tow in the Low habitat category. In Subarea B, in 2021, pre-recruit abundances were 11.1 per tow in the High habitat category, 12.9 per tow in the Medium habitat category, and 7.9 per tow in the Low habitat category. In 2019, pre-recruit abundances were 26.9 per tow in the High habitat category, 32.7 per tow in the Medium habitat category, and 7.4 per tow in the Low habitat category. In Subarea C, in 2021, pre-recruit abundances were 72.4 per tow in the High habitat category, 11.7 per tow in the Medium habitat category, and 0 per tow in the Low habitat category. In 2019, pre-recruit abundances were 145.6 per tow in the High habitat category, 128.7 per tow in the Medium habitat category, and

Maritimes Region

252.6 per tow in the Low habitat category. In Subarea D, in 2021, pre-recruit abundances were 62.2 per tow in the High habitat category, 7.6 per tow in the Medium habitat category, and 44.4 per tow in the Low habitat category. In 2019, pre-recruit abundances were 61.8 per tow in the High habitat category, 21.9 per tow in the Medium habitat category, and 4.4 per tow in the Low habitat category.

This Report is Available from the:

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Internet address: www.dfo-mpo.gc.ca/csas-sccs/

ISSN 1919-3769

ISBN 978-0-660-45233-3 Cat. No. Fs70-7/2022-042E-PDF

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Correct Citation for this Publication:

DFO. 2022. Stock Status Update for Scallop (*Placopecten magellanicus*) in Scallop Fishing Area 29 West of Longitude 65°30'. DFO Can. Sci. Advis. Sec. Sci. Resp. 2022/042.

Aussi disponible en français :

MPO. 2022. Mise à jour de l'état du stock de pétoncles (Placopecten magellanicus) de la zone de pêche du pétoncle 29 à l'ouest de la longitude 65° 30'. Secr. can. des avis sci. du MPO, Rép. des Sci. 2022/042.