



**NOAA
FISHERIES**

CCIEA Team Report on FEP Initiative 4

A framework for incorporating
climate and ecosystem information
into ABC buffers

PFMC Meeting Agenda Item H.1

September 20, 2024

The bottom line

The CCIEA Team report describes a clear pathway and transparent process for using climate, ecosystem, and assessment-specific considerations in fine-tuning the setting of scientific uncertainty for groundfish.

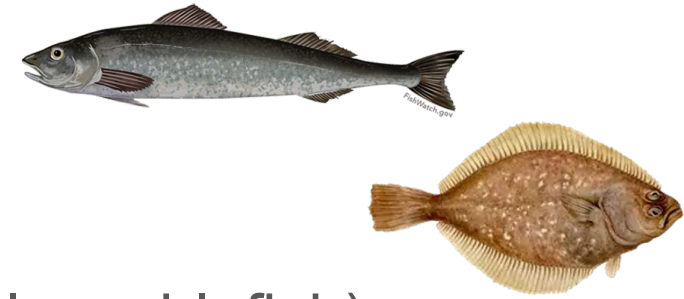
CCIEA team report

<https://www.pcouncil.org/documents/2024/08/h-1-a-cciea-team-report-1-cciea-risk-table-report-on-fep-initiative-4.pdf/>

Road map of today's presentation

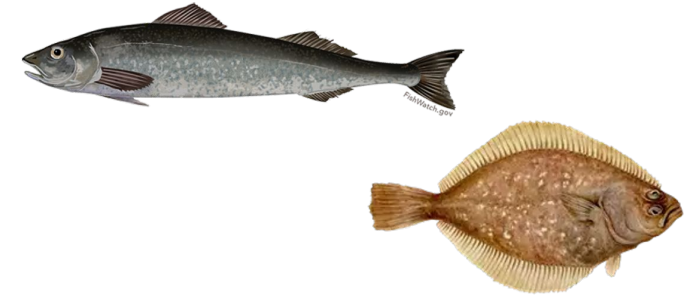
1. Background, revised evaluation approach, and updated sablefish and petrale sole tables
2. Worked retrospective examples of ABC buffers
3. Proposed implementation in groundfish harvest specifications process

Timeline of risk table development for PFMC



- EWG developed pilot risk tables for groundfish (petrale sole, sablefish) for Sept 2023 Council meeting
- SSC-ES and SSC-GS reviewed FEP Initiative 4 (risk tables) in Sept 2023 (SSC endorsed report in Nov)
- Last March, CCIEA team proposed, with EWG support, that SCs:
 - (1) refine the risk tables based on feedback from SSC subcommittees
 - (2) generate examples of how risk tables could inform groundfish mgmt
 - (3) present new developments to the SSC-ES for review prior to Sept 2024

Timeline of risk table development for PFMC



H.2 Fishery Ecosystem Plan Initiative 4 – Progress Review

Council Action:

1. Identify On-Ramps for Climate and Ecosystem Information including Harvest Policies and Specific Management Actions
2. Council Discussion and Direction on Next Steps

CDFW Motion H2

I move the Council:

- Task the EWG to work with NMFS ecosystem, groundfish, and other science center staff to further explore development of a methodological framework for risk tables and apply it to groundfish, as described in the Agenda Item H.2.a Supplemental EWG Report 2, item 1.
 - Include in this a retrospective analysis of how risk tables would have impacted decision making in past groundfish assessments if they had been used in the manner currently envisioned.
 - If sablefish and Petrale sole are prioritized for assessment in 2025 or the risk tables are approved for use without a new assessment, update, finalize, and include their risk tables to be considered as a part of those stock assessments and the 2027-2028 harvest specifications process.
- Task the EWG to work with NMFS and the appropriate advisory bodies to broaden the application of risk tables to the Salmon FMP as described in Agenda Item H.2.a Supplemental HC Report 1.
- Delay Council development of risk tables for data-limited species or groups or other FMP species until a later date.

Moved by: John Ugoretz
Seconded by: Marc Gorelnik

Motion passes, Brad Pettinger abstains

Outcome of March 2024 Council meeting:

The Council directed the EWG to work with SC staff to:

- (1) further develop the risk table methodology and apply it to groundfish, incl. retrospective analysis
- (2) broaden development of risk tables to include Sacramento and Klamath River salmon stocks

The Council endorsed SSC review of this topic and a report back in September 2024



The 'what' and 'why' of risk tables

ECOSYSTEM HEALTH AND SUSTAINABILITY
2020, VOL. 6, NO. 1, 1–11
<https://doi.org/10.1080/20964129.2020.1813634>

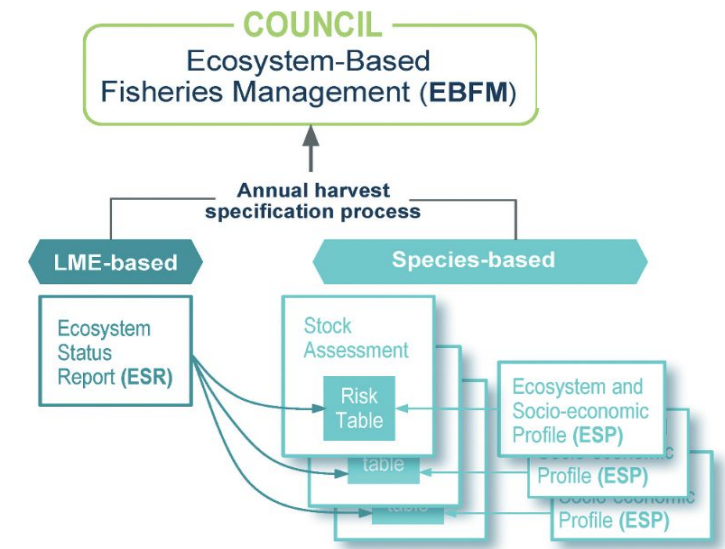


OPEN ACCESS Check for updates

A risk table to address concerns external to stock assessments when developing fisheries harvest recommendations

Martin W. Dorn and Stephani G. Zador

Resource Ecology and Fisheries Management, Alaska Fisheries Science Center, Seattle, WA, USA



- Formalizes and documents the process for a reduction of ABC and if contextual information is used to inform this decision, provides transparency
- Normalizes discussions between stock assessors and ecosystem scientists

How might we use information from risk tables for groundfish in the PPMC process?

1. The selection of scientific uncertainty (sigma) by the SSC when an assessment is conducted
2. The selection of the risk policy (P^*) set by the Council
3. The setting of either/both sigma or P^* in between new stock assessments (e.g., the time-varying penalty on sigma)
4. Develop a different process for the SSC to set the ABC directly and use risk table to inform that decision

SSC-ES/GS November 2023 report on FEP Initiative 4

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SSC-ES/GS November 2023 report on FEP Initiative 4

Proposed PFMC risk table structure

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- 3 Levels → Risk neutral
- 3 types of information
 - Eco/env:
 - environmental drivers
 - prey & predators
 - competitors
 - habitat
 - non-fisheries human activities
 - CVA rank
 - Assessment: data quantity/quality, assumptions and model fits to data
 - already used in assessments, now with greater clarity and transparency

	Ecosystem/ Environmental conditions	Assessment data inputs	Assessment model fits and structural uncertainty
Level 1: favorable			
Level 2: neutral			
Level 3: unfavorable			

Completing the table: facilitated and structured conversation between ecosystem scientists and stock assessors

- Facilitated discussion with ecosystem scientist, stock assessment scientist, “bridge” person, and facilitator
- Goals of the conversation:
 - Describe recent ocean and ecosystem conditions that may influence stock productivity that are NOT captured by the stock assessment
 - Describe major sources of uncertainty in the stock assessment data inputs, model structure, and model performance



Redeveloped tables for sablefish and petrale sole



Mapping terminology onto catches



Higher catches

Low sigma

High P^*

High ABC/ACL

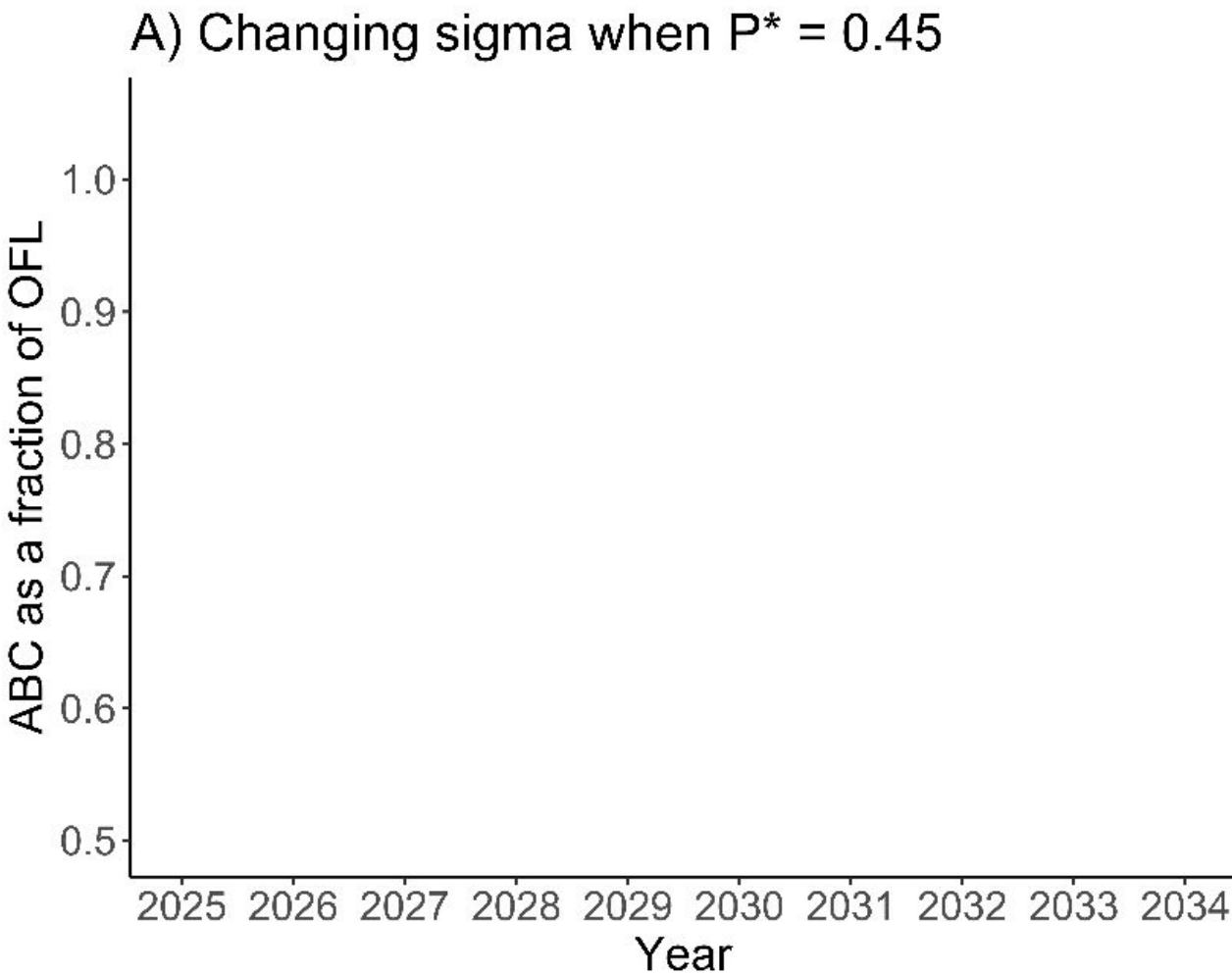
Lower catches

High sigma

Low P^*

Low ABC/ACL

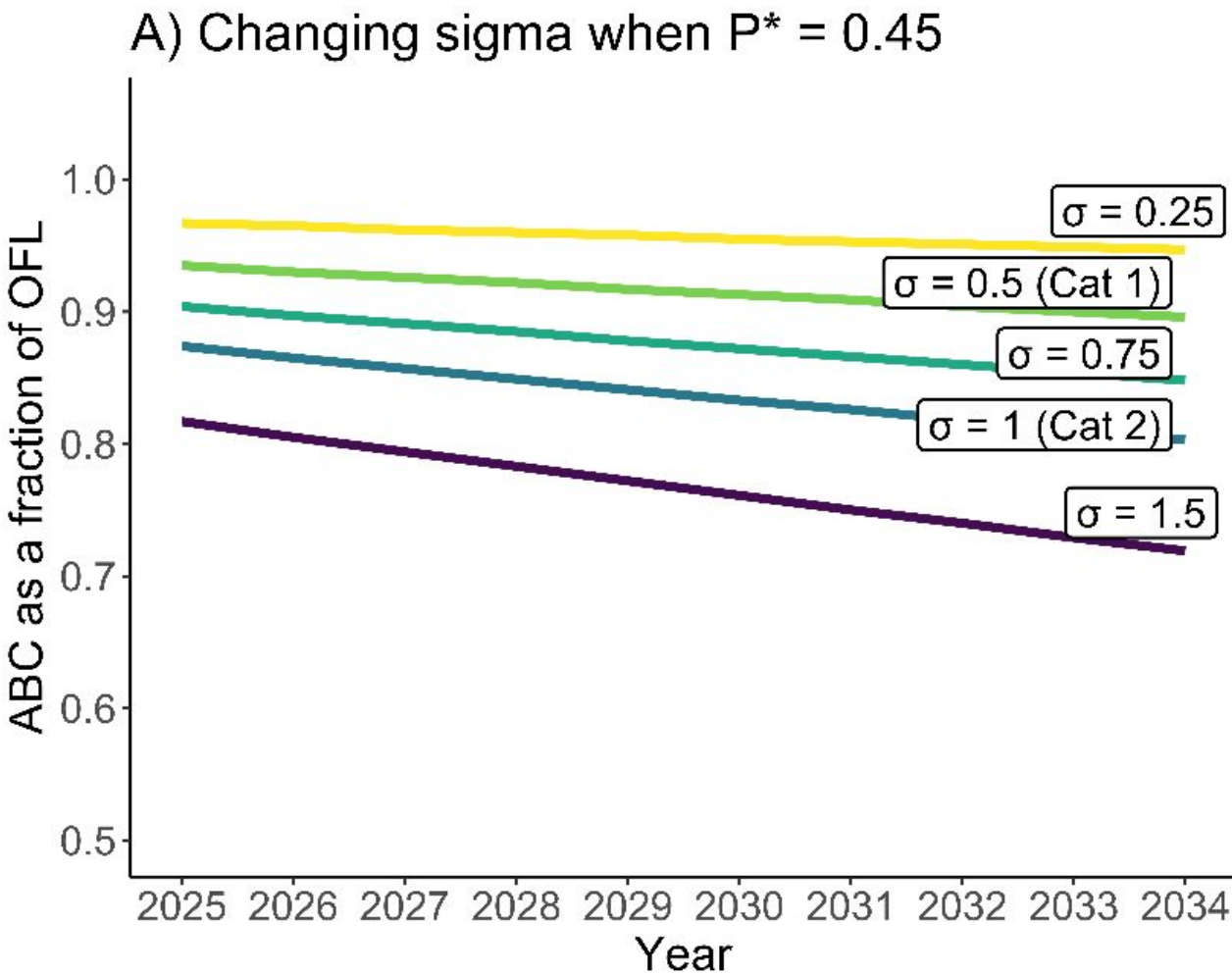
Changing sigma (with P^* at the default) leads to a range of ABC buffers between 96.7% and 70.9% of estimated OFL.



Category 1 stocks: Sigma = 0.5
Category 2 stocks: Sigma = 1
Category 3 stocks: Sigma = 2

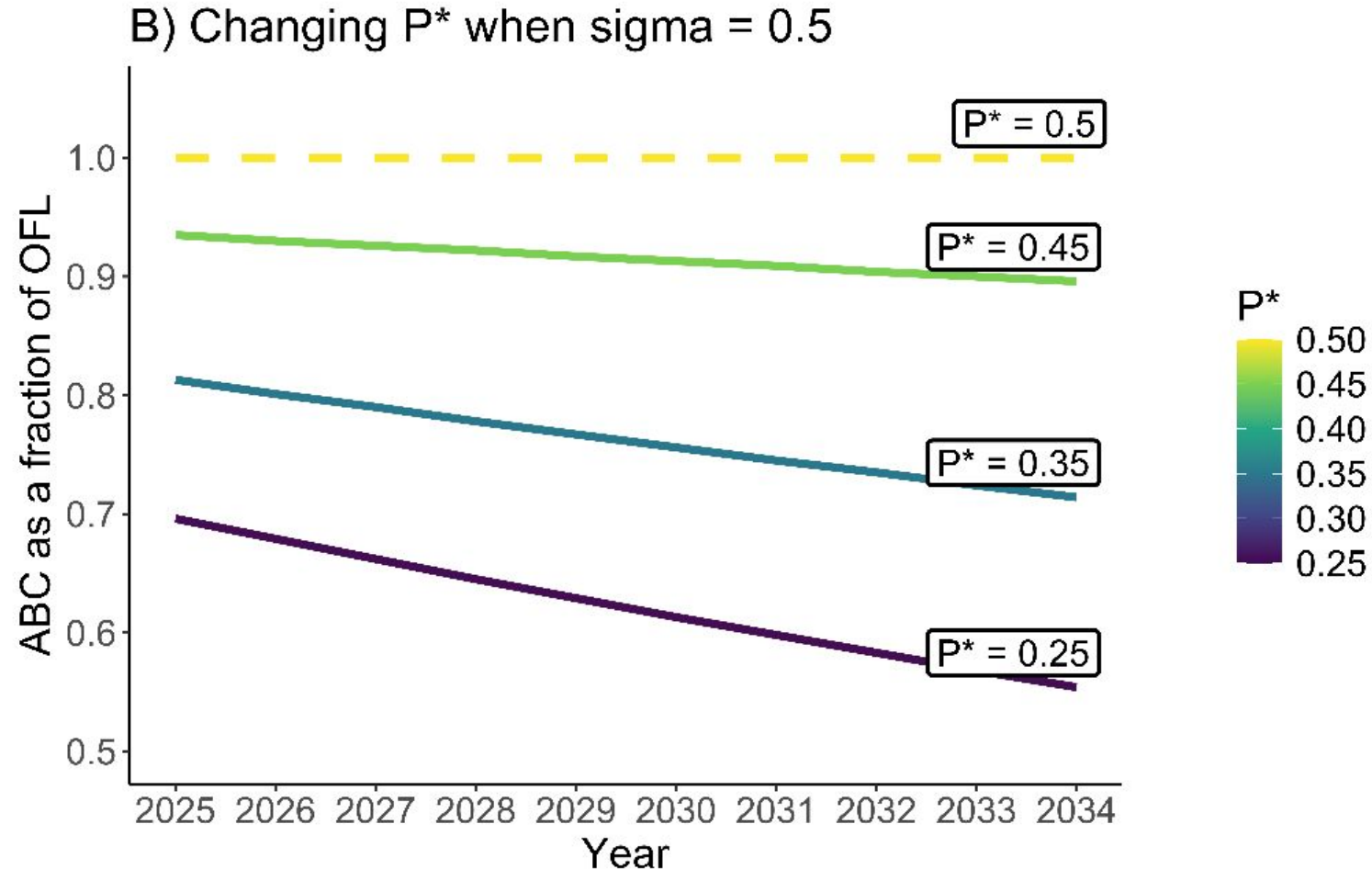


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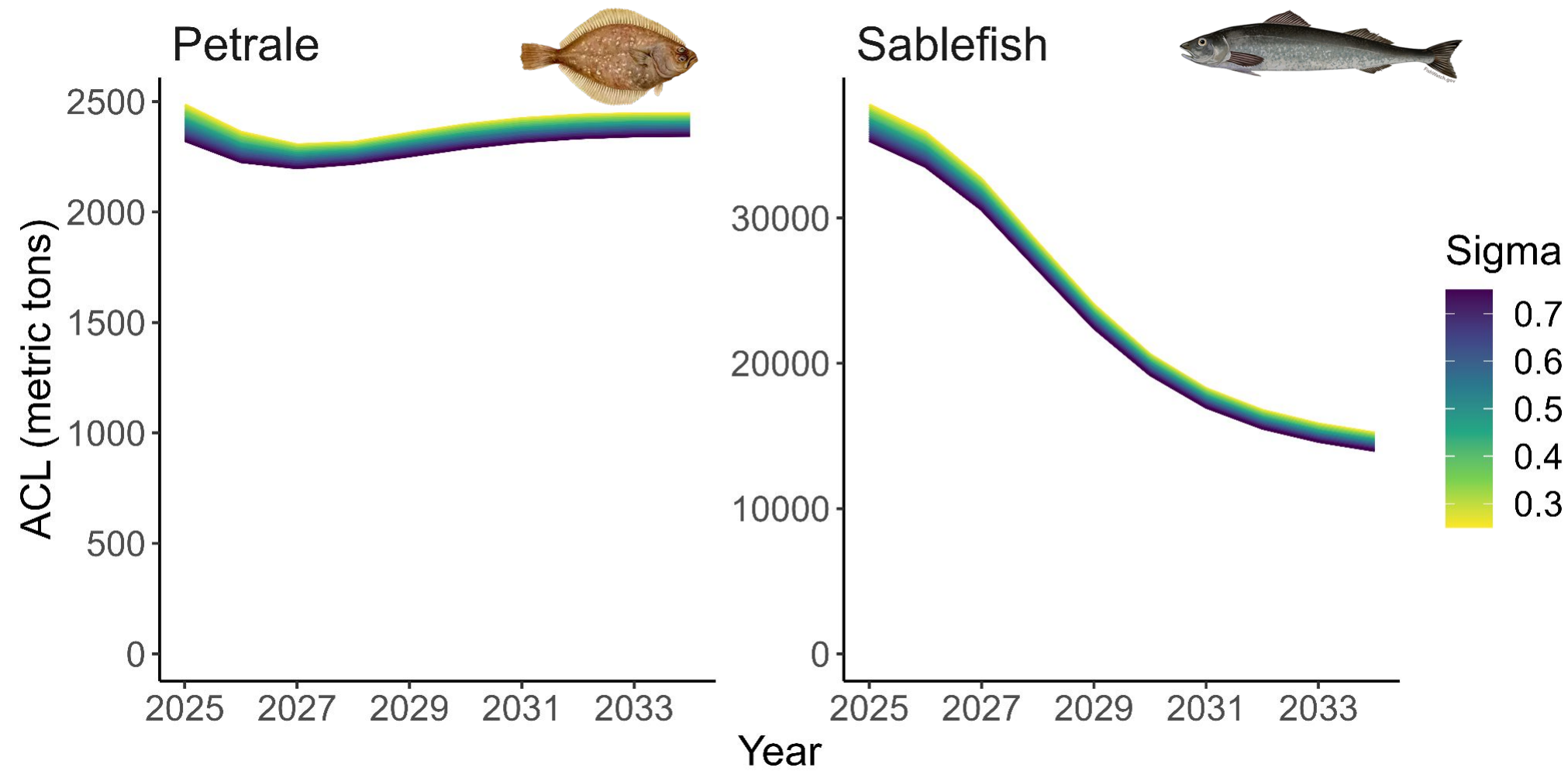
Category 1 stocks: Sigma = 0.5
Category 2 stocks: Sigma = 1
Category 3 stocks: Sigma = 2

Decreasing P^* (with sigma at the category 1 default) has larger impacts on ABC buffer. No real capacity to increase P^* .

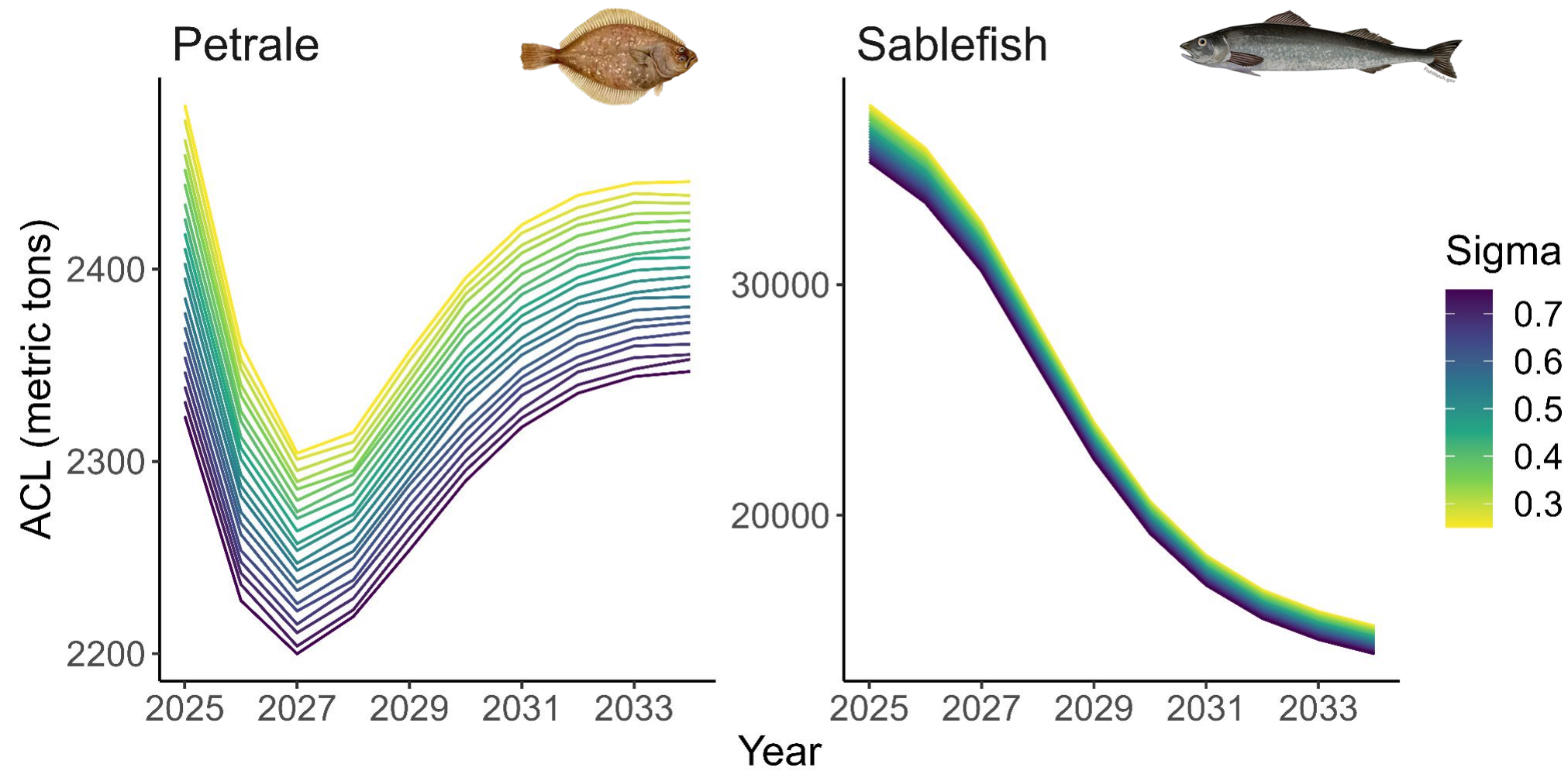


$P^* = 0.45$ standard at the PFMCC
 $P^* = 0.35$ lowest used by the PFMCC
 $P^* = 0.25$ lowest used at other Councils (Free et al. 2022 *FAF*)

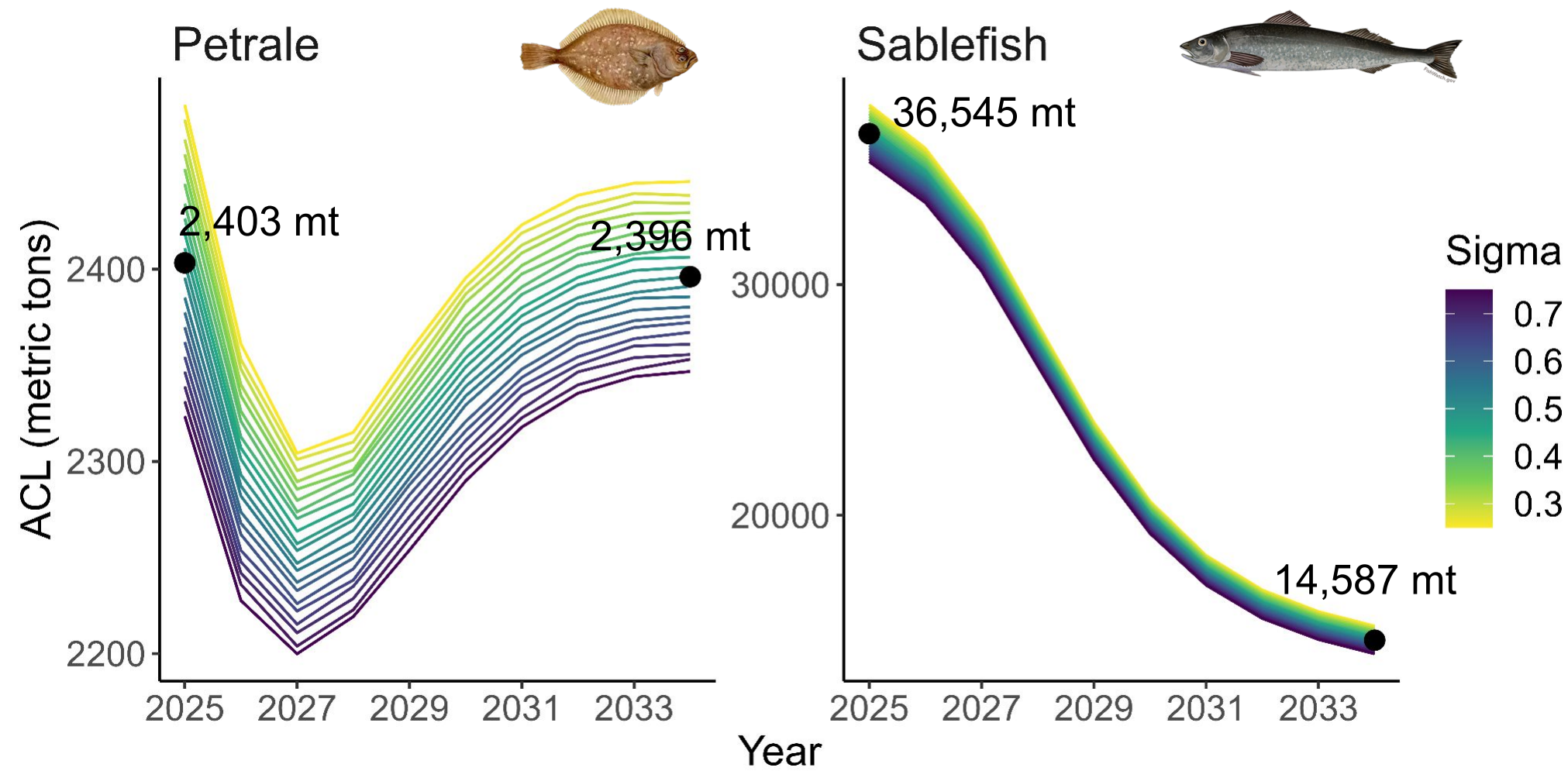
Retrospective analyses show different catch dynamics for petrale versus sablefish



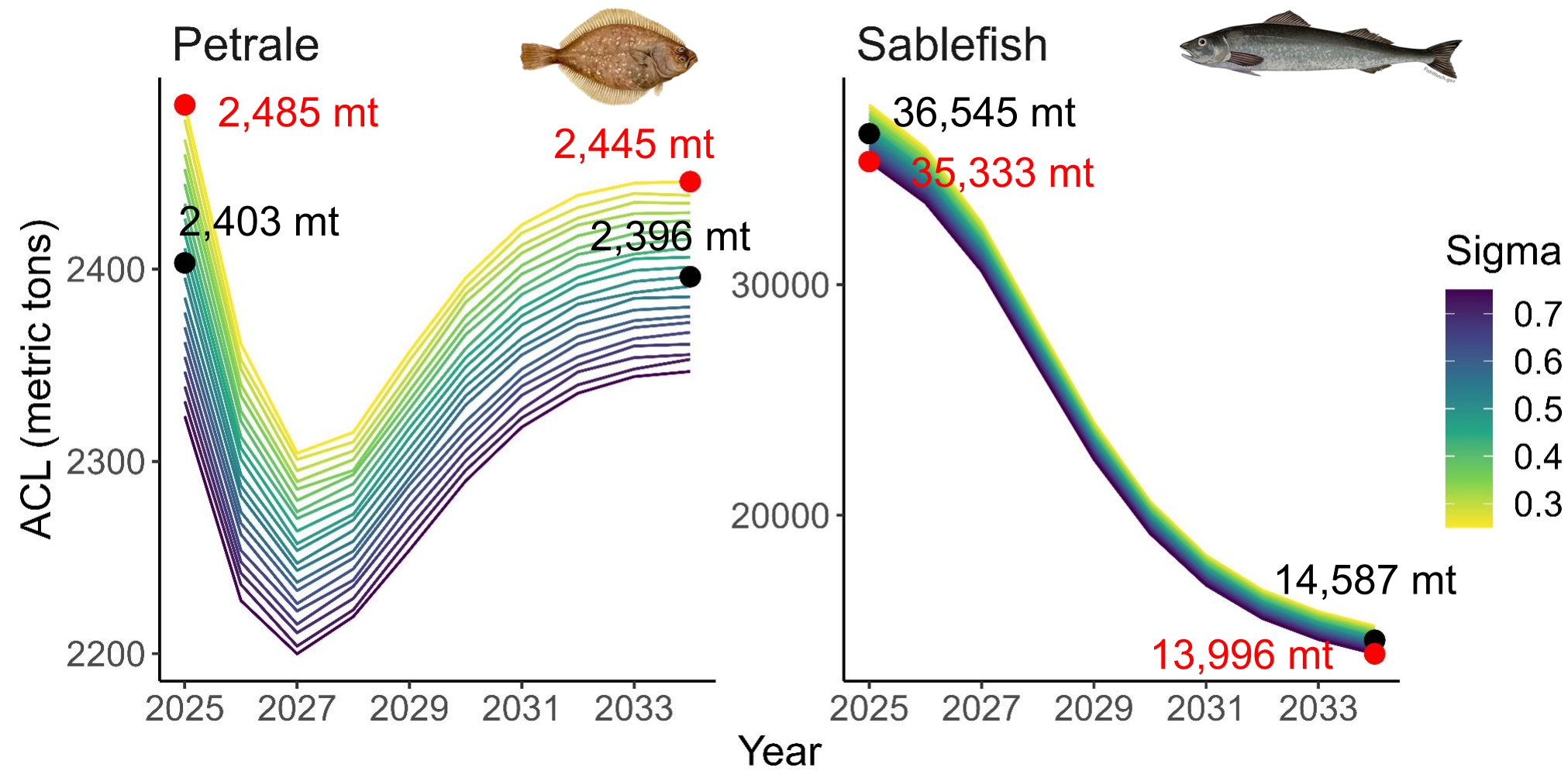
Retrospective analyses show different catch dynamics for petrale versus sablefish



Recall approved specifications for Petrale and Sablefish

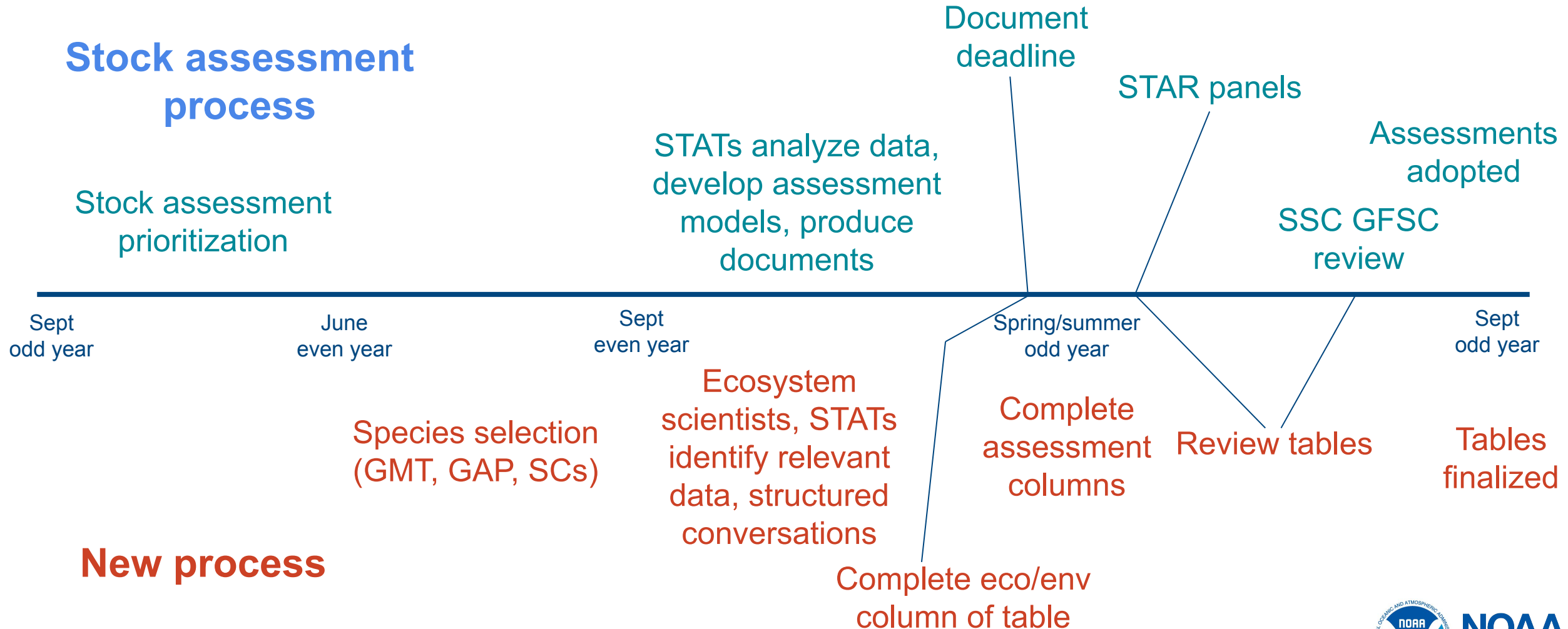


Risk tables likely would have increased Petrale ACLs and decreased Sablefish ACLs



Proposed implementation in groundfish harvest specifications process

Stock assessment process



Summary

Risk tables are NOT:

- A means to support reduction in catch only
- A lot more work for mgmt teams and ABs
- Double counting risk or uncertainty
- Double counting info in stock assessments
- Currently developed for any PFMC FMP beyond groundfish
- Currently capturing information from the fishing community

Summary

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Risk tables ARE:

- Transparent, repeatable approach to determine sigma
- Fine tuning an existing process
- Based on climate and ecosystem research already being done by SCs
- Track current and near future conditions not in assessments
- Can be subjected to review by the SSC and discussed at STAR panel
- Valuable for facilitating conversations between ecosystem and assessment scientists
- Useful for identifying research needs, env indices for future inclusion in SA

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