
2028 Essential Fish Habitat (EFH) 5-Year Review Plan

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NPFMC Ecosystem Committee, March 6 2026



Plan Overview Outline

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

Linked Reference:

- [2028 EFH 5-year Review Plan](#)

Additional Reference:

- [2023 EFH 5-year Review Final Summary Report](#)

Milestone Meetings:

- Council/AP December 2025 [D2 EFH](#)
- SSC February 2026 [D3 EFH](#)



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.



EFH 5-Year Review

- 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\(a\)\(10\)](#)).
- The EFH 5-year review is a mechanism to ensure that NOAA Fisheries and Fishery Management Councils incorporate the best science available for EFH into fishery management.
- 2005 (EFH EIS), 2010 Review, 2017 Review, 2023 Review
- 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 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 with 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:

- For all five species in the Salmon FMP

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



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 and the Council have 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.



Component 1. EFH Description and Identification

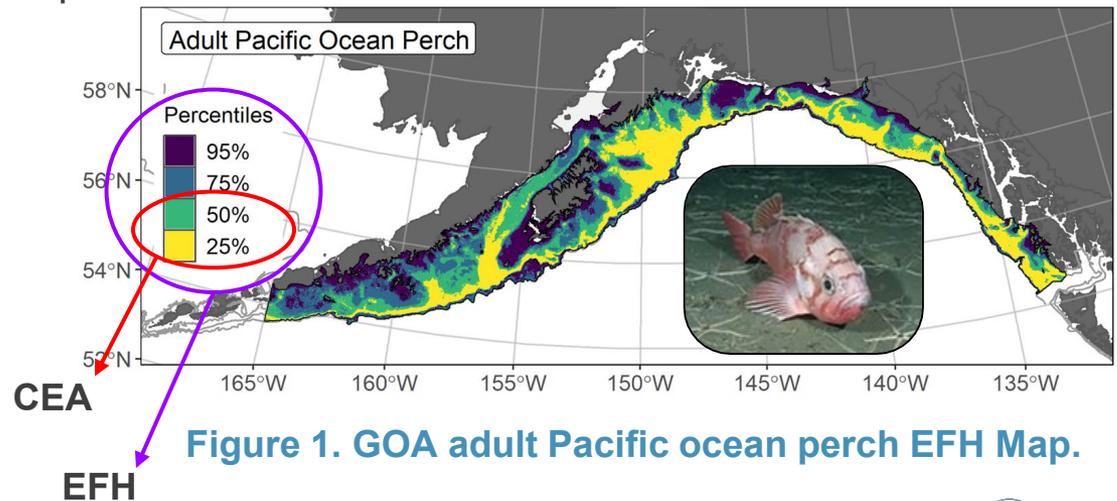
Meeting Component 1 Requirements:

- In the FMPs as text, tables, and maps.
- 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)).
- EFH information is organized by four levels; strive to describe and identify EFH 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]*



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 that were 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 inherent bias in map
- 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.*



2028 EFH Review Plan

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

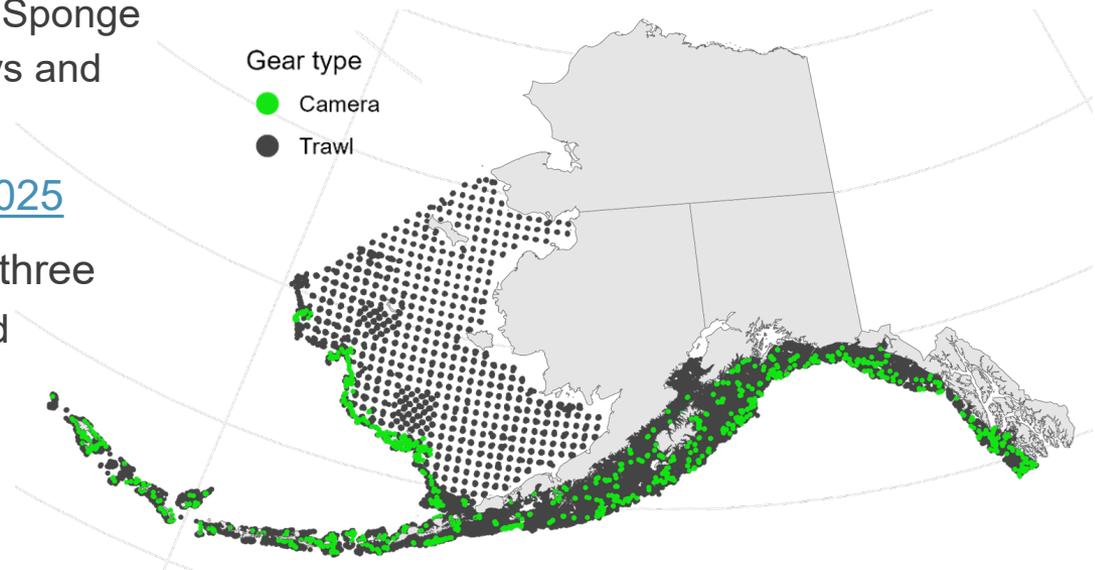
- New Level 2 EFH maps will be developed for the following:
 - A subset of groundfish species by life history stage in the BSAI and GOA FMPs: sablefish, pollock, Pacific cod, Pacific ocean perch, and arrowtooth flounder.
 - All five crab species in the Crab FMP, by sex and maturity stage, which was a 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.



Environmental Data: Structure-Forming Invertebrates

- 2017 and 2023 EFH Review SFI maps (Rooper et al. 2014, 2016, and 2017).
 - Species Data: AFSC bottom trawl survey.
- **2028 EFH Review: Combined gear SDM**
 - Species Data: Alaska Coral and Sponge Initiative (AKCSI) camera surveys and AFSC bottom trawl survey.
 - AKCSI report: [Conrath et al. 2025](#)
- Presence-absence maps across three taxa groups: Sponges, Corals, and Pennatulaceans



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 Review Plan

Analytical updates and process milestones are planned:

- Incorporate NMFS Catch In Areas (CIA) Database updates, including additional years of fishing effort data from January 2021 forward, and provide a retrospective bridging analysis.
- Update the fishing effects (FE) model data inputs, including gear parameters, geological and biological benthic habitat features, and recovery and susceptibility rates.
- Run the FE model for the full BSAI and GOA domain and overlay results on CEAs from the updated ensemble SDM EFH maps for the subset of species in the BSAI and GOA Groundfish FMPs, and all crab species in the Crab FMP.
- Complete the EFH FE evaluation based on this new information. Stock assessment authors will conduct the individual species evaluations.



EFH FE Evaluation Workflow

EFH FE evaluation is a multi-step process:

1. Review and update inputs.
 - a. WE ARE HERE.
2. FAST Lab will run the FE model.
3. Overlay FE model results with the updated ensemble SDM EFH (C1 work products).
4. Stock assessment author evaluation process.
 - a. Effects determinations.
5. Report findings and conclusions to Plan Teams and Council bodies.
 - a. Opportunity to recommend species for possible mitigation measures as related to FE evaluation results.

D3 EFH 5-year Review [Fishing Effects Methods](#) - section 2, pg. 7.

Step 1: Review and update FE model inputs with newly available data and information

Step 2: Run the FE model

Step 3: Overlay FE model results with updated SDM CEAs and calculate estimates of habitat disturbance for each area

Step 4: Provide stock authors with species-specific results and launch the stock author evaluation for adverse FE to EFH

Step 5: Report FE model results and stock author conclusions to the Plan Teams and Council bodies

Component 6. EFH Conservation and Enhancement Recommendations

Meeting Component 6 Requirements:

- 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

The Component 6 Process:

- Review the results of the EFH fishing effects evaluation.
- Review existing EFH conservation and enhancement measures.
- The Council may choose to recommend priorities for additional EFH conservation and enhancement measures.
 - Analysis would occur following the EFH 5-year Review.

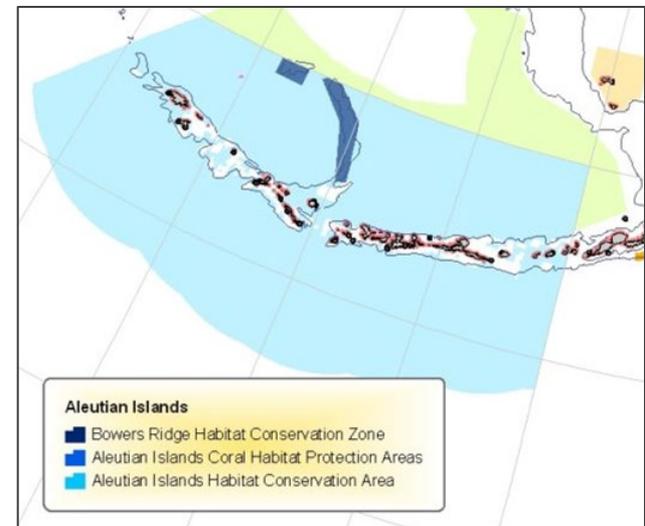


Figure 1. Areas with habitat restrictions in the Aleutian Islands (NPFMC).

Component 7. Prey Species List and Habitat Locations

Meeting Component 7 Requirements:

- 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.”



Figure 2. Capelin (Seafood Watch).

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

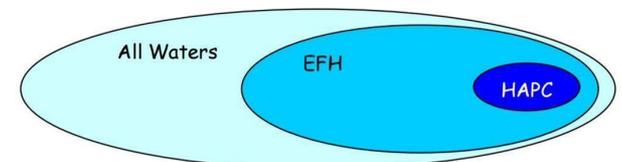


Component 8. HAPC Identification

Meeting Component 8 Requirements:

- 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. Research and Information Needs

Meeting Component 9 Requirements:

- 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.



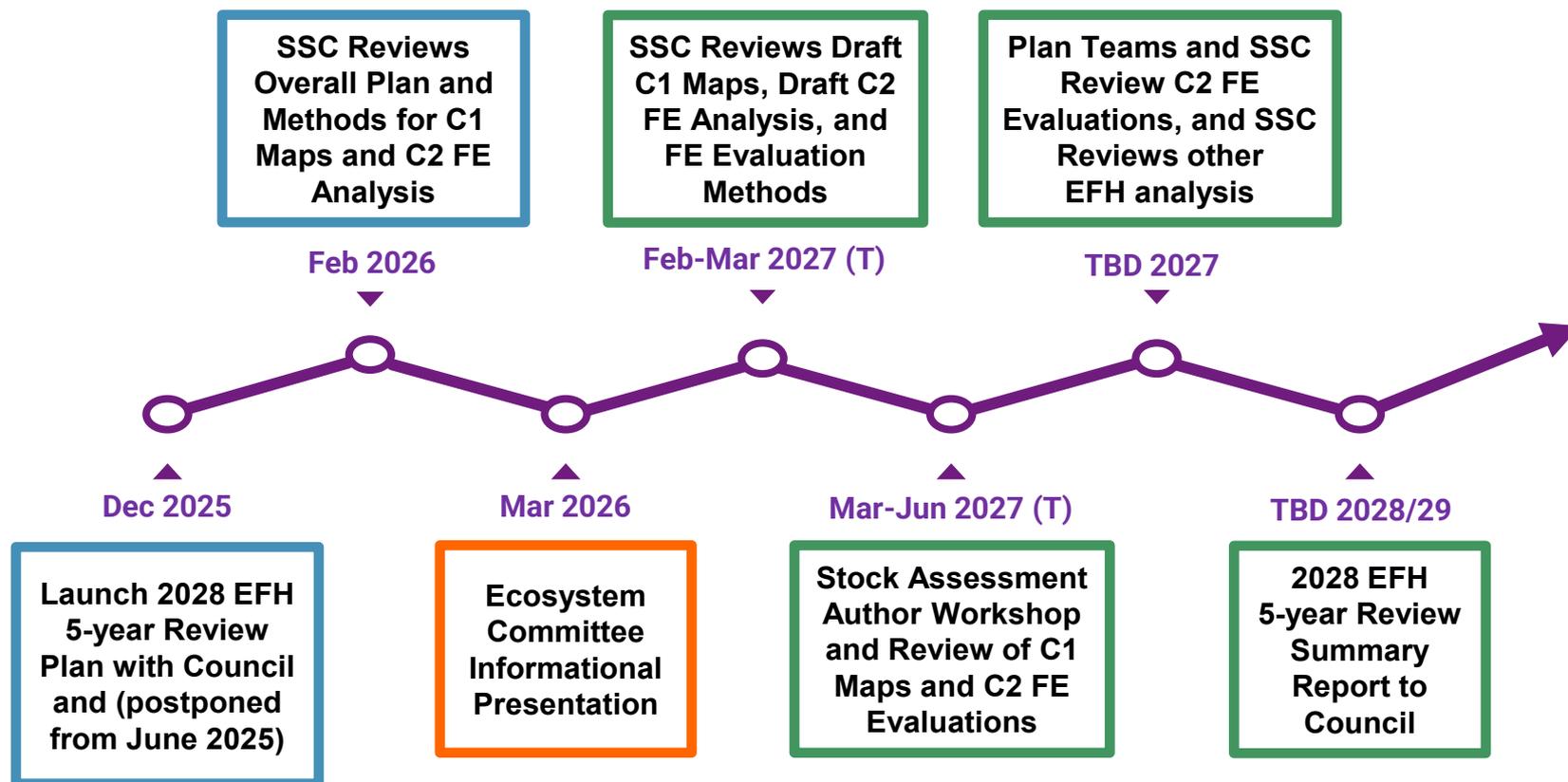
Component 10. EFH 5-Year Reviews

Meeting Component 10 Requirements:

- 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)).
- 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 Review Draft Timeline



THANK YOU

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