Northeast Skate Complex

Dr. Rachel Feeney, Skate Plan Coordinator

Scientific and Statistical Committee Meeting

Boston, MA and by webinar

August 19, 2025

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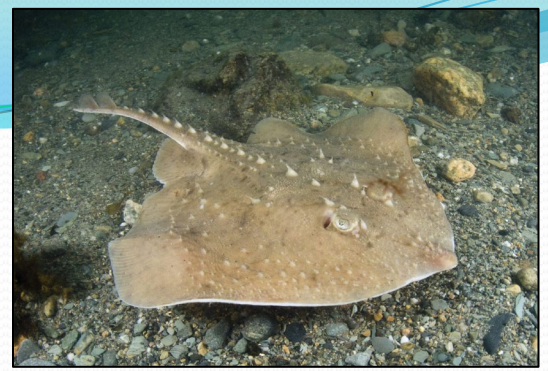
Fishery Management Council

Terms of Reference



A. Consider the results of the Northeast Fisheries Science Center's (NEFSC) 2025 Data Update for the Northeast skate complex and information provided by the Council's Skate Plan Development Team (PDT).

B. Recommend an OFL and ABC for the Northeast skate complex for FY 2026 – 2030 (defaults for 2028 - 2030) that will prevent overfishing, meet the management objective to rebuild thorny skate, are consistent with the Council's skate ABC control rule and thorny skate rebuilding plan, and consider the Council's Risk Policy Statement and Concept.

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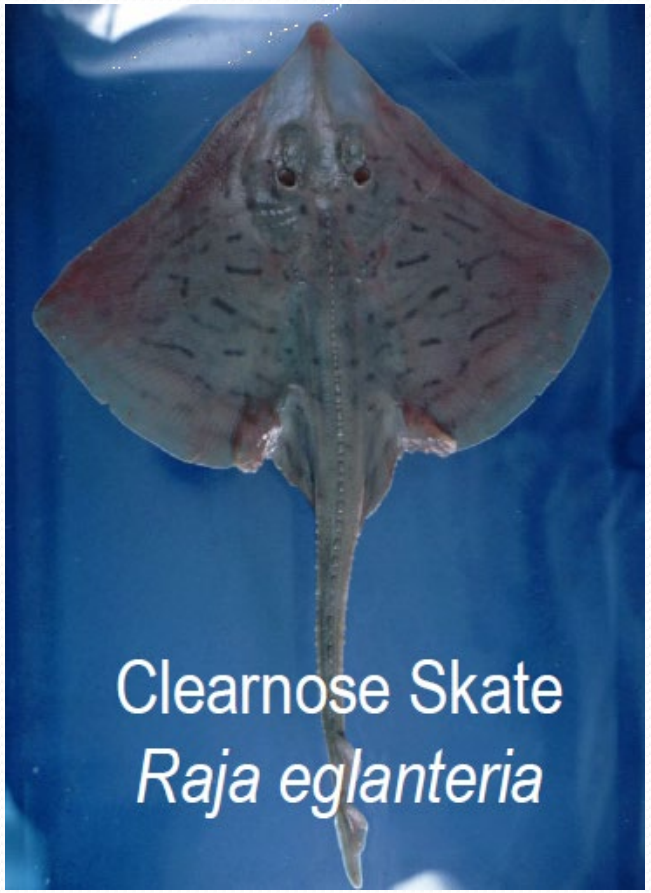
Images courtesy of NOAA.

Outline

- NEFSC 2025 Skate Data Update
- Skate Plan Development Team Updates
  - Reference points and stock status
  - Potential OFLs and ABCs
  - Responses to SSC recommendations in 2023
  - Specifications flow chart
  - Risk Matrix & notes on fishery performance



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Skate Data Update

provided by
NEFSC/Population Dynamics Branch
August 1, 2025

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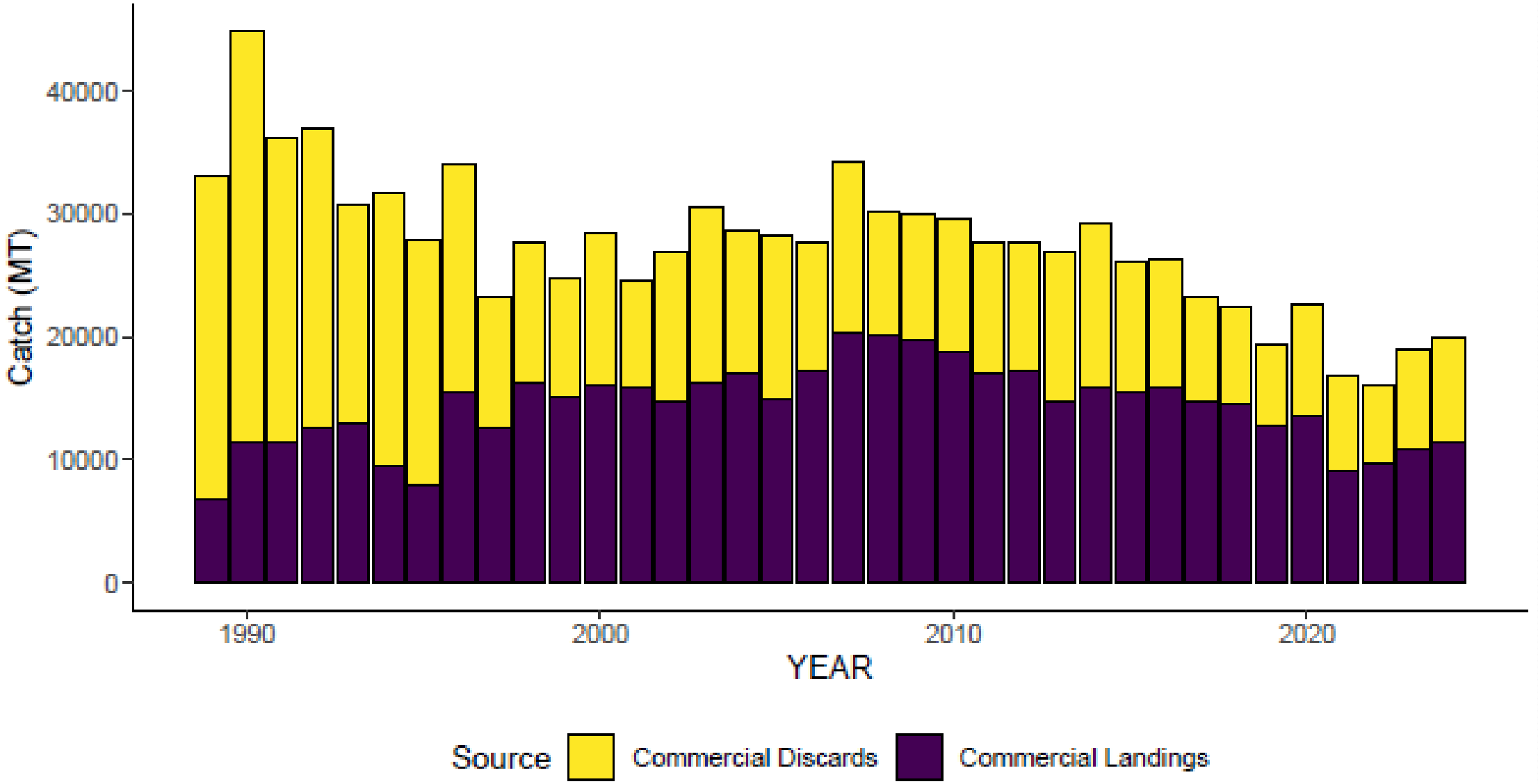
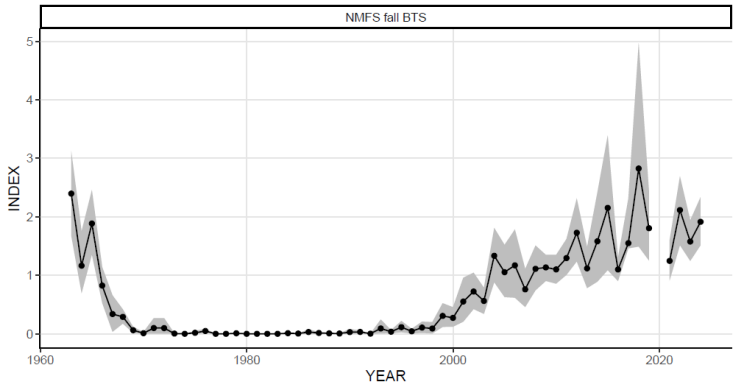
Catch Data *(commercial only)*



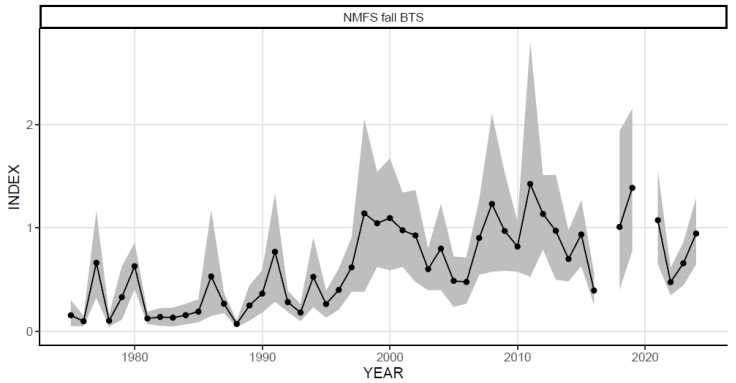
Survey Data

Survey Biomass Indices

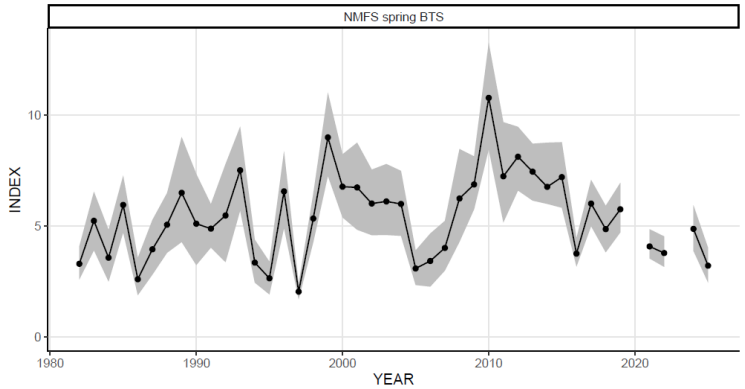
Barndoor



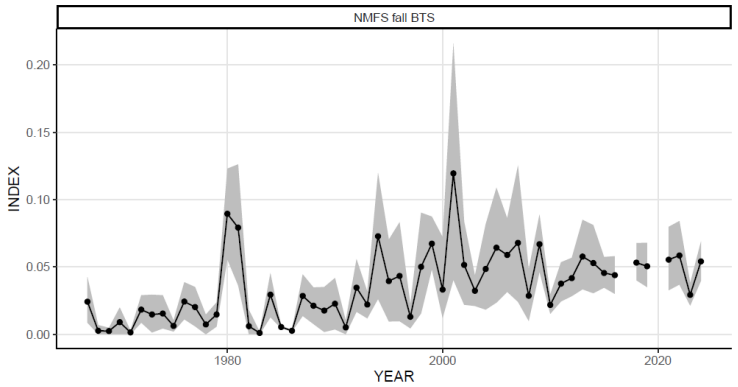
Clearnose



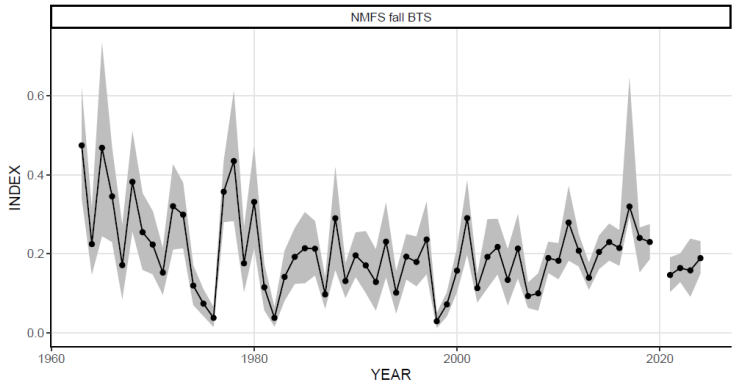
Little



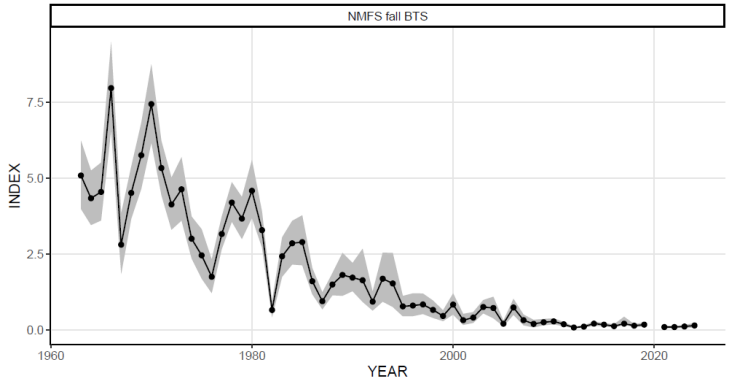
Rosette



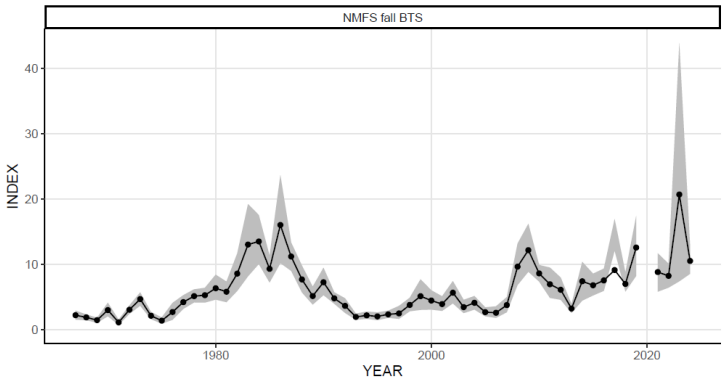
Smooth



Thorny



Winter



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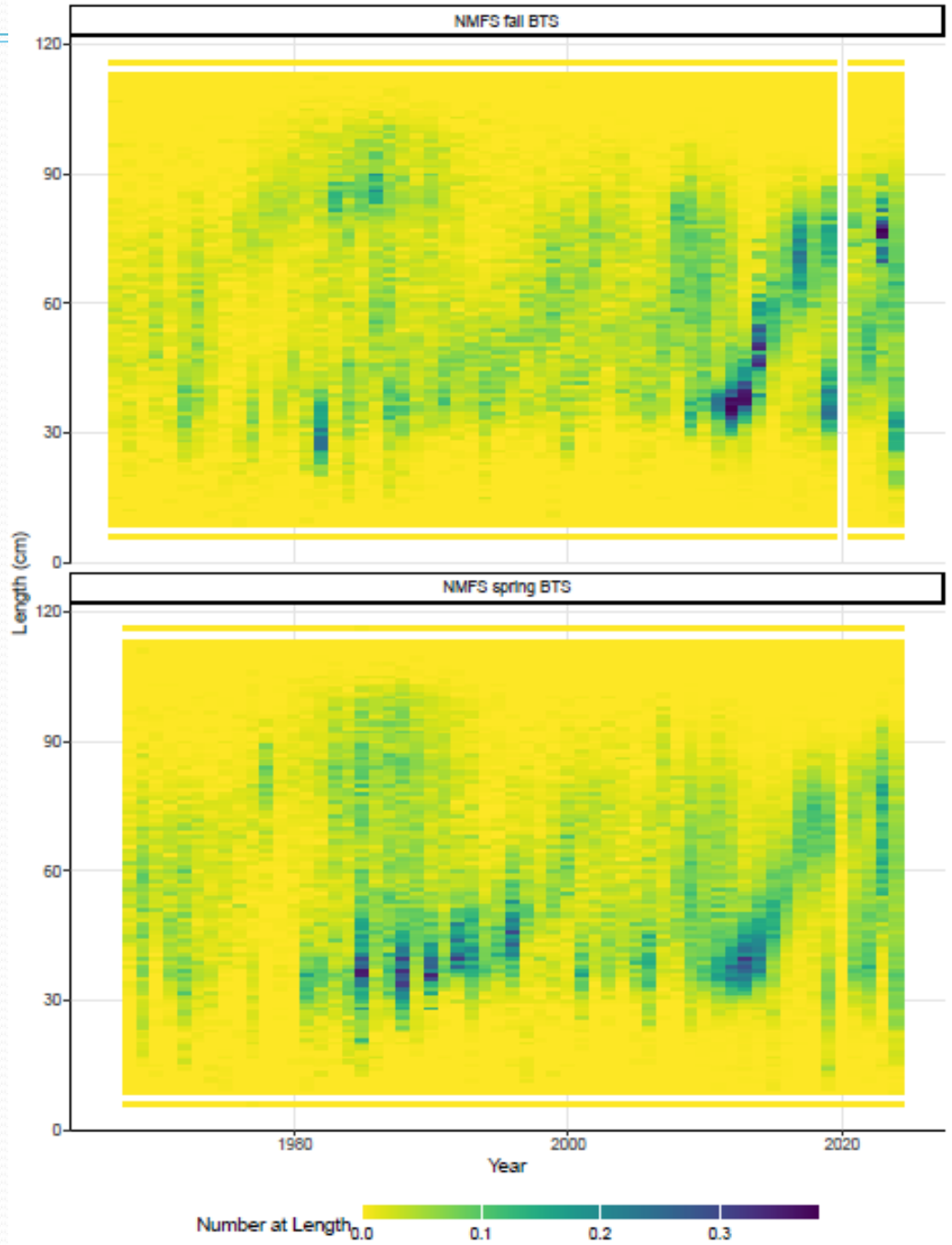
Survey Data

Stratified mean indices at length; example: winter skate, 1967-2024



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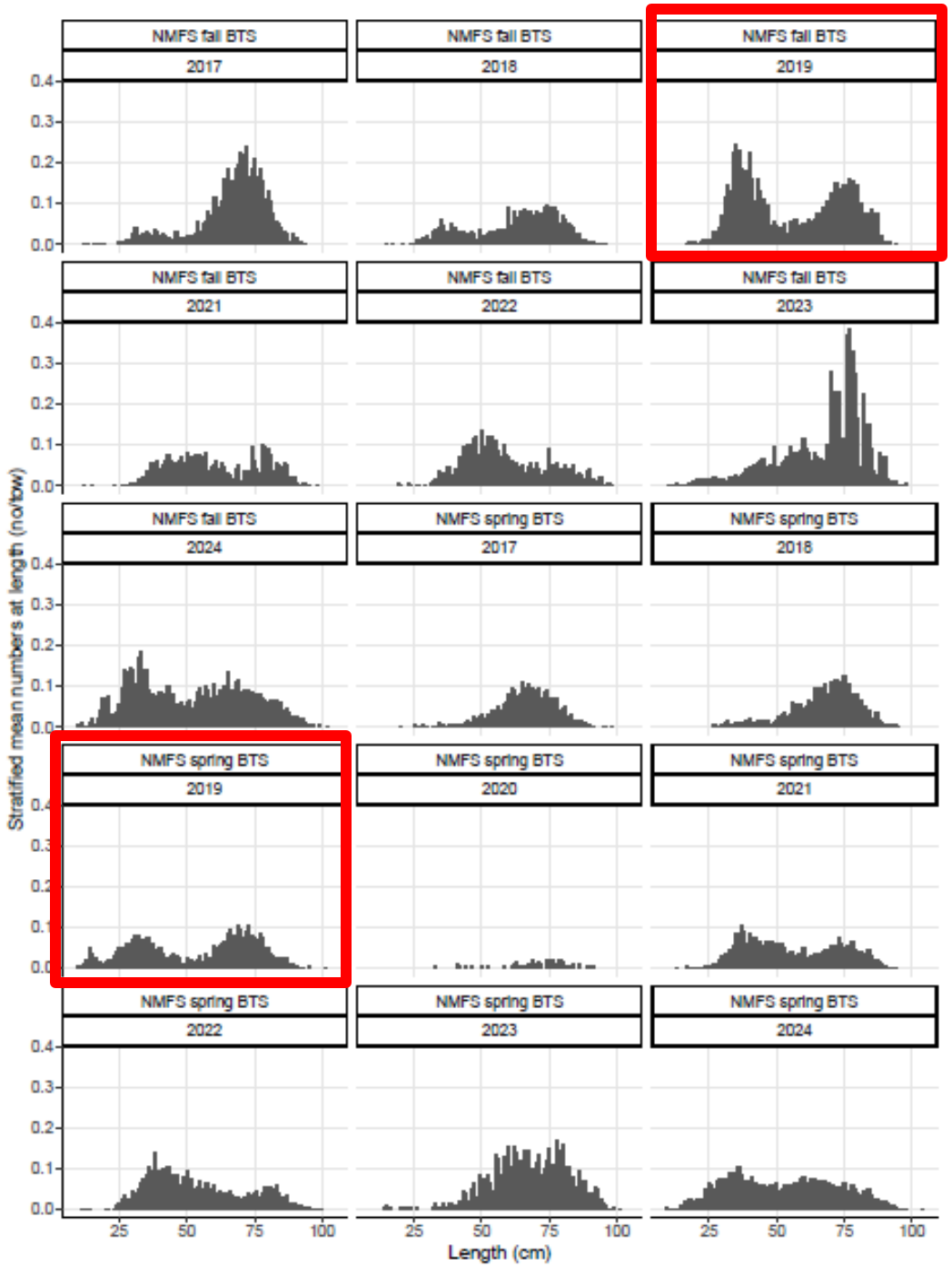
Survey Data

Stratified mean indices at length; example: winter skate, 2017-2024



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Skate PDT Updates

(in consultation with PopDy analyst)

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Reference Points

Known errors in speciation of fishery data and uncertain population dynamics led to use of NEFSC bottom trawl survey data as proxy for fishing mortality (F). Reference point methods set in Original FMP (2003) and Amendment 3 (2009).

Proxies of B_{MSY} and MSY:

- $B_{MSYproxy} = B_{target}$ = the 75th percentile (average for barndoor) of its Survey Biomass Index (full time series), measured in kg/tow.
- $B_{threshold} = 0.5 * B_{target}$
- Skate complex MSY_{proxy} calculated by:
    - "Catch" is total landings from dealer data, vessel to vessel transfers from VTR data, dead discards, and recreational catch (kg).
    - "Biomass" is the survey biomass index (kg/tow).
    - The MSY_{proxy} for each species is the median catch/biomass (1981-2022) is multiplied by its B_{target} (kg/tow). Then, sum all seven skate $MSY_{proxies}$.

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Reference Points

Species	2023 Assessment			2025 data update		
	C/B (K mt/kg/tow)	B_{target} (kg/tow)	MSY_{proxy} (mt)	C/B (K mt/kg/tow)	B_{target} (kg/tow)	MSY_{proxy} (mt)
Barndoor	1.97	1.57	**3,100**	1.97	1.57	**3,100**
Clearnose	3.15	0.96	**3,028**	3.15	0.96	**3,028**
Little	2.23	6.76	**15,063**	2.09	6.76	**14,108**
Rosette	1.26	0.053	**66**	1.26	0.05	**66**
Smooth	2.43	0.23	**567**	2.43	0.23	**567**
Thorny	1.64	2.83	**4,650**	1.64	3.08	**5,062**
Winter	2.01	7.59	**15,224**	2.01	7.59	**15,224**
			Skate MSY_{proxy} = 41,698			**41,155**

- Two errors were discovered in how the 2023 assessment calculated MSY_{proxy}.
- Should be revised to 41,155 mt.

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Reference Points

Overfishing:

- Definition: If the % change in the latest 3-year moving average of the survey biomass index > average CV of the Survey Biomass Index (full time series), then fishing mortality is assumed to be > F_{MSY} and overfishing is occurring.

	Barndoor	Clearnose	Little	Rosette	Smooth	Thorny	Winter
2022-2024 vs. 2021-2023	+13%	-6.8%	-	+4.2%	+6.3%	+20%	+4.3%
2024-2025 vs. 2022, 2024*	-	-	-6.7%	-	-	-	-
% change for overfishing	-30%	-40%	-20%	-40%	-30%	-30%	-20%

* two-year average

Official Status = overfishing not occurring on any species

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Reference Points

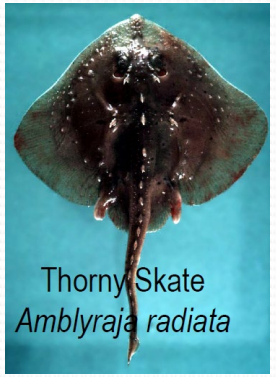
Overfished:

- Definition: if the latest 3-year moving average of the survey biomass index is < $B_{threshold}$

	Barndoor	Clearnose	Little	Rosette	Smooth	Thorny	Winter
2022-2024	1.87	0.69	-	0.046	0.17	0.12	13.1
2024-2025*	-	-	4.03	-	-	-	-
$B_{threshold}$	0.78	0.48	3.38	0.026	0.12	1.54	3.79

* two-year average

Official Status = thorny skate is overfished



Thorny skate at 4.9% of B_{target}, 22 years into 25-year rebuilding period.

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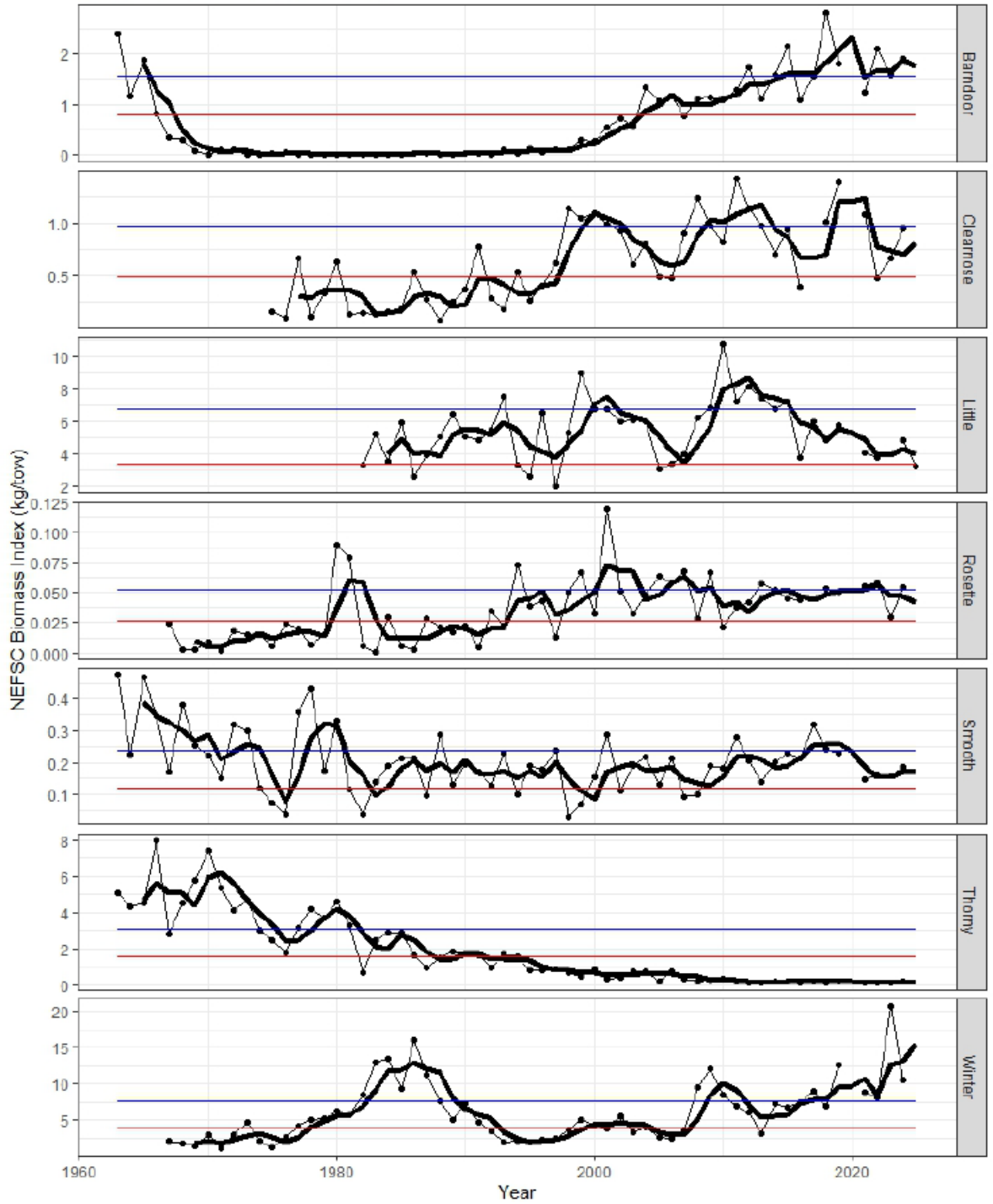
Reference Points

Survey biomass indices relative to:

- B_{target} (blue)
- $B_{threshold}$ (red).



Barndoor

Clearnose

Little

Rosette

Smooth

Thorny

Winter

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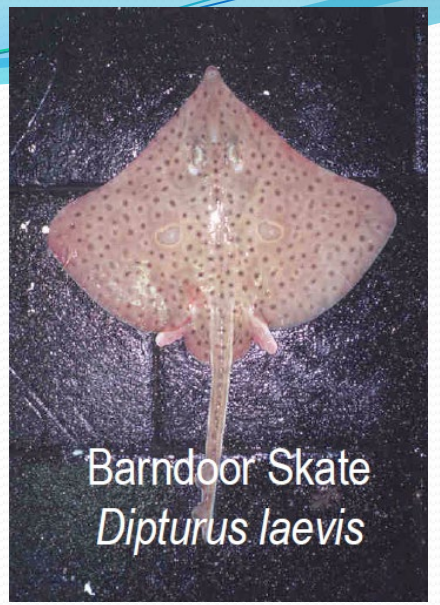
Skate OFL



The PDT recommends that the OFL for the Northeast Skate Complex continue to be **unknown**.

Rationale: The continued lack of an analytical assessment has precluded the estimation of absolute biomass and the fishing mortality rate. An OFL cannot be calculated without these parameters.

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ABC Control Rule

"ABC is the median ratio of catch/biomass of each of the seven skate species multiplied by its three-year moving average stratified mean biomass (weight/tow) for skates, summed over the seven skate species in the management unit."

"This method is considered an interim proxy for an ABC until an OFL and its uncertainty can be quantified."

1. For each species:

$$\text{Median long-term } \frac{\text{Catch (kg)}}{\text{Biomass (kg/tow)}} * \text{Latest 3-year average Biomass (kg/tow)} = \text{ABC}$$

used 1981-2022 per 2023 assessment

used = fall 2022-2024, spring 2024-2025

2. Sum over all species = ABC for complex

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Skate ABC

Species	FY 2024-2025 ABC (actual)			FY 2026-2027 ABC (proposed)		
	C/B Median	Survey Biomass	ABC	C/B Median	Survey Biomass	ABC
Barndoor	1.97	1.68	3,319	1.97	1.87	3,690
Clearnose	3.15	0.77	2,438	3.15	0.69	2,181
Little	2.23	3.92	8,739	2.09	4.03	8,421
Rosette	1.26	0.06	72	1.26	0.05	59
Smooth	2.43	0.15	377	2.43	0.17	414
Thorny	1.64	0.09	155	1.64	0.12	193
Winter	2.01	8.50	17,055	2.01	13.13	26,332
TOTAL			**32,155**			**41,282**

- 28% increase over the FY 2024-2025 ABC of 32,155 mt, driven be increase in winter skate biomass.
- ABCs have not been >40,000 mt since FY 2013.
- Recent trends in indices suggest $P_{overfishing}$ is low.
- 41,282 mt recommended for FY 2028-2030 defaults. Discussed a tiered reduction, but status quo would be more consistent with existing regulations.

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PDT Response to 2023 SSC Recommendations

SSC Comment - specifications	PDT Response
Revisit overfished & overfishing definitions, consider non-stationarity	Current definitions are 20+ years old and worth revisiting, would need a research track assessment and FMP amendment.
Further characterize uncertainty in biomass and stock status.	Could do in a future management track assessment.
Explore use of a length-based analytical assessment model.	Could be included in an RTA and improve speciation in data streams prior to 1994.

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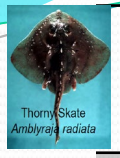
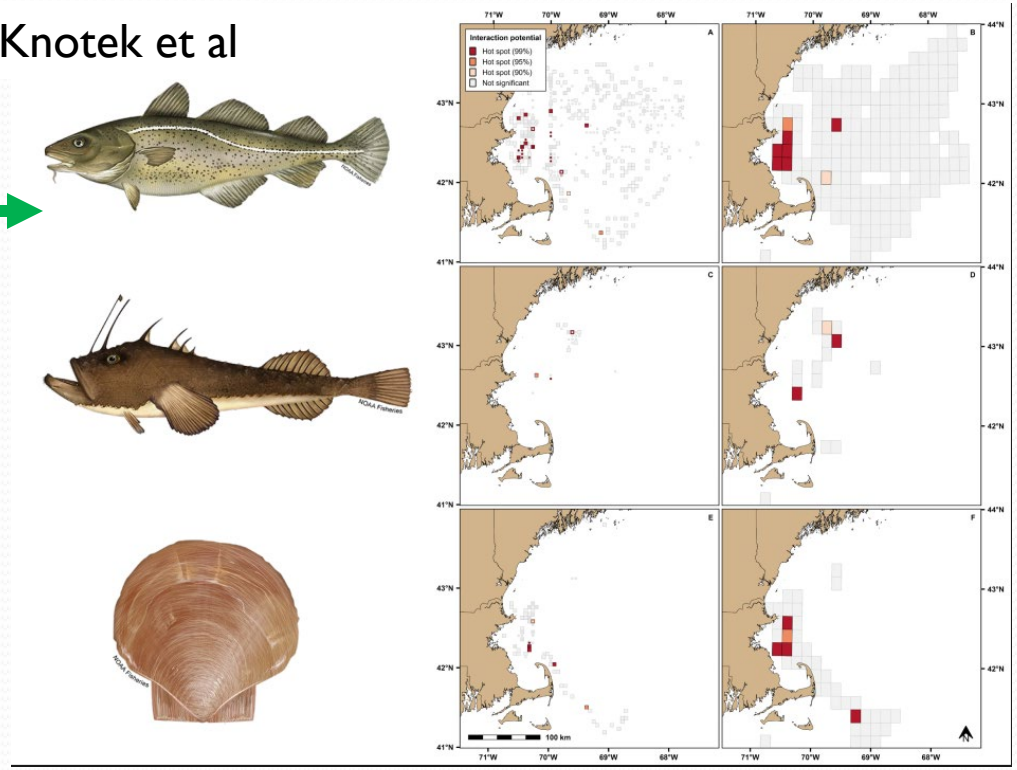
PDT Response to 2023 SSC Recommendations



SSC Comment – thorny skate	PDT Response
Identify spatial and temporal overlaps between resource and fisheries.	Knotek et al developed a fishery hotspot tool for identifying overlaps with groundfish, monkfish and scallop fisheries.
Provide findings of genetic structure work.	Lesturgie et al (2025): mitochondrial DNA sequencing of NE and NW Atlantic (GOM, Canadian) populations.

Knotek et al



- 2 metapopulations: Northeast and Northwest
- Large and small size morphs in Northwest, only small in Northeast
- Assortive mating in the GOM, could contribute to lack of rebuilding
- Both morphs caught in fisheries, smaller morph has higher discard mortality
- Thorny skates are not leaving the GOM, contracting to cooler deeper waters within.

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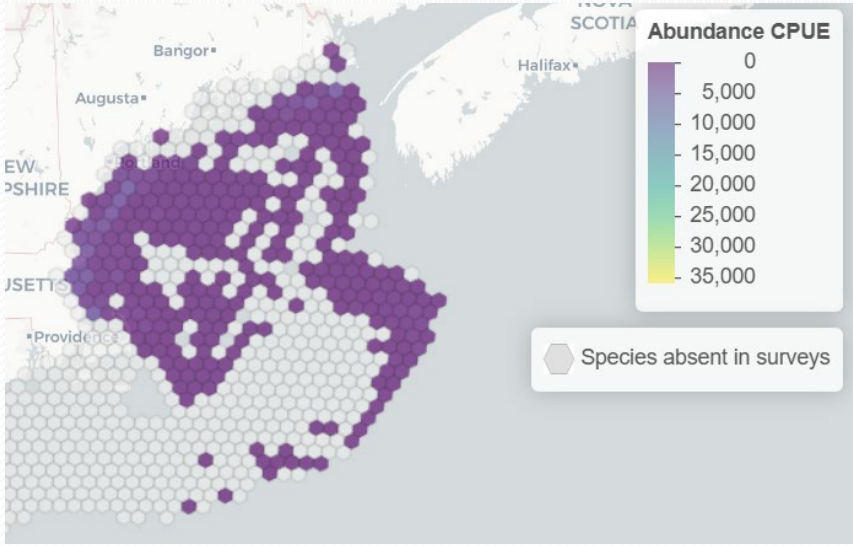
PDT Response to 2023 SSC Recommendations

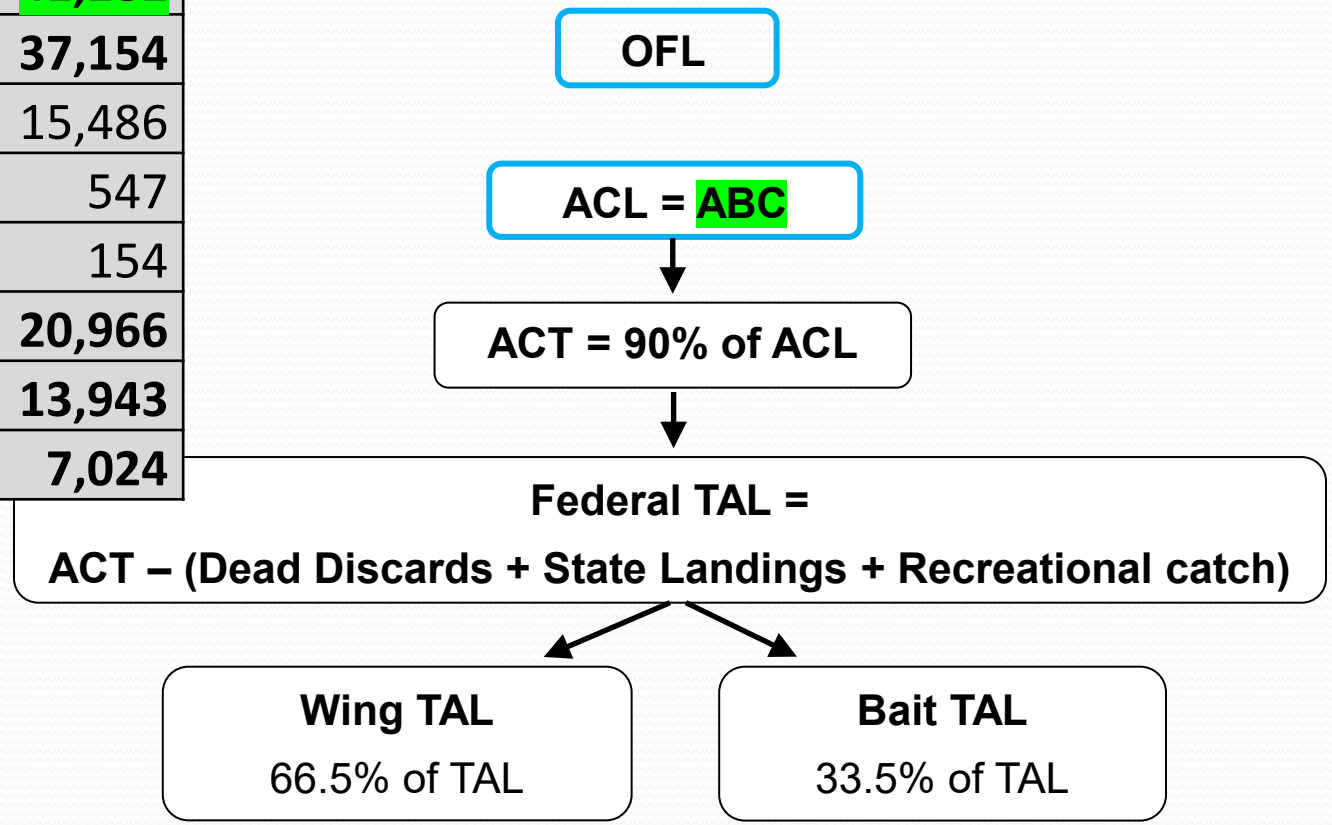
SSC Comment – thorny skate	PDT Response
Distribution metrics would be helpful (e.g., area occupied, mean depth, center of biomass)	Distribution metrics for all species in 2023 MTA; more could be provided and discussed in future assessments.
Explore relationship between distribution, other stock dynamics, ecosystem, climate	For a future RTA.
Explore prey availability, predator populations	For a future RTA.
Identify spawning habitats, other important areas for its life cycle	For a future RTA. Habitat PDT developed shiny app for the Northeast Regional Habitat Assessment.
Explore use of length data, state surveys	Length data, state surveys available. Thorny shifting to deeper waters.
Improve speciation for historical comparisons	No progress since 2023 MTA.
Gear modifications implemented?	Unknown if other fisheries have had gear modifications to reduce thorny bycatch.

Survey distribution, 2010-2019



Specifications Flowchart

	Actual Specifications		26-27 Potential
	22-23	24-25	
ABC = ACL	**37,236**	**32,155**	**41,282**
ACT (90% of ACL)	**33,513**	**28,940**	**37,154**
Dead Discards	11,856	12,149	15,486
State Landings	515	756	547
Recreational Catch	n/a	316	154
Federal TAL	**21,142**	**15,718**	**20,966**
Wing TAL (66.5% TAL)	**14,059**	**10,453**	**13,943**
Bait TAL (33.5% TAL)	**7,082**	**5,266**	**7,024**



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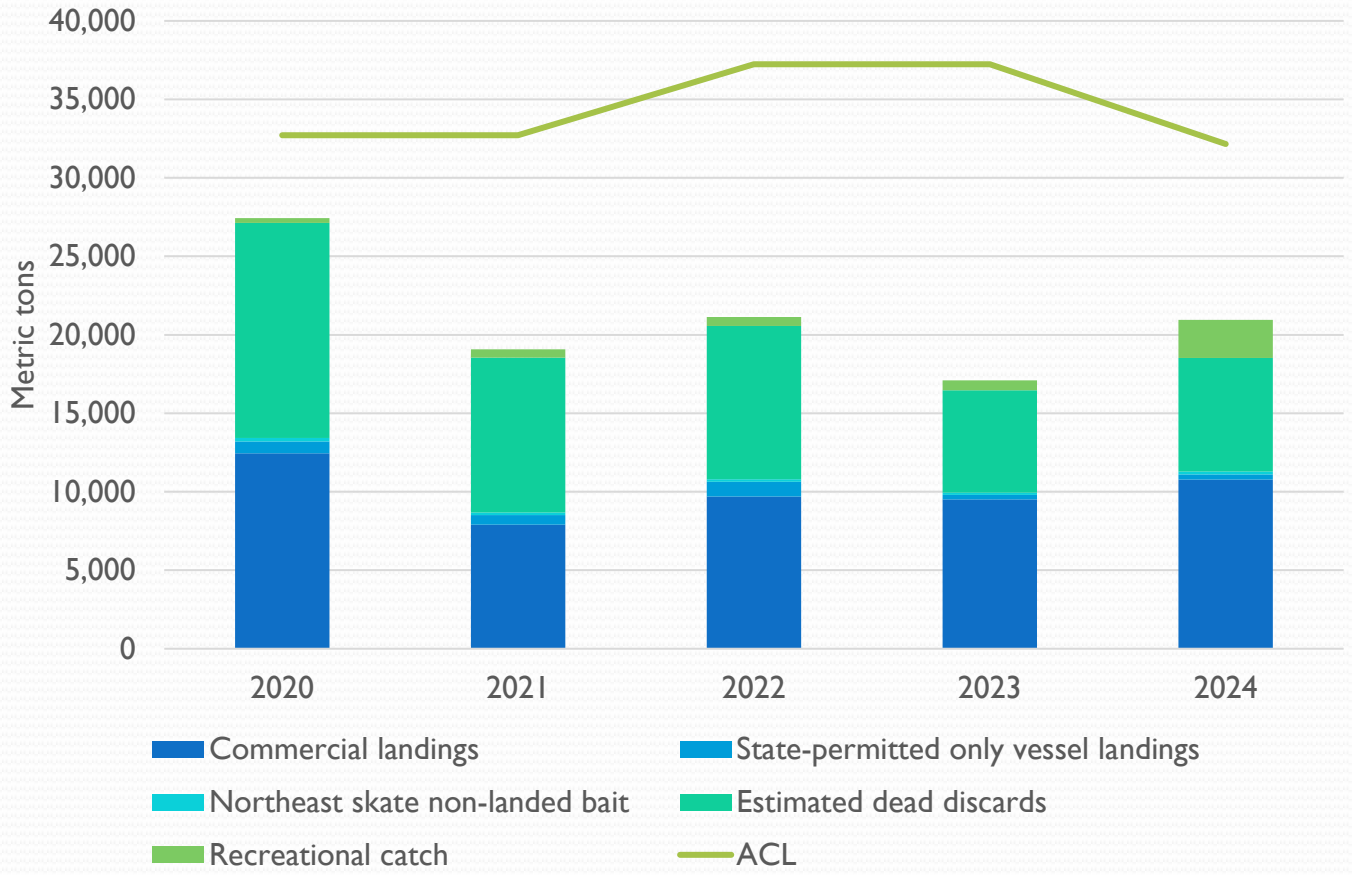
Fishery Performance

Fishing Year Catch vs. ACLs



- Catch 46-84% of ACL since FY 2020.
- ACL has never been exceeded.
- Discards ~17-42% of catch since FY 2020, declining since 1989, largely from scallop dredge and otter trawl gear.

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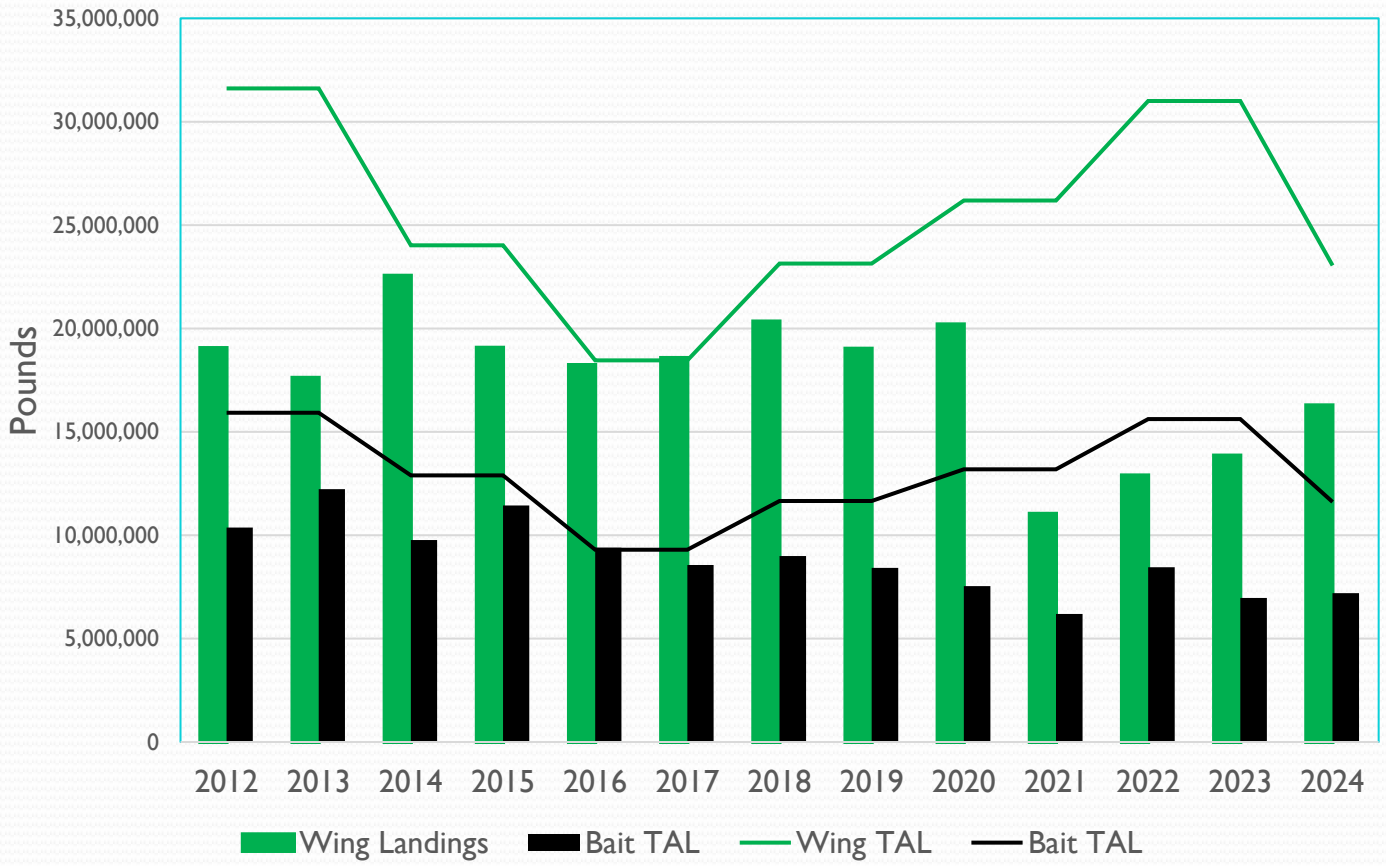
Fishery Performance

Fishing Year Landings vs TALs



- TALs not exceeded since FY 2017.
- Bait landings more constant than wing; bait is a more directed fishery, wing more incidental or dependent on groundfish and monkfish fisheries.

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Council's Risk Policy

Considerations:

- Known issues with species identification in catch data, uncertain life histories.
- No spring 2023 survey, but fewer gaps than in other recent specification setting cycles.
- Surveys indicate stable conditions overall, barndoor and winter > B_{target}, thorny <$B_{threshold}$.
- Winter and little skates are the primary target species, highest biomass indices; winter skate index has increased.
- ABC per control rule (41,285 mt) ≈ MSY_{proxy} (41,155 mt). MSY_{proxy} can be thought of as the allowable catch if all skate species were at B_{target}. Some are above, some below.
- The only skate species that have ever been subject to overfishing were winter and thorny skates, both in 2013-2014. ABC lowered in FY 2014-2015 and in FY 2016-2017; likely contributed to ending overfishing. Recent trends in indices suggest current $P_{overfishing}$ is low.
- Since 2010, the only skate species that has been overfished has been thorny skate.

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Council's Risk Policy

Considerations (cont.):

- Federal skate permit is open-access, but another limited access permit is needed for most directed fishing; effort largely on groundfish and monkfish Days-at-Sea trips.
- Skate possession limits and markets constrain TAL use.
- Fishery revenue $5-9M since 2010, varying with wing landings more than bait.
- Total active federal skate vessels declined from 528 in 2012 to 242 in 2024.
- Of 400 total ports active since 2010, 8 primary and 20 secondary, MA to NC.
- Fishery centered in Chatham, New Bedford, Pt. Judith.
- Recreational catch is small; speciation uncertain.
- Discards are largely in fisheries not targeting skates; not allocated.