2027-2031 OFLs and ABCs for Four Groundfish Stocks

GROUNDFISH PDT

SCIENTIFIC AND STATISTICAL COMMITTEE
OCTOBER 27, 2026
BOSTON, MA AND WEBINAR



New England Fishery Management Council

FOUR STOCKS

1. Gulf of Maine Haddock
2. American Plaice
3. Pollock
4. Atlantic Halibut

TERMS OF REFERENCE

A. Consider the results of the Northeast Fisheries Science Center's (NEFSC) 2026 management track assessments for Gulf of Maine haddock and American plaice, the 2026 data update for pollock, and information provided by the Council's Groundfish PDT.

C. Recommend overfishing limits (OFL) and acceptable biological catches (ABC) for these four stocks for fishing years (FY) 2027 – 2031 that will prevent overfishing, be consistent with the Council's groundfish ABC control rule and rebuilding plans, and consider the Council's Risk Policy.

COUNCIL'S GROUNDFISH ABC CONTROL RULE

These ABC control rules will be used in the absence of better information that may allow a more explicit determination of scientific uncertainty for a stock or stocks. If such information is available - that is, if scientific uncertainty can be characterized in a more accurate fashion -- it can be used by the SSC to determine ABCs, these ABC control rules can be modified in a future Council action (an amendment, framework, or specification package):

A. ABC should be determined as the catch associated with 75% of F_{MSY}.

B. If fishing at 75% of F_{MSY} does not achieve the mandated rebuilding requirements for overfished stocks, ABC should be determined as the catch associated with the fishing mortality that meets rebuilding requirements (Frebuild).

C. For stocks that cannot rebuild to B_{MSY} in the specified rebuilding period, even with no fishing, the ABC should be based on incidental bycatch, including a reduction in bycatch rate (i.e., the proportion of the stock caught as bycatch).

D. Interim ABCs should be determined for stocks with unknown status according to case-by- case recommendations from the SSC.

FRAMEWORK 74 – 2027-2031 SPECIFICATIONS ACTION

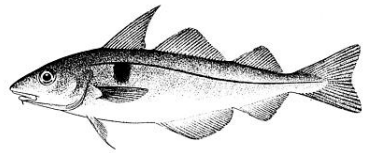
- Management track assessments for GOM haddock and American plaice
  - Peer Review in September 2026
  - Last assessment for each was 2024.
- Data update for pollock (with projections) in 2026
  - Last assessment was 2024.
- Data update for Atlantic halibut in 2026
  - Last assessment was 2024.
  - PDT prepared additional information to consider for setting catch advice.
- Final Council action in December 2026.
- Implementation target is May 1, 2027.

POSSIBLE OFL AND ABC OPTIONS – GOM HADDOCK, AMERICAN PLAICE & POLLOCK

- Two possible OFL and ABC options were developed for each stock.
  - **A.** Following the ABC Control Rule for all 5 years.
  - **B.** Projection uncertainty option

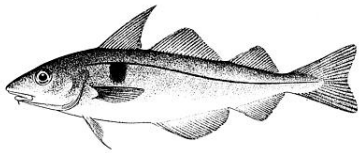
- The PDT discussed projection uncertainty and concerns with reliance of assumed recruits (aka “paper fish) in the outyears for projections.
- For each stock, the PDT provides a second option that addresses projection uncertainty.
- The exact details differ by stock and are described for each.

GULF OF MAINE HADDOCK



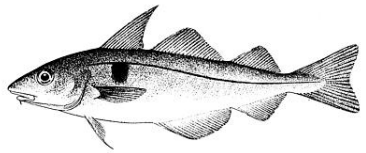
MODEL	WHAM
STOCK STATUS	Not Overfished, Overfishing is not occurring
REBUILDING	Rebuilt - Biomass = 145% of SSB_{target}
UNCERTAINTIES	Future recruitment - below-average recruitment since 2021. The fishery is heavily reliant on the 2020 and 2021 cohorts. Somatic growth in both cohorts has slowed recently. Without improved recruitment the population will continue to decline. Retrospective forecasting analysis indicates projections tend to be optimistic.
CHANGES	None other than adding new years of data.

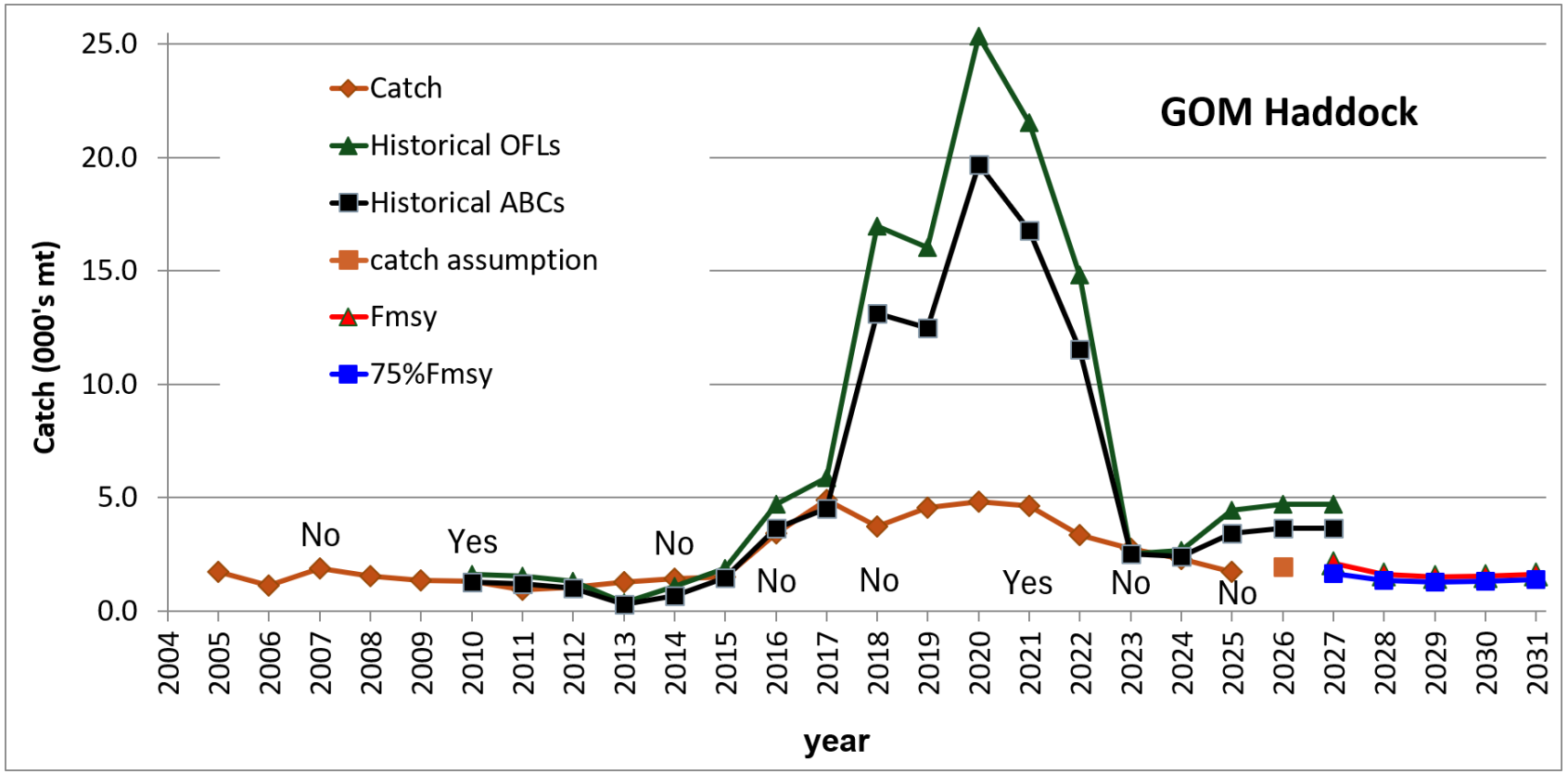
CATCH PERFORMANCE



Year	Catch	Historical OFLs	Historical ABCs	Catch Assumption	F_{MSY}	$75\%F_{MSY}$
2010	1,295	1,617	1,265			
2011	926	1,536	1,206			
2012	1,060	1,296	1,013			
2013	1,277	371	290			
2014	1,410	1,085	677			
2015	1,512	1,871	1,454			
2016	3,406	4,717	3,630			
2017	4,894	5,873	4,534			
2018	3,710	16,954	13,131			
2019	4,542	16,038	12,490			
2020	4,810	25,334	19,696			
2021	4,618	21,521	16,794			
2022	3,353	14,834	11,526			
2023	2,734	2,515	2,515			
2024	2,288	2,651	2,406			
2025	1,741	4,430	3,410			
2026		4,709	3,634	1,944		
2027		4,700	3,631		2,099	1,634
2028					1,618	1,342
2029					1,481	1,268
2030					1,524	1,321
2031					1,599	1,393

CATCH PERFORMANCE

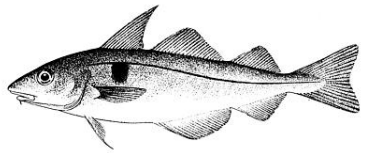




Overfishing status in the terminal year of the assessment indicated on the x-axis ("Yes" = overfishing; "No" = not overfishing).

ABC Distribution:

GOM Haddock



OFL

ABC

State water fisheries

"Other" fisheries

Recreational Sub-ABC

Midwater Trawl Sub-ABC

Sector* & Common Pool Sub-ABC

- 7% buffer

- 7% buffer

- 5% buffer

Sub-ACL

Sub-ACL

Sub-ACL

Subcomponents

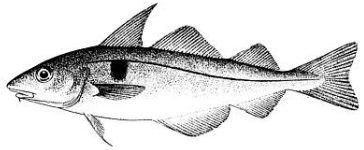
- Expected catches
- No AMs
- No adjustment for management uncertainty

Sub-ACLs

- Subject to AMs
- Management uncertainty adjustment

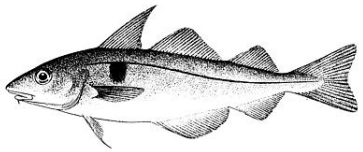
*Sector buffer set to 0 if ASM target coverage 100%

COMMERCIAL GROUNDFISH FISHERY CATCH & UTILIZATION



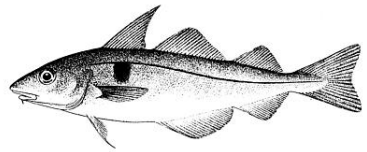
	Commercial Groundfish Fishery – GOM Haddock		
	Sub-ACL (mt)	**Total Catch (mt)**	**Utilization**
FY2023	1,569.0	1,325.4	84.5%
FY2024	1,509.0	1,205.9	79.9%
FY2025 (preliminary)	2,172.0	1,511.8	69.6%

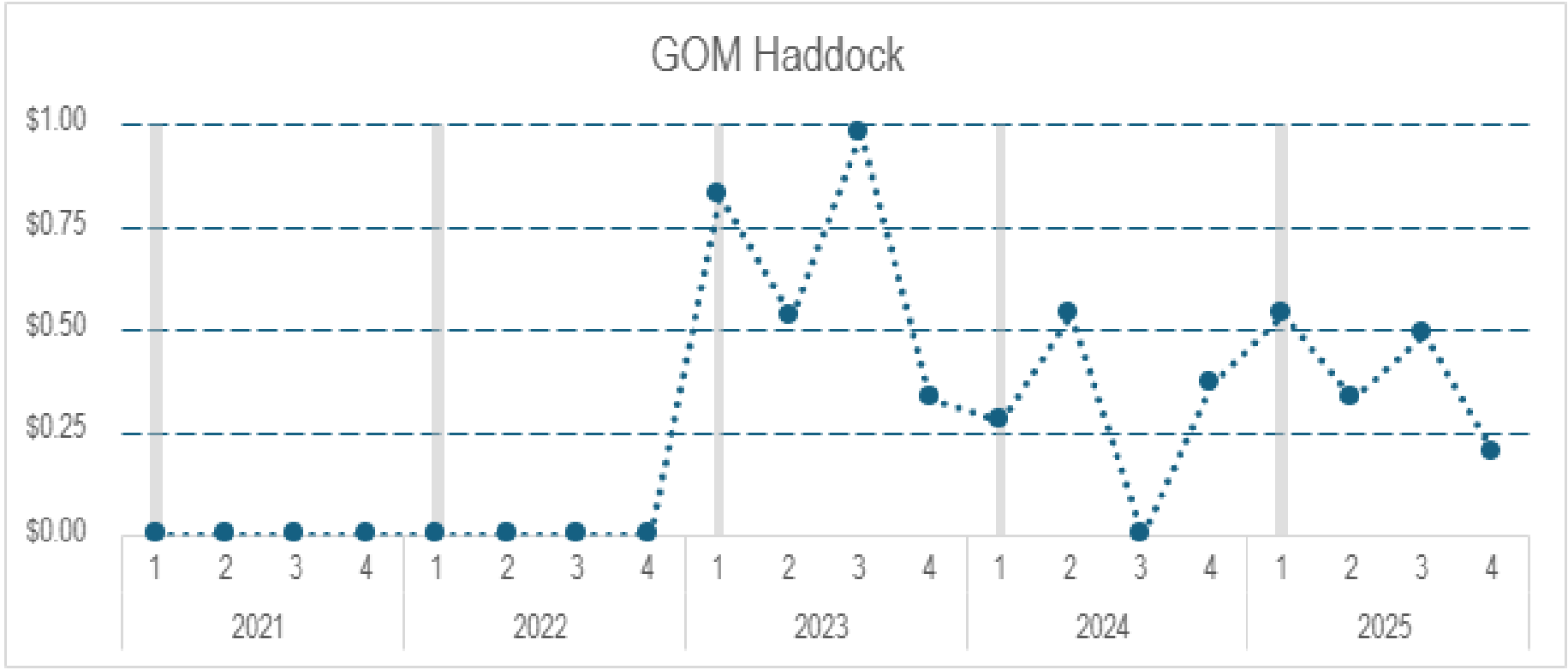
QUOTA CHANGE MODEL RESULTS - SECTORS



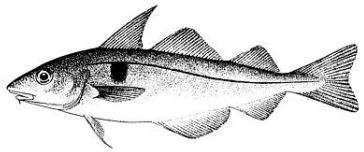
	FY	Sector sub-ACL	Catch (mt)		*Utilization (%)*		Gross Rev ($mil, 2025)	
			Realized	Predicted	*Realized*	*Predicted*	Realized	Predicted
GOM Haddock	2012	648	208	308	*0.32*	*0.39*	1.5	0.8
	2013	251	148	224	*0.59*	*0.89*	0.8	1.4
	2014	218	293	167	*1.34*	*0.76*	1.5	1.1
	2015	948	681	124	*0.72*	*0.13*	2.5	0.5
	2016	2,385	1,500	365	*0.63*	*0.15*	5.8	1.3
	2017	2,985	2,161	1,383	*0.72*	*0.46*	6.6	4.8
	2018	8,643	2,791	1,995	*0.32*	*0.23*	7.9	7.2
	2019	8,219	3,452	2,964	*0.42*	*0.36*	10.2	8.4
	2020	11,918	3,992	2,734	*0.33*	*0.23*	11.9	7.5
	2021	10,223	3,447	3,312	*0.34*	*0.33*	13.0	9.0
	2022	6,915	2,831	4,420	*0.41*	*0.64*	9.5	13.1
	2023*	1,537	1,323	1,183	*0.86*	*1.00*	3.7	4.6
	2024	1,478	1,214	1,472	*0.82*	*1.00*	4.2	3.2
	2025	2,125	1,510	1,263	*0.71*	*0.59*	6.3	3.5

INTER-SECTOR ACE LEASE PRICES - SECTORS





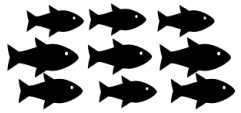
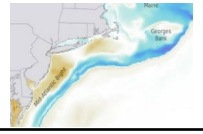
RECREATIONAL FISHERY CATCH AND UTILIZATION



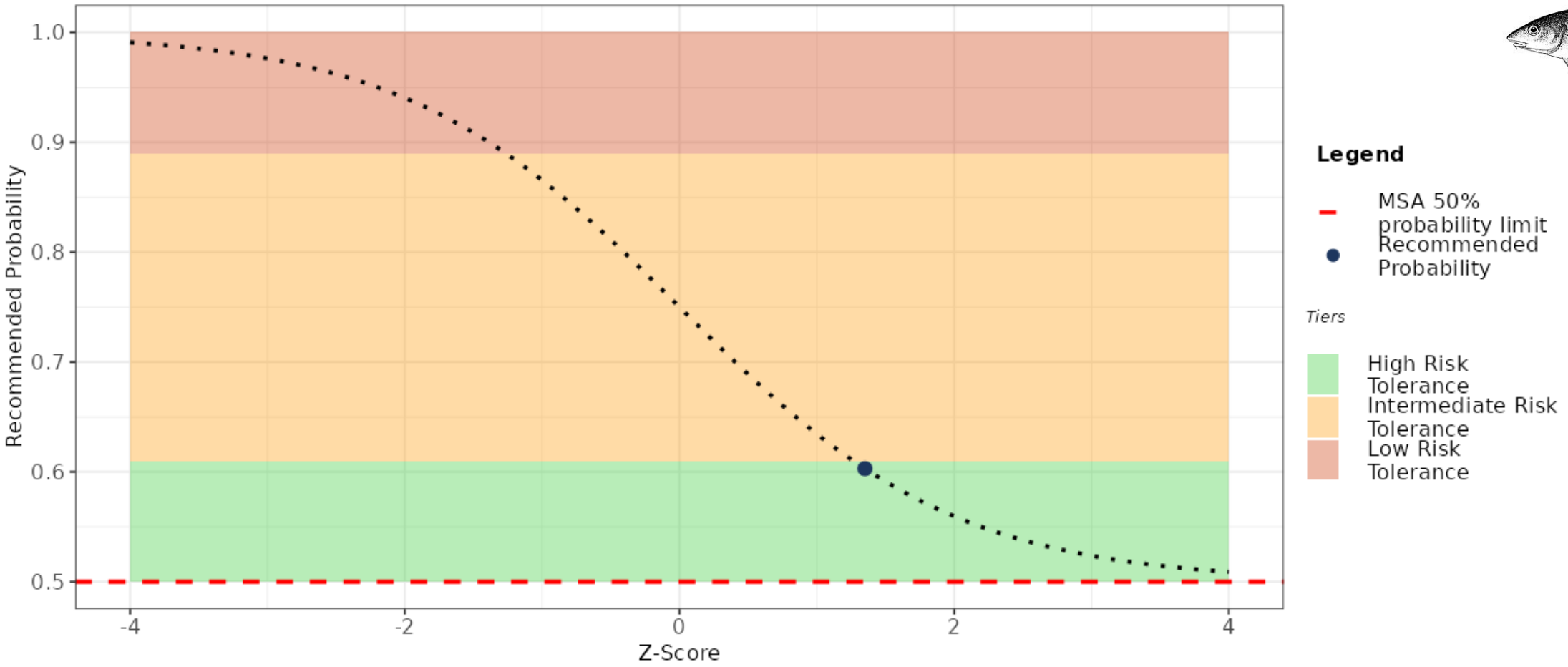
	Recreational Groundfish Fishery – GOM Haddock					
Fishing Year	**Total ACL (mt)**	**Total Catch (mt)**	**Percent Total ACL Caught**	**Recreational sub-ACL (mt)**	**Recreational Catch (mt)**	**Percent Recreational ACL Caught**
2022	10,873	3,354.4	30.9%	3,634	477.2	13.1%
2023	2,452	1,801.9	73.5%	793	474.3	59.8%
2024	2,346	2,346.9	100.0%	759	1,135.4	149.6%

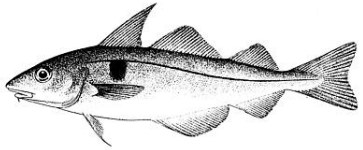
Presently allocated a fixed percentage sub-ACL of 33.9 percent of total ABC

GOM HADDOCK: RISK POLICY FACTORS, SCORING, AND WEIGHTING

Factor	Weight	Score	Scoring Details
 SSB / Stock Status	0.26	2	Terminal year SSB (2025; 11,339 mt) is 145% of the biomass target (2025 SSBmsy proxy =7,809 mt).
 Recruitment	0.22	0	From 2021-2025, 3 years are within 25th and 75th percentile of recruitment time-series (2 years >75th).
 Climate Vulnerability	0.16	-1	Low climate vulnerability with negative directional effect (Hare et al. 2016)
 Commercial Fishery Characterization	0.15	4	Stock-level revenue is 10% of total GF revenue in 4 of 5 years. Sub-ACL for recreational fishery & significant catch. MWT/herring fishery sub-ACL & minor catch. Utilization >80% in 1 of 3 years. AP input score '1', expect increased utilization.
  Recreational Fishery Characterization	0.21	1	Utilization >80% in 1 of 3 years. Average fleet diversity and angler trips (recreational effort) in last 5 years. PSEs below 30. AP input: no change expected; sub-factor score = 0.
			Total Z Score: +**1.35**

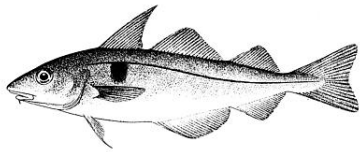
GOM HADDOCK: RISK POLICY OUTPUT





Z-SCORE = +1.35 → HIGH RISK TOLERANCE

POSSIBLE OFL AND ABC OPTIONS – GOM HADDOCK

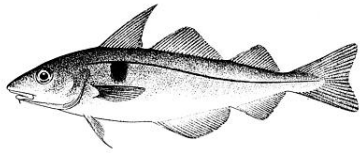


Two options:

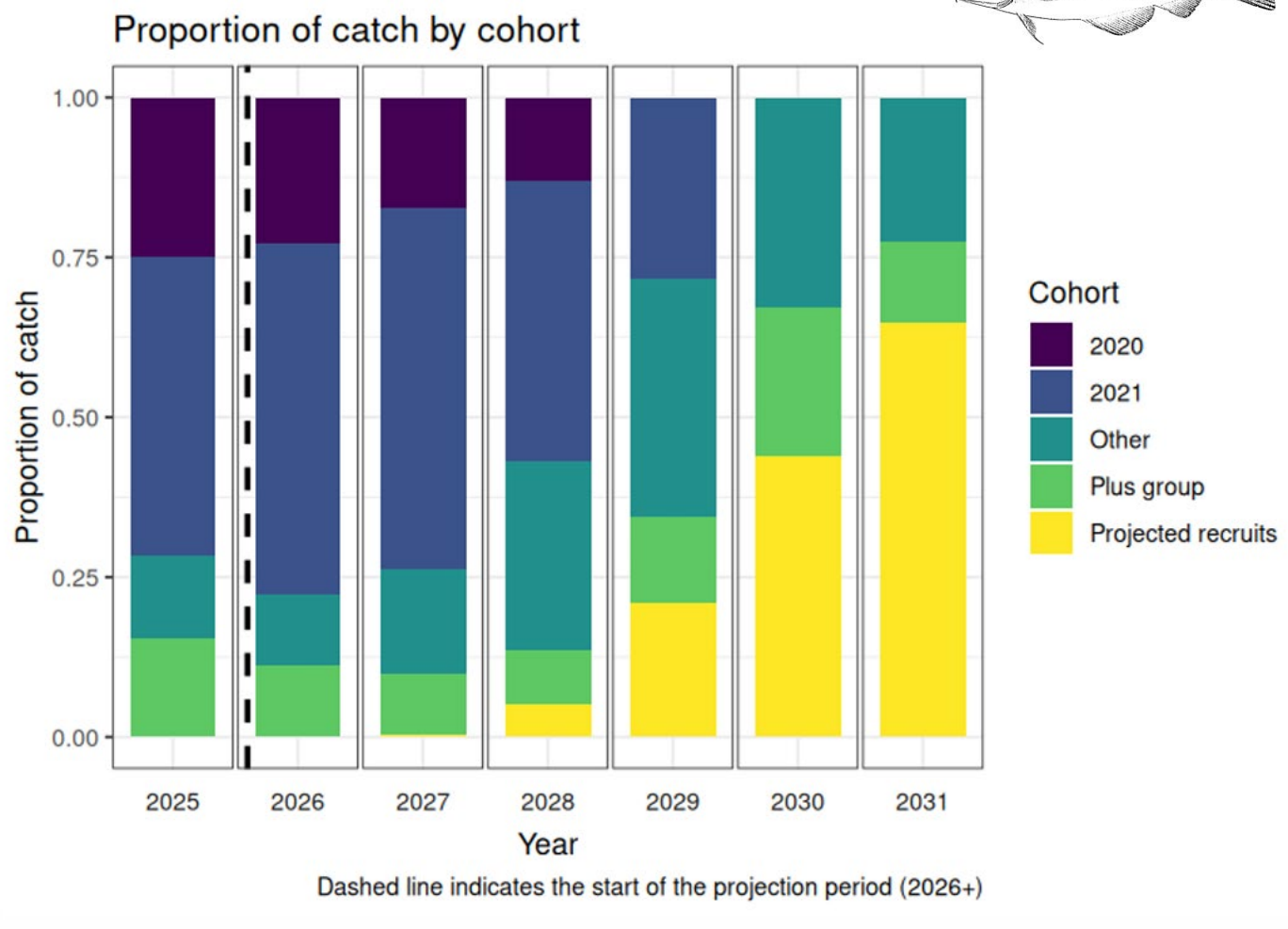
A. 75%F_{MSY} projections for OFLs and ABCs
   - Projections unreliable beyond 2 to 3 years.
   - Projections indicate SSB will decline below SSB_{MSY} in 2027.

B. Projection uncertainty option - hold 2029 ABC constant
   - Accounts for uncertainty around increasing projections in out years based on assumed recruitment.
   - Addresses Peer Review Panel concerns
   - PDT highlights the importance of assessment frequency and timing for a stock like haddock, which possesses episodic recruitment life history characteristics.

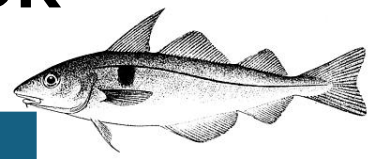
PROJECTION UNCERTAINTY



- By 2029, projections rely on greater than 25% of future year classes from assumed recruitment (aka “paper fish”)
- Peer Review Panel concerns: “*The use of projections to set management advice beyond four years (2026-29) should be avoided if possible….the Panel and the assessment lead noted particular uncertainty in the 2030-2031 projections, and the Panel recommended that a future update assessment be used to inform catch recommendations for those years.*”



POTENTIAL OFLS AND ABCS – GULF OF MAINE HADDOCK



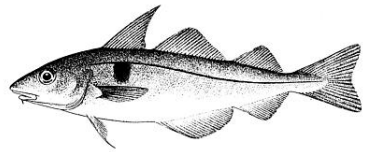
75%F_{MSY}

					Probability		
FY	OFL	ABC	F	SSB (mt)	Overfishing	Overfished	Rebuilt
2027	2,099	1,634	0.264	7,434	0.36	0.16	0.47
2028	1,730	1,342	0.264	6,710	0.38	0.25	0.43
2029	1,640	1,268	0.264	6,851	0.40	0.28	0.45
2030	1,711	1,321	0.264	7,287	0.41	0.30	0.48
2031	1,804	1,393	0.264	7,613	0.43	0.31	0.49

Projection Uncertainty Option - 2029 ABC constant 75%F_{MSY}

					Probability		
FY	OFL	ABC	F	SSB (mt)	Overfishing	Overfished	Rebuilt
2027	2,099	1,634	0.264	7,434	0.36	0.16	0.47
2028	1,730	1,342	0.264	6,710	0.38	0.25	0.43
2029	1,640	1,268	0.264	6,851	0.40	0.28	0.45
2030	1,711	1,268	0.252	7,301	0.40	0.30	0.48
2031	1,815	1,268	0.236	7,691	0.40	0.31	0.50

POTENTIAL OFLS AND ABCS – GULF OF MAINE HADDOCK



75%F_{MSY}

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Projection Uncertainty Option - 2029 ABC constant 75%F_{MSY}

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2027	2,099	1,634
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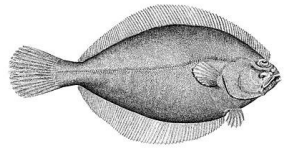
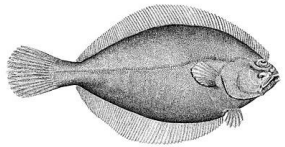
AMERICAN PLAICE



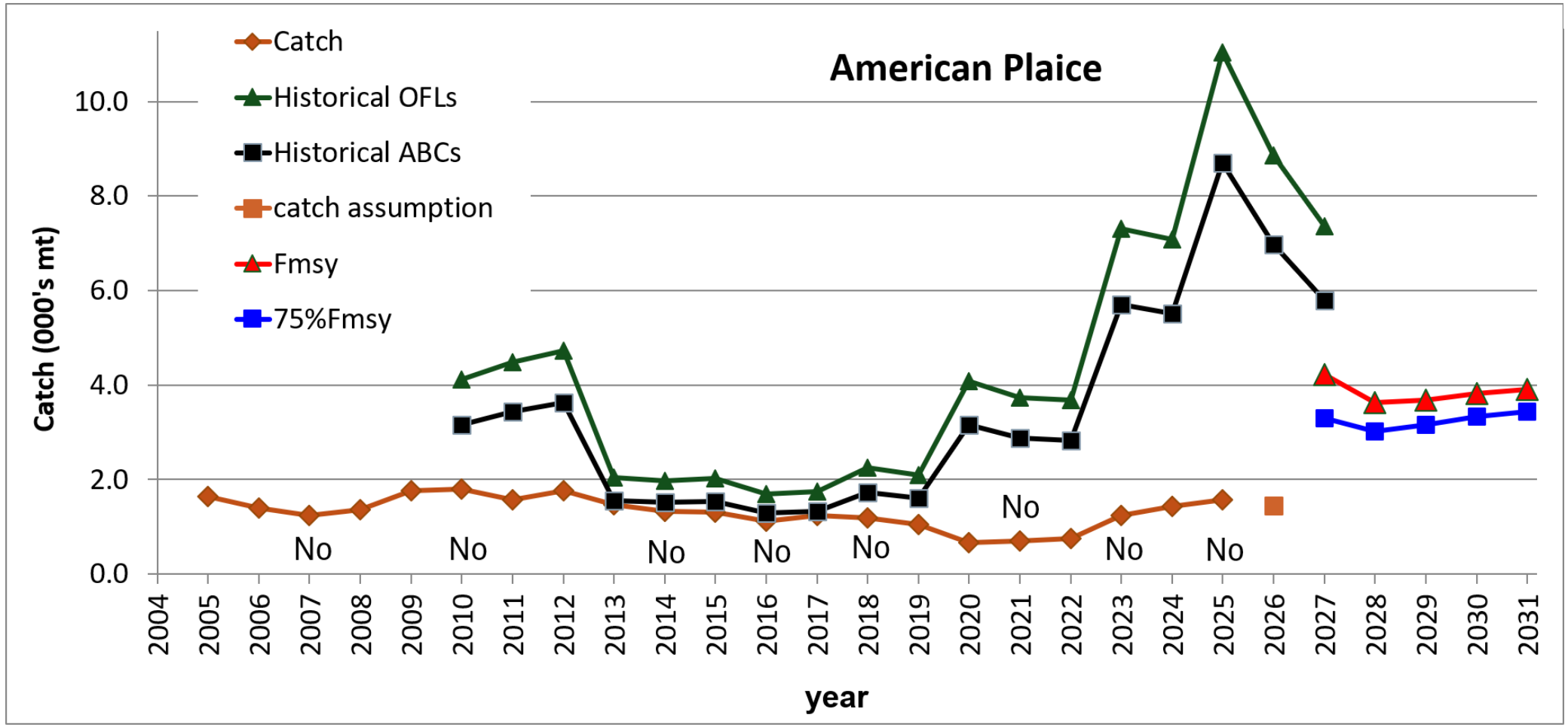
MODEL	WHAM
STOCK STATUS	Not Overfished, Overfishing is not occurring
REBUILDING	Rebuilt - Biomass = 135% of B_{target}
UNCERTAINTIES	Survey selectivity - ages with large confidence intervals may overestimate uncertainty. Recruitment – most recent 2 years' bottom temperatures optimal, but lowest recruitment.
CHANGES	In addition to updates, the lognormal adjustment was turned off in WHAM, and age composition data were incorporated from 2018 - 2025 to address high-priority research recommendations from the prior assessment.

CATCH PERFORMANCE



Year	Catch	Historical OFLs	Historical ABCs	Catch Assumption	F_{MSY}	$75\%F_{MSY}$
2010	1,795	4,110	3,156			
2011	1,569	4,483	3,444			
2012	1,765	4,727	3,632			
2013	1,465	2,035	1,557			
2014	1,331	1,981	1,515			
2015	1,317	2,021	1,544			
2016	1,117	1,695	1,297			
2017	1,235	1,748	1,336			
2018	1,196	2,260	1,732			
2019	1,048	2,099	1,609			
2020	671	4,084	3,155			
2021	702	3,740	2,881			
2022	756	3,687	2,825			
2023	1,242	7,316	5,699			
2024	1,436	7,091	5,520			
2025	1,564	11,048	8,697			
2026		8,866	6,979	1,442		
2027		7,368	5,791		4,219	3,298
2028					3,638	3,020
2029					3,691	3,152
2030					3,830	3,327
2031					3,916	3,441

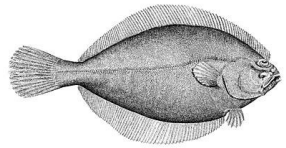
CATCH PERFORMANCE

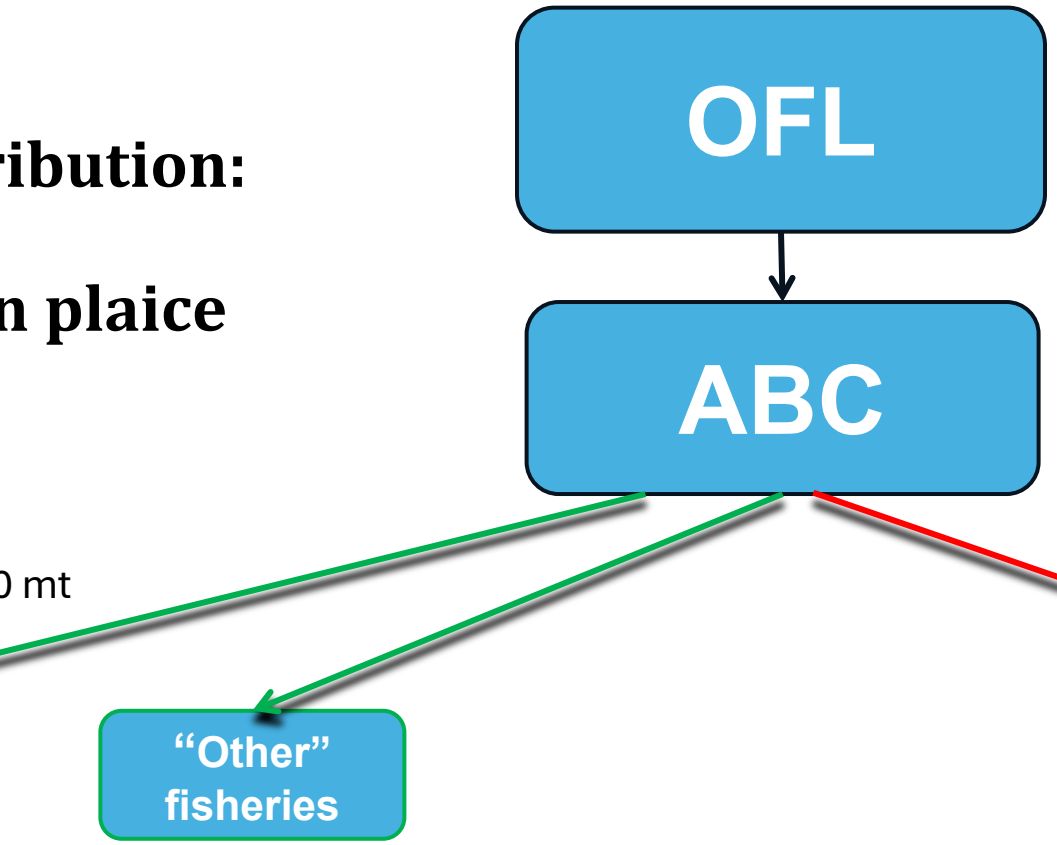


Overfishing status in the terminal year of the assessment indicated on the x-axis "No" = not overfishing).

ABC Distribution:

American plaice



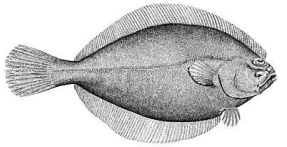


Subcomponents
- Expected catches
- No AMs
- No adjustment for management uncertainty

Sub-ACLs
- Subject to AMs
- Management uncertainty adjustment

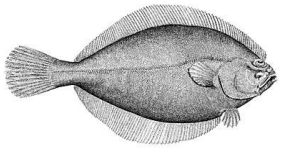
*Sector buffer set to 0 if ASM target coverage 100%

COMMERCIAL GROUNDFISH FISHERY CATCH & UTILIZATION



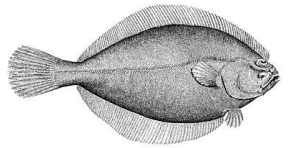
	Commercial Groundfish Fishery – American Plaice		
	Sub-ACL (mt)	**Total Catch (mt)**	**Utilization (%)**
FY2023	5,360.0	1,390.6	25.9%
FY2024	5,457.0	1,357.4	24.9%
FY2025 (preliminary)	8,637.6	1,441.8	16.7%

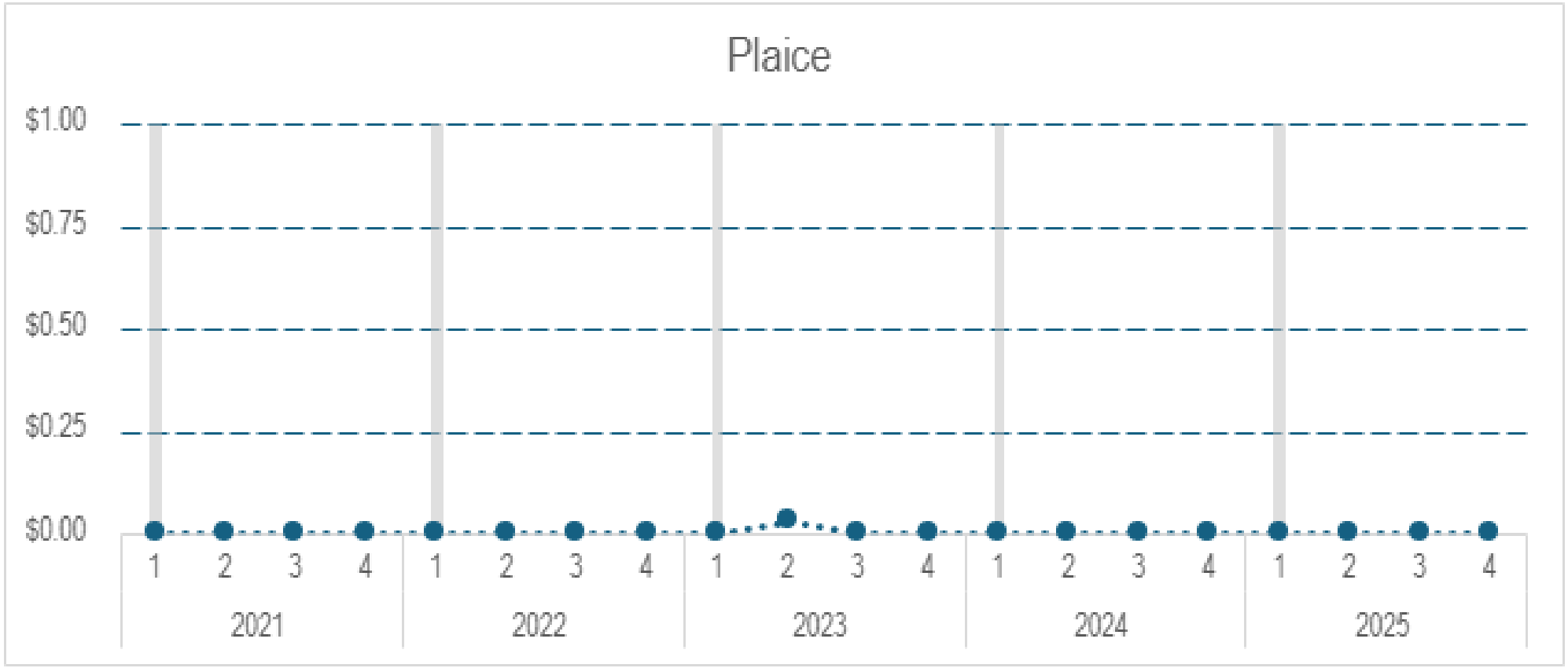
QUOTA CHANGE MODEL RESULTS - SECTORS



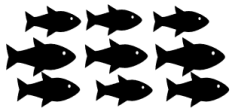
	FY	Sector sub-ACL	Catch (mt)		*Utilization (%)*		Gross Rev ($mil, 2025)	
			Realized	Predicted	*Realized*	*Predicted*	Realized	Predicted
American Plaice	2012	3,223	1,601	1,463	*0.50*	*0.30*	6.9	5.8
	2013	1,395	1,392	1,482	*1.00*	*0.78*	6.3	5.9
	2014	1,356	1,293	1,193	*0.95*	*0.88*	6.4	5.2
	2015	1,381	1,366	1,218	*0.99*	*0.88*	7.3	5.4
	2016	1,163	1,122	961	*0.97*	*0.83*	7.6	5.0
	2017	1,196	1,069	952	*0.89*	*0.79*	7.0	5.8
	2018	1,552	1,065	1,550	*0.69*	*1.00*	6.1	10.0
	2019	1,436	836	1,441	*0.58*	*1.00*	3.8	9.1
	2020	2,859	592	1,105	*0.21*	*0.38*	2.6	6.1
	2021	2,592	688	818	*0.27*	*0.31*	2.9	3.5
	2022	2,566	887	719	*0.35*	*0.28*	2.8	2.8
	2023	5,210	1,383	741	*0.27*	*0.14*	4.5	2.8
	2024	5,313	1,350	1,176	*0.25*	*0.23*	5.3	3.5
	2025	8,383	1,438	1,288	*0.17*	*0.15*	6.2	4.1

INTER-SECTOR ACE LEASE PRICES - SECTORS

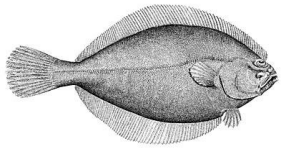


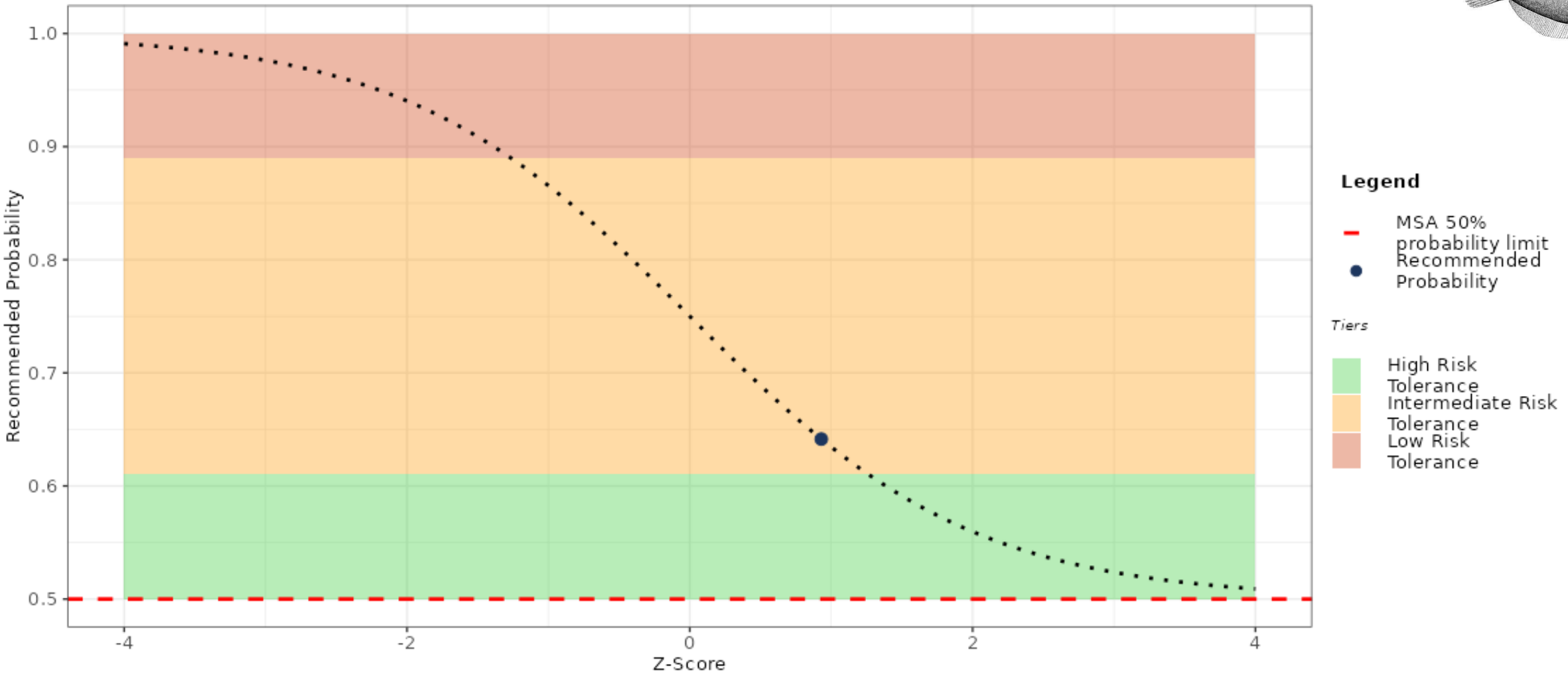


AMERICAN PLAICE: RISK POLICY FACTORS, SCORING, AND WEIGHTING

Factor	Weight	Score	Scoring Details
 SSB / Stock Status	0.30	2	The terminal year SSB (2025; 17,169 mt) is 135% of the biomass target (2025 SSB_{MSY} proxy =12,711 mt).
Recruitment 	0.26	0	From 2021-2025, 3 years are within 25th and 75th percentile of recruitment time-series (2 years <25th).
 ~~Climate Vulnerability~~	0.19	-1	Low climate vulnerability with negative directional effect (Hare et al. 2016)
 Commercial Fishery Characterization	0.25	2	Commercial GF sub-ACL utilization >80% in 0 of 3 years. Stock-level revenue is 10% of total GF revenue in 3 of 5 years. Not a constraining stock. AP input: no change expected; sub-factor score = 0.
  Recreational Fishery Characterization	No sub-ACL	-	
			Total Z Score: **+0.93**

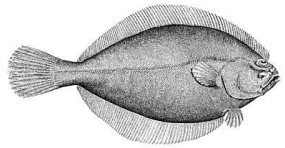
AMERICAN PLAICE: RISK POLICY OUTPUT





Z-SCORE = +0.93 → INTERMEDIATE RISK TOLERANCE

POSSIBLE OFL AND ABC OPTIONS - AMERICAN PLAICE



Two options:

A. 75%F_{MSY} projections for OFLs and ABCs

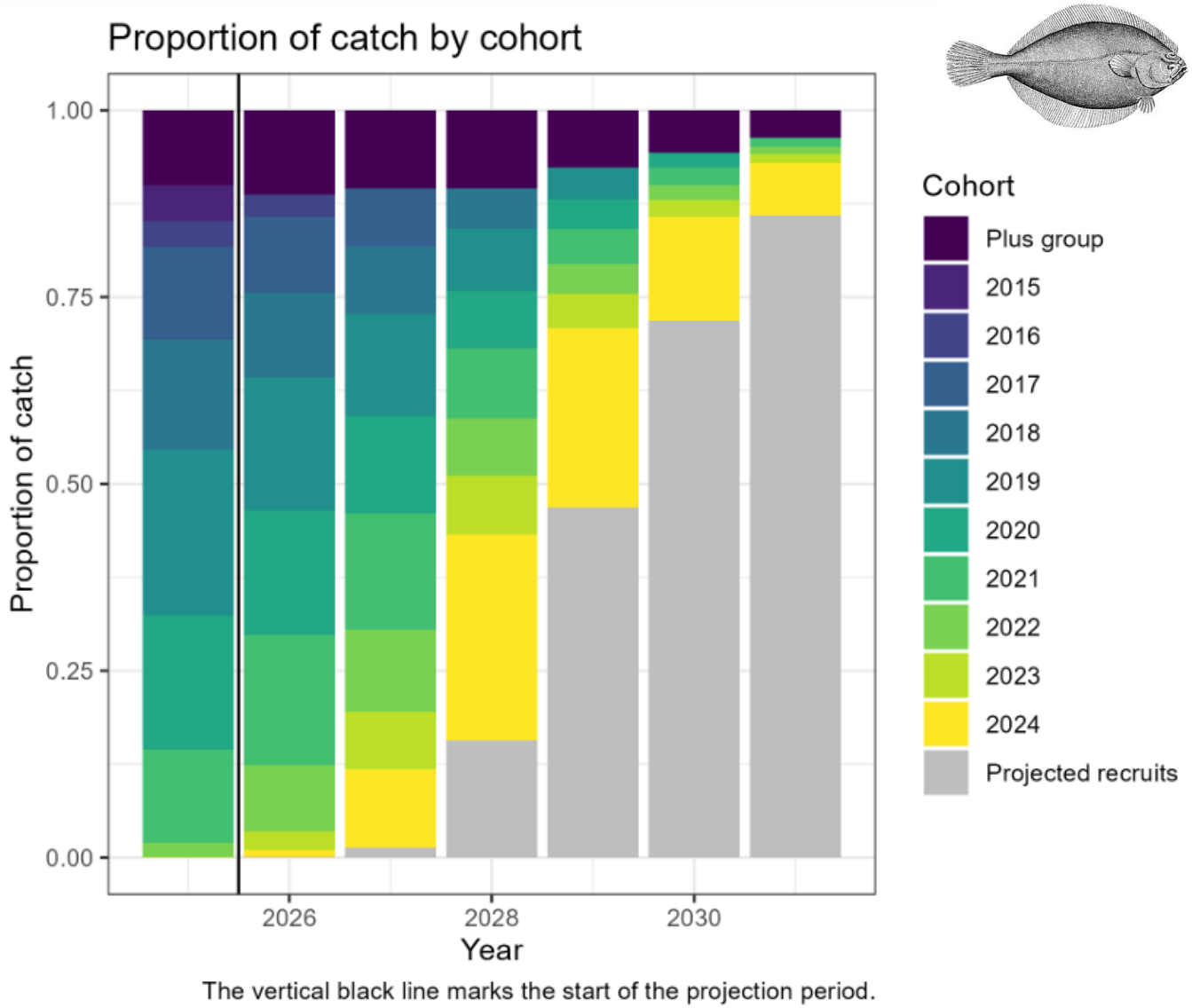
- Projections unreliable beyond 2 to 3 years.
- Projections indicate SSB will decline below SSB_{MSY} in 2027.

B. Projection uncertainty option - hold 2028 ABC constant

- Accounts for uncertainty with increasing projections in out years due to assumed recruitment.

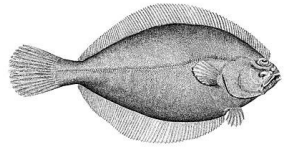
PROJECTION UNCERTAINTY

- By 2029, projections rely on >25% paper fish.
- Peer Review Panel less concerned than for GOM haddock due to differences in life history and recruitment variability.



The vertical black line marks the start of the projection period.

POTENTIAL OFLS AND ABCS – AMERICAN PLAICE



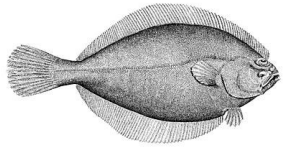
75%Fmsy

					Probability		
FY	OFL	ABC	F	SSB (mt)	Overfishing	Overfished	Rebuilt
2027	4,219	3,298	0.319	11,610	0.15	0.00	0.34
2028	3,880	3,020	0.319	10,973	0.21	0.03	0.31
2029	4,053	3,152	0.319	11,324	0.26	0.06	0.38
2030	4,276	3,327	0.319	11,798	0.29	0.08	0.43
2031	4,420	3,441	0.319	12,147	0.30	0.09	0.46

Projection Uncertainty Option - 2028 ABC constant 75%F_{MSY}

					Probability		
FY	OFL	ABC	F	SSB (mt)	Overfishing	Overfished	Rebuilt
2027	4,219	3,298	0.319	11,610	0.15	0.00	0.34
2028	3,880	3,020	0.319	10,973	0.21	0.03	0.31
2029	4,053	3,020	0.304	11,355	0.22	0.06	0.38
2030	4,311	3,020	0.284	11,967	0.21	0.07	0.44
2031	4,533	3,020	0.268	12,558	0.19	0.07	0.49

AMERICAN PLAICE - POTENTIAL OFLS AND ABCS



75%F_{MSY}

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2029	4,053	3,020
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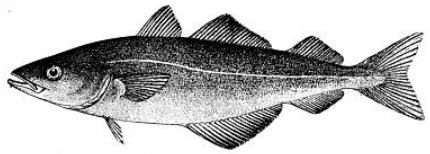
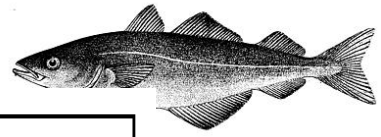
2031	4,533	3,020

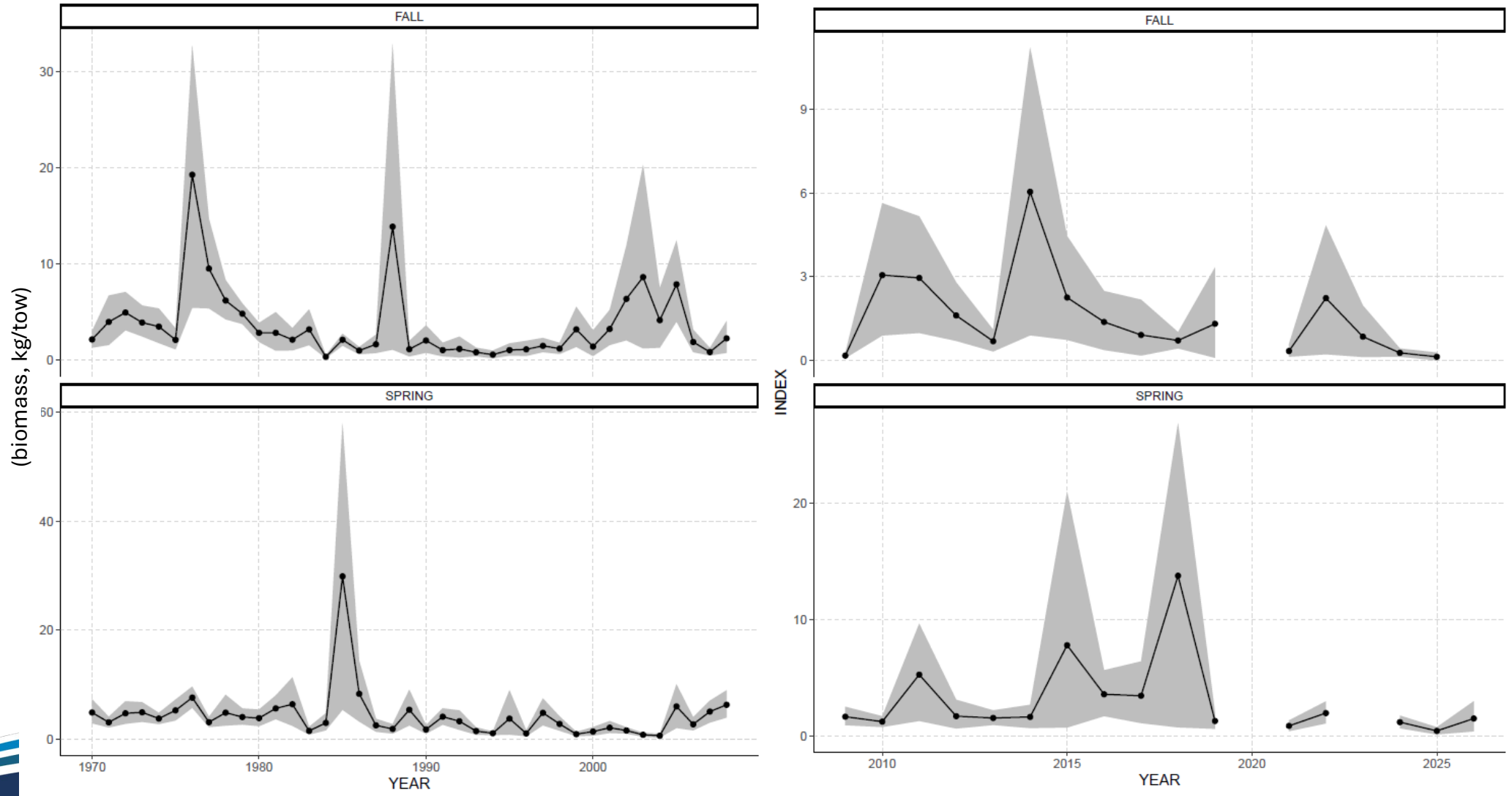
BACKGROUND: POLLOCK 2024 MT ASSESSMENT



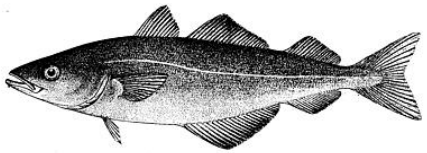
MODEL	ASAP
STOCK STATUS	Not Overfished, and Overfishing is not occurring
REBUILDING	Rebuilt – SSB is 213% of SSB_{MSY} proxy
UNCERTAINTIES	The main source of uncertainty in the assessment is selectivity. The base model uses dome-shaped survey selectivity. A sensitivity model with flat-topped survey selectivity was conducted to demonstrate the sensitivity of the assessment results to survey selectivity assumptions.

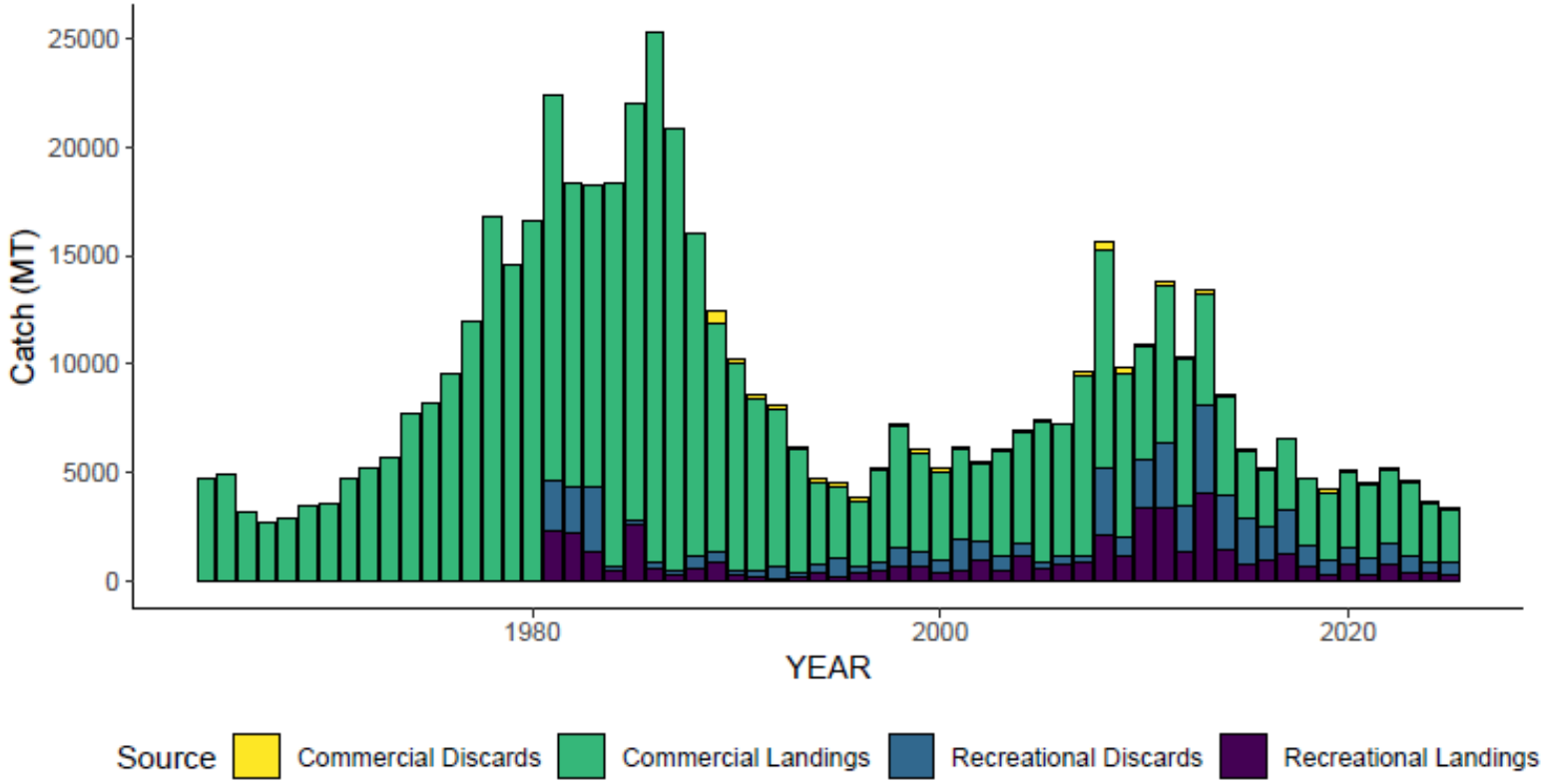
2026 DATA UPDATE – SURVEY BIOMASS INDICES



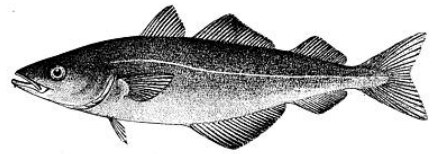


2026 DATA UPDATE – TOTAL CATCH



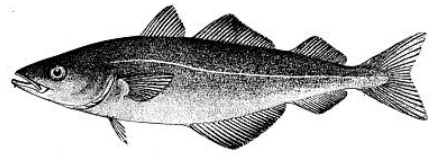


CATCH PERFORMANCE



Year	Catch	Historical OFLs	Historical ABCs	Catch Assumption	F_{MSY}	75%F_{MSY}	Flat F_{MSY}	Flat 75%F_{MSY}
2010	10,897	25,200	19,800					
2011	13,792	21,853	16,900					
2012	10,370	19,887	15,400					
2013	13,428	20,060	15,600					
2014	8,613	20,554	16,000					
2015	6,138	21,538	16,600					
2016	5,230	27,668	21,312					
2017	6,597	32,004	21,312					
2018	4,788	51,680	40,172					
2019	4,270	53,940	40,172					
2020	5,133	35,358	27,447					
2021	4,512	28,475	22,062					
2022	5,225	21,744	16,812					
2023	4,658	19,617	15,016					
2024		18,208	13,940	3,714				
2025		16,585	12,733	3,409				
2026		14,583	11,170	4,656				
2027		13,383	10,252		15,903	12,184	13,043	10,008
2028					13,309	10,661	10,791	8,655
2029					12,242	10,159	9,909	8,229
2030					11,338	9,616	9,239	7,837
2031					10,939	9,390	8,969	7,707

CATCH PERFORMANCE



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2027		13,383	10,252		15,903	12,184	13,043	10,008
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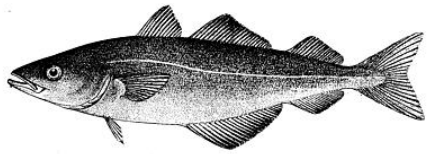
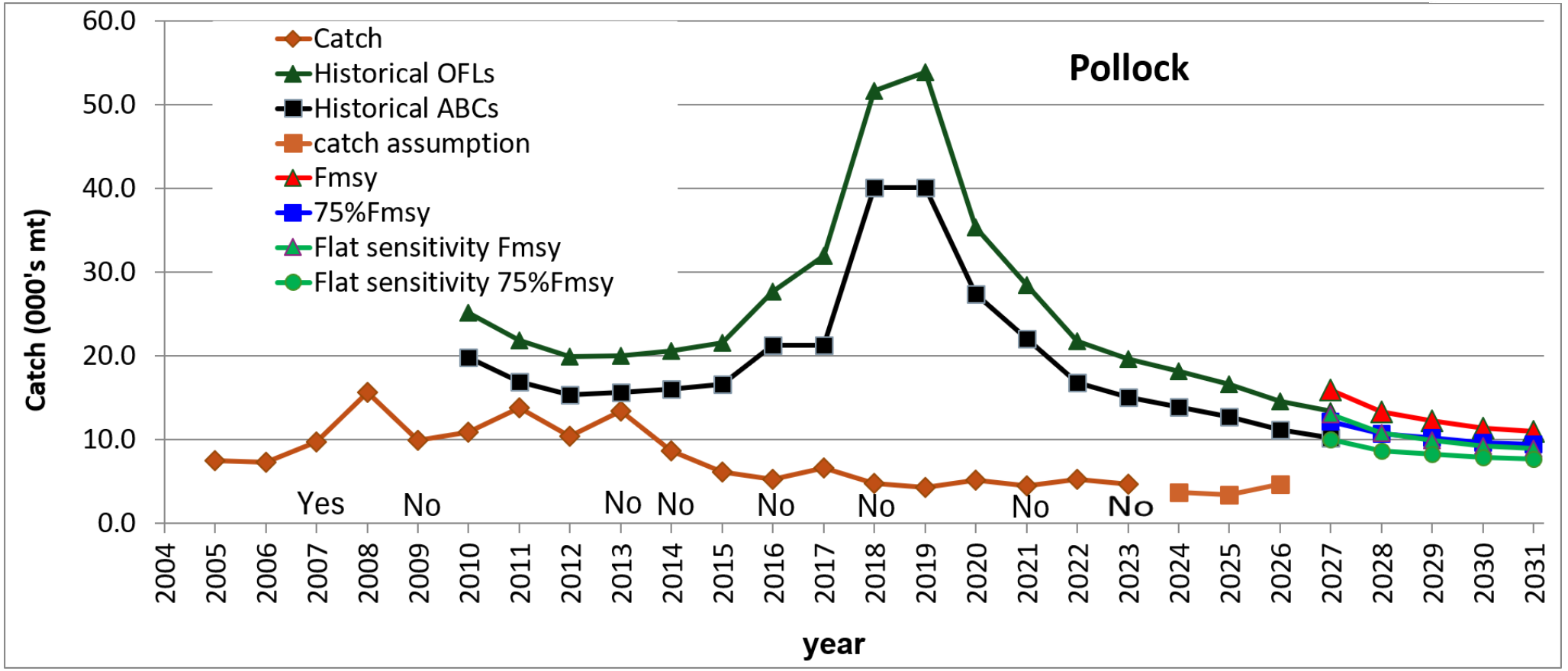
CATCH PERFORMANCE

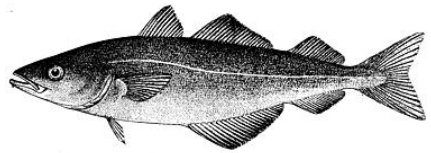




Overfishing status in the terminal year of the assessment indicated on the x-axis ("Yes" = overfishing; "No" = not overfishing).

ABC Distribution:

Pollock



OFL

ABC

State water fisheries

"Other" fisheries

Sector* & Common Pool Sub-ABC

- 5% buffer

Sub-ACL

Subcomponents

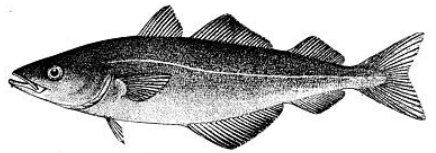
- Expected catches
- No AMs
- No adjustment for management uncertainty

Sub-ACLs

- Subject to AMs
- Management uncertainty adjustment

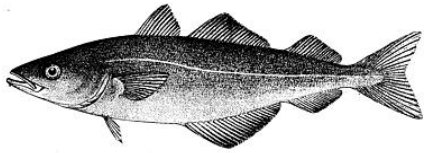
*Sector buffer set to 0 if ASM target coverage 100%

COMMERCIAL GROUNDFISH FISHERY CATCH & UTILIZATION



	Commercial Groundfish Fishery - Pollock		
	Sub-ACL (mt)	**Total Catch (mt)**	**Utilization**
FY2023	13,124.0	3,519.4	26.8%
FY2024	12,819.0	2,290.7	17.9%
FY2025 (preliminary)	11,256.2	3,315.1	29.5%

QUOTA CHANGE MODEL RESULTS - SECTORS

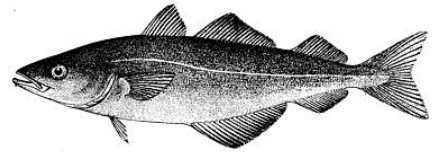


Pollock

FY	Sector sub-ACL	Catch (mt)		*Utilization (%)*		Gross Rev ($mil, 2025)	
		Realized	Predicted	*Realized*	*Predicted*	Realized	Predicted
2012	12,530	6,395	4,296	*0.51*	*0.23*	17.6	11.1
2013	12,802	4,878	7,133	*0.38*	*0.51*	14.6	17.4
2014	13,139	3,972	5,384	*0.30*	*0.41*	13.1	14.6
2015	13,634	2,877	3,707	*0.21*	*0.27*	8.9	11.0
2016	17,704	2,962	3,739	*0.17*	*0.21*	8.0	12.5
2017	17,704	2,990	3,564	*0.17*	*0.20*	7.2	11.5
2018	37,170	3,476	2,796	*0.09*	*0.08*	6.8	8.1
2019	37,152	3,070	2,898	*0.08*	*0.08*	6.8	7.4
2020	23,752	3,936	2,935	*0.17*	*0.12*	10.5	5.6
2021	18,356	3,069	3,034	*0.17*	*0.16*	10.4	6.4
2022	14,020	3,613	2,644	*0.26*	*0.19*	9.2	7.9
2023	13,001	3,497	3,242	*0.27*	*0.25*	9.4	9.2
2024	12,696	2,291	3,440	*0.18*	*0.29*	4.3	8.4
2025	11,142	3,290	2,991	*0.30*	*0.27*	8.5	7.8

ACE lease prices have been close to $0.

OTHER FISHERIES AND STATE FISHERIES SUB-COMPONENTS – RECREATIONAL CATCH

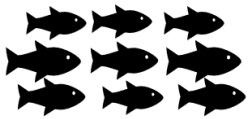
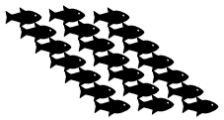


Other significant sources of pollock catch include the recreational fishery, in both federal and state waters.

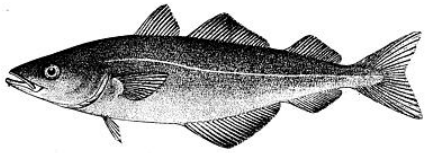
- Recreational catches in federal waters (192.4 mt in FY2024)
- Recreational catches in state waters were (220.5 mt in FY2024)

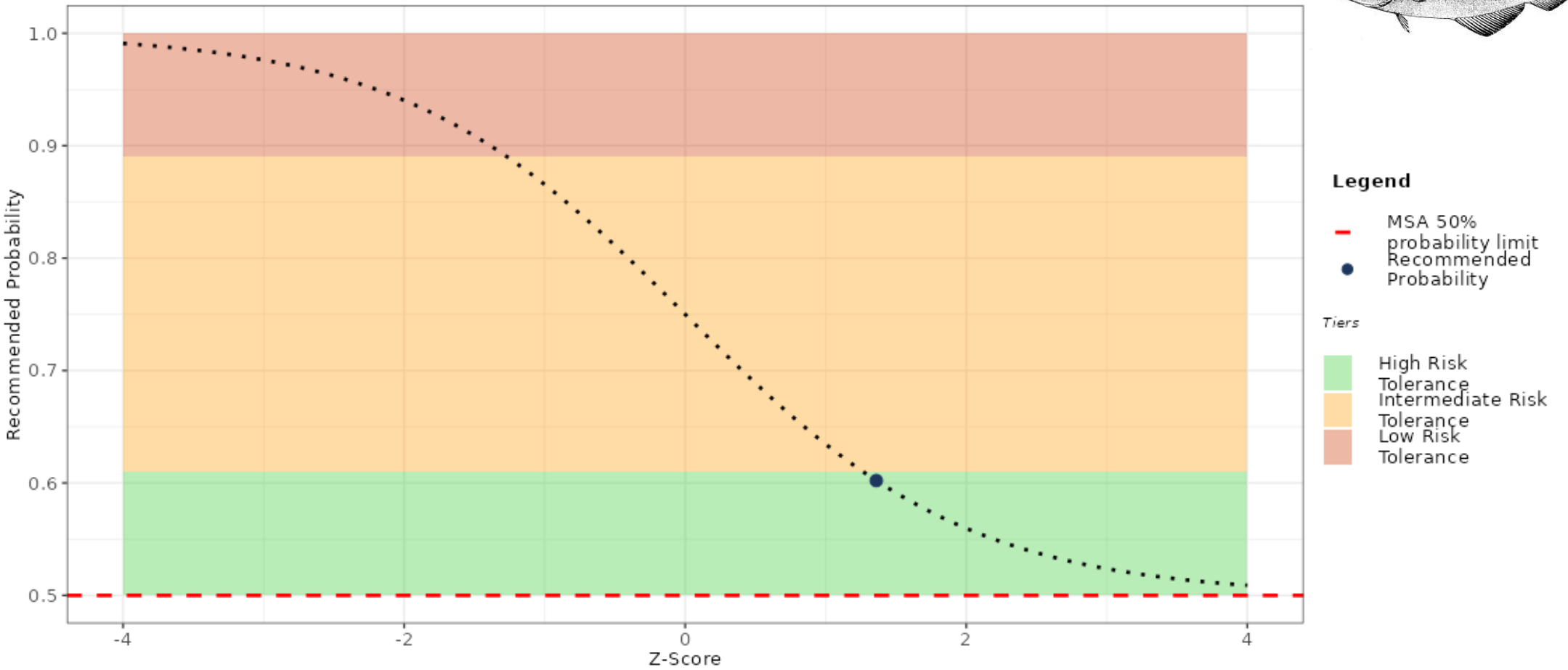
Sub-components are expected catches (no AMs or management uncertainty buffers)

POLLOCK: RISK POLICY FACTORS, SCORING, AND WEIGHTING

Factor	Weight	Score	Scoring Details
 SSB / Stock Status	0.30	4	The terminal year SSB (2023; 180,266 mt) is 213% of the biomass target (2023 SSB_{MSY} proxy = 84,446 mt).
 Recruitment	0.26	0	From 2019-2023, 4 years are within 25th and 75th percentile of recruitment time-series (1 year >75th).
 Climate Vulnerability	0.19	-2	Moderate climate vulnerability with negative directional effect (Hare et al. 2016)
 Commercial Fishery Characterization	0.25	2	0 of 3 years >80% utilization. Stock-level revenue is 10% of total GF revenue in 5 of last 5 years. Not a constraining stock. AP input: no change expected; sub-factor score = 0.
  Recreational Fishery Characterization	No sub-ACL	-	
			Total Z Score: +1.36

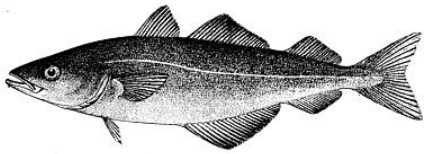
POLLOCK: RISK POLICY OUTPUT





Z-SCORE = +1.36 → HIGH RISK TOLERANCE

POSSIBLE OFL AND ABC OPTIONS - POLLOCK



Two options:

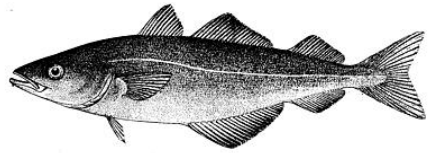
A. 75%F_{MSY} projections for OFLs and ABCs

- Projections based off 2024 assessment and 3 bridge years (2024-2026).
- The longer projection results in greater reliance on projected recruits.
    - Longer-term projections unreliable
- Decrease in the projections because "fishing down" to the SSB_{MSY}.

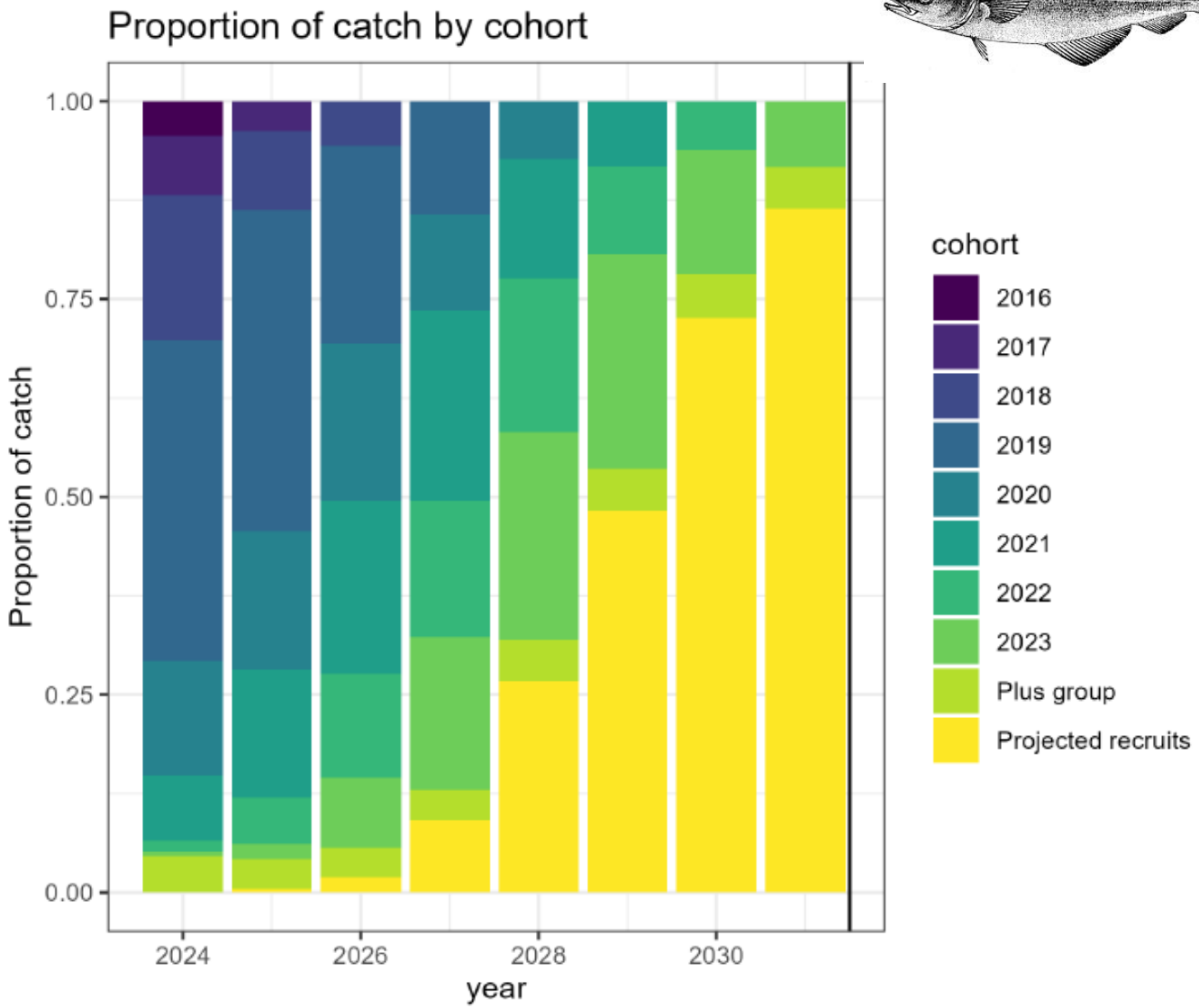
B. Equilibrium long-term catch at 75%F_{MSY} held constant

- Non-standard projection approach; illustrates 8-year projection.
- Not explicitly estimating ABCs; projection estimates OFLs.
- Stock estimated >2x B_{MSY}, but uncertainty due to cryptic biomass.

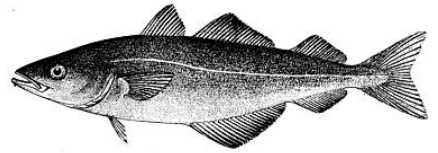
PROJECTION UNCERTAINTY



- By 2028, projections rely on >25% paper fish.
- PDT concerned about uncertainties with long-term projections and reliance on projected recruits.
- Highlights need for a pollock assessment in the near-term future.



POTENTIAL OFLS AND ABCS - POLLOCK



75%F_{MSY}

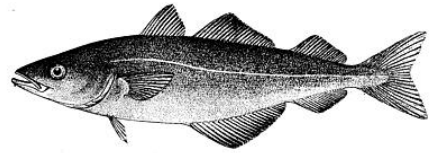
FY	OFL	ABC	F	SSB (mt)
2027	15,903	12,184	0.154	170,220
2028	13,910	10,661	0.154	164,447
2029	13,251	10,159	0.154	155,257
2030	12,546	9,616	0.154	147,487
2031	12,251	9,390	0.154	140,114

Projection Uncertainty Option – equilibrium long-term catch at 75%F_{MSY} constant

PDT recommended

FY	OFL	ABC	F	SSB (mt)
2027	15,903	9,005	0.112	170,220
2028	14,428	9,005	0.124	167,738
2029	14,031	9,005	0.127	160,532
2030	13,361	9,005	0.134	154,424
2031	13,016	9,005	0.138	147,945

POTENTIAL OFLS AND ABCS - POLLOCK



$75\%F_{MSY}$

FY	OFL	ABC
2027	15,903	12,184
2028	13,910	10,661
2029	13,251	10,159
2030	12,546	9,616
2031	12,251	9,390

Projection Uncertainty Option – equilibrium long-term catch at $75\%F_{MSY}$ constant

PDT recommended

FY	OFL	ABC
2027	15,903	9,005
2028	14,428	9,005
2029	14,031	9,005
2030	13,361	9,005
2031	13,016	9,005

Atlantic Halibut

REVIEW OF BEST AVAILABLE SCIENCE AND CONSIDERATION FOR ALTERNATIVE CATCH SETTING OPTIONS FOR FISHING YEARS 2027-2031

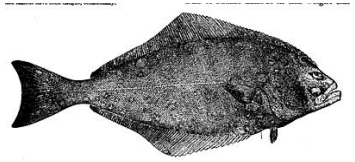


New England Fishery Management Council

TERMS OF REFERENCE

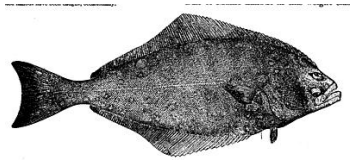
B. Consider the NEFSC 2026 data update for Atlantic halibut, and information provided by the Council's Groundfish PDT including additional information from the Canadian stock assessment, research on tagging and genetics, and information on connectivity between Atlantic halibut in U.S. and Canadian waters. Comment on the suitability of this additional information to be considered best available science and appropriate for setting catch advice.

OVERVIEW AND BACKGROUND



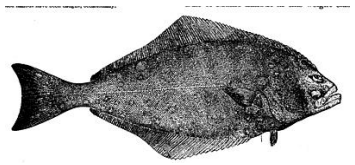
- In June 2026, the Council initiated Framework 74 and included in the scope to **"set FY2027-FY2031 specifications for Atlantic halibut, exploring sources of best available science to support catch setting methods."**
- The Groundfish Committee tasked the PDT "*to review sources of best available science for Atlantic halibut and develop alternative methods for setting halibut catch advice, working with DMR staff who have expertise in halibut tagging data, halibut biology, and associated state regulations.*"
- In response to concerns raised about misalignment and inconsistencies between Canadian and U.S. assessments and management for Atlantic halibut.
- **Stock structure is a major uncertainty** with the current data-limited assessment approach, and together with **increasing Canadian landings**, is leading to management challenges with resulting catch advice for the U.S fishery in recent years.
- The PDT developed an interim approach for setting catch advice that better reflects the current understanding of the Atlantic halibut stock and incorporates the best scientific information available.

U.S. ASSESSMENT HISTORY



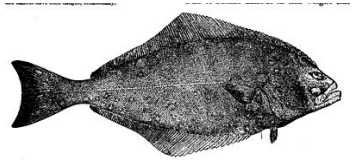
- U.S. benchmark assessment of halibut in 2008 was updated in 2012 + 2015.
  - 2015: Model deemed not acceptable as scientific basis for catch advice
  - Recommended new benchmark assessment to determine stock identity
- 2017: Plan B approach – First and Second Derivative (FSD) method
  - SSC subcommittee peer review deemed best available science and scientifically valid to set catch advice
  - Recommended future investigation of halibut stock identity in U.S. and Canada
- FSD assessment updated in 2019, 2020, 2022, and 2024
  - Continued questions about stock identity

MAIN UNCERTAINTIES WITH CURRENT FSD ASSESSMENT APPROACH



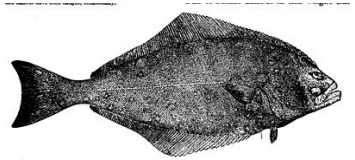
- Assessment is based on a simple empirical approach.
- Time lags with using the catch advice in subsequent years, as it can take a few years to adjust the catch advice as the population abundance changes either up or down.
- Low catchability in surveys and offshore trawl fisheries.
- Potential that the fall NMFS bottom trawl survey is not sampling during times of migration of halibut between U.S. and Canadian waters.
- Uncertainty with stock structure – the FSD assessment may be measuring changes in availability in one portion of a much larger stock rather than stock abundance.

STOCK STATUS AND REBUILDING PLAN



- Stock status is unknown because the FSD assessment cannot determine biological reference points (BRPs).
  - NOAA official stock status is Overfished, with Overfishing unknown.
  - Overfished status maintained based on last (2012) accepted assessment.
    - Also consistent with recommendations of 2015 review panel.
  - Officially considered subject to overfishing until 2022.
    - NOAA applied guidance for changing status to unknown, based on time since 2012 assessment.
- In a rebuilding plan with an end date of 2055.
  - Established in 2010 (Amendment 16).
  - Rebuilding progress cannot be evaluated.

CONNECTIVITY AND STOCK STRUCTURE

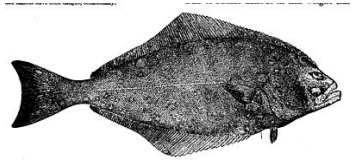


Increasing scientific evidence documents that halibut movement rates are not confined to the U.S. stock area assumed in the U.S. stock assessment (Georges Bank and Gulf of Maine). The biology suggests greater movement of adult halibut than previously known.

Tagging data suggests connectivity between the Atlantic Halibut in Maine waters and Canadian waters of the Scotian Shelf and Southern Grand Banks region.

Halibut in U.S. waters are likely a small component of a much larger stock complex that extends north into Canadian waters and perhaps further north into international waters on the Grand Banks.

TAGGING AND MIGRATION STUDIES



- Over the past 20 years, MEDMR and other organizations have tagged Atlantic halibut with a mixture of conventional and electronic tags
- Halibut have been recorded dispersing over long distances between the Gulf of Maine and the Laurentian Channel and completing migration cycles.

Summary of tagging studies.
Source: Shackell, et. al. 2022

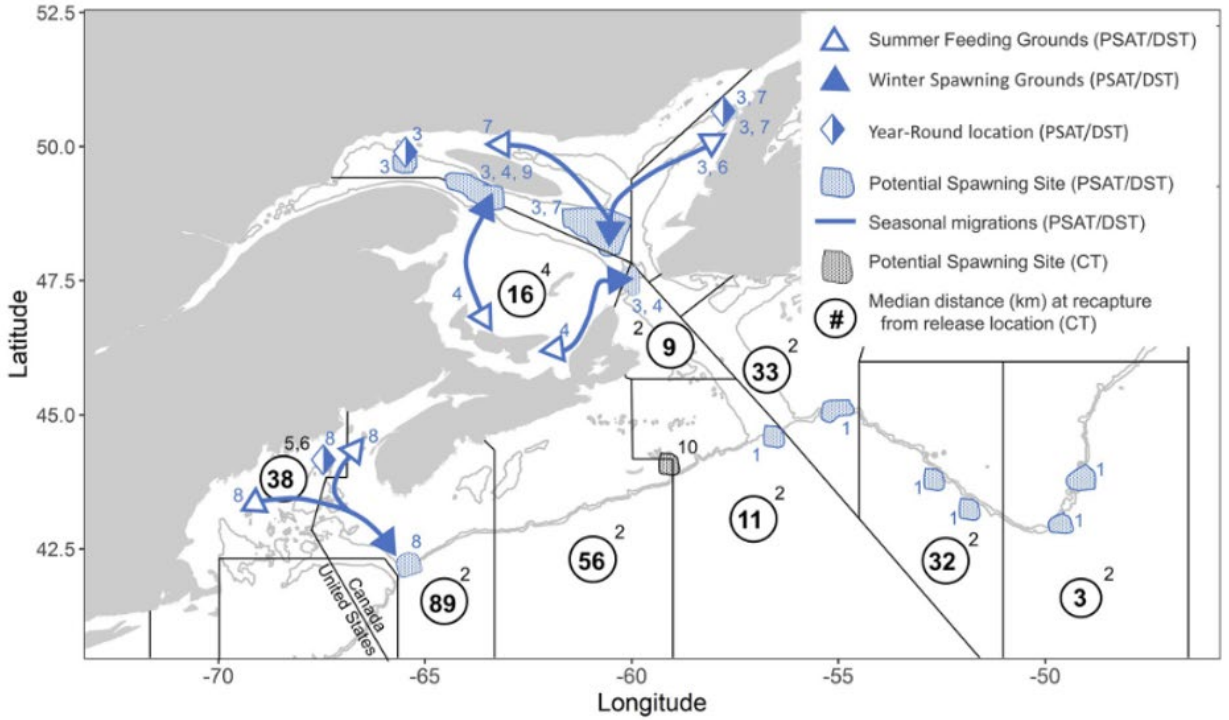
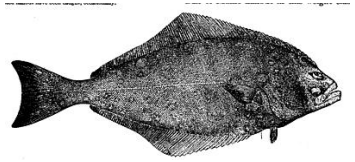
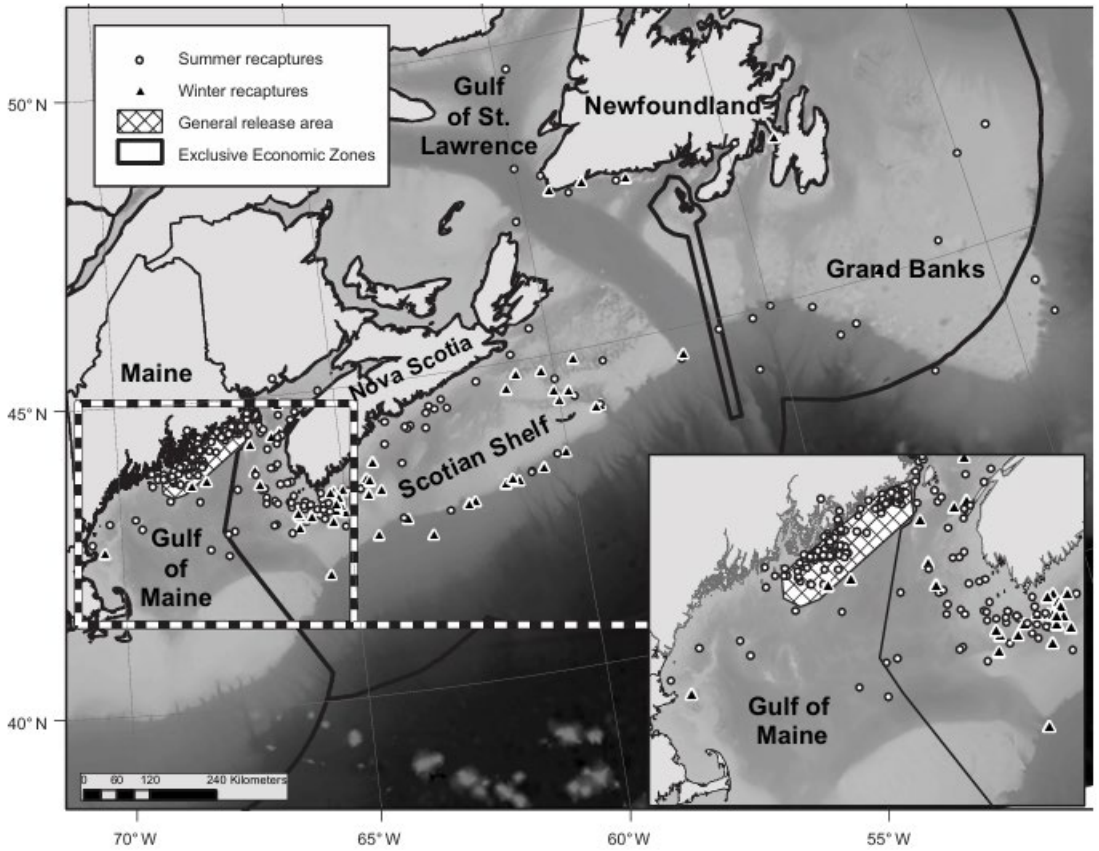


Figure 6. Summary of conventional and electronic archival tagging studies on Atlantic halibut in the Northwest Atlantic. PSAT: pop-up satellite archival tags; DST: data storage tags; CT: conventional tagging. Sources: 1. Armsworthy et al. (2014); 2. den Heyer et al. (2013); 3. Gatti et al. (2020); 4. James et al. (2020); 5. Kanwit (2007); 6. Kersula and Seitz (2019); 7. Le Bris et al. (2018); 8. Liu et al. (2019); 9. McCracken (1958); 10. Stobo et al. (1988).

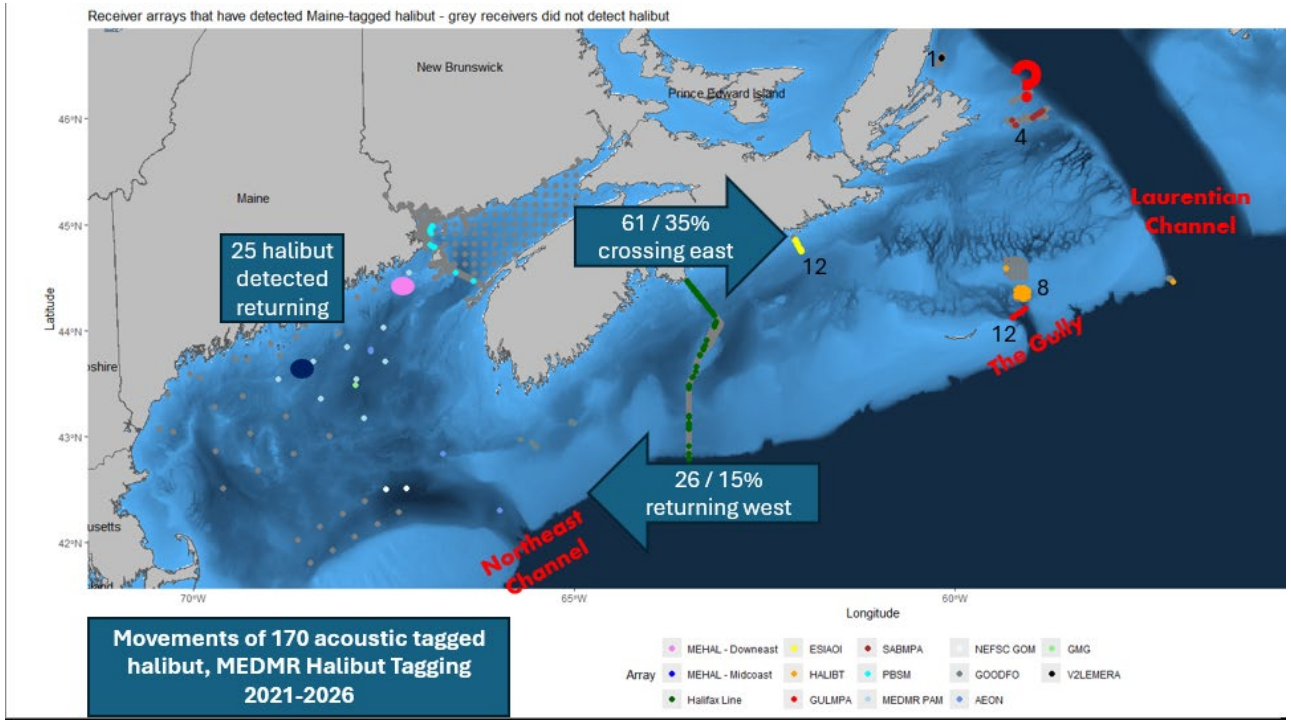
TAGGING AND MIGRATION STUDIES



Recapture locations of Atlantic Halibut by season
Source: Kersula and Seitz, 2019



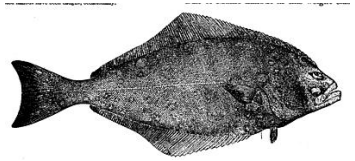
Receiver arrays that have detected Maine-tagged halibut.
Source: MEMDR



SPATIAL DISTRIBUTION

- Shackell, et. al. (2026) analysis covered U.S. and Canadian waters and concluded a single stock with fish in Canadian waters accounting for 94% of the overall stock.
- VAST model integrating survey data from the U.S. and Canada demonstrated range expansion and shift in distribution to the northeast.

Atlantic halibut stock area
Source: Shackell, et. al. 2026



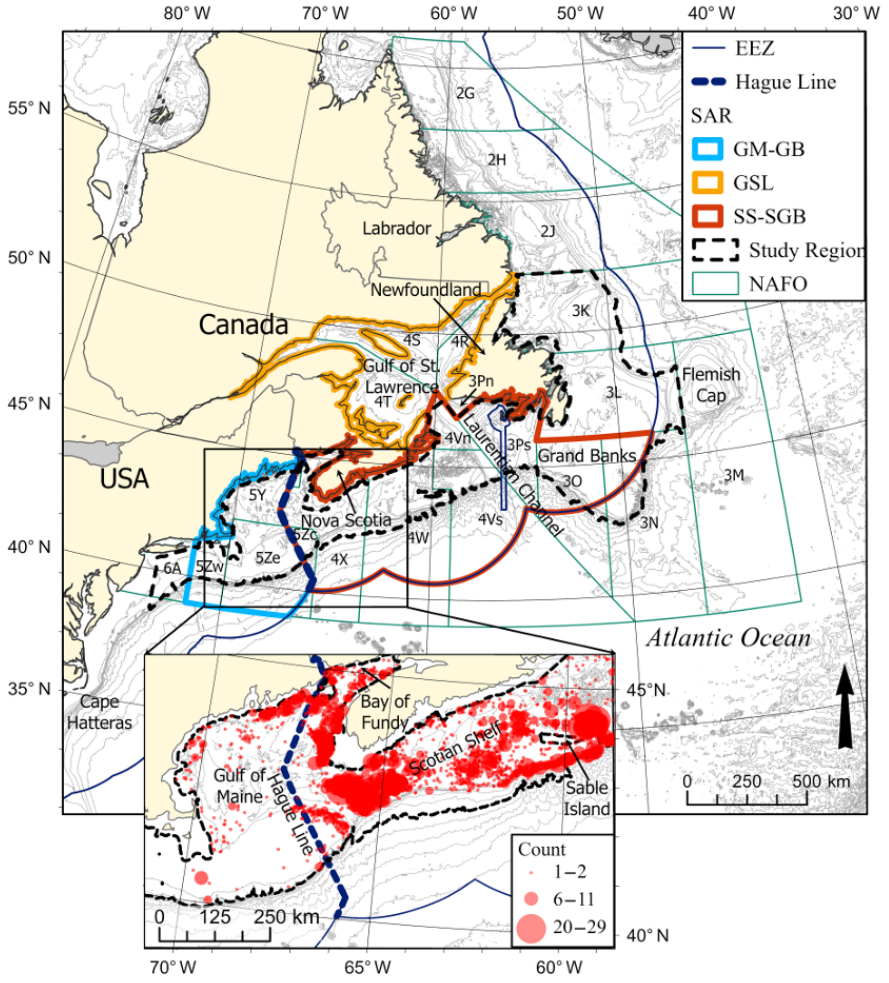
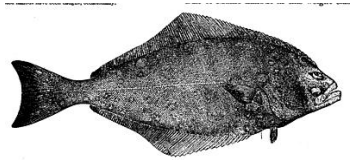


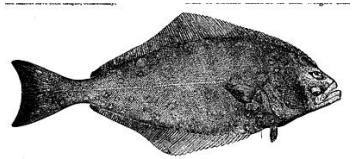
FIGURE 1 Northwest Atlantic Ocean. The study region (dashed black line) for this analysis represents the range of Atlantic halibut (*Hippoglossus hippoglossus*) in the United States (NOAA NEFSC) and Canada (DFO Maritimes and Newfoundland) covered by research vessel (RV) surveys. Atlantic halibut in the northwest Atlantic are managed in three Stock Assessment Regions (SAR): the Gulf of Maine and Georges Banks (GM-GB, blue), the Scotian Shelf and Southern Grand Banks (SS-SGB, red), and the Gulf of Saint Lawrence (GSL, yellow). The inset map shows the distribution of RV survey abundance counts (1990–2023) across the Hague line (dashed navy), which represents the border between US and Canadian waters. The Exclusive Economic Zone (EEZ, solid navy) demarcates waters where coastal states hold sovereign rights over natural resources, and Northwest Atlantic Fisheries Organization (NAFO) divisions (solid green) are the standardized geographic management areas. Depth contours are at every 100 m up to 500 m and then every 500 m up to 5000 m.

GENETIC STUDIES

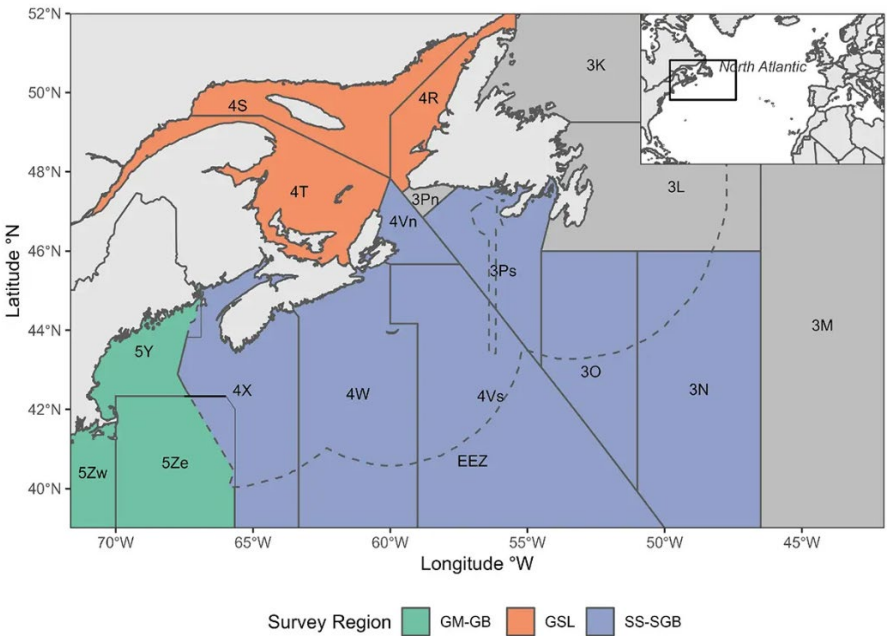


- Recent genomic evidence (Kess et al. 2021) suggests two genetically distinct stocks in the western north Atlantic:
  - One stock across the U.S. and Canadian continental shelf; and
  - Another stock in the Gulf of St. Lawrence.
- No detectable genetic differences between Scotian Shelf-Grand Banks, Gulf of Maine, and Georges Bank halibut.
- Supported by MEDMR tagging data – very few halibut tagged in the Gulf of Maine go to the Gulf of St. Lawrence

CANADIAN DFO STOCK ASSESSMENT

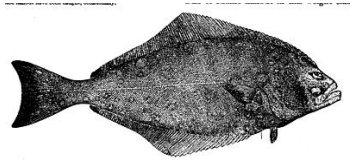


- DFO assesses the Scotian Shelf and Southern Grand Banks management unit (NAFO Divisions 3NOPS4VWX5ZC) of Atlantic halibut.
- The DFO Research Vessel (RV) survey provides a recruit index.
- An industry-DFO longline survey provides an index of exploitable biomass.
- Statistical Catch-at-Length (SISCAL) model provides MSY-based reference points and is used to set catch advice.
- Assessment does not consider U.S. catch from U.S. waters - but does include Canadian catch on the northeast peak of Georges Bank as well as foreign landings in the 3NOPs areas.
- 2025 interim year update - exploitable biomass was above the BRP with a very high probability of being in the healthy zone.

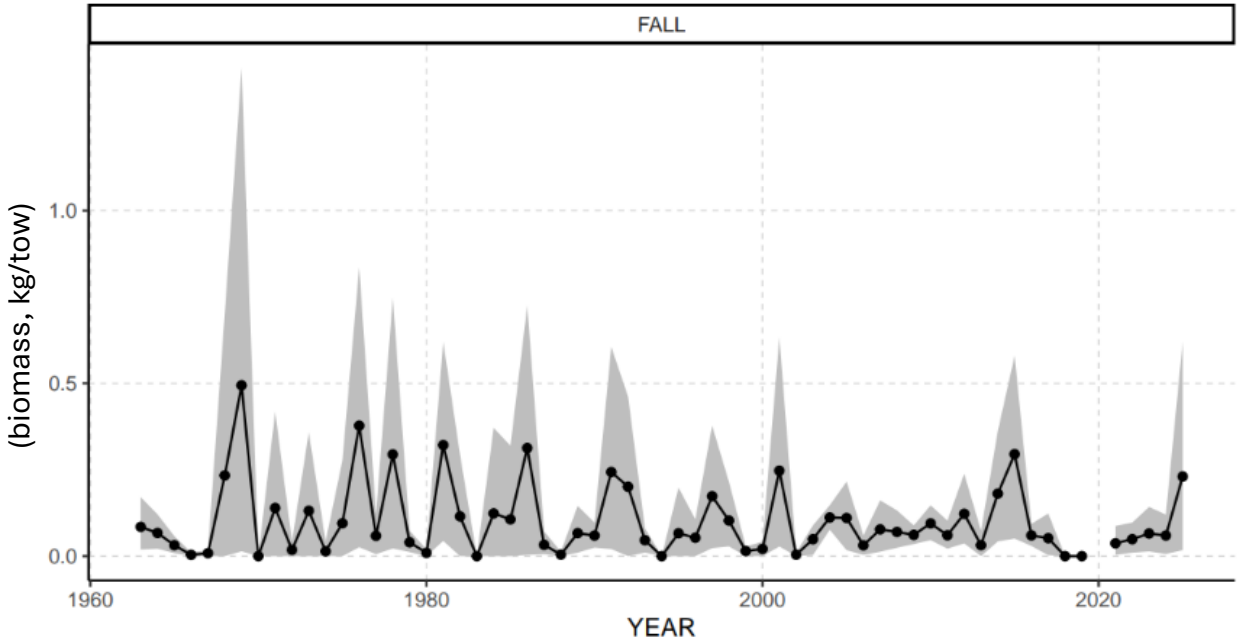


NAFO management units

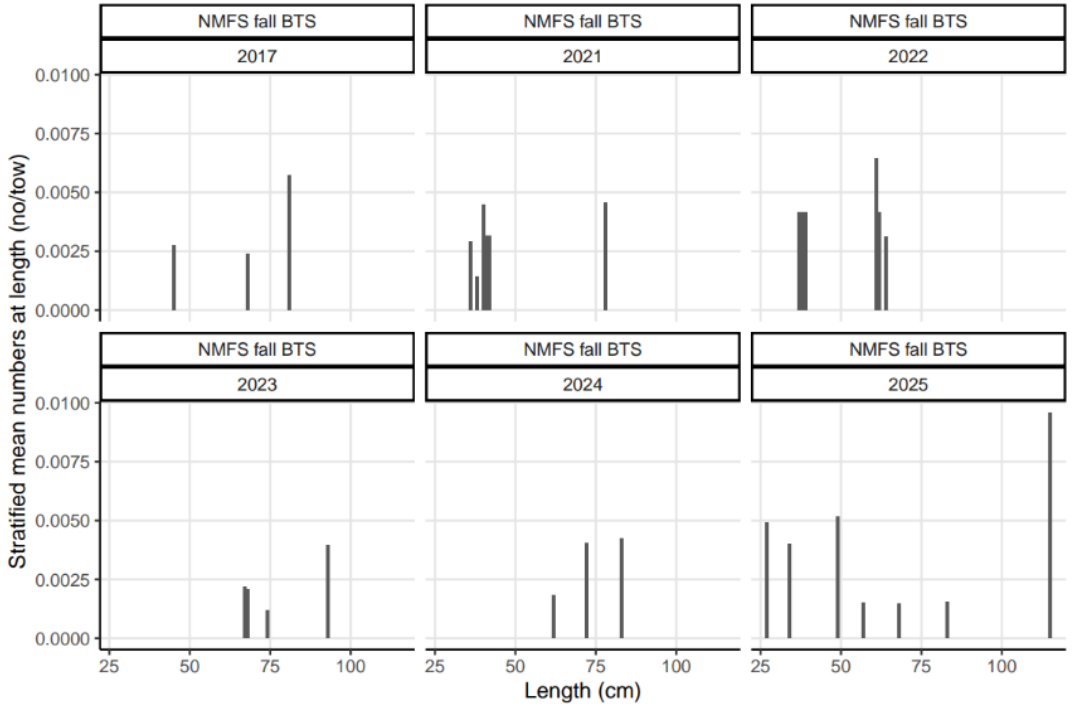
NMFS BOTTOM TRAWL SURVEY INDICES



- Low catchability of halibut
- Halibut sizes generally <75 cm

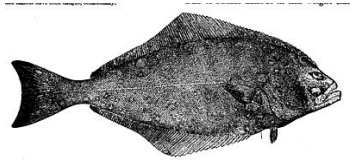


Only fall index used in the assessment

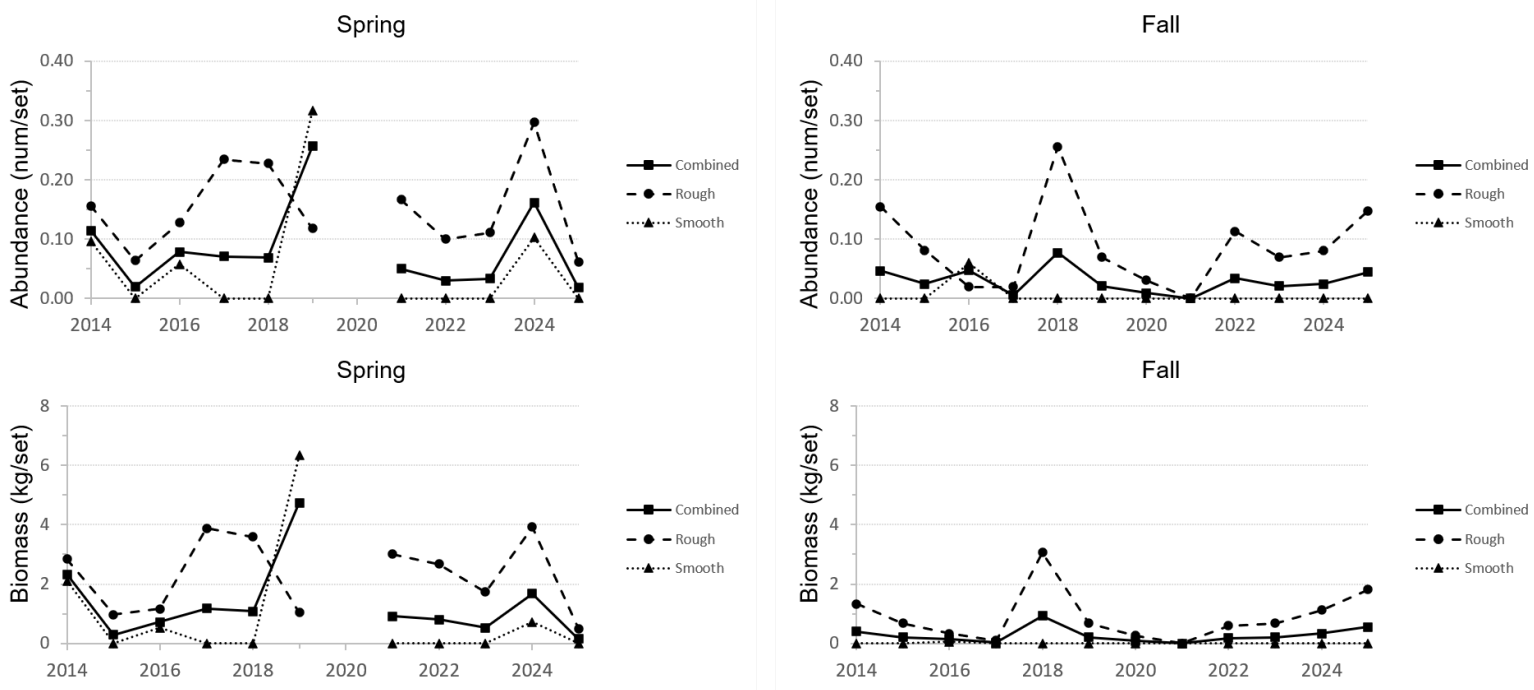


Source: 2026 Data Update

OTHER U.S. SURVEYS – NMFS BOTTOM LONGLINE SURVEY

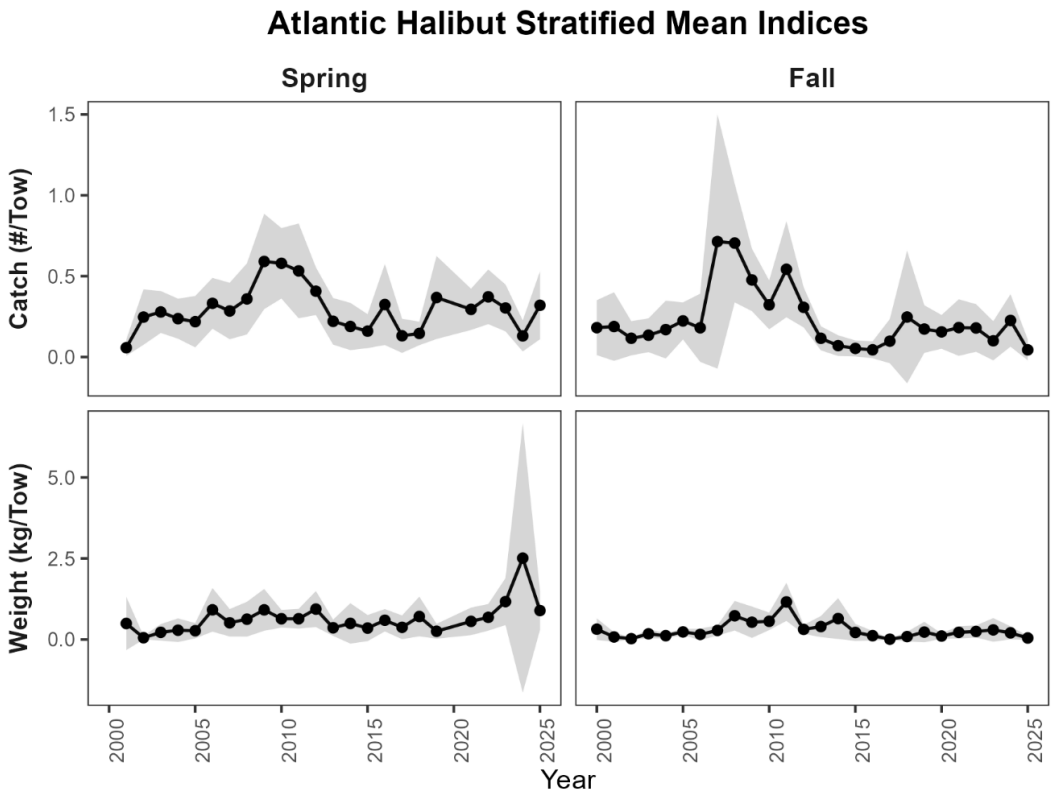


- Low numbers of halibut catch
- Halibut generally smaller than sizes caught by the Maine state directed fishery – attributed to gear selectivity of hook size
- Survey footprint only covers central portion of the Gulf of Maine



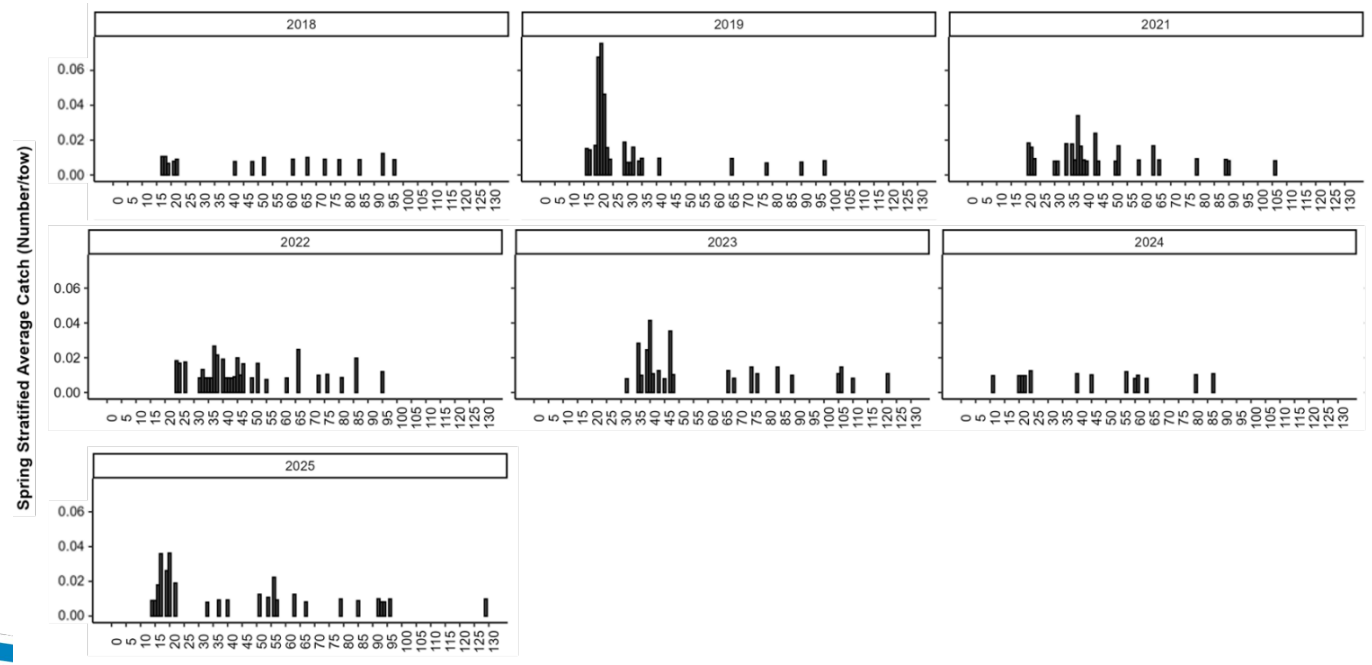
Source: NEFSC Cooperative Research Branch

OTHER U.S. SURVEYS – MAINE-NEW HAMPSHIRE TRAWL SURVEY

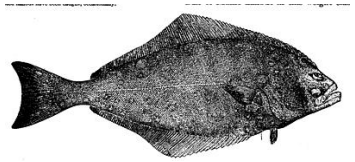


Source: MEDMR

- Catch of halibut is low
- Wide range of halibut sizes caught - majority <40 cm
- In some seasons/years, the length frequencies skew smaller - mode at 10 or 20 cm (Spring 2019)
- Smaller halibut encountered suggests that some recruitment is occurring off the Maine coast – PDT highlights as an area for further research



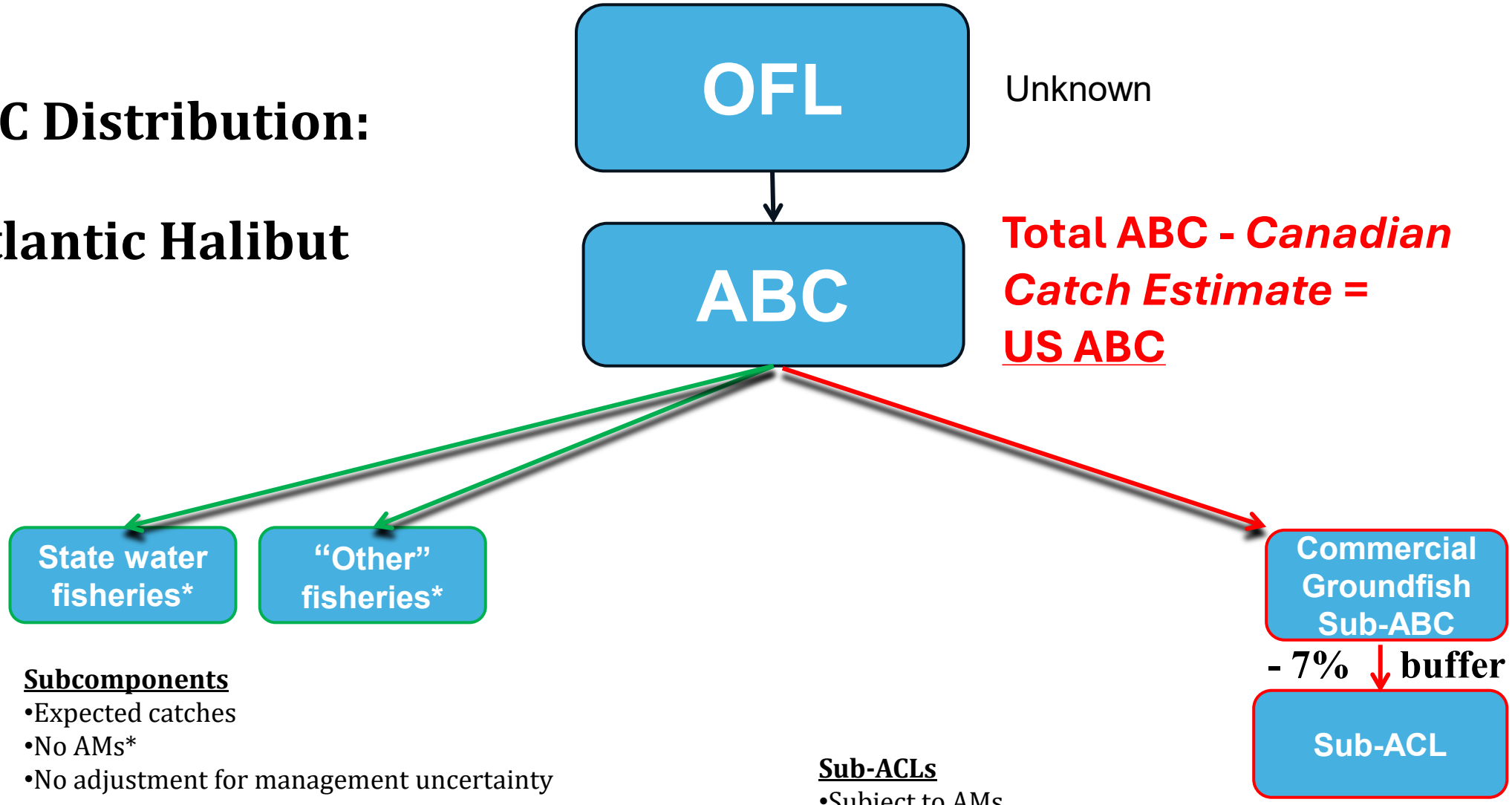
SURVEY DATA NEEDS



- The footprint of the NMFS BLLS and the limited catchability of halibut in trawl surveys continues to limit access to robust data needed for an analytical assessment.
- An industry longline survey, similar to the Canadian DFO industry longline survey, would fill a large data gap in U.S. waters.
- A state waters survey would cover the footprint of the fishery, however, expanding the survey footprint into federal waters would likely better characterize the stock dynamics and habitat use within the Gulf of Maine

ABC Distribution:

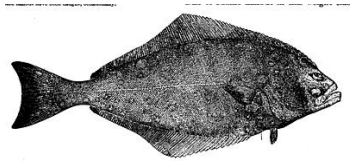
Atlantic Halibut

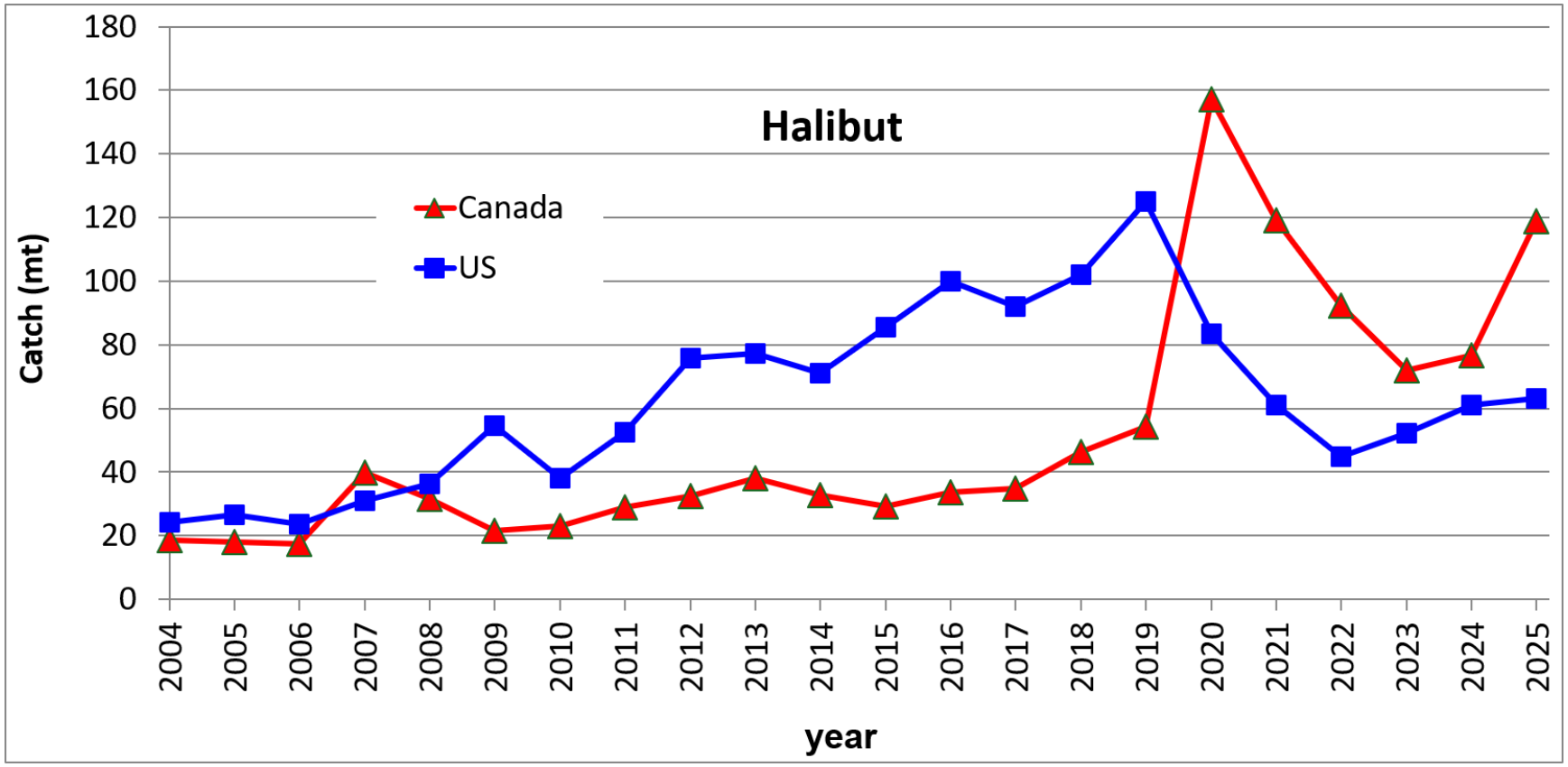


Subcomponents
- Expected catches
- No AMs*
- No adjustment for management uncertainty

Sub-ACLs
- Subject to AMs
- Management uncertainty adjustment

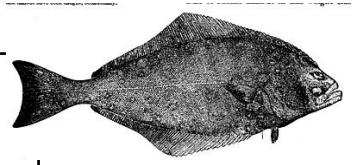
U.S. AND CANADIAN TOTAL CATCH





Assessment includes Canadian landings from NAFO areas 5Y and 5Z (transboundary areas)

COMMERCIAL GROUNDFISH FISHERY CATCH & UTILIZATION

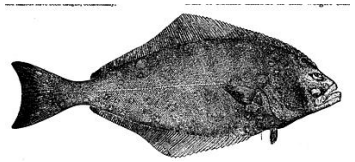


	Commercial Groundfish Fishery – Atlantic Halibut				
	Sub-ACL (mt)	**Total Catch (mt)**	**Utilization**	**Landings (mt)**	**Discards (mt)**
FY2023	64.0	36.6	57.1%	22.4	14.2
FY2024	58.0	43.3	74.7%	26.7	16.6
FY2025 (preliminary)	23.0	47.3	204.8%	29.3	18.0

1 legal-size fish per trip

- Seasonal gear restricted area AMs
- Zero possession AM for all Federal permits (with some exceptions for party/charter)

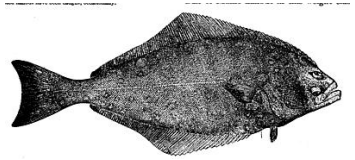
QUOTA CHANGE MODEL RESULTS - SECTORS

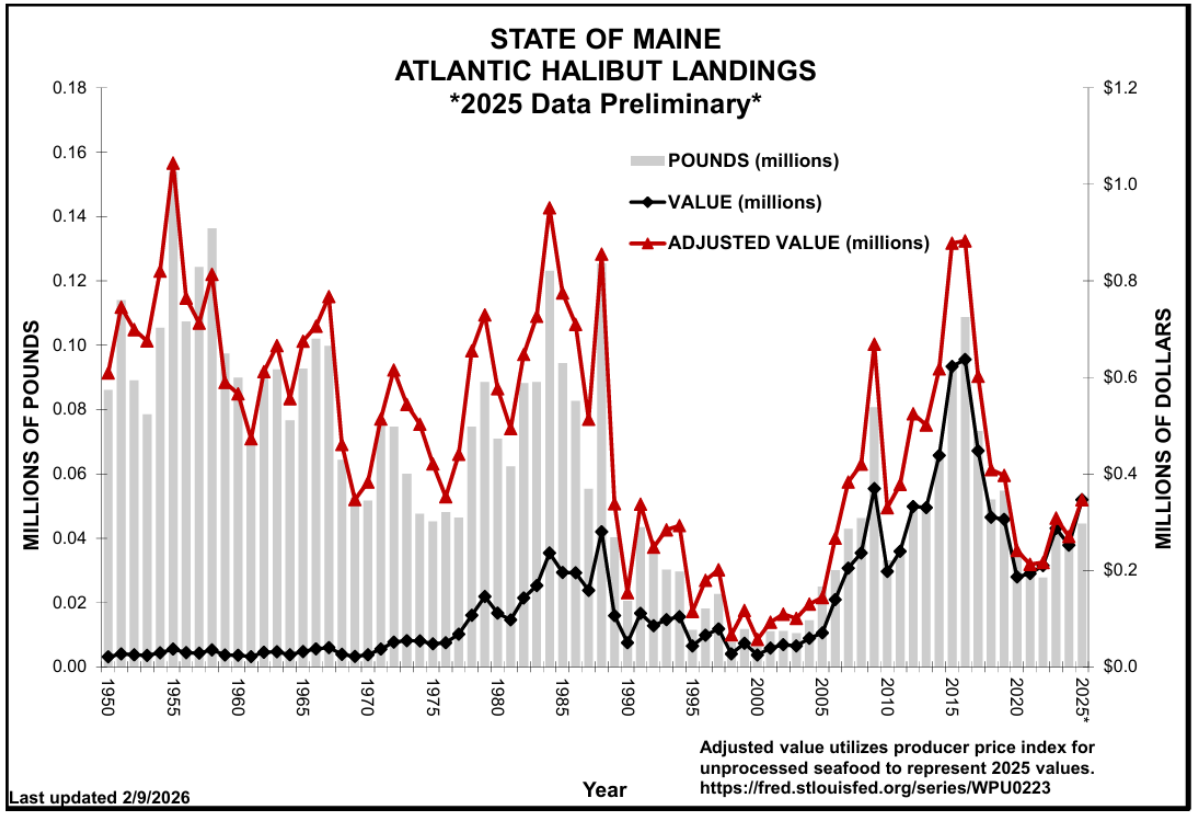


	FY	Sector sub-ACL	Catch (mt)		*Utilization (%)*		Gross Rev ($mil, 2025)	
			Realized	Predicted	*Realized*	*Predicted*	Realized	Predicted
Halibut	2012	N/A	57	23	*N/A*	*N/A*	0.3	0.3
	2013	N/A	54	42	*N/A*	*N/A*	0.3	0.3
	2014	N/A	46	44	*N/A*	*N/A*	0.4	0.1
	2015	N/A	59	47	*N/A*	*N/A*	0.4	0.3
	2016	N/A	57	45	*N/A*	*N/A*	0.4	0.4
	2017	N/A	68	74	*N/A*	*N/A*	0.5	0.5
	2018	N/A	70	73	*N/A*	*N/A*	0.5	0.5
	2019	N/A	77	89	*N/A*	*N/A*	0.5	0.6
	2020	N/A	49	72	*N/A*	*N/A*	0.5	0.5
	2021	N/A	41	72	*N/A*	*N/A*	0.4	0.5
	2022	N/A	29	43	*N/A*	*N/A*	0.2	0.3
	2023	N/A	32	35	*N/A*	*N/A*	0.2	0.3
	2024	N/A	41	31	*N/A*	*N/A*	0.3	0.2
	2025	N/A	42	25	*N/A*	*N/A*	0.4	0.2

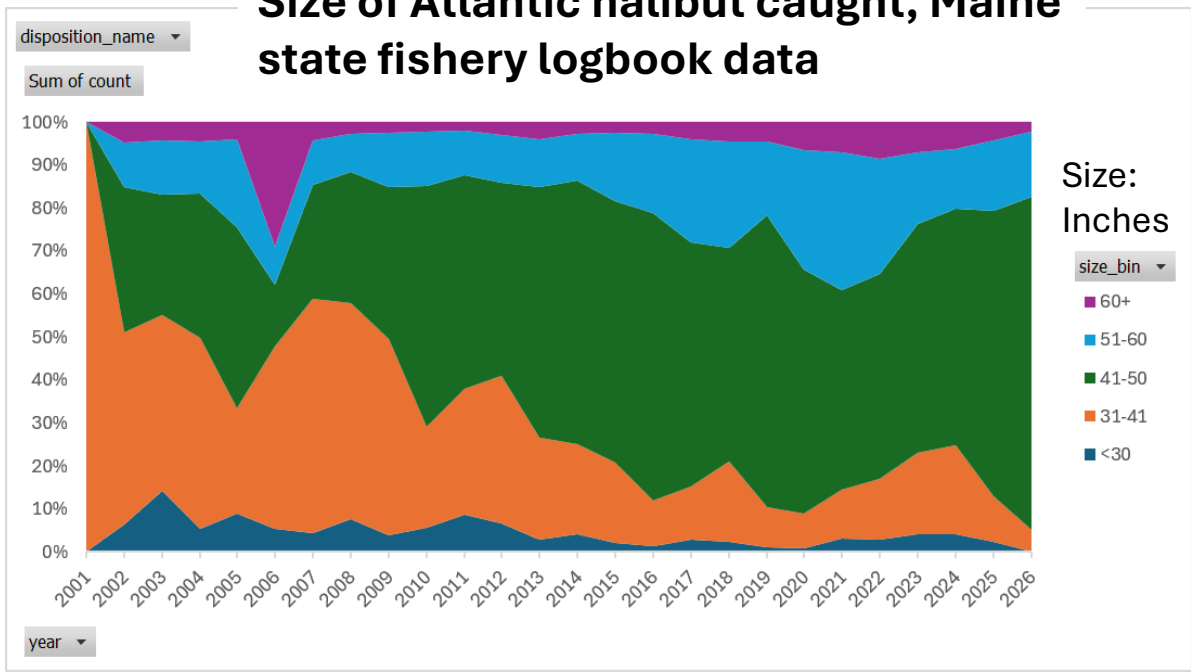
Non-allocated stock

MAINE STATE WATERS DIRECTED LONGLINE FISHERY



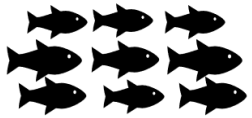


Managed by fish tag program and seasonal restrictions

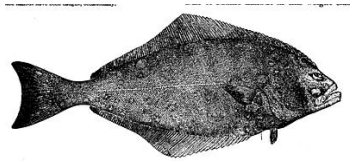


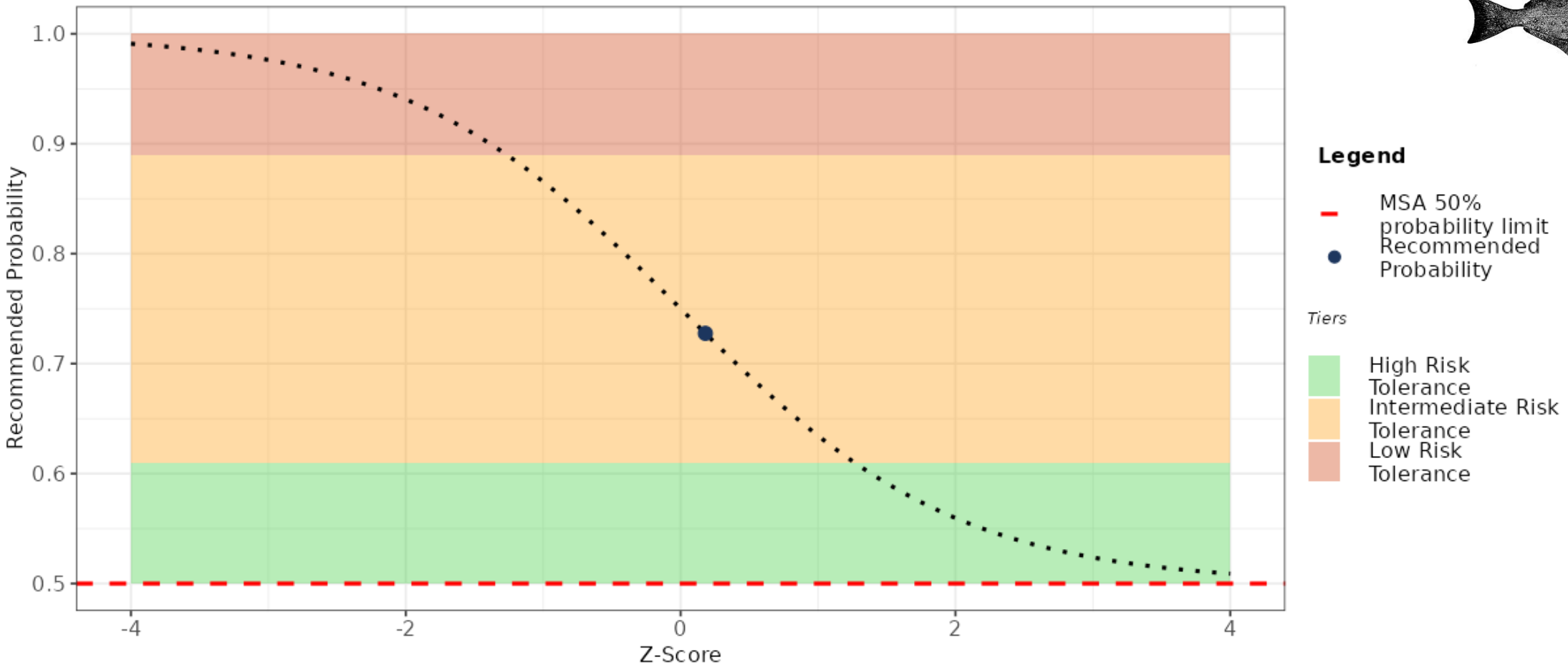
Source: MEDMR

ATLANTIC HALIBUT: RISK POLICY FACTORS, SCORING, AND WEIGHTING

Factor	Weight	Score	Scoring Details
 SSB / Stock Status	0.30	0	Empirical assessment without BRPs. From 2021-2025, 4 years are between 25th and 75th percentile of fall survey biomass time series (1 year >75th).
 Recruitment	0.26	0	No recruitment information is available.
 Climate Vulnerability	0.19	-3	High climate vulnerability (Hare et al. 2016). PDT recommended revising based on more recent information (Shackell et al. 2022).
 Commercial Fishery Characterization	0.25	3	Non-allocated stock, incidental catch (1 fish per trip) and revenue. Maine state waters directed fishery. Gear/area AMs for commercial GF fishery, zero possession AM for all federal permits. AP input: expect increased utilization under low sub-ACLs, AM concerns; sub-factor score of '+1'.
  Recreational Fishery Characterization	No sub-ACL	-	
			Total Z Score: **+0.18**

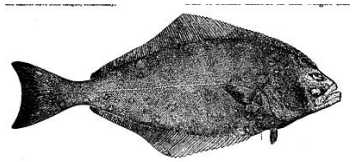
ATLANTIC HALIBUT: RISK POLICY OUTPUT





Z-SCORE = +0.18→ INTERMEDIATE RISK TOLERANCE

STATUS QUO CATCH ADVICE



OFL is unknown

Constant ABC approach

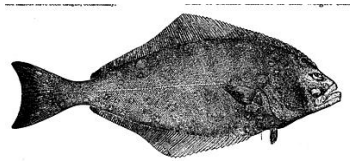
The current ABC was calculated as the terminal year catch multiplied by the catch multiplier from the FSD method:

Total ABC = 2023 catch (125 mt) X multiplier (0.848) = 106 mt

U.S. ABC – Reduced by Canadian catch estimate (71 mt) = 35 mt

Given information available and discussion on stock structure and connectivity that addresses the main uncertainties with the current FSD assessment method → **the PDT recommends an alternative option for setting catch advice for Atlantic halibut for FY2027-2031.**

CATCH ADVICE SETTING OPTIONS – ATLANTIC HALIBUT



The PDT identified two options for setting catch advice for the U.S. fishery:

1) Maximum U.S. catch from 2018-2025 time period: **125 mt** (*PDT recommended*)
2) Average U.S. catch from 2018-2025 time period: **74 mt**

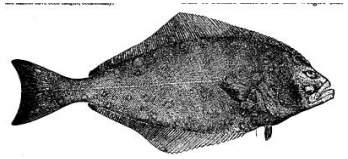
- Interim approach catch advice would be used to set the **U.S. ABC.**
- There would be **no Total ABC.**

Catch advice for these years was set using the FSD assessment approach. →

Calendar Year	U.S. Landings (mt)	U.S. Discards (mt)	U.S. Catch (mt)
2018	54.16	47.75	101.91
2019	49.58	75.55	125.13
2020	47.32	36.22	83.54
2021	38.78	22.27	61.05
2022	30.78	14.22	45
2023	37.37	14.75	52.12
2024	40.54	20.54	61.08
2025	42.37	20.72	63.09

Source: 2026 Data Update

ALTERNATIVE CATCH SETTING OPTIONS



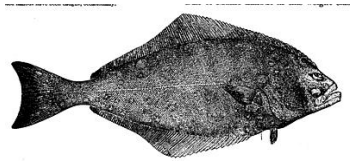
Goal: maintain U.S. fishery at current catch levels, including federal commercial groundfish fishery incidental catches and the limited Maine state directed fishery.

The PDT recommends the option to set the U.S. ABC at the maximum level of U.S. catches that has occurred in the recent time period, at 125 mt.

- Concern that average catch (74 mt) would not provide sufficient allowable catch and may unnecessarily constrain the U.S. fishery when there is not a biological concern given the status of the larger halibut stock.
- Context from VAST model based on DFO assessment (Shackell et al 2026) – PDT interprets as suggesting 3-6% of Canadian TAC reasonable for U.S. catches (at current TAC would be ~328 mt)

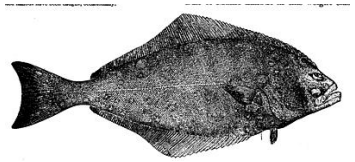
Potential next steps include consideration for an Ecosystem Component Species (ECS) or another alternative management approach

POTENTIAL ABCS – ATLANTIC HALIBUT



	Total ABC	Canadian Share	U.S. ABC
Status Quo	106 mt	71 mt	35 mt
Average Catch (2018-2025)	N/A	N/A	74 mt
Maximum Catch (2018-2025) **PDT Recommended**	N/A	N/A	125 mt

POTENTIAL OFLS AND ABCS – ATLANTIC HALIBUT



Average catch (2018-2025)

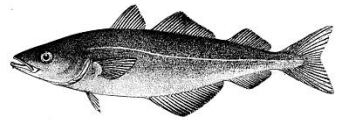
FY	OFL	ABC	U.S. ABC
2027	Unknown	N/A	74 mt
2028	Unknown	N/A	74 mt
2029	Unknown	N/A	74 mt
2030	Unknown	N/A	74 mt
2031	Unknown	N/A	74 mt

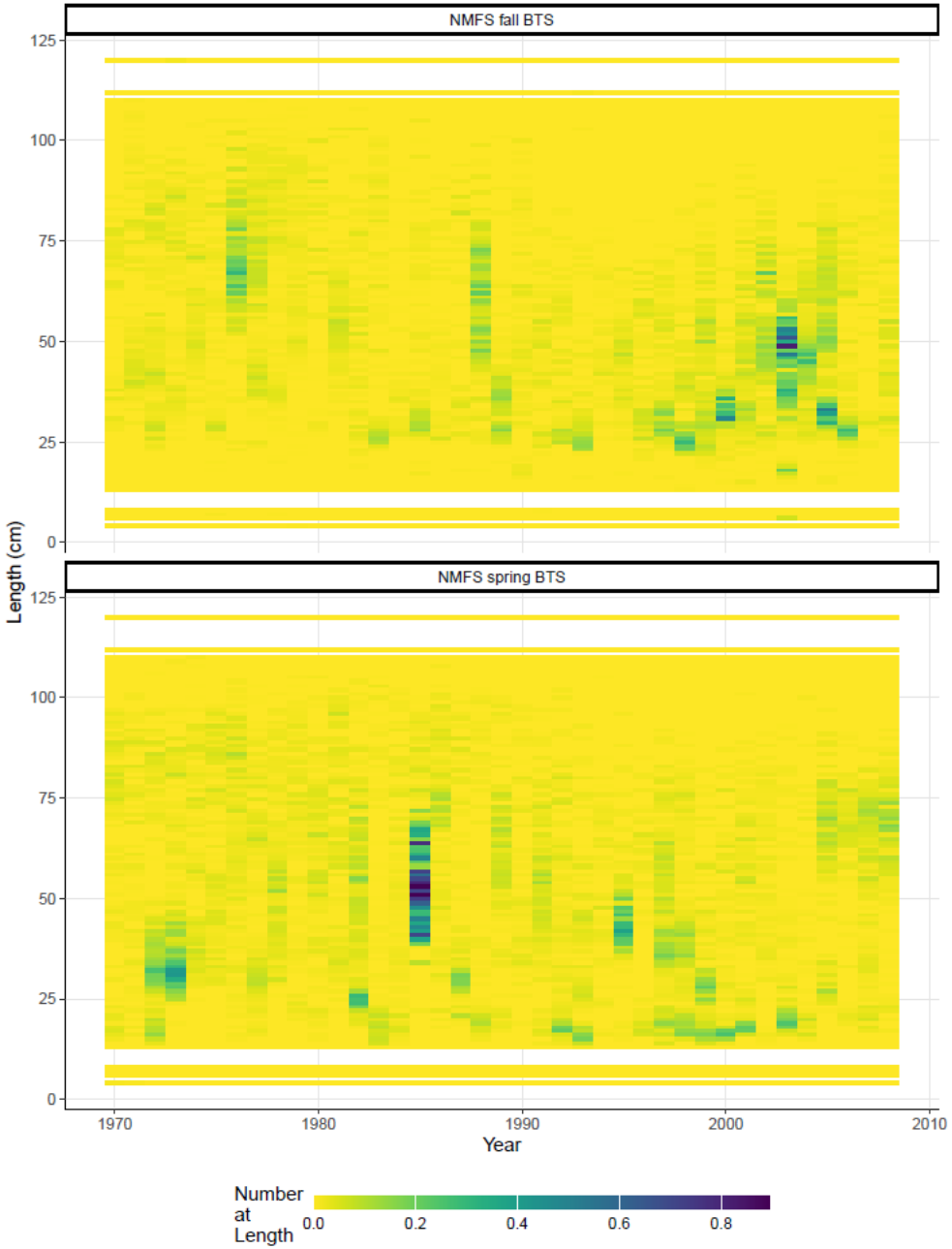
Maximum catch (2018-2025) – *PDT Recommended*

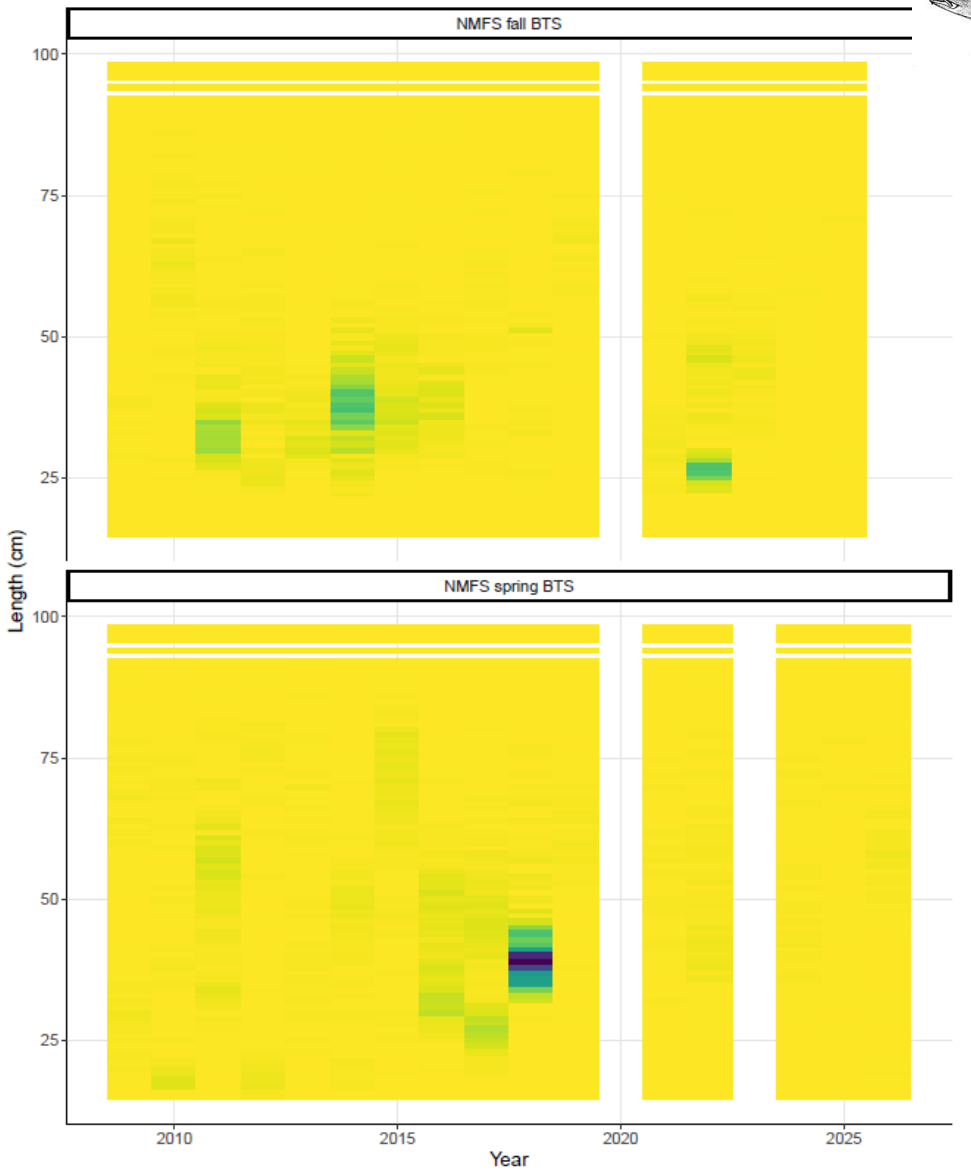
FY	OFL	ABC	U.S. ABC
2027	Unknown	N/A	125 mt
2028	Unknown	N/A	125 mt
2029	Unknown	N/A	125 mt
2030	Unknown	N/A	125 mt
2031	Unknown	N/A	125 mt

Extra Slides

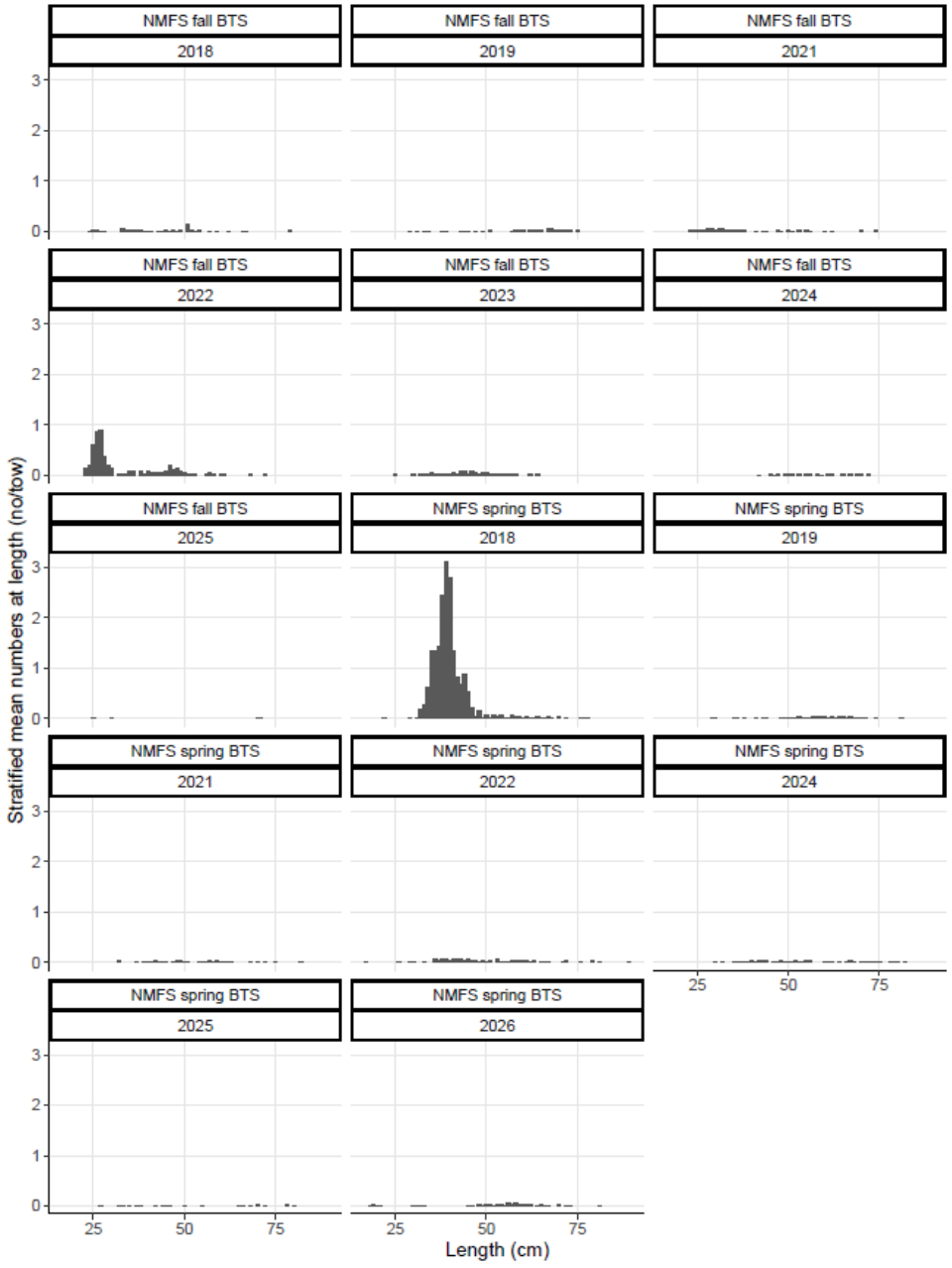
2026 DATA UPDATE – SURVEY STRATIFIED MEAN INDICES







2026 DATA UPDATE – SURVEY STRATIFIED MEAN INDICES



2026 DATA UPDATE - TOTAL CATCH

