



Spiny Dogfish 2024-2026 Specifications

December 2023 Council Meeting

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Agenda

- Management Summary
- A bit of history, old and new assessments
- Recent performance
- Advisory Panel (AP) Input
- Scientific and Statistical Committee (SSC)
- Staff/Monitoring Committee
Recommendations
- Council discussion/motions

Acronyms

- SSC = Scientific and Statistical Committee
- ABC = Acceptable Biological Catch
- ACL = Annual Catch Limit (ABC-Canada)
- AP = Advisory Panel
- MT = Metric Tons = 2,204.6 pounds
 - 450 MT = almost 1 million pounds

Management Summary

- Spiny dogfish plan began in 2000
- *Open Access* fishery
- 7,500-pound federal trip limit
- Federal waters closes at quota

- Joint with New England
- Complementary with Atlantic States Marine Fisheries Commission (ASMFC).

2023 Specifications (MT)

Specifications	(pounds)	(mt)	Basis for 2023 Specifications
OFL (from SSC)	na	na	na
ABC (from SSC)	17,169,581	7,788	SSC
Canadian Landings	81,571	37	= 2019 estimate, most recent
Domestic ABC	17,088,010	7,751	= ABC – Canadian Landings
ACL	17,088,010	7,751	= Domestic ABC
Mgmt Uncert Buffer	0.0%	0.0%	Higher risk of ACL overages but minimizes potential 2023 disruption to industry
Amount of buffer	0	0	
ACT	17,088,010	7,751	= ACL - mgmt uncert buffer
U.S. Discards	4,603,247	2,088	scaled down from 2017-2019 average
TAL	12,484,763	5,663	ACT – Discards
U.S. Rec Landings	471,789	214	= 2021 estimate
Comm Quota	12,012,974	5,449	TAL – Rec Landings

History – Fishery

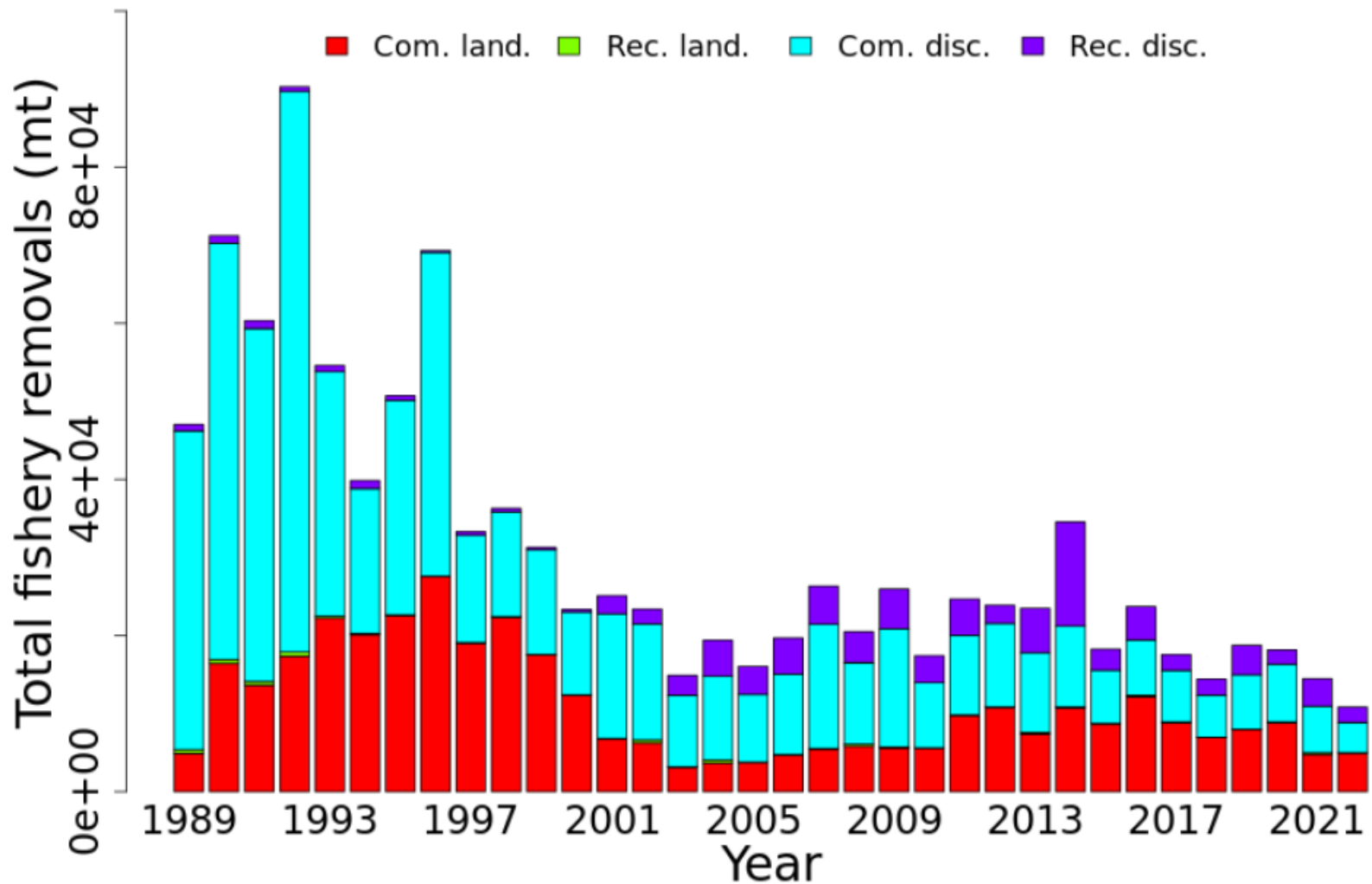
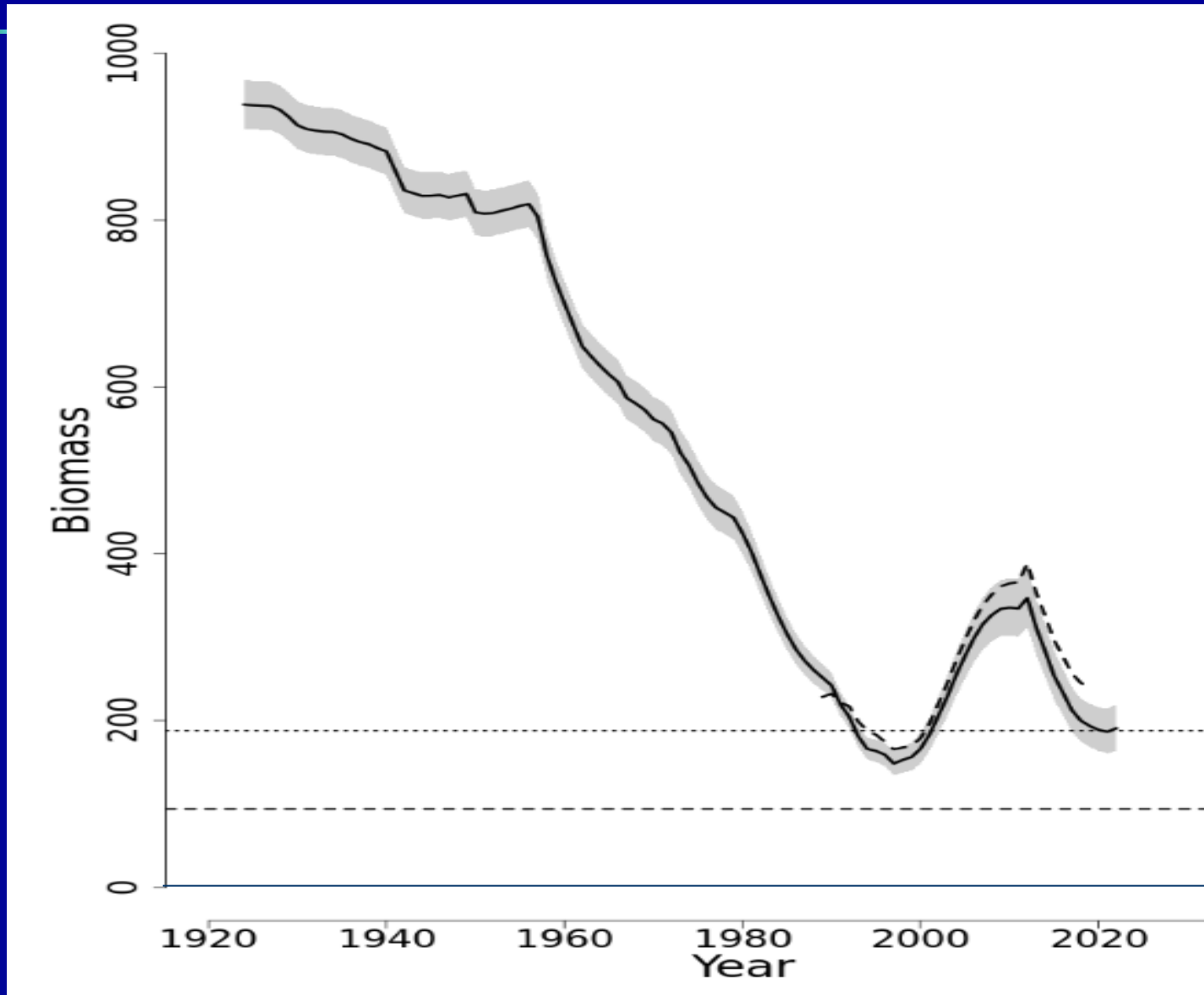


Figure 4: Total catch of Atlantic Spiny Dogfish between 1989 and 2022 by fleet (commercial, recreational, or Canadian) and disposition (landings and discards).

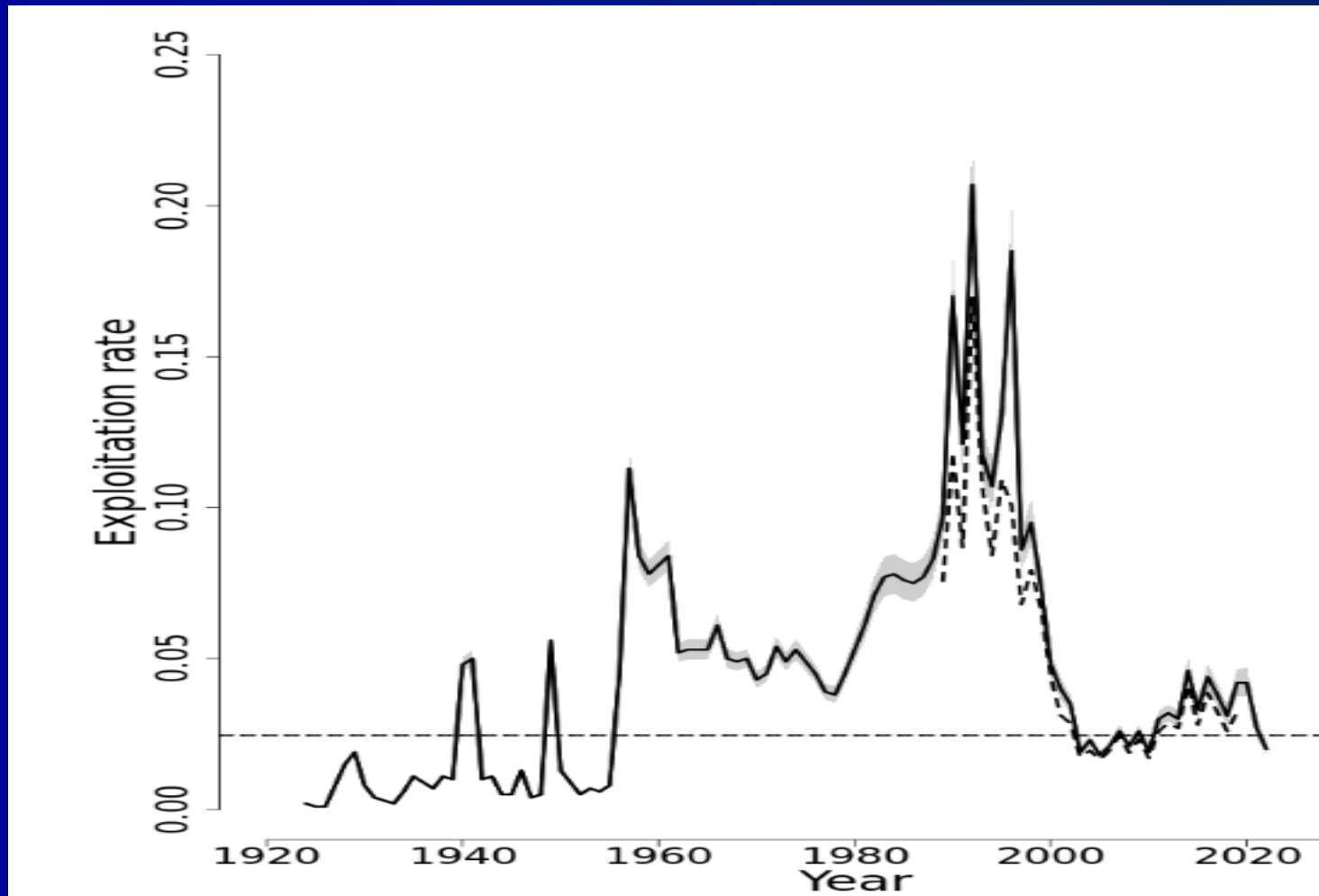
History - assessments

- Historical assessments were inaccurate especially in terms of productivity/catch after rebuilding
- The 2016 spiny dogfish quota was about four times too high

Stock Status – to 2022



Stock Status – to 2022

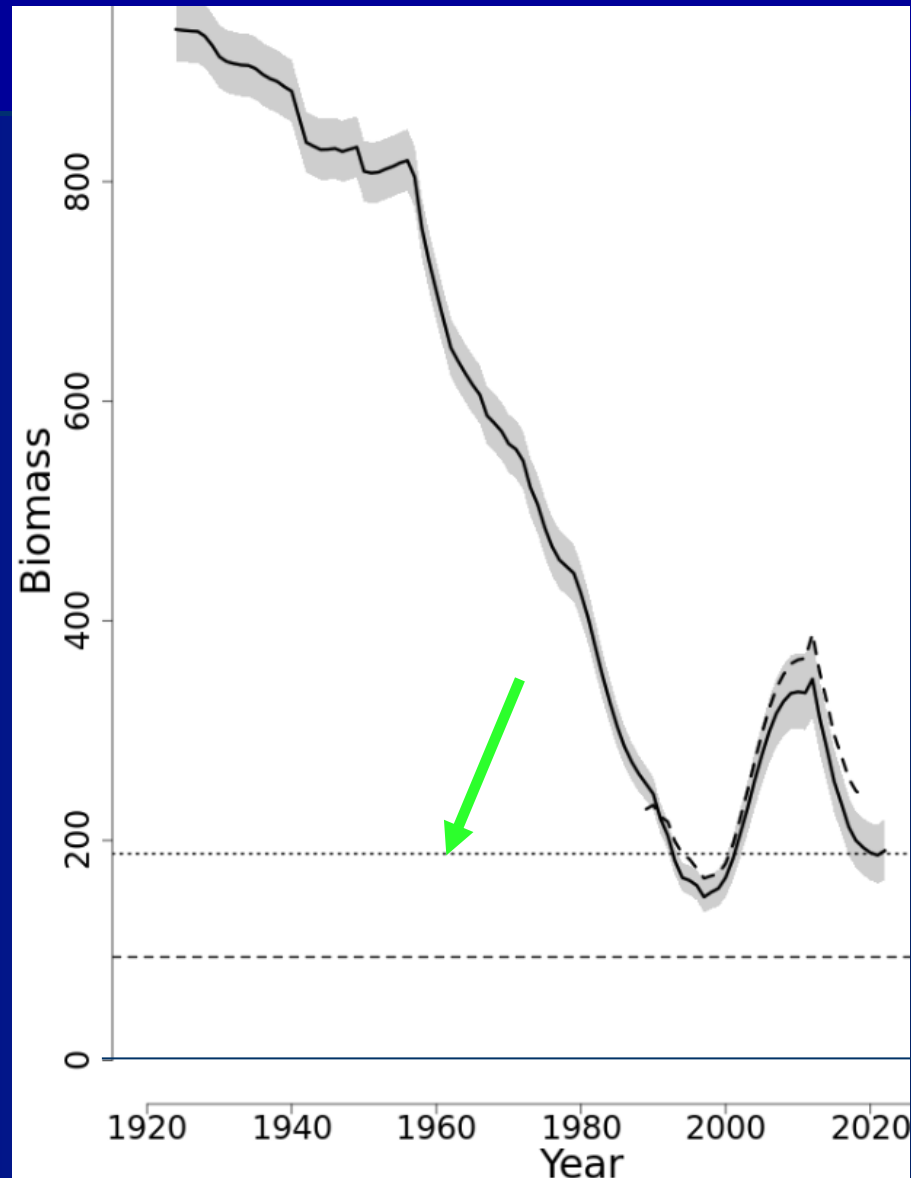


Stock Status – in 2022

- 101% of the biomass target
- Not overfishing

Spiny dogfish assessment overview

- Spawning Output in 2022 was estimated to be 190.8 million pups



Spiny dogfish assessment overview

- Double edged sword of lower productivity...
- At our target...
- But lower catches... may support ABCs only around 7,000 MT.
 - 2022: 17,498 MT
 - 2023: 7,788 MT (12 million-pound quota)

Recent Performance...

Fishery Performance

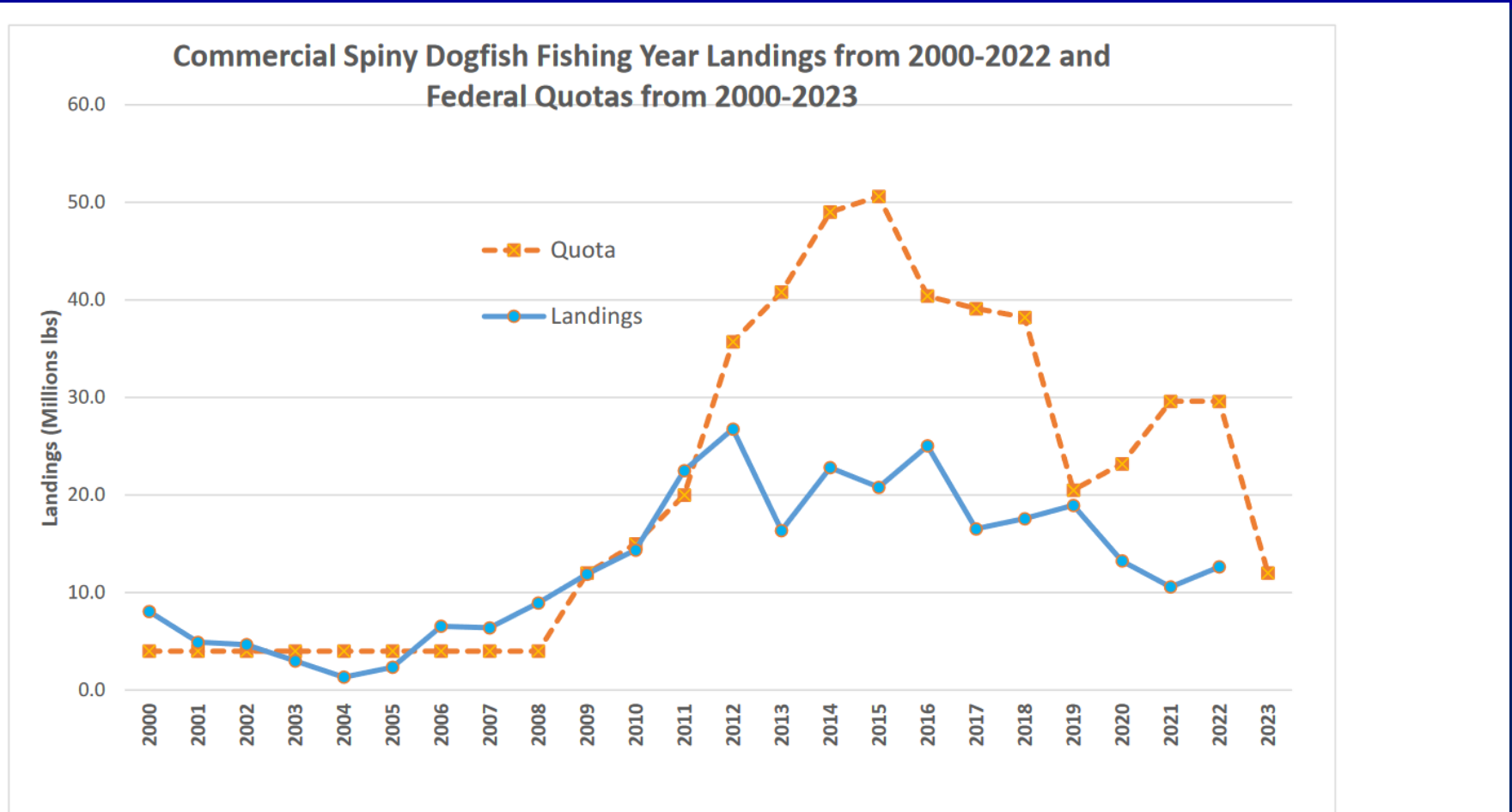


Figure 1. Annual spiny dogfish landings and federal quotas 2000-2023 Source: NMFS unpublished dealer data.²

Fishery Performance

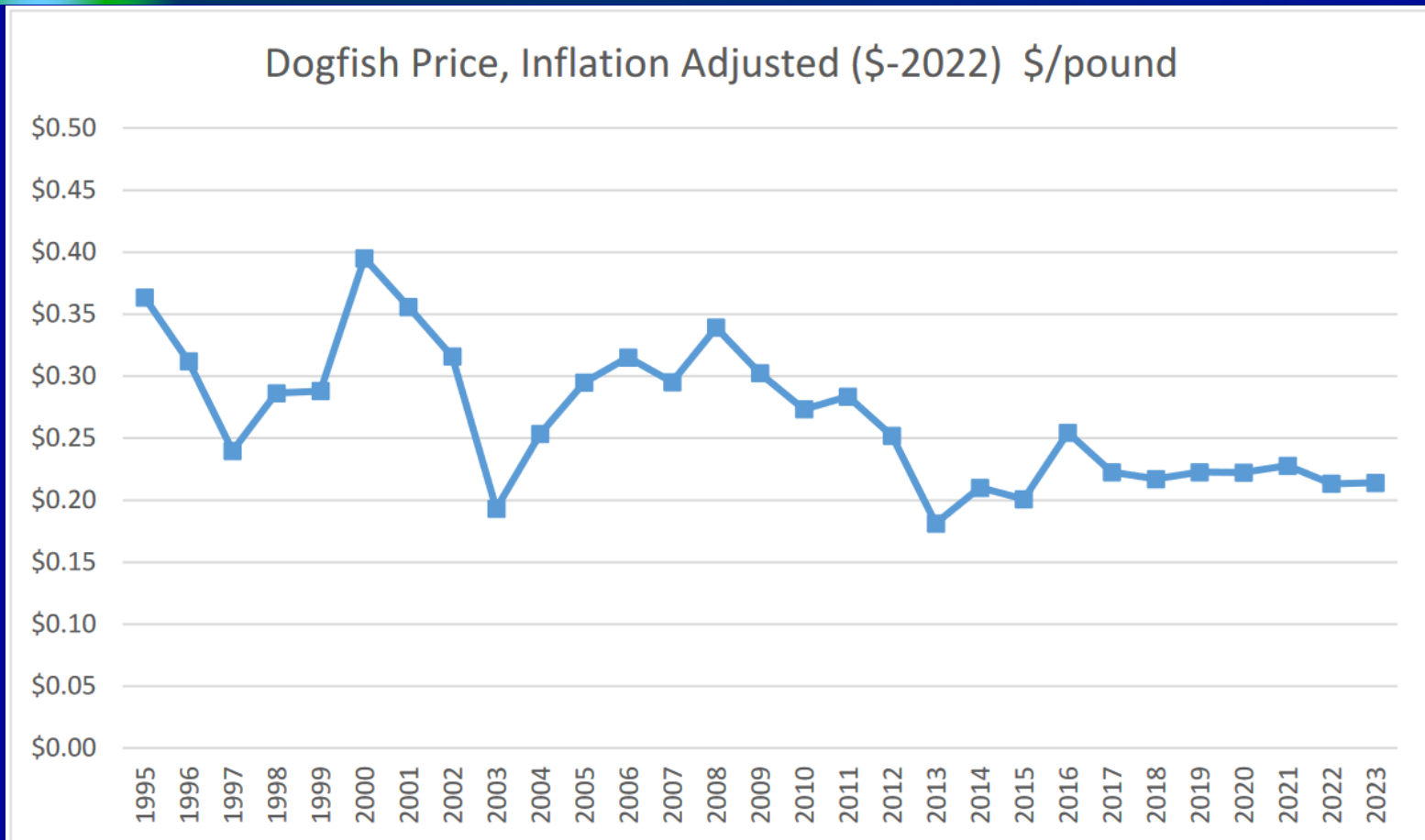
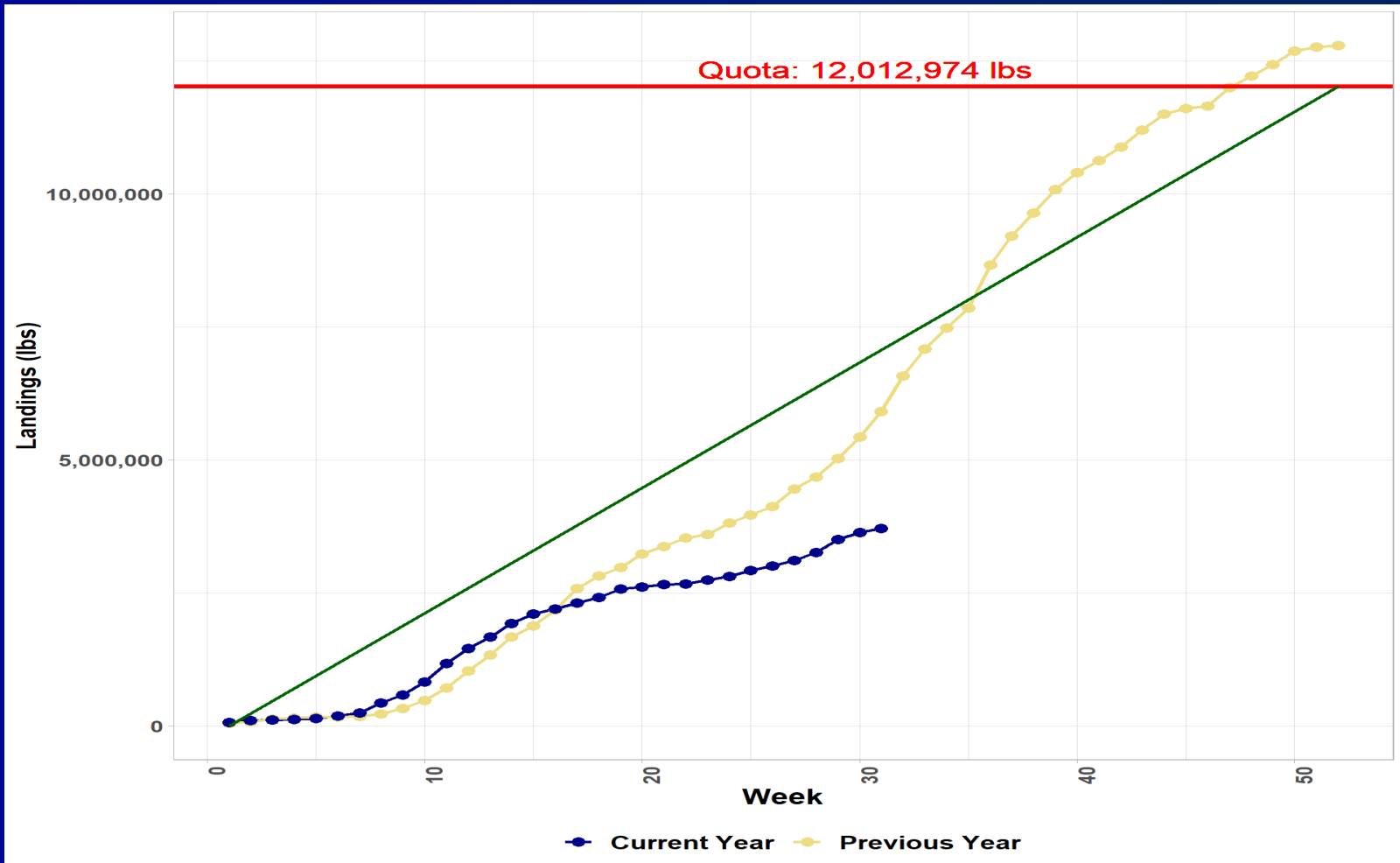


Figure 2. 1995-2023 fishing years' average prices of spiny dogfish in 2022 dollars per live pound (adjusted to "2022 dollars" using the GDP deflator). 2023 data is through early September only. Source: NMFS unpublished dealer data. ²

Fishery Performance: 2023/2022



Fishery Performance

Table 2. Commercial Spiny Dogfish landings (live weight – millions of pounds) by state for 2020-2022 fishing years. Source: NMFS unpublished dealer data. ³

Year	MA	VA	NJ	Other (ME, NH, RI, CT, NY, MD, NC)	Total
2020	6.6	3.3	2.0	1.4	13.3
2021	3.8	4.0	1.6	1.2	10.6
2022	3.8	6.0	1.7	1.1	12.6

Table 3. Commercial Spiny Dogfish landings (live weight – millions of pounds) by months for 2020-2022 fishing years. Source: NMFS unpublished dealer data. ²

Year	May-Aug	Sept-Dec	Jan-April	Total
2020	4.9	5.5	2.8	13.3
2021	2.9	4.6	3.1	10.6
2022	2.7	5.0	4.9	12.6

Fishery Performance

Table 5. Participation in fishing years 2000-2022 by federally-permitted vessels. State-only vessels are not included. Source: NMFS unpublished dealer data. ²

YEAR	Vessels 200,000+	Vessels 100,000 - 199,999	Vessels 50,000 - 99,999	Vessels 10,000 - 49,999	Total with at least 10,000 pounds landings
2005	0	0	1	67	68
2006	0	4	11	114	129
2007	1	2	21	72	96
2008	0	5	20	119	144
2009	0	11	42	166	219
2010	0	26	54	124	204
2011	1	48	73	135	257
2012	25	55	56	146	282
2013	10	27	45	87	169
2014	27	38	38	81	184
2015	31	33	36	59	159
2016	52	26	14	45	137
2017	28	27	24	32	111
2018	28	26	20	35	109
2019	29	25	21	29	104
2020	23	27	15	22	87
2021	15	27	11	26	79
2022	28	9	14	29	80

Fishery Performance Report

- Many factors affect participation/landings
- Don't see overall abundance trends – just variability
- The survey doesn't match biomass they see
- “We are at a threshold where interest, and fishermen, will evaporate.”
- The artificially-low quota (flawed assessment and previous SSC decisions) broke the supply chain from the south/VA

Fishery Performance Report

- Management decisions are destroying this fishery with rollercoaster-style management and resulting shoreside gentrification
- Bigelow performance issues are doing a disservice to all the fisheries and fishermen
- Research priorities

ABC/SSC

- SSC: Take assessment and Council's risk policy, consider how uncertain assessment is, calculate ABC...
- Assessment passed peer review
- Council's risk policy for stock just above target = 54% chance of not overfishing
- SSC: Assessment is moderately uncertain
 - More uncertainty = less catch

ABC/SSC

- Risk policy calculation for 54% chance of not overfishing for a moderately uncertain assessment means...
- Cut back about 8%-9% from catch that is estimated to equal overfishing (about 663 MT less in this case)
- ABCs: 7,135 MT for 2024, 7,312 MT for 2025, and 7,473 MT for 2026

SSC Recommendation

Spiny Dogfish: Assessment Update

- **Research Track and Management Track Assessment changes included**
 - Analytical stock assessment in Stock Synthesis 3
 - Use of catch data back to 1924 to derive better estimate of unfished stock condition
 - **Slower growth rates and earlier maturation imply reduced maximum size for female spiny dogfish and lower overall productivity**
 - Selectivity patterns have changed over time.
 - Greater fraction of stock in Canada in summer and fall
 - Change in MSY definition to 60% of maximum spawning potential
 - Fmsy=0.0246. Stock Recruitment function is estimated
 - **Stock is not overfished and overfishing is not occurring**

SSC Recommendation

Spiny Dogfish: Uncertainty Level

- SSC used 100% Coefficient of Variation for Overfishing Limit
- Why?
 - See Attachment 5 in SSC report (*TAB 13*) for detailed evaluation of 9 factors, decision criteria and assigned Coefficient of Variation for Overfishing Limit.
 - Estimates of discards, particularly historically are highly uncertain, especially prior to 1990s.
 - Retrospective patterns are minor
 - No ecosystem factors incorporated in assessment

SSC Recommendation

Spiny Dogfish: ABC Recommendation

Year	OFL(mt)	P*	ABC (mt)
2024	7,818	0.456	7,135
2025	7,970	0.459	7,312
2026	8,112	0.460	7,473

- Based on lognormal distribution of Overfishing Limit with a CV = 100%

SSC Recommendation

Spiny Dogfish: Sources of Uncertainty

- Environmental effects on availability
- Size and sex-selectivity of fishery affected by markets
- Uncertainty of discard survival rates
- Stock recruitment relationship
- Dependency on NEFSC Spring Bottom Trawl Survey
- Reliance on model weighting factors for stock status determination
- Use of early landings and discards (1924-1961)

SSC Recommendation

Spiny Dogfish: Research Recommendations

- Improve age and growth data—collaboration with DFO and ICES
- Distribution of spiny dogfish outside survey footprint
- Continue participation in tagging programs
- Improve port sampling
- Explore model sensitivity to starting conditions
- Environmental effects on life history
- Analyze diets of dogfish predators

Agenda

- Monitoring Committee Summary

Monitoring Committee

- Council staff (2), federal (2) , state (4), and 2 non-voting ex-officio industry representatives
- Make recommendations to ensure ACLs not exceeded

Monitoring Committee

- Tradeoff between:
- maximizing the limited available quota for 2024-2026 versus...
- avoiding ACL overages and paybacks that could be disruptive to future fishing years.

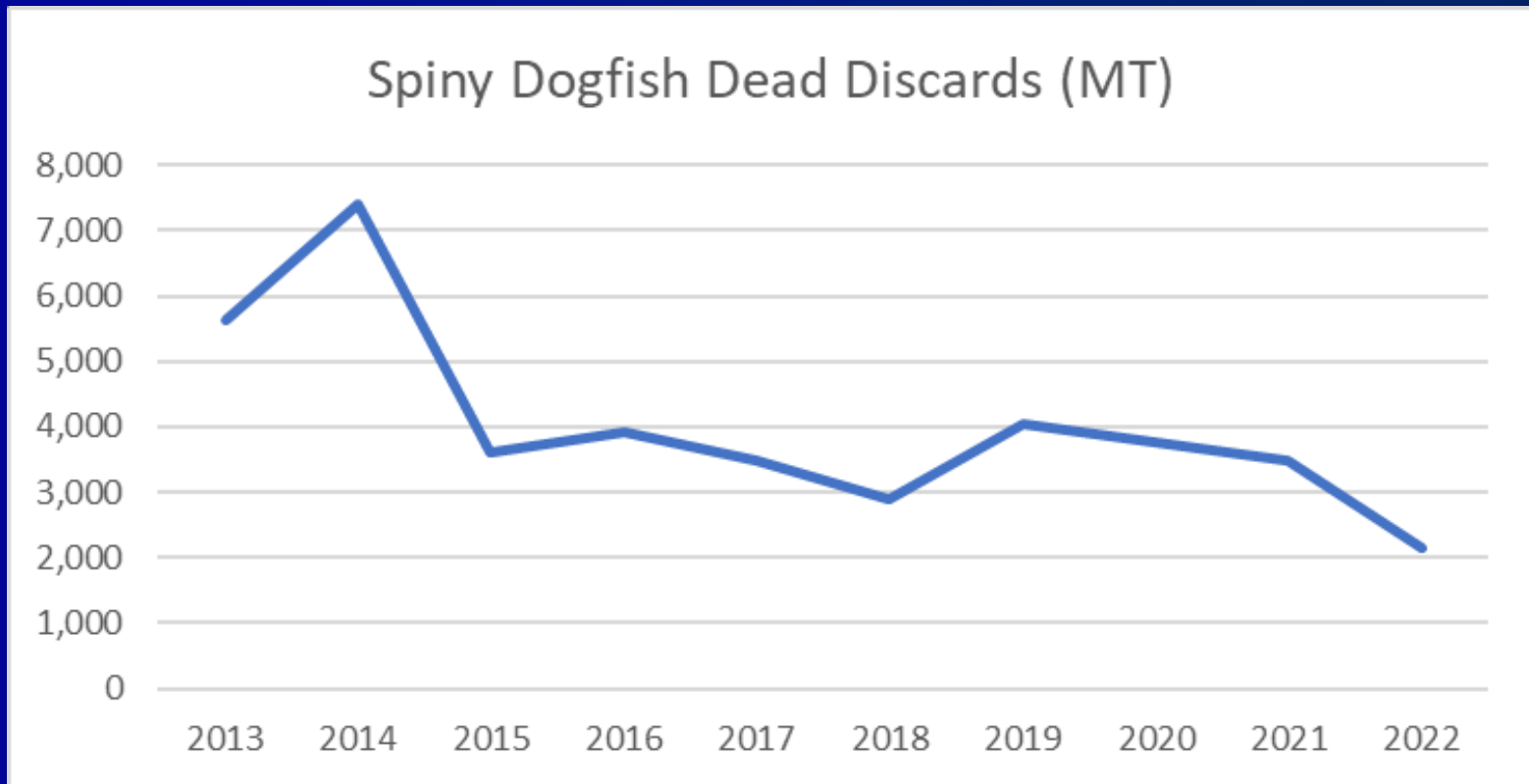
Monitoring Committee

- Can't ensure no risk of a big discard estimate causing big Annual Catch Limit (ACL) overage
- ACL overages = pound for pound future paybacks
- So...good faith effort to avoid substantial overages in typical years

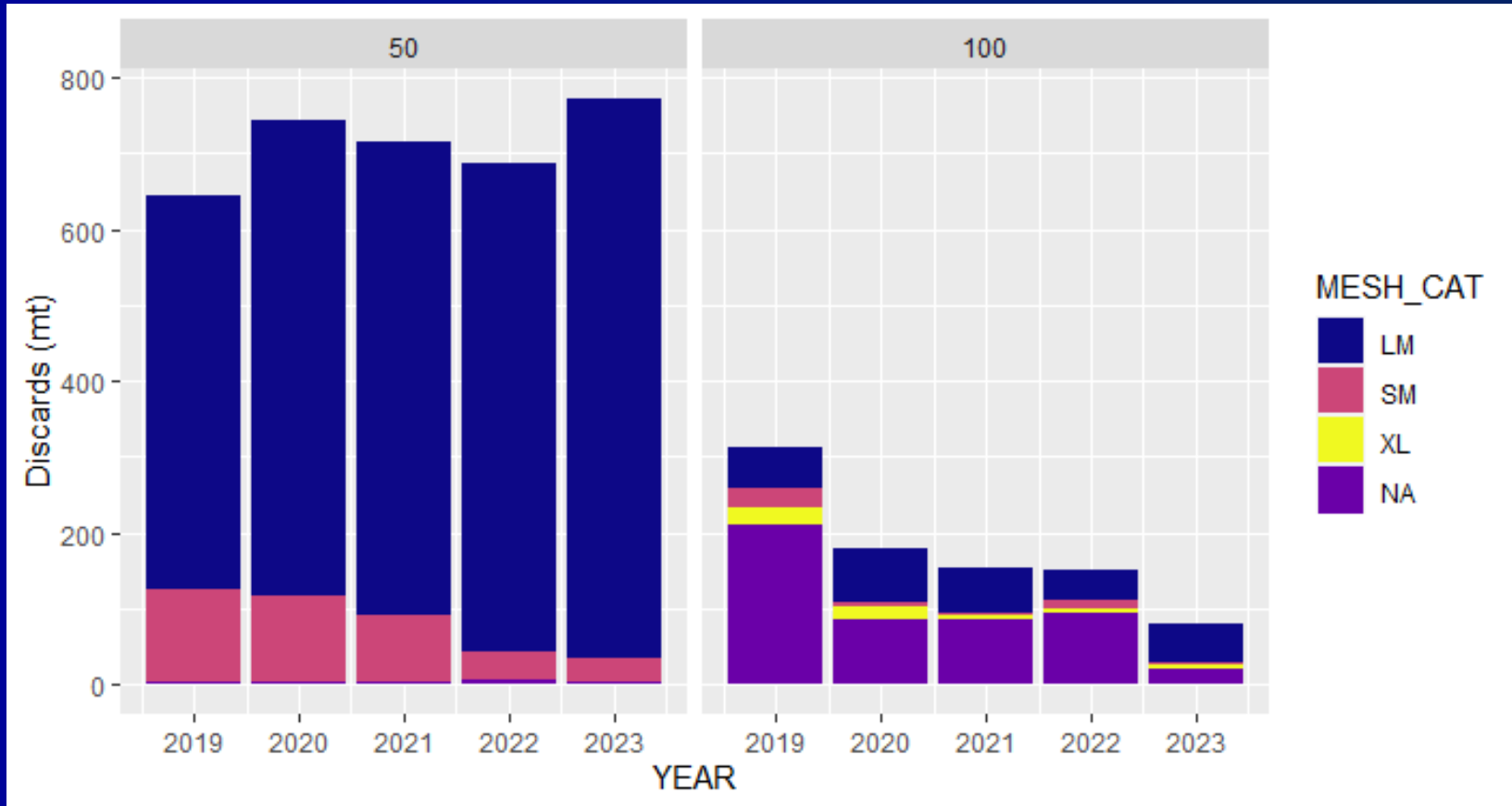
Monitoring Committee

- Canadian and recreational landings deductions relatively simple – small amounts
- Discards and management uncertainty buffer more complicated...

Recent Discards

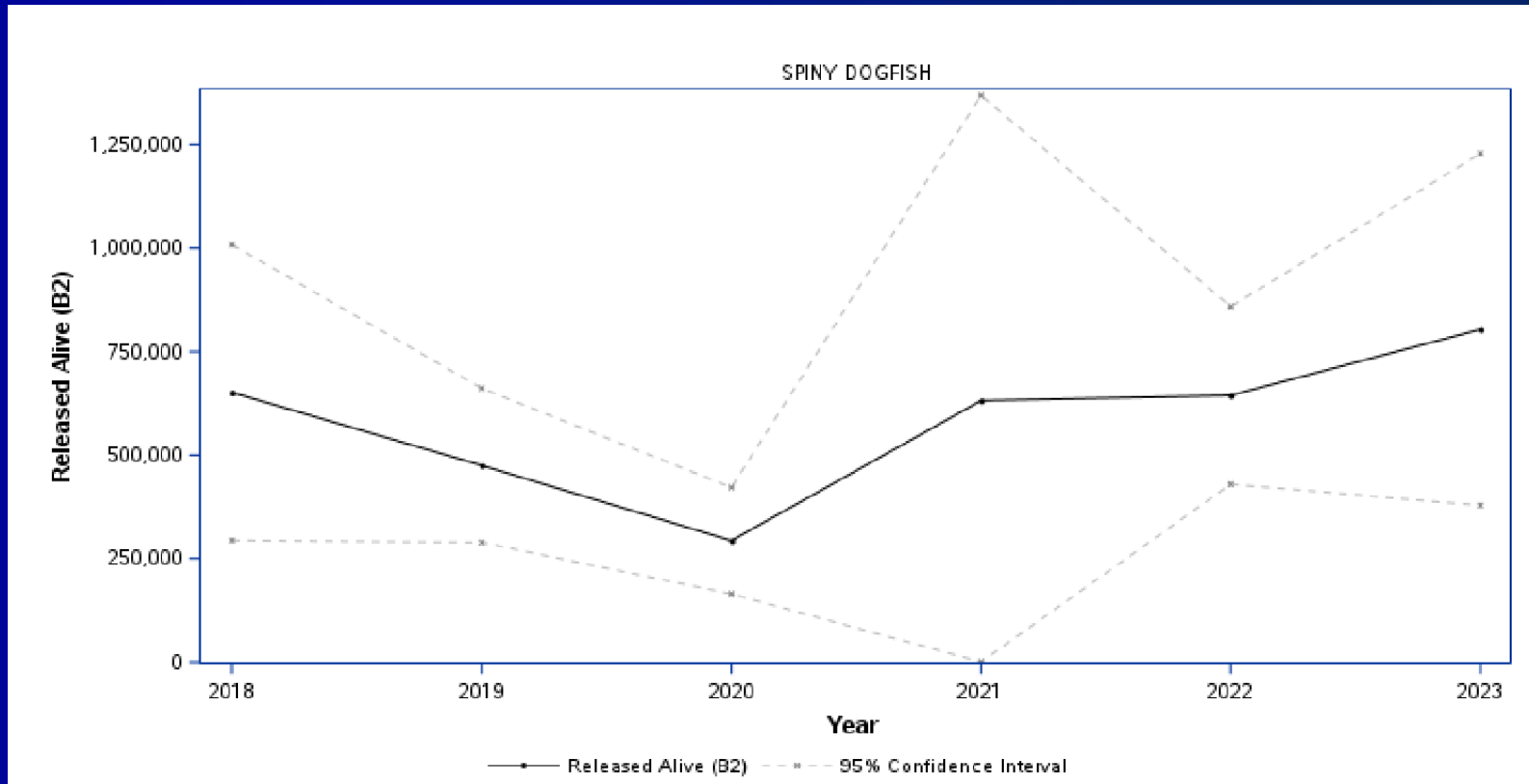


Early 2023 Discards - COM



CAMS Discards Jan-June only each year

Early 2023 Discards - REC



MRIP Discards Jan-Aug only each year

Monitoring Committee

- Industry members: 2022 discard estimate and no management uncertainty buffer justifiable:
 - 2022 discards most recent in a downward trend
 - 2022 close and a bit above what we set for 2023
 - State/regional landings allocations and VA disruptions create an implicit buffer
 - ABC increasing
 - Critical negative impact from sequestering any quota
 - Options suggested by rest of Monitoring Committee not reasonable

Monitoring Committee

- Others: 2022 discard estimate and no management uncertainty buffer risky:
 - Assessment suggests increasing biomass which should increase discards
 - 2022 small mesh trawl estimate very very low
 - Discards occur in other fisheries whose behavior may be variable
 - Higher buffers provide less quota now but lower chances of overages/paybacks
 - Lower buffers result in more quota now but greater chances of overages/paybacks.

Monitoring Committee

■ Others:

- 3-year average, 3,128 MT, captures recent discard variability - a management uncertainty buffer would probably **not** be needed to avoid substantial overages
- Low quota even without any additional buffer

Monitoring Committee

■ Others:

- Assessment model generates expected discards in an objective manner despite uncertainty
- 2,382 MT for 2024; 2,441 MT for 2025; and 2,494 MT for 2026
- Committee may want to consider at least a small management uncertainty buffer given there is a 50% chance that realized discards will be higher (or lower) than those projected

Monitoring Committee

- Depending on discard set-aside, 2024 quota ends up between 8.5-10.7 million pounds
 - Tables in summary
- Lower yet if management uncertainty buffer used

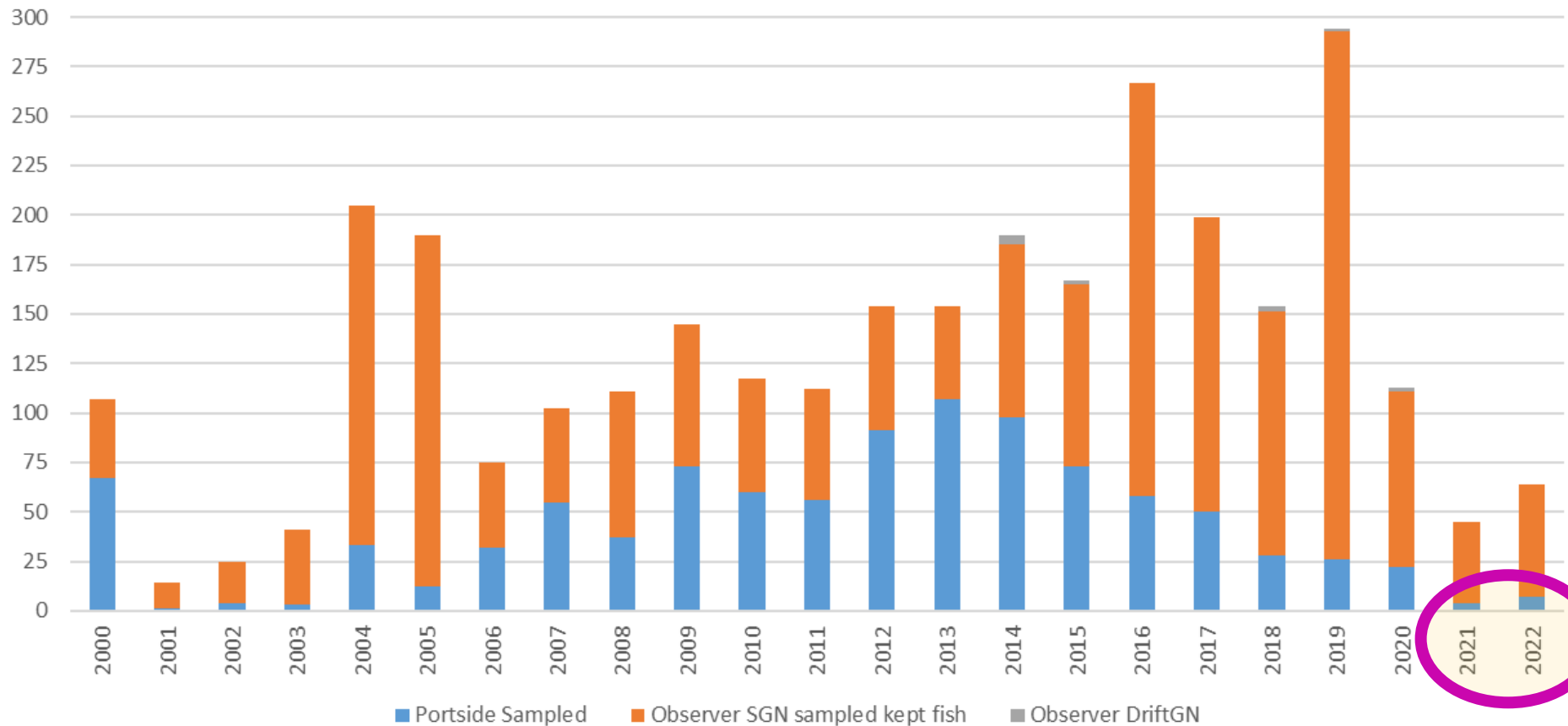
Monitoring Committee

■ Public Comment:

- Too much uncertainty to decimate this industry
- Zero percent buffer is almost a necessity to get enough quota to keep processing beyond 2024
- Landings sampling issue
- East Coast Letter Posted

Monitoring Committee

Annual #s and Types of Trips Used to Characterize Gillnet Landings Length Composition



Committee Summary

- Move to recommend that the Councils adopt 2024-2026 dogfish specifications that include the following deductions from the SSC-specified ABCs:
 - the most recent estimate of Canadian landings (36 MT²);
 - no buffer for management uncertainty (0 MT);
 - the model-predicted year-specific discards (2,382 MT for 2024; 2,441 MT for 2025; and 2,494 MT for 2026);
 - and the most recent 3-year average recreational landings (112 MT).
 - This results in commercial quotas of 4,605 MT (10.15 mil. pounds) for 2024; 4,723 MT (10.41 mil. pounds) for 2025; and 4,831 MT (10.65 mil. pounds) for 2026. (Reflected in Table 3 of Monitoring Committee summary.)

?s, Discussion, Motions

- Specifications
- Staff supports Committee recommendations (modeled discards)

Statistical assessment models

- Core equations refined over last 100+ years to describe the biology of a species (like reproduction and growth/death) and fishing effects over time
- Link those equations to real data, then estimate population size, fishing mortality, and biomass/catch targets
- Reconstruct the number of individuals (population size) and how quickly they died (mortality) by trying to match the model's predictions to the data (like scientific surveys and fishery catches)

Statistical assessment models

- Scientific peer review evaluates if model is reliable enough to use for management
 - does the model fit the data reasonably well?
 - are the estimates relatively stable?
 - Modify assumptions
 - Add/delete years
- Assessment has passed 3 reviews: Research Track (2022), Management Track (2023); full peer reviews
 - SSC (2023)

Spiny dogfish assessment overview

- Most of the data telling a similar story...

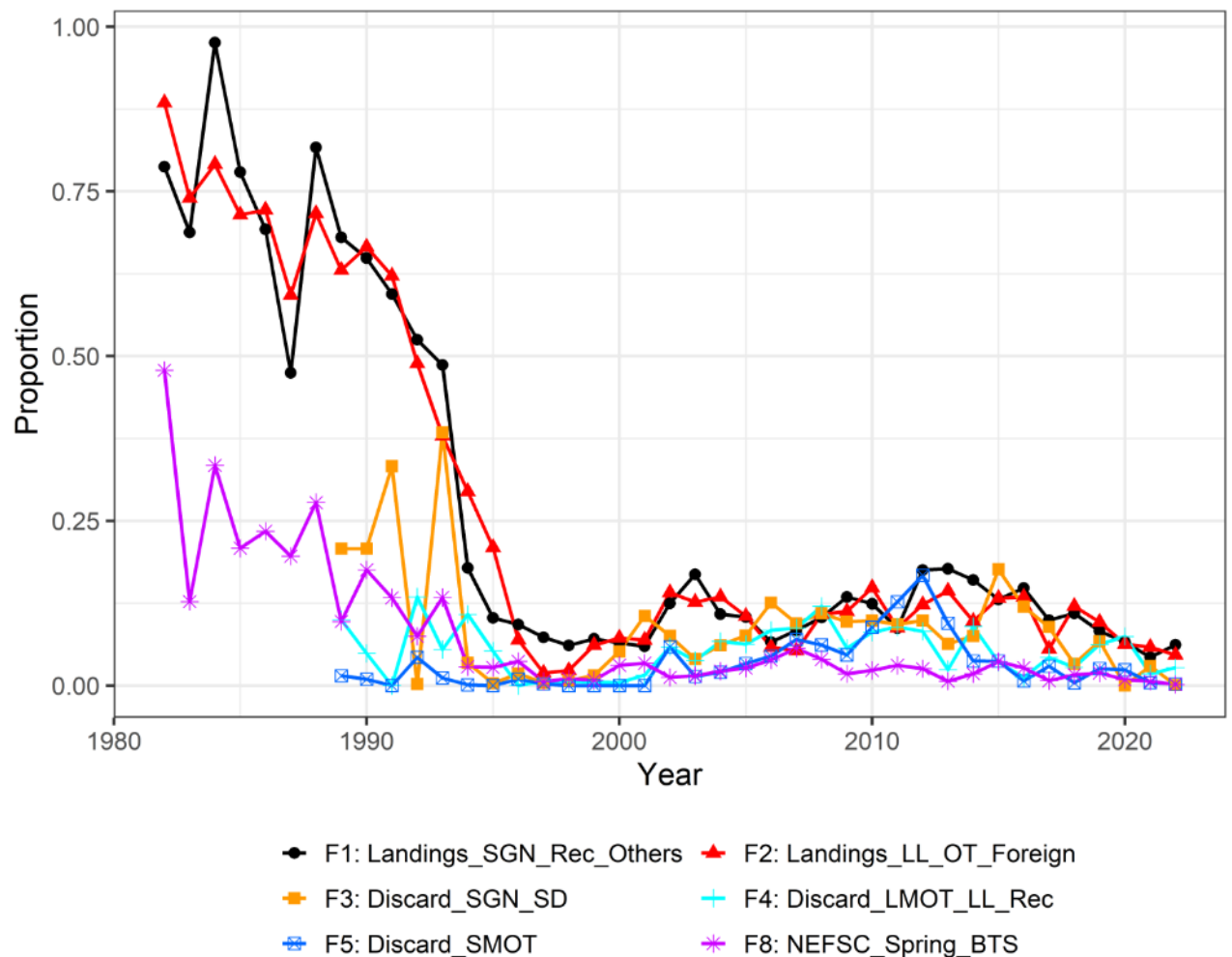


Figure 3: Proportions of 90+ cm females by fleet from 1982 to 2022.