



March 22, 2024

Agenda B2: NMFS Annual Essential Fish Habitat Report

As part of the North Pacific Fishery Management Council’s Essential Fish Habitat (EFH) consultation policy, the Council requested regular reports from the National Marine Fisheries Service (NMFS) on EFH consultations that may be of interest to the fishing industry, and/or that may affect habitats of direct concern to the Council. This report developed by our Habitat Conservation Division (HCD) focuses on major consultations, with a brief summary of routine activities with minor effects on EFH. We also provide advance notice for those activities that could have major effects on EFH and where the Council may consider a consultation action.

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1. Council’s Role in EFH Consultations

The Magnuson-Stevens Fishery Conservation and Management Act (MSA) provides a role for Fishery Management Councils in commenting on federal or state agency actions that may affect fish habitat. The Council identified the following criteria to guide NMFS in determining whether an activity is likely to be of particular interest to the Council:

- The extent to which the activity would adversely affect EFH;
- The extent to which the activity would adversely affect Habitat Areas of Particular Concern or other areas established by the Council to protect sensitive habitat features;



- The extent to which the activity would be inconsistent with measures taken by the Council to minimize potential adverse effects of fishing on EFH; and
- The extent to which the activity would conflict with Council-managed fishing operations.

Every year, HCD in Alaska receives approximately 115-130 non-fishing actions proposed by Federal and State agencies that have the potential to affect EFH and living marine resources. Common actions include aquaculture development, coastal construction, forestry, harbor improvement, hydropower development, mining, navigation dredging, oil and gas exploration, offshore disposal of materials, pollutant discharges, Naval training exercises, and transportation infrastructure projects. We focus our staff time on reviewing those activities that may adversely affect EFH and where early coordination could improve the proposed action.

HCD's staff provides technical assistance to project proponents and action agencies during pre-consultation coordination for proactively avoiding, minimizing, or mitigating impacts to EFH that support Alaska's valuable fishery resources. During EFH consultations with Federal action agencies, we provide reasonable and scientifically based conservation recommendations for mitigating potential project-related adverse effects on EFH. Our EFH conservation recommendations are non-binding, as specified by the MSA. However, if the Federal agency does not follow NMFS' conservation recommendations, the MSA requires that Federal agencies must provide scientific justification for any disagreement and describe the measures they propose to avoid, minimize, mitigate, or offset adverse effects on EFH.

We provide written comments at various stages of projects including: project scoping, environmental impact statement comment periods, project permitting, and at other times as requested. The formal EFH consultation occurs when the Federal action agency provides NMFS with an EFH Assessment prepared under 50 CFR 600.920(e). NMFS then has 30 to 60 days to complete its review of the EFH Assessment and supporting material and provide comments and conservation recommendations, as appropriate. Where a number of actions are similar with similar anticipated impacts on EFH, we look for efficiencies by completing programmatic consultations.

2. EFH Consultations - April 2023 to April 2024

Since our April 2023 report to the Council, we have engaged in 139 early coordination and EFH consultations. Our coordination and consultation processes help support sustainable development while conserving and protecting habitat that supports federally managed fish and their prey. Below are highlights of major project categories we reviewed since April 2023.

- **Aquaculture:** Reviewed 37 permit applications, lease amendment requests, and NWP notices and, where appropriate, provided early coordination with ADNR for proposed kelp, oyster, or multi-trophic aquaculture operations throughout the state.
- **Coastal Development:** Projects we typically consult on include construction or rehabilitation of docks for water access, walkways and pedestrian access for recreational use of coastal resources, sand/mineral extraction, and waterfront development. We coordinated or consulted on 31 coastal development projects.
- **DOT Projects:** Coordinated or consulted on 17 projects proposed by the Alaska Department of Transportation & Public Facilities. These actions included airport upgrades, improvements to highways with stream crossings, ferry terminals, airports, and pedestrian access ways affecting EFH for many federally managed species, including

freshwater habitat for Pacific salmon. For example, we provided early coordination comments for the McCarthy Road Planning and Environmental Linkages (PEL) Study. Upgrades to a 60 mile stretch of the McCarthy Road from Chitina to the Kennicott River would affect many waterways supporting Pacific salmon. Our coordination with ADOT would support environmentally sustainable development.

- **Dredging and Harbor Improvement:** Coordinated or consulted on 8 harbor development projects, including harbor improvements on Shemya, Akutan, and St Paul Islands, and the Port of Alaska Modernization.
- **Fiber Optic Cables:** Federal funding is increasing the availability of fiber optic cables to rural communities. Since the last report to the Council, we have received 12 requests for consultations associated with the funding of fiber optic cable projects. Although funding actions trigger EFH consultations, there is no direct impact on EFH until the construction is implemented. We used the EFH consultation process to proactively provide conservation recommendations to the funding agencies with the intent of those CRs being incorporated into the proposed action. This proactive approach would support habitat protection as well as efficient permitting.
- **Hydropower:** Our participation in the processes affecting hydropower projects continues to support renewable energy while protecting Pacific salmon EFH. The primary projects we focused on since April 2023 are listed below.
 - Eklutna mitigation plan development
 - Nuyakuk licensing
 - Igiugig HEC monitoring
 - Bradly Lake, Battle Creek Amendment
- **Mines:** Mining activities affect a broad range of designated EFH from nearshore habitat supporting many life stages of federally managed fish to inland freshwater habitat supporting Pacific salmon. We coordinated or consulted on nine mining projects within Alaska, including the Greens Creek Mine where we provided conservation recommendations to the USFS and USACE on the proposed expansion of mining operations. After formal consultation, we continued to engage with the USFS and partner agencies to update mitigation measures and water quality monitoring plans. We also serve as technical advisors to British Columbia's Environmental Assessment Office for the Eskay Creek Revitalization Project and New Polaris Mine.
- **Restoration:** Coordinated or consulted on six restoration projects that primarily targeted Pacific salmon habitat. Notable among these projects was coordination with the U.S. Forest Service for upgrading hundreds of culverts in the Tongass National Forest to improve aquatic organism passage with a special focus on Pacific salmon.
- **Oil and Gas Development:** Consulted on the development and distribution of natural gas in Cook Inlet and Kuparuk River. Furie Operating Alaska proposed expanding drilling capacity in Cook Inlet. During early coordination and the EFH consultation process, we highlighted concerns for the release of methane during production and operations. Methane is a greenhouse gas with effects significantly greater than carbon dioxide. Hilcorps proposed improving their distribution capacity for infrastructure located near the Kuparuk River. Our early coordination comments were focused on protecting habitat that supports anadromous fish with a focus on Pacific salmon. Our technical advice included recommendations to avoid direct impacts as well as best management practices to control sediment run-off.

- **Timber Harvest:** Thomas Bay Timber Sale proposed supplying up to 19.3 million board feet of young-growth timber, reconstructing temporary roads and maintaining National Forest System roads at Thomas Bay. Conservation recommendations were provided to support habitat connectivity and ensure suitable water quality for federally managed species.
- **Water Quality:** We continue to consult on water quality actions that may adversely affect EFH. Typically, these consultations are with ADEC on state-wide programmatic permit actions. Since April 2023, we provided technical assistance during early coordination for one state-wide action and two individual actions.

Programmatic consultations evaluate a whole program of activities up front and apply EFH conservation recommendations to those activities. This approach is suitable for an entire program, parts of a program, or a number of similar individual actions occurring within a given geographic area and other instances where sufficient information is available to address all reasonably foreseeable adverse effects on EFH.

- Since April 2023, AKR HCD and the **National Telecommunication and Information Administration (NTIA)** have collaborated on a programmatic approach to consultations for actions funded by NTIA. Alaska will receive over \$1 Billion in federal funds to support expansion of fiber optic cables into rural and remote communities. The NTIA will distribute a large portion of these funds. We developed a programmatic EFH consultation to allow for a more efficient consultation process for fiber optic cable projects that NTIA routinely funds in Alaska. This programmatic EFH consultation will reduce the number of individual consultations by programmatically issuing conservation recommendations for fiber optic cable project actions that may adversely affect EFH.
- HCD and **NOAA Fisheries' Restoration Center** are collaborating to reissue the EFH programmatic consultation for projects undertaken by the Restoration Center in Alaska, including the Community-based Restoration Program, the Damage Assessment, Remediation and Restoration Program and other similar restoration activities. The programmatic consultation went into effect on May 23, 2019 and will expire in May 2024. We are coordinating with the Restoration Center to update the review and renew the programmatic consultation for another five years (2024-2029). This programmatic consultation provides NOAA Fisheries and the Restoration Center a means to consult regarding a large range of individual actions or planning efforts that may adversely affect EFH.

3. Consultation Climate Guidance

NOAA Fisheries developed [guidance](#) for incorporating climate change effects into EFH assessments and consultations, and to enhance mitigation of the action's adverse effects in a changing environment. Climate change is a habitat-wide effect altering EFH and is predicted to continue to have effects on EFH in the future. Climate related effects will impact marine and aquatic habitat; commercial, recreational, and subsistence fishing; and traditional ways of life. Climate and habitat alteration are two drivers of potential adverse effects on both fish and their fishery. The effects of climate change will exacerbate effects of other anthropogenic impacts such as the development of ports and harbors, road construction, and hardening of shorelines. Therefore it is important that federal action agencies incorporate consideration of climate change into analyzing the effects of an action on EFH and designing conservation measures. NOAA

Fisheries' guidance is designed to inform action agencies, and Councils, as well as our staff, on how to incorporate expected climate change effects into EFH assessments and consultations. This guidance is intended to improve outcomes by accounting for expected climate change effects in the action's design and by enhancing avoidance and/or mitigation measures. NOAA Fisheries' guidance includes four considerations for including climate change in EFH consultations.

1. How will climate change effects interact with an action?
2. What time periods for projecting anticipated climate change effects should be considered?
3. Select an appropriate climate change emission scenario.
4. Identify project design considerations and minimization measures.

4. 2023 EFH 5-Year Review Completion

The objective of an EFH 5-year Review is to review the ten EFH components of Fishery Management Plans (FMPs) and revise or amend EFH components as warranted based on available information ([50 CFR 600.815\(a\)\(10\)](#)). The EFH regulations outline 10 components for the EFH contents of FMPs. NMFS and the Council prioritized the eight EFH components underlined for a comprehensive review this cycle:

1. EFH descriptions and identification
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. EFH conservation and enhancement recommendations
7. Prey species list and locations
8. Habitat Areas of Particular Concern identification
9. Research and information needs
10. Review EFH every 5 years.

Through this iterative review process beginning in 2019, NMFS and Council staff presented many times to the Plan Teams, SSC, Ecosystem Committee, Advisory Panel, and the Council, which provided opportunities for broad and inclusive engagement and participation. A comprehensive review of each of the prioritized EFH components was presented to the Council in a draft Summary Report in February 2023¹. **Highlights of the 2023 EFH Review include:**

- New ensemble species distribution modeling (SDM) approach to describe and map EFH Level 2 (habitat-related abundance) information for species in the BSAI, GOA, and Crab FMPs;
- EFH Level 3 information (habitat-related vital rates) available for a selection of species for the first time in an EFH 5-year Review;
- New SDM EFH Level 1 (habitat-related distribution) and Level 3 information available for the first time for species in the Arctic FMP;

¹ [February 2023 Council Meeting eAgenda](#) item C4 EFH 5-year Review Summary Report

- Climate-informed SDM EFH descriptions and maps available for a selection of Arctic species for the first time in an EFH 5-year Review;
- Updates to the Fishing Effects model and EFH Fishing Effects evaluation process;
- Revised Impacts to EFH from Non-fishing Activities in Alaska² report with climate-related EFH conservation recommendations;
- Improved integration of EFH species' prey component; and
- Updates to EFH research and information needs.

In December 2023³, the Council recommended final action amend the FMPs to incorporate the following updated EFH information based on the new and best available science information identified in the 2023 EFH 5-year Review:

- EFH component 1 (descriptions and identification). Amend 4 FMPs to update EFH descriptions and maps, including up to EFH Level 3 information on habitat-related vital rates. Add or revise the EFH text descriptions and add or replace the maps for—
 - 41 species or complexes in the BSAI FMP,
 - 46 species or complexes in the GOA FMP,
 - all five species in the Crab FMP, and
 - all three species in the Arctic FMP.

For the Salmon FMP, replace the distribution maps for all five species with the EFH maps.

- EFH component 2 (fishing effects). Update the fishing effects information in the BSAI Groundfish, GOA Groundfish, and Crab FMPs to reflect updates to the fishing effects model, analysis, and evaluation from the 2023 EFH 5-year Review.
- EFH component 4 (non-fishing effects). Revise the EFH appendices in the BSAI, GOA, Crab, and Arctic FMPs where conservation recommendations for non-fishing activities are described.
- EFH component 7 (prey of EFH species). Revise text or habitat description table information for two species of BSAI sharks, BSAI pollock, GOA Pacific cod, and BSAI red king crab in the BSAI, GOA, and Crab FMPs.
- EFH component 9 (research and information needs). Revise the EFH appendices with updated research and information needs in the BSAI, GOA, Crab, and Arctic FMPs.

We are completing the EFH Omnibus Amendments package for Secretarial approval in 2024.

5. 2024 Alaska EFH Research Plan

EFH research recommendations were informed during the 2023 EFH 5-year Review by contributing researchers, stock assessment scientists, and Council advisory bodies. These recommendations were summarized as three objectives for the revised **2024 Alaska EFH Research Plan**:

- Objective 1: Improve EFH information for targeted species and life stages;
- Objective 2: Improve fishing effects assessment; and

² Impacts to Essential Fish Habitat from Non-Fishing Activities in Alaska: EFH 5-year Review 2018-2023

³ [December 2023 Council Meeting eAgenda](#) item C5 EFH FMP amendments – Initial/Final Action

- Objective 3: Improve understanding of nearshore habitat and forage species.

The timely objectives of the 2024 Alaska EFH Research Plan provide guidance for recommended habitat science advancements leading up to the next and future EFH 5-year Reviews and supporting ecosystem-based fisheries management. The Alaska EFH Research Plans have also included five long term research goals that remain consistent with minor, meaningful updates since 2005.

Each year, the NMFS Alaska Region and the Alaska Fisheries Science Center provide funding for the advancement of habitat science under the Alaska EFH Research Plan request for proposals (RFP). NMFS Office of Habitat Conservation (OHC) supports habitat science research through the annual EFH Innovation and Advancement (I&A) RFP. NMFS Alaska Region also supports habitat science advancements through our internal discretionary funding process. For fiscal year 2024, NMFS intends to fund the following projects:

- Predictive distribution models to support flexible management of Bering Sea crab fisheries: a combined modeling, field, and laboratory approach. (AK EFH Research Plan; year 3 of a 3 year proposal). *Funding Recommended by NMFS AKRO/AFSC Funds Pending*
- Predators as samplers: using food habits data to inform climate- and community-driven shifts in habitat quality for EFH species. (AK EFH Research Plan; year 2 of a 2 year proposal; year 1 funded by Funded by NMFS OHC). *Funding Recommended by NMFS AKRO/AFSC Funds Pending*
- Habitat utilization of juvenile snow crab in a warming Bering Sea: The interactive effects of ontogeny and temperature on juvenile snow crab energetic condition, metabolic scope, and survival. (AK EFH Research Plan; year 1 of a 3 year proposal). *Funding Recommended by NMFS AKRO/AFSC Funds Pending*
- Developing a network of nearshore sentinel sites to enhance our understanding of climate change effects on essential fish habitat (EFH) for federally managed species and their prey in partnership with tribes and coastal communities. (OHC EFH I&A; year 1 of a 1 year proposal). *Funded by NMFS OHC*
- Pacific salmon ocean life history stages next generation spatiotemporal and climate-informed EFH descriptions and maps for the NPFMC 2028 EFH 5-year Review (year 1 of a 2 year proposal). *Funding Recommended by NMFS AKRO Funds Pending*

EFH research projects recently funded and in-progress:

- Defining essential habitats for juvenile FMP crab species (*Chionoecetes* spp.): the importance of bottom temperature and diatom flux in defining juvenile crab abundance and condition across a warming Bering Sea (AFSC FY21)
- Pacific salmon ocean life history stages next generation spatiotemporal and climate-informed EFH descriptions and maps (UAF/AFSC FY21)
- Predictive distribution models to support flexible management of Bering Sea crab fisheries: a combined modeling, field, and laboratory approach (AFSC FY22)
- Accounting for trophic relationships in Essential Fish Habitat designation (AFSC FY23)
- [Northern Bering Sea effects of trawling study (NETS) (AFSC FY23, *on hold*)]

Publications from recently completed EFH research projects:

- Gibson, G. A., W. T. Stockhausen, S. K. Shotwell, A. L. Deary, J. L. Pirtle, K. O. Coyle, and A. J. Hermann. 2023. Can seamounts in the Gulf of Alaska be a spawning ground for sablefish settling in coastal nursery grounds? *Fisheries Research*. 261: 106625. <https://doi.org/10.1016/j.fishres.2023.106625>
- Harris, J., J. L. Pirtle, E. A. Laman, M. C. Siple, and J. T. Thorson. 2024. An ensemble approach to species distribution modeling reconciles systematic differences in estimates of habitat utilization and range area. *Journal of Applied Ecology*, 61:351–364. <https://doi.org/10.1111/1365-2664.14559>
- Harris, J., E. A. Laman, J. L. Pirtle, M. C. Siple, C. N. Rooper, T. P. Hurst, and C. L. Conrath. 2022. Advancing model-based essential fish habitat descriptions for North Pacific species in the Aleutian Islands. U.S. Dep. Commer., NOAA Tech. Memo. NMFS-AFSC-458, 406 p. <https://doi.org/10.25923/ffnc-cg42>
- Laman, E. A., J. L. Pirtle, J. Harris, M. C. Siple, C. N. Rooper, T. P. Hurst, and C. L. Conrath. 2022. Advancing model-based essential fish habitat descriptions for North Pacific species in the Bering Sea. U.S. Dep. Commer., NOAA Tech. Memo. NMFS-AFSC-459, 538 p. <https://doi.org/10.25923/y5gc-nk42>
- Pirtle, J. L., Laman, E. A., Harris, J., Siple, M. C., Rooper, C. N., Hurst, T. P., Conrath, C. L., and Gibson, G. A. 2023a. Advancing model-based essential fish habitat descriptions for North Pacific species in the Gulf of Alaska. U.S. Dep. Commer., NOAA Tech. Memo. NMFS-AFSC-468, 541 p. <https://doi.org/10.25923/ygdf-5f65>

6. NOAA's Restoration Center in Alaska

Habitat restoration projects benefiting NOAA trust resources are seeing a boost in funding due to the Infrastructure, Investment and Jobs Act (Public Law 117-58). Under this Act, NOAA released four Federal Funding Opportunities through the NOAA Restoration Center in 2022 and 2023. NOAA posts all funding opportunities at: <https://www.fisheries.noaa.gov/funding-opportunities>.

In 2022, over \$10 million dollars in projects were funded to improve fish passage, coastal resilience and capacity building for underserved and tribal entities. Projects funded include:

- National Forest Foundation for The Resurrection: Restoration of a Watershed and Salmon in Alaska (\$3.8 million)
- Levelock Village Council for Developing a Climate Impact Statement for Coastal Erosion and Shoreline Stability in Levelock, Alaska (\$380,000)
- Sealaska Corporation for Assessment and Engineered Designs for Anadromous Fish Passage Infrastructure on Sealaska Lands (\$425,920)
- The Eyak Corporation for Restoring Tribal Priority Fish Passage through Barrier Removal (\$1 million)
- Copper River Watershed Project for Fish Passage Restoration on the Copper River Watershed (\$3.4 million)
- Chickaloon Native Village for Tribal Fish Passage (\$1.6 million)

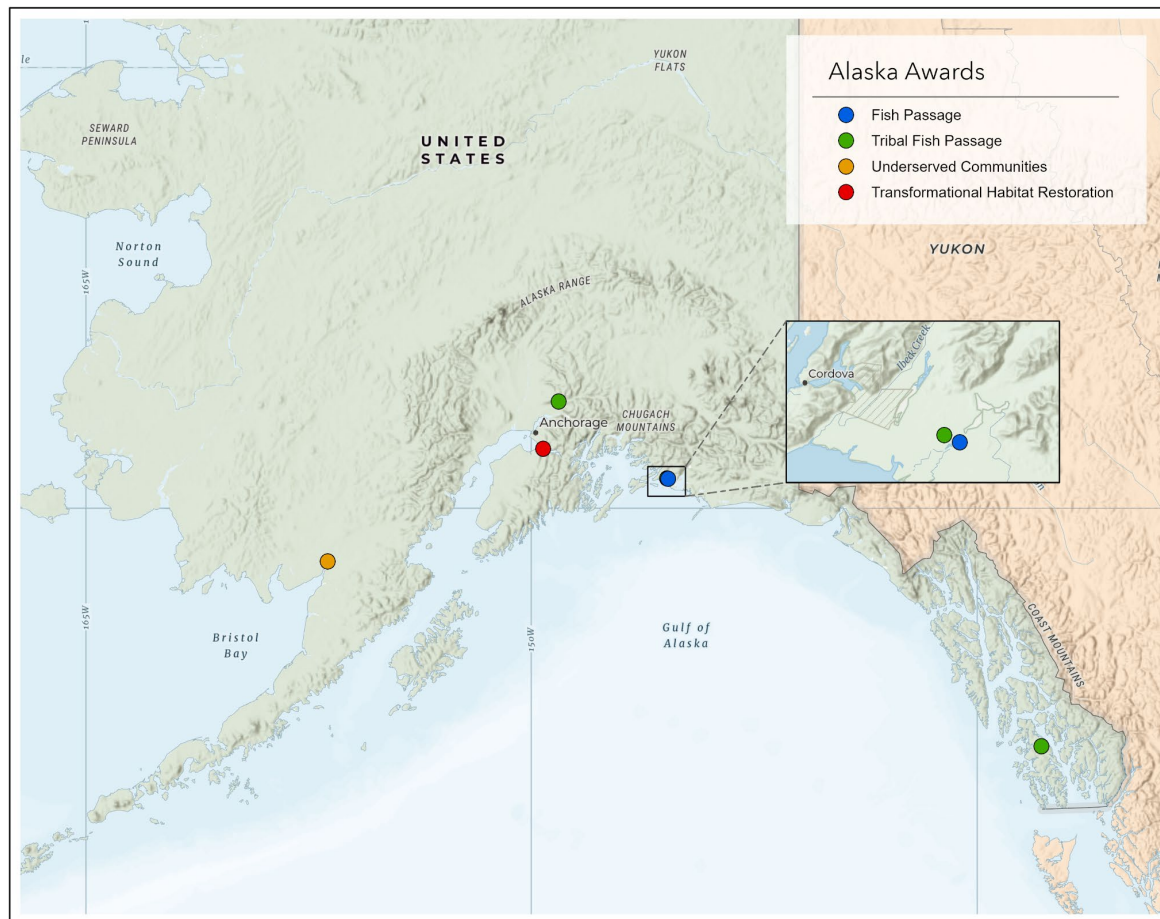


Figure 1. Map depicting 2022 funded BIL project locations in Alaska.

In 2023 we ran four competitions for funding and are currently reviewing the proposals for funding:

- Restoring Fish Passage through Barrier Removal Grants up to \$175 million is available nationally.
- Restoring Tribal Priority Fish Passage through Barrier Removal Grants up to \$85 million is available nationally.
- Transformational Habitat Restoration and Coastal Resilience Grants up to \$240 million is available nationally.

Coastal Habitat Restoration and Resilience Grants for Tribes and Underserved Communities up to \$45 million is available. \$20 million of this funding is specifically available to U.S. federally recognized tribes, Alaska Native Corporations, and organizations that represent tribes through formal legal agreements, through direct awards or subawards.



Figure 2. Rewatering a side channel of Resurrection Creek following restoration of the previous mine site. Photo Credit NOAA.

7. Alaska Aquaculture Opportunity Area Coordination

HCD staff participate in the Alaska Aquaculture Team and have been engaged in the early aspects of the Aquaculture Opportunity Area (AOA) identification process in Alaska. One HCD staff was on detail with the AKR Regional Aquaculture Coordinator (RAC) from October 1 2023 to January 31 2024. This opportunity included reviewing public comments from the AOA Request for Information, developing frameworks for engagement with relevant agencies, and designing and executing AOA spatial planning workshops for input from interested parties in February and March 2024 with the, Office of Aquaculture, National Centers of Coastal Ocean Science (NCCOS), and hired facilitators. HCD staff collaborated and coordinated with NCCOS staff and the AKR RAC to identify priority habitat data for the Habitat Combined Data layer that will be included in the spatial analysis for the identification of AOAs in Alaska. HCD's engagement in the AOA process will improve aquaculture-related EFH consultations, a better understanding of the Alaskan aquaculture industry, improved conservation recommendations and best management practices, new habitat science products, and relationship building. HCD's engagement in this process helps us identify appropriate areas for aquaculture development in Alaska state waters while minimizing impacts to sensitive habitats.

8. Council Coordination Committee Habitat Workgroup Summary of Achievements

The Council Coordination Committee Habitat Work Group held a two day workshop in January 2024, this first in person meeting since 2019. The workshop provided a forum for over 30 fish habitat professionals at the Councils and NOAA Fisheries to discuss the key role habitat science will play in understanding the implications of changing ocean conditions, and learning how best to apply that information to management decisions, such as EFH designations and consultations. The Alaska region was well represented by NPFMC lead Sarah Rheinsmith and Cathy Coon and Jodi Pirtle from NOAA Fisheries Habitat Conservation Division.

The workshop covered four sessions: Session 1 focused on scientific products that can inform this work, and grounded attendees in a common understanding of areas of work that NOAA will undertake using Inflation Reduction Act funds. Later sessions focused on integrating climate change into essential fish habitat designations (Session 2) and consultations (Session 3). Attendees also discussed how habitat considerations can be integrated into broader climate mitigation planning at the Councils (Session 4). The Alaska led sessions were well led and our science is in some instances more advanced than other regional approaches, where we have data and other support to do more advanced modeling.

9. HCD Accomplishments Report FY23

[HCD's Accomplishments Report](#) for FY23 (attached) is the twenty-first annual summary report highlighting the Division's work to conserve healthy habitats in support of sustainable commercial, recreational, and subsistence fisheries. Changes to the content and format of the report over the years track the changes in how we work to accomplish our mission, the changing nature of projects that may adversely affect EFH, the heightening awareness of climate change, and the growing body of habitat science in support of EFH consultations. Feature stories include: completion of the EFH 5-year review process, use of eDNA, our support for federal funding to enhance fish passage restoration, highlighting Tribal coordination and cultural resource interests in our consultation work, and FWCA collaboration with the U.S. Army Corps of Engineers to support the planning process for potential Atka Harbor improvements.