Essential Fish Habitat (EFH) 5-Year Review Plan

Jodi Pirtle, National Marine Fisheries Service, Alaska Region

Advisory Panel, October 1 2025

Council, October 8 2025

Council Action

- Review the 2028 EFH 5-year Review Discussion Paper.
- Provide direction regarding the focus and scope of the 2028 EFH 5-year Review, and whether to initiate the process to identify priorities for HAPC consideration.

D3 EFH 5-year Review Action Memo, October 2025
2028 EFH 5-year Review Plan Discussion Paper - chapter 3, pg. 22; appendix A, pg. 26.

Outline

1. EFH in the Council process
2. 2028 EFH 5-year Review plan
3. D3 Council action

eAgenda: D3 EFH 5-year Review

Documents:

- 2028 EFH 5-year Review Plan (review)
- 2023 EFH 5-year Review Final Summary Report (reference)

EFH Introduction

- The Magnuson-Stevens Fishery Conservation and Management Act (MSA) defines EFH as “those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity”.
- The MSA (303(a)(7)) requires that fishery management plans (FMPs) describe and identify EFH, minimize to the extent practicable adverse effects on EFH caused by fishing, and identify other actions to encourage the conservation and enhancement of EFH.
- NMFS published guidelines to implement the MSA’s EFH provisions in Federal regulations at 50 CFR 600 Subpart J - Essential Fish Habitat and Subpart K - EFH Coordination, Consultations, and Recommendations.
- Federal regulations require that each FMP contains the ten EFH components.

2028 EFH 5-year Review Plan Discussion Paper - chapter 1, pg. 1.

EFH 5-Year Review

- The objective of an EFH 5-year review is to review the ten EFH components of FMPs and revise or amend the EFH components as warranted based on available information (50 CFR 600.815(a)(10)).
- The EFH 5-year review is a mechanism to ensure that NOAA Fisheries and Fishery Management Councils incorporate the most recent and best science available for EFH into fishery management.
- The proposed plan for the 2028 EFH 5-year Review is based on direction received from the Council during the 2023 EFH 5-year Review and reflects current priorities of the Council and NMFS.

2023 EFH Review Outcomes

Amended five of six Council FMPs:

Added or revised the EFH text descriptions and added or replaced the maps:

- For 41 species or complexes in the BSAI FMP
- For 46 species or complexes in the GOA FMP
- For all five species in the Crab FMP
- For all three species in the Arctic FMP
- All included new and revised EFH text descriptions and species distribution model (SDM) based EFH maps of Level 1, 2, or 3 information.

Replaced the distribution maps with the EFH maps as a correction:

- For all five species in the Salmon FMP

Revised the FMP sections with updated information for EFH fishing effects, non-fishing effects, prey species list and locations, and research and information needs.

2023 EFH 5-year Review Final Summary Report - section 1.4, pg. 12.

2023 EFH Review Documents for Reference

- Synthesis Report of Model-Based EFH Descriptions and Maps (Pirtle et al. 2025)
- SDM EFH Regional Reports for the BSAI, GOA, Crab, and Arctic FMPs (Harris et al. 2022, Laman et al. 2022, Pirtle et al. 2023, Marsh et al. 2021)
- SDM EFH Ensemble Manuscript in Journal of Applied Ecology (Harris et al. 2024)
- 2022 EFH Fishing Effects Evaluation (Zaleski et al. 2024)
- EFH Non-fishing Impacts Report (Limpinsel et al. 2023)
- Alaska EFH Research Plan (4th edition) (Pirtle et al. 2024)
- 2023 EFH 5-year Final Review Summary Report (Pirtle et al. 2025)

2028 EFH Review Roadmap

NMFS has prioritized the five EFH components in bold:

1. **Description and identification of EFH**
2. **Fishing activities that may adversely affect EFH**
3. Non-MSA fishing activities that may adversely affect EFH
4. Non-fishing activities that may adversely affect EFH
5. Cumulative impacts analysis
6. **Conservation and enhancement**
7. **Prey species list and habitat locations**
8. Identification of habitat areas of particular concern
9. Research and Information needs
10. **Review and revision of EFH components of FMPs**

This information will be presented to the Council in a Summary Report in 2028 (T). If the Council chooses to update its FMPs, FMP amendments will be prepared along with the appropriate analytical documents through the regular Council process.

2028 EFH 5-year Review Plan Discussion Paper - chapter 2, pg. 6; appendix A, pg. 26.

Component 1. EFH Descriptions and Identification

NMFS Alaska Region
NMFS Alaska Fisheries Science Center
Shellfish Assessment Program
Fisheries Behavioral Ecology Program

Component 1. EFH Descriptions and Identification

- EFH component 1 descriptions and identification is FMP text, tables, and maps.
- EFH component 1 requires individual species maps for the fishery management unit of the FMP (50 CFR 600.805(b)), where some or all portions of the species' geographic range is mapped (50 CFR 600.815(a)(1)(iii)(1)).
- The EFH regulations provide an approach to organize the information necessary to describe and identify EFH. When designating EFH, the Council should strive to describe and identify EFH information at the highest level possible (50 CFR 600.815(a)(1)(iii)(B))—
  - Level 1: Distribution data are available for some or all portions of the geographic range of the species.
  - Level 2: Habitat-related densities or relative abundance of the species are available.
  - Level 3: Growth, reproduction, or survival rates within habitats are available.
  - Level 4: Production rates by habitat are available. *[Not available at this time]*

2028 EFH 5-year Review Plan Discussion Paper - section 2.1, pg. 6.

Alaska EFH Maps

- Species distribution models (SDMs) apply data to produce a map based on the relationship between species occurrences and environmental variables.
- EFH maps based on single species distribution models (SDMs) were established in the 2017 Review.
- SDM ensemble EFH maps from the 2023 Review improved skill and reduced methods bias in mapping EFH
- EFH is the upper 95% of the spatial domain of occupied habitat.
- Core EFH area (CEA) is the upper 50% of the area of occupied habitat applied to the EFH Component 2 fishing effects analysis.

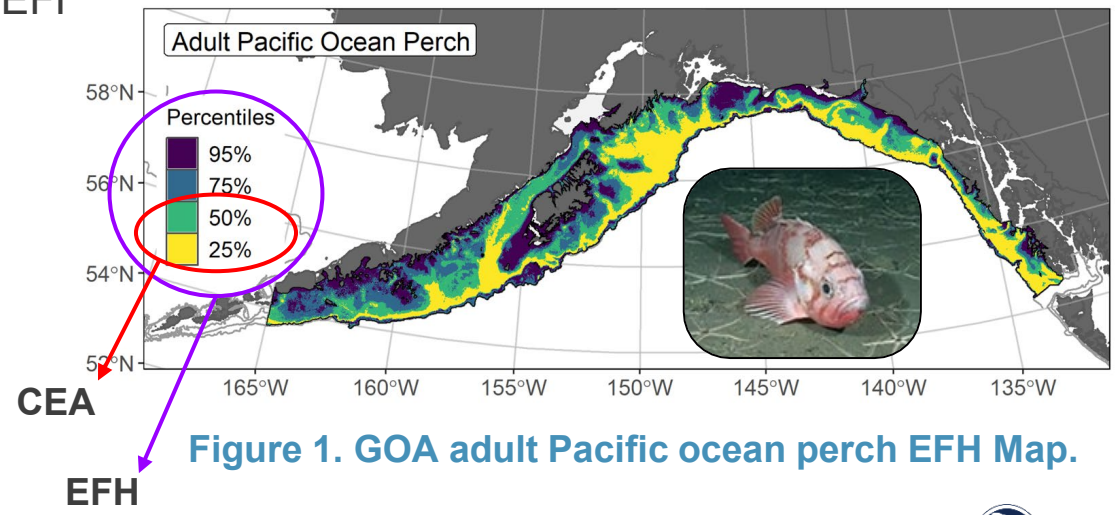


Figure 1. GOA adult Pacific ocean perch EFH Map.

2028 EFH Review Plan

The 2028 Review will apply the 2023 Review ensemble SDM with new and revised species and environmental data to map EFH.

- New Level 2 EFH maps will be developed for the following:
  - A subset of groundfish species in the BSAI and GOA FMPs, including sablefish, pollock, Pacific cod, Pacific ocean perch, and arrowtooth flounder.
  - All five species of crab in the Crab FMP, by sex and maturity stage, which was a research recommendation from the 2023 Review.
- New and revised Level 3 EFH maps will be developed for species with temperature-dependent vital rates.

We will also develop new spatio-temporal SDMs (STMs) to explore changes in EFH over time, as recommended by the SSC during the 2023 Review.

2028 EFH 5-year Review Plan Discussion Paper - section 2.1, pg. 6.

Component 2. EFH Fishing Effects Evaluation

NMFS Alaska Region
Alaska Pacific University
Fisheries, Aquatic Science, and Technology Lab
North Pacific Fishery Management Council
NMFS Alaska Fisheries Science Center
Resource Ecology and Fisheries Management Program
Marine Ecology and Stock Assessment Program
Shellfish Assessment Program
Alaska Department of Fish and Game
Commercial Fisheries Division

Component 2. EFH Fishing Effects Evaluation

EFH component 2 - Fishing activities that may adversely affect EFH

- EFH regulations (50 CFR 600.815(a)(2)):
- *(i) Evaluation*: Each FMP must contain an evaluation of the potential adverse effects of fishing on EFH designated under the FMP.
- *(ii) Minimizing adverse effects*: Each FMP must minimize to the extent practicable adverse effects from fishing on EFH. Councils must act to prevent, mitigate, or minimize any adverse effects from fishing, to the extent practicable, if there is evidence that a fishing activity adversely affects EFH in a manner that is more than minimal and not temporary in nature, based on the evaluation.

2028 EFH 5-year Review Plan Discussion Paper - section 2.2, pg. 11.

Fishing Effects Model and Evaluation

Model product:

- Estimate of cumulative habitat disturbance (mapped and graphed in monthly time series)

Model components:

- Fishing effort
- Gear parameters
- Habitat categorizations
- Susceptibility and recovery rates

Fishing Effects Evaluation:

- Overlay FEM output with species-specific core EFH areas
- Provide results to stock assessment authors for review and evaluation
- Present evaluation results to Council and Council bodies

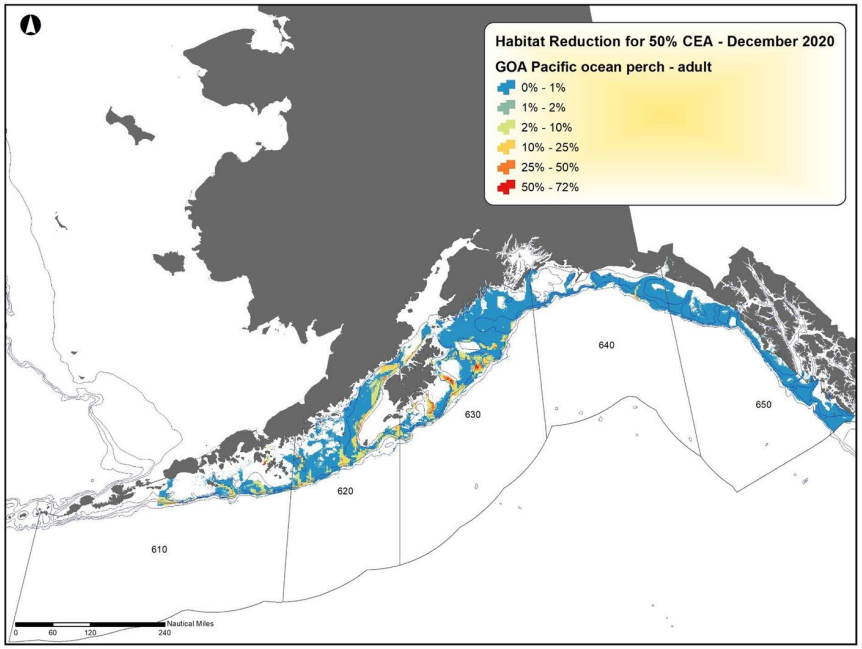


Figure 2. Estimated habitat disturbance for GOA adult Pacific ocean perch core EFH areas.

2023 EFH 5-year Review Final Summary Report - section 3.2, pg. 67.

2028 EFH Review Plan

The following analytical updates and process milestones are planned for the 2028 Review EFH FE evaluation:

- Incorporate CIA Database updates, including additional years of fishing effort data from January 2021 forward, and provide a retrospective bridging analysis.
- Update the FE model methods, including data, recovery and susceptibility rates, geological and biological benthic habitat features, and gear parameters table, and update the model outputs.
- Run the FE model with updated fishing effort data and CEAs from the updated ensemble SDM EFH maps for the subset of species in the BSAI, GOA, and Crab FMPs.
- Complete the EFH FE evaluation based on this new information. Stock assessment authors will conduct the individual species evaluations.

2028 EFH 5-year Review Plan Discussion Paper - section 2.2.2, pg. 13.

Component 6. EFH Conservation and Enhancement Recommendations

NMFS Alaska Region
North Pacific Fishery Management Council

Meeting Component 6 Requirements

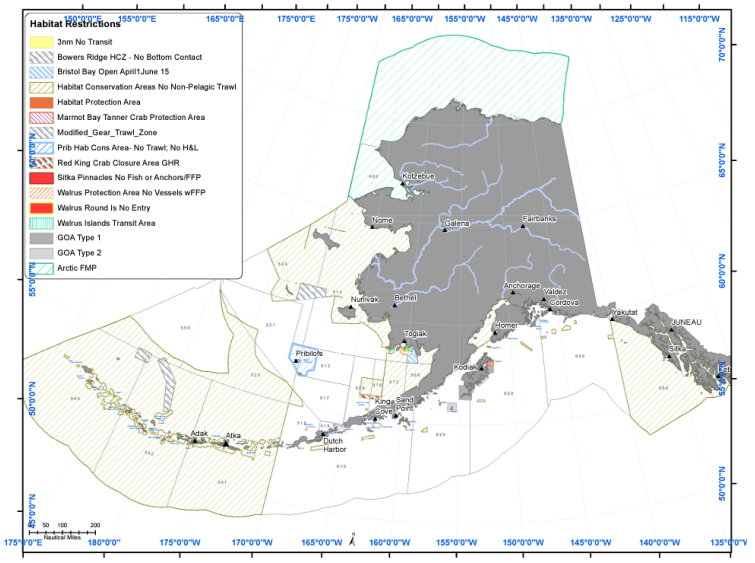
EFH component 6 - Conservation and enhancement measures

- FMPs must identify actions to encourage the conservation and enhancement of EFH, including recommended options to avoid, minimize, or compensate for adverse impacts (50 CFR 600.815(a)(6)).
- Habitat conservation and enhancement recommendations address fishing and non-fishing threats to EFH and HAPCs.
- The Council has taken several actions to minimize potential adverse impacts to EFH from fishing activities (EFH conservation measures, section 7.1).

2028 EFH 5-year Review Plan Discussion Paper - section 2.6, pg. 16;
2023 EFH 5-year Review Final Summary Report - section 7.1, pg. 79.
EFH Non-fishing Impacts Report (Limpinsel et al. 2023)

2028 EFH Review Plan

- Review the results of the EFH FE evaluation.
- Review existing habitat conservation and enhancement measures.
- The Council may choose to recommend additional habitat conservation measures.



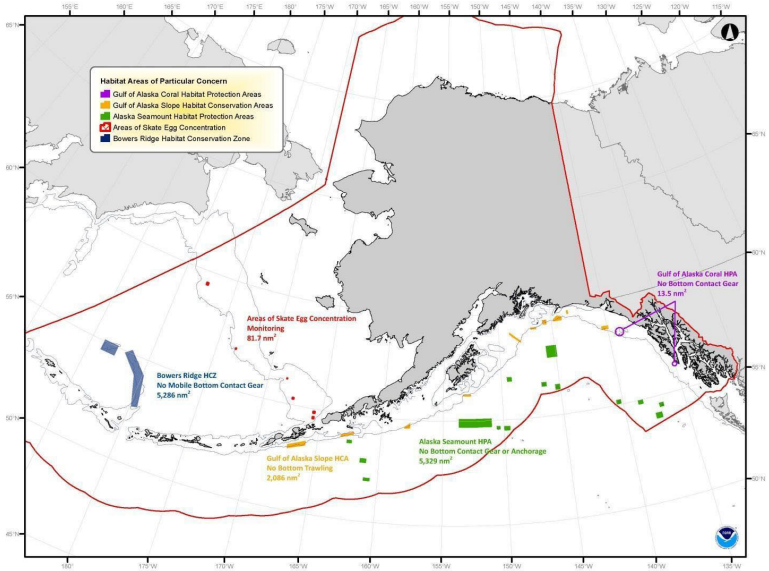


Figure 3. Habitat restriction areas (left) and Habitat Areas of Particular Concern (right)

2028 EFH 5-year Review Plan Discussion Paper - section 2.6, pg. 16.

Component 7. Prey Species List and Habitat Locations

NMFS Alaska Region
NMFS Alaska Fisheries Science Center
Groundfish Assessment Program
Resource Ecology and Ecosystem Monitoring Program
Oregon State University

Component 7. Prey Species

Figure 4. Capelin (Seafood Watch).

EFH component 7 - Prey species

- EFH regulations (50 CFR 600.815(a)(7)):
- “Loss of prey may be an adverse effect on EFH and managed species because the presence of prey makes waters and substrate function as feeding habitat, and the definition of EFH includes waters and substrate necessary to fish for feeding. (. . .)
- (. . .) FMPs should list the major prey species for the species in the fishery management unit and discuss the location of prey species' habitat.”

2028 EFH 5-year Review Plan Discussion Paper - section 2.7, pg 17

2028 EFH Review Plan

The 2028 Review will improve information on EFH species' prey and prey habitat locations with the following plan:

- Review prey species information in the FMPs and determine if updates are warranted.
- Present new SDM maps of habitat-related distribution and abundance for a subset of EFH species' prey for the BSAI and GOA FMPs.
- Studies funded during the 2023 Review will have new results for the 2028 Review, such as SDM/STM maps of prey habitat available for the first time.

2028 EFH 5-year Review Plan Discussion Paper, section 2.7.2, pg. 18.

Component 8. Habitat Areas of Particular Concern (HAPC) Identification

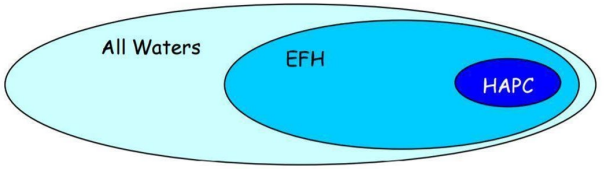
North Pacific Fishery Management Council

Component 8. HAPC

EFH component 8 - HAPC identification

- EFH regulations (50 CFR 600.815(a)(8)): “FMPs should identify specific types or areas of habitat within EFH as habitat areas of particular concern [HAPC]. . .”
- HAPCs are areas within EFH that are rare and are either ecologically important, sensitive to disturbance, or may be stressed.
- HAPC are a site-specific management tool for federally managed species that may require additional protection from adverse fishing effects.
- The Council may choose to identify priorities for HAPC consideration and request proposals for specific sites for HAPC inclusion.
- The Council can request conservation and enhancement proposals and open the HAPC process at any time, if the need and information are available.

2028 EFH 5-year Review Plan Discussion Paper - section 2.8, pg. 19.



Component 9. EFH Research and Information Needs

NMFS Alaska Region
NMFS Alaska Fisheries Science Center

Component 9. Research and Information Needs

- FMPs should identify recommendations for research that the Council and NMFS view as necessary to improve descriptions and identification of EFH, evaluate impacts to EFH, and develop EFH conservation and enhancement measures (50 CFR 600.815(a)(9)).
- The NMFS Alaska EFH Research Plan is revised following an EFH 5-year review to guide research development for the next and future EFH reviews.
- For 2028 EFH 5-year Review, we will identify recommendations that are necessary to fill gaps in EFH knowledge, and determine whether updates to the FMPs are warranted.
- We anticipate that the NMFS Alaska EFH Research Plan will maintain status quo, in its fourth edition since 2006.

2028 EFH 5-year Review Plan Discussion Paper - section 2.9, pg. 20.

Component 10. EFH 5-year Reviews

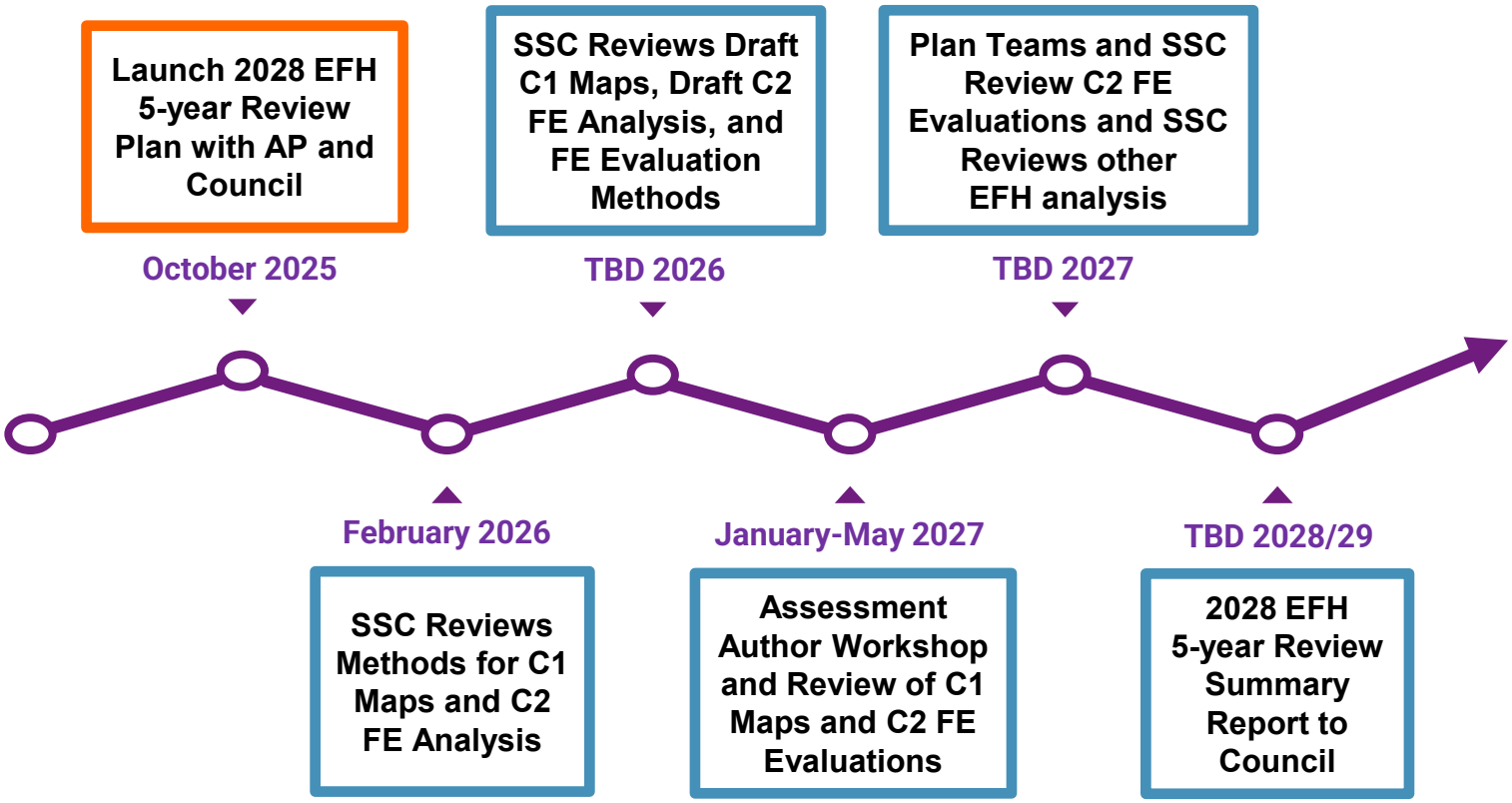
NMFS Alaska Region
North Pacific Fishery Management Council

Component 10. EFH 5-Year Reviews

- Federal regulations require Fishery Management Councils review and revise EFH components at least every five years, and amend EFH provisions in the FMPs, as warranted, based on available information (50 CFR 600.815(a)(10)).
  - 2005 (EFH EIS)
  - 2010 Review
  - 2017 Review
  - 2023 Review
- Council will receive a Summary Report representing the 2028 EFH 5-year Review. Appropriate analysis will follow if the Council recommends to amend the FMPs with new information.

2028 EFH 5-year Review Plan Discussion Paper - section 2.10, pg. 21.

2028 EFH Review Timeline



2028 EFH 5-year Review Plan Discussion Paper - appendix B, pg. 31.

Council Action

- Review the 2028 EFH 5-year Review Discussion Paper.
- Provide direction regarding the focus and scope of the review.
- Staff are seeking input on the following:
  - Component 1: EFH descriptions and identification
  - Component 2: Fishing activities that may adversely affect EFH
  - Component 6: EFH conservation and enhancement measures
  - Component 7: Prey species list and locations
  - Component 9: Research and information needs
  - Component 10: Review and revision of EFH components of FMPs.
- Additionally, the Council may choose to initiate the HAPC process by identifying specific priorities for HAPC consideration, pending information and need.

D3 EFH 5-year Review Action Memo, October 2025
2028 EFH 5-year Review Plan Discussion Paper - chapter 3, pg. 22; appendix A, pg. 26.

THANK YOU

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