UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
National Marine Fisheries Service
P.O. Box 21668
Juneau, Alaska 99802-1668

April 1, 2022

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. Our report focuses on major consultations, with a brief summary of routine activities with minor effects on EFH, and provides advance notice for those activities that could have major effects on EFH, so that the Council can decide whether to consult on the activity.

Contents

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 would affect fish habitat. Under section 305(b)(3)(A) of the MSA, Councils may comment on and make recommendations to the Secretary and any federal or state agency concerning any activity or proposed activity authorized, funded, or undertaken by the agency that, in the view of the Council, may affect the habitat, including EFH, of a fishery resource under its authority. **In addition, under section 305(b)(3)(B) of the MSA, Councils must provide such comments and recommendations concerning any activity that, in the view of the Council, is likely to substantially affect the habitat, including EFH, of an anadromous fishery resource under Council authority.** The EFH regulations at 50 CFR 600.930(a) state that each Council should establish procedures for reviewing federal or state actions that may adversely affect the habitat, including EFH, of a species under its authority.

As part of the EFH consultation policy, 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.

2. EFH Consultations

Every year, the NMFS Alaska Region receives in the range of 100 to 200 non-fishing actions proposed by Federal and State agencies that have the potential to affect living marine resources. The review of hundreds of actions is not feasible due to limited staff; therefore, we focus reviews on only those activities that may adversely affect EFH. In a typical year, actions include a wide range of activities such as aquaculture sites, harbor improvement, navigation dredging, offshore disposal of materials, pollutant discharges, coastal construction, mining, forestry, oil and gas exploration, Naval training exercises, hydropower development, and transportation infrastructure projects (highways, bridges, airport expansions, etc.).

Federal action agencies include the U.S. Army Corps of Engineers (USACE), the Environmental Protection Agency (EPA), the Bureau of Ocean Energy and Management (BOEM), the Bureau of Land Management (BLM), the Federal Energy Regulatory Commission (FERC), the Federal Highway Administration, the Federal Aviation Administration, the U.S. Forest Service (USFS), NOAA's Office of Marine and Aviation Operations (OMAO), and others. State action agencies include Alaska Department of Natural Resources (ADNR), Alaska Department of Transportation and Public Facilities (ADOT&PF), and Alaska Department of Environmental Conservation (ADEC).

During EFH consultations between NMFS and other agencies, we strive to provide reasonable and scientifically based recommendations for reducing the loss and degradation of habitats that sustain Council managed species. The consultations serve to inform agencies with relevant jurisdiction about potential consequences of their actions on EFH and ways to minimize adverse effects to Alaska's valuable fishery resources. Our EFH Conservation Recommendations are non-binding, as specified by the MSA. However, if the Federal agency does not follow NMFS's recommendations, the MSA requires that Federal agencies describe the measures they propose for avoiding, mitigating, or offsetting the impact of the activity on habitat.

Our habitat biologists are effective at avoiding or minimizing impacts to EFH during pre-consultation coordination with project proponents and action agencies. We provide written comments at various stages of projects including: project scoping, project permitting, during environmental impact statement comment periods, and at other times as requested. The formal EFH consultation occurs when the Federal agency provides NMFS with an EFH Assessment prepared under 50 CFR 600.920(e). NMFS then has 30 or 60 days to complete the EFH consultation. Additionally, we look for efficiencies by conducting consultations at the programmatic level when appropriate.

Since our April, 2021, report to the Council we have completed EFH consultations on—

- IPOP Mining Safety Sound/Bonanza Channel: This project was consulted on multiple times over the year. (See **Mining activities near Nome** below.)
- Oil and Gas Development, Cook Inlet Lease Sale 258: Our comments highlighted the significance of GHG emissions, climate change and the direct implications to commercial fisheries.
- Aquaculture:
    - Sitka Sound Aquatic Farm
    - Rocky Bay Oysters, LLC
    - We provided early coordination with ADNR and USACE on the development of 13 permits to develop aquaculture operations throughout the state (a quickly growing industry).
- Dredging and Harbor Improvement
    - Delong Mountain Transportation System, Chukchi Sea, Maintenance Dredging; Red Dog Mine
    - Seldovia Bay Ferry Dock Refurbishment Project
    - Ketchikan Port Facility Recapitalization Project (OMAO)
    - Elfin Cove Maintenance Dredging
- Coastal Development
    - City of Ketchikan, Tongass Parking Lot Expansion
    - Construction of Residential Area, Tongass Narrows
    - Shepards Point Oil Response Facility
    - Little Diomede Water Storage Tank Improvement
    - Private Dock Construction (6)
    - Private Breakwater (1)
- Mines
    - Kensington Mine Expansion Plan
    - Mendenhall Glacier Mineral Mining 2021
- Hydropower
    - Implementation of Eklutna Hydroelectric Project Settlement Agreement
    - Terror Lake License Amendment
    - Igiugig Hydrokinetic Pilot License Review
    - Thayer Creek Hydropower 2021
- DOT Highway Projects
    - South Weeping Birch Street Bridge
    - Tongass Narrows Highway Ketchikan to Saxman Widening and Pavement Rehabilitation
- DOD Projects
    - Programmatic Minor Waterfront Maintenance, Repair, and Replacement Activities – USCG Sector Alaska
    - Navy Civilian Port Defense Training, Juneau
- BLM Alaska Native Vietnam-Era Veterans Land Allotment Program
- Cable and Communication: Alaska Power & Telephone Company Sea Link Fiber Project and the Unicom AU-Aleutian Fiber Optic Cable
- Mendenhall Glacier Visitor Facilities Improvement

- Upper Falls Creek Timber Sale

Currently, HCD is engaging with other Federal and State of Alaska agencies, including early coordination on the following proposed projects—

- Mines
    - Nome Offshore Gold Mining (See **Mining activities near Nome** below.)
    - Greens Creek Mine
    - Eskay Creek Mine, British Columbia, as technical advisor role
- Coastal Development
    - DNR-DMLW Over-the-Counter Dock Permit
    - Kuskokwim River Dock and Bulkhead
    - Nome Inner Harbor, Maintenance Dredging
- Alaska and National Pollutant Discharge Elimination System Permits
- Aquaculture Permit Application
- St Mary's Airport, Barge Landing
- USGS Sediment Coring, Kachemak Bay

We are also anticipating an increase in Federal projects funded under the Infrastructure, Investment and Jobs Act (IIJA, Public Law 117-58) in 2022 and over the next 5 years. We are coordinating with other agencies to understand future projects and to frontload and plan EFH consultations.

We provide some additional information on our consultations on mining activities near Nome that may be of interest to the Council.

Proposed IPOP Mine: We completed our EFH consultation with the USACE for the proposed IPOP mine. The purpose of this project is to mine for gold in the Bonanza Channel of Safety Sound. We recommended that the proposed mine not be permitted because of the potential for substantial adverse impacts to Pacific salmon EFH. The USACE is currently considering whether or not to permit the mine. The project has the potential to have substantial adverse impacts to the marine tidal estuary, including submerged aquatic vegetation, migratory routes and transition zones that are important to EFH for Council-managed species. The proposed scope of work includes dredging and placing fill in vegetated wetlands and estuarine nearshore environments that are essential habitats for subsistence, commercial, and recreational important fishery resources. IPOP, LLC plans to commence project operations in the summer of 2022 with a case study followed by a five-year mining plan.

The case study includes two phases. Phase 1 would dredge and backfill approximately 160,000 cubic yards (CY) of silt, sand, and gravel from a 5.9 acre test area. Phase 2 would expand the test area by dredging and backfilling up to an additional 135,000 CY of material from a 4.6 acre test area. The case study would also fill an additional 13.9 acre shallow littoral area to dispose of excess dredged material and create mudflats. A 1,200-ft long, seven-foot deep access channel would remain for the duration of the full-scale mining project and after reclamation. The case study will directly impact 24.4 acres of aquatic habitat. The five-year mining proposal would dredge 21.7 acres per year, plus an additional 1.8 acres for an access channel that is up to 4,500-ft long, ten foot deep, for a total of 110.3 acres dredged. The mined area would be backfilled

with dredged materials and fill an additional 57.8-acre shallow littoral habitat with excess dredged material. Total impacts from the case study and the five-year mining plan would be approximately 195 acres of waters of the U.S., including wetlands, from the dredging and disposal of approximately 4,827,161 CY of material (estimated to have a bulked volume of approximately 5,173,423 CY).

We first informed the Council of this project in the June 2020 and April 2021 NMFS B Reports and presented the proposed mine to the Ecosystem Committee in January 2021. The minutes from the Ecosystem meeting reflect the possibility of the Council writing a letter of support for NOAA Fisheries following and EFH consultation on this project. However, the timing of the February meeting and our EFH consultation did not allow for a presentation to the Council. If the Council decides to draft such a letter to the USACE at the April meeting it may influence the USACE decision regarding the permitting of this mine.

Figure 1. Photo of the Bonanza Channel and Tidal Lagoon, near Nome, Alaska.

Nome Offshore Gold Mining: We are currently reviewing a permit renewal for an offshore dredge that operates at 30 to 60 foot depths. Since 2003 the applicant has dredged approximately 10 acres of the seabed per year. The applicant is currently the only active gold mine to operate at depths greater than 30 feet. The current permit would allow the applicant to mine up to 15 acres per year. We previously reviewed this permit in 2003 and again in 2012. Our last conservation recommendation was to restrict mining activities to water depths less than 30 feet. Mining disturbances of benthic substrate in water depths greater than 30 feet are slower to recover; however, the USACE did not accept our conservation recommendation and permitted mining at depths greater than 30 feet.

3. Tools for EFH Consultations

We have developed some tools to assist Federal and State agencies in conducting their EFH Assessments and to assist in EFH consultations.

Alaska EFH Web Application: We launched a new NOAA Fisheries Alaska EFH Web Application in December 2018. The "AK EFH Mapper" is an ESRI-powered ArcGIS online platform that hosts the complete collection of Alaska EFH maps, including the species distribution model-based maps of EFH Level 1 and 2 information for species in the Council's Fishery Management Plans. This online map interface is intended to provide an improved, efficient, and effective way to view, search, and query EFH map information. Alaska EFH maps are also available on the National EFH Mapper, although with reduced interactive user function to query information and without ability to distinguish between EFH Levels. **We are currently working to update to the AK EFH Mapper to improve user accessibility and function of this first launch.** Alaska EFH maps are also available from our website as polygon shapefiles for GIS and R statistical software (R Core Team) users.

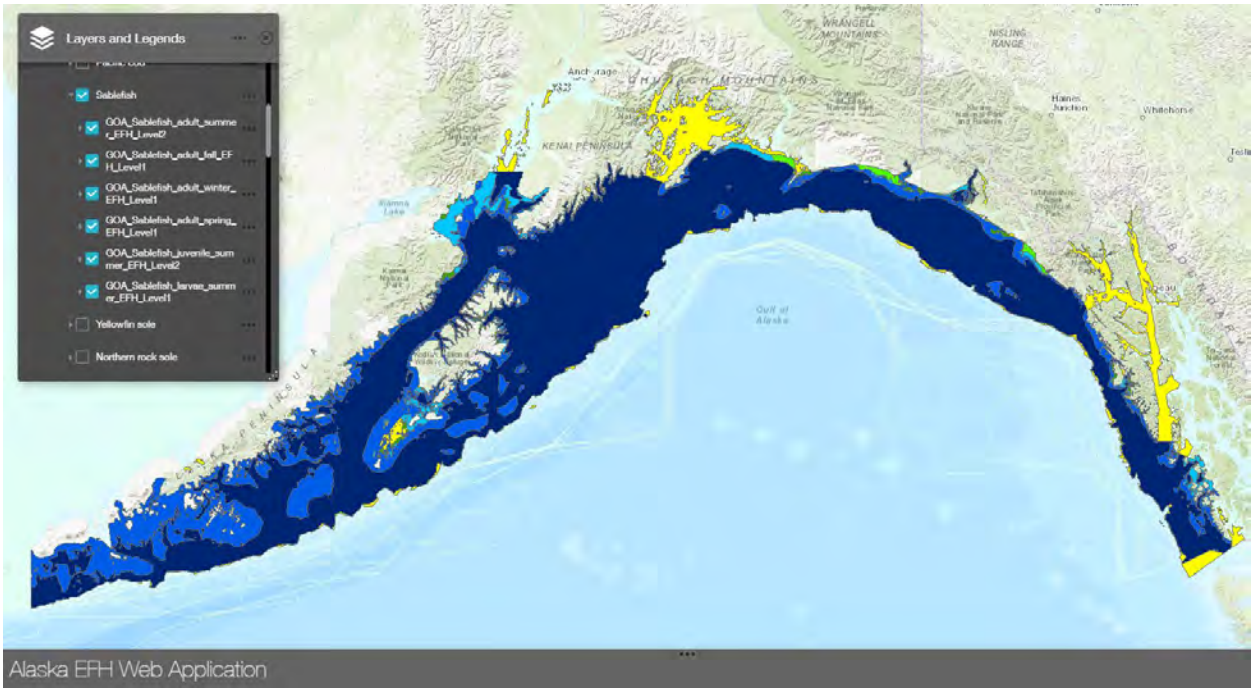


Figure 3. Sablefish EFH maps for life stages in the Gulf of Alaska from the AK EFH Mapper.

***ShoreZone*:** For the coastal-nearshore environment, we have the *ShoreZone* mapping system. *ShoreZone* has mapped more than 120,000 km of shoreline in Alaska, Oregon, Washington, and British Columbia. Approximately 95% of Alaska's extensive coastline is imaged and mapped. *ShoreZone* catalogs both geomorphic and biological resources at mapping scales of better than 1:10,000. The high resolution, attribute-rich dataset is a useful tool for extrapolation of site data over broad spatial ranges for creating a variety of habitat models and oil spill response tools. Low tide, oblique aerial imagery sets this system apart from other mapping efforts of this type. You can "fly the coastline" (aerial video), view and download still photos, and access physical

and biological data using our interactive website. *ShoreZone* is available at: https://www.fisheries.noaa.gov/alaska/habitat-conservation/alaska-shorezone

Figure 4. Example photo from ShoreZone.

Nearshore Fish Atlas: The Nearshore Fish Atlas catalogs the distribution, relative abundance, and habitat use of nearshore fishes in Alaska. Shallow, nearshore waters are some of the most productive habitats in Alaska and the most vulnerable to human disturbance. Using a beach seine as the primary sampling method, more than 100 fish species in a variety of nearshore habitats have been documented throughout Alaska in an effort to identify EFH. This collection was expanded in 2020 with 25 new fish survey data sets from 7 organizations, including and not limited to an additional 3,800 beach seine hauls (total 5,154) and 768 nearshore trawls (total 1,017) spanning from 1995-2018. **NMFS will publically launch the expanded version in 2022.** The Nearshore Fish Atlas database, information, and contacts are available at https://www.fisheries.noaa.gov/alaska/habitat-conservation/nearshore-fish-atlas-alaska.

The Nearshore Fish Atlas:

- Provides a quick reference for identifying species in areas designated for development or impacted by human disturbance (e.g., oil spill).
- Helps resource managers identify EFH for life stages of commercially important and forage fish species and prepare biological opinions for ESA species.
- Allows resource managers to track long-term and large-scale changes in fish distribution and habitat use that may result from regional impacts of climate change.

Non-Fishing Activities in Alaska: We publish *Impacts to Essential Fish Habitat from Non-Fishing Activities in Alaska* to inform decision makers and the public on activities that may affect EFH, summaries of potential effects on fish habitat, and possible EFH Conservation Recommendations to conserve healthy fish stocks and their habitat. NMFS is currently updating this report for Council and Scientific and Statistical Committee review during this EFH 5-Year Review. NMFS habitat biologists use the non-fishing report as a reference, along with information from many other sources, when reviewing proposed actions for potential impacts to EFH and when considering possible ways to avoid or minimize adverse effects. Federal action agencies also use this report as a reference when preparing the EFH Assessments they provide to NMFS as a part of EFH consultations.

4. NOAA Restoration Center and partner restoration work in Alaska

The NOAA Restoration Center serves as the Alaska NOAA lead for the National Fish Habitat Partnership. Alaska has four partnerships with geographies exclusively in Alaska. These partnerships are Southeast Alaska Fish Habitat Partnership, Kenai Peninsula Fish Habitat Partnership, Mat-Su Basin Salmon Habitat Partnership, and the Southwest Alaska Salmon Habitat Partnership. In 2021, the partnerships received a total of $830,000 of federal funding for fish habitat restoration, education and protection actions across the state.

Debris removed from the Buskin River (Photo by NOAA)

In 2022 the NOAA Restoration Center completed a large project with partners in the Buskin River watershed, replacing ten and removing eleven undersized culverts, restoring ecological stream functions and enabling passage of aquatic organisms, woody debris and sediment transport, nutrient cycling, and floodplain connectivity. The project also removed instream debris at five sites in the Buskin River and its tributaries, removing sources of contamination and benefiting spawning gravels. The project restored access to 6.65 upstream miles and 95 upstream lake acres and restored connectivity to 0.23 miles of pristine stream habitat. This project benefited many local species, including many species of fish and birds, made subsistence activities more accessible, improved recreational opportunities on the river, and benefited the local Chiniak Bay commercial salmon fishery. The project was funded by the Exxon Valdez Trustee Council.

Habitat restoration projects benefiting NOAA trust resources will see a boost in funding for the next five years due to the Infrastructure, Investment and Jobs Act (IIJA, Public Law 117-58). Under this Act, NOAA will be releasing Federal Funding Opportunities (FFO) though the NOAA Restoration Center as well as increasing funding to Pacific Coast Salmon Restoration Fund (PCSRF) which funds Alaska Sustainable Science Fund. NOAA posts all funding opportunities at: https://www.fisheries.noaa.gov/funding-opportunities.

The anticipated funding for these opportunities are:

- NOAA Restoration Center Habitat Resilience - $98 million per year for five years ($490 million);
- NOAA Restoration Center Tribal Fish Passage - $12 million per year for five years ($60 million);
- NOAA Restoration Center Fish Passage - $68 million per year for five years ($340 million); and
- PCSRF - an additional $34.4 million per year for five years ($172 million)

It is anticipated that this boost in funding will benefit restoration projects across Alaska benefiting MSA species. NOAA Restoration Center in Alaska is currently working with project proponents to develop potential projects for funding. Release date for the federal funding opportunities is currently unknown. Additional information regarding national funding from the IIJA, including funding opportunities with other Federal agencies, can be found in a document created by the Wild Salmon Center.

5. EFH 5-Year Review Update

The objective of an essential fish habitat (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 has prioritized the seven EFH components in bold for a comprehensive review:

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 (HAPC) identification
9. **Research and information needs**
10. **Review EFH every 5 years.**

NMFS and the Council launched this EFH 5-year Review in April 2019 with a presentation to the Ecosystem Committee (EC) of the preliminary plan for review of the EFH components of FMPs. NMFS started the 5-year Review with focusing on the EFH descriptions and identification because of the work required to modernize the species distribution models used to create the EFH maps under component 1. From June 2020 through February 2022, this component 1 work was extensively reviewed through the Council's plan team and SSC public

processes. Stock authors and experts reviewed the component 1 and component 7 information from January 2021 to November 2021 and the results of this review are presented in the Report of Stock Assessment Author Review of EFH Components 1 and 7 for the 2022 EFH 5-year Review.

NMFS started the work under component 2 once the new EFH maps were available. The SSC reviewed the Fishing Effects (FE) model and plan for the FE assessment in February 2022. Currently, stock authors and experts are reviewing the FE model results and conducting the FE assessment, as well as providing input on data limitations per the SSC request. The results of this review will be presented to the SSC in October 2022.

Concurrently, NMFS is in the process of revising the report on non-fishing activities that may adversely affect EFH and EFH conservation and enhancement recommendations. NMFS is also identifying research and information needs and developing a new 5-year EFH research plan.

A comprehensive review of each of the prioritized EFH components will be presented to the Council in a summary report at the conclusion of the review. If the Council chooses to update its FMPs based on the report, FMP amendments will be prepared along with the appropriate analytical documents through the normal Council process.

6. EFH Research funding for FY2022

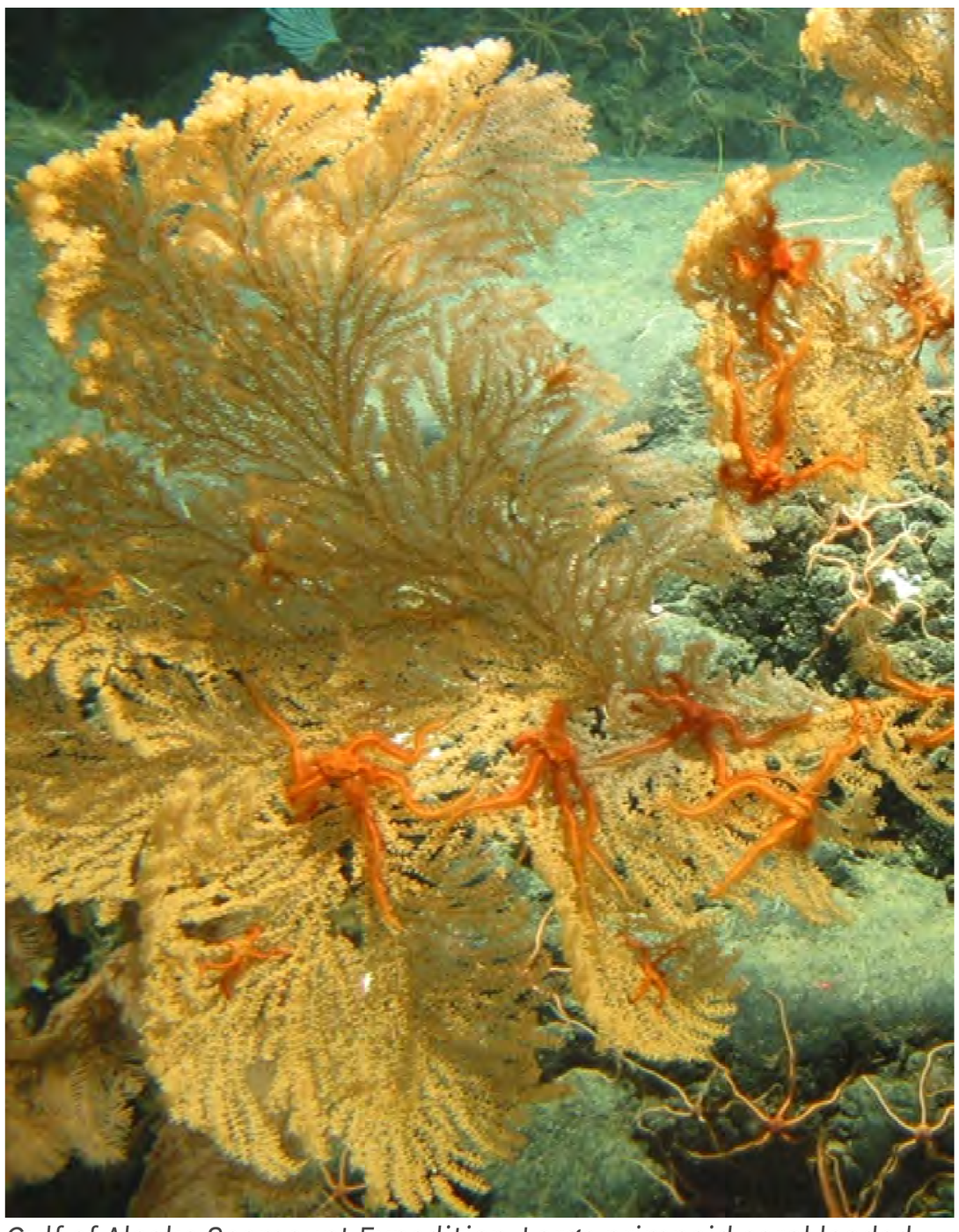
Each year, the NMFS Alaska Region and the Alaska Fisheries Science Center provide funding for EFH Research under the EFH 5-year Research Plan. For fiscal year 2022, we are funding the following projects—

- Predictive distribution models to support flexible management of Bering Sea crab fisheries: a combined modeling, field, and laboratory approach.
- 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.
- Condition indicators for Pacific Cod and Walleye Pollock from the eastern Bering Sea.
- Accounting for trophic relationships in Essential Fish Habitat designation.

Accomplishments Report

Alaska Region's Habitat Conservation Division

Fiscal year 2021



Gulf of Alaska Seamount Expedition. Large primnoid coral loaded with brittle stars on Dickins Seamount.. Photo Credit: Gulf of Alaska 2004. NOAA Office of Ocean Exploration

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Our Mission

Habitat conservation, protection, and restoration are the foundation for sustaining the nation's fisheries. The Alaska Region (AKR) Habitat Conservation Division (HCD) carries out the National Marine Fisheries Service's (NMFS) statutory responsibilities for habitat conservation in Alaska under the Magnuson-Stevens Fishery Conservation and Management Act (MSA), the Fish and Wildlife Coordination Act (FWCA), the National Environmental Policy Act (NEPA), the Federal Power Act (FPA), and other laws.

To prioritize our resources and activities, make decisions in an ecosystem context, and strengthen the science behind our decision-making, HCD works closely with the Alaska Fisheries Science Center (AFSC), other National Oceanic and Atmospheric Administration (NOAA) line offices, the North Pacific Fishery Management Council (NPFMC/Council), other federal and state agencies, non-governmental organizations, local governments, and a variety of industry and conservation groups.

Bering Sea snow crab support a valuable commercial fishery. Photo Credit: NOAA Fisheries

The Alaska Region's mission is science-based stewardship of living marine resources and their habitat in the waters of the North Pacific and Arctic Oceans off Alaska. Responsibilities include supporting sustainable fisheries, recovering and conserving protected species, and promoting healthy ecosystems and resilient coastal communities.

SUMMARY

$397,730

Amount dedicated to HCD and the Alaska Fisheries Science Center's Habitat and Ecological Processes Research (HEPR) EFH spending plan to address management priorities and science needs. 5 research projects were funded.

12

The no. of HCD staff engaged and updating the science literature and providing better EFH Conservation Recommendations to further reduce and mitigate impacts to EFH and associated fisheries.

ECO Numbers

61.5%

% of projects modified due to consultation with HCD.

26

The no. of consultations that were initiated in HCD AKR.

53

The no. of early coordinations that were initiated.

A Message from Gretchen Harrington, ARA HCD

The Habitat Conservation Division's activities fall under NOAA's overarching mission "to understand and predict changes in climate, weather, oceans and coasts; to share that knowledge and information with others; and to conserve and manage coastal and marine ecosystems and resources." Our team implements several federal laws - the Magnuson-Stevens Fishery Conservation and Management Act, the Fish and Wildlife Coordination Act, the National Environmental Policy Act, and the Federal Power Act - to manage Alaska's marine and freshwater fish habitats. We have incredible opportunities and a profound responsibility to advance the conservation and recovery of Alaska's marine and freshwater fish habitats. Our staff brings diverse and valuable skills to help conserve fish habitat. A team-based culture supports this important work. This accomplishments report highlights the good work we completed, the diversity of activities, and the collaborations that support our goals. I hope you enjoy reading about our work and that it inspires you to learn more.

HCD Staff

John Olson, Ellen Ward and Charlene Felkley met up in Anchorage for a social gathering. Photo Credit: Ellen Ward.

Ch..Ch..Ch..Changes

Welcome Sean McDermott: Sean started as the new supervisor for HCD in the Anchorage Office joining us from the Greater Atlantic Region. He has a broad professional background across regulatory, program, scientific, and policy areas. Sean will apply these skills to managing the essential fish habitat consultation and related work in the Anchorage Office.

Welcome Joshua Markwell: Joshua joined the AKR this past May as the new Administrative Office Assistant in Anchorage supporting HCD and Protected Resources Division (PRD), after having served eight years with the United States Air Force. His work has already proven invaluable to his fellow staff.

Moving, but not too far, is Angel Leppert: Angel was the Administrative Office Assistant in Anchorage supporting HCD and PRD. However, this past year, she moved to Restricted Access Management (RAM) as a Permit Assistant. Thank you for all you've done Angel! Good luck at RAM.

Welcome Ashely Bolwerk: Ashley has been living and working in Southeast Alaska since 2011. She has a background in science and education and is an advocate for community-based research and equitable relationship building. She is excited to work with HCD to maintain healthy coastal ecosystems as an Alaska Sea Grant Fellow.

Moving on, Matt: Matthew Eagleton retired after 35 years with NOAA and 25 years with AKR. Most recently, Matt was the supervisor in the Anchorage office and EFH Coordinator. We celebrate Matt on his tribute page at the end of this report.

The HCD Team

- **Gretchen Harrington, M.S.,** Assistant Regional Administrator
- **Jodi L. Pirtle, PhD.,** Juneau Branch Chief & Deputy Assistant Regional Administrator
- **Sean McDermott,** Supervisory Marine Habitat Resource Specialist
- **Matt Eagelton,** EFH Resources Specialist
- **Erika Ammann, M.S.,** Fisheries Biologist, NMFS Restoration Center
- **Cheryl Barnes, PhD,** Postdoctoral Research Associate, Cooperative Institute for Climate, Ocean, & Ecosystem Studies (CICOES)
- **Ashley Bolwerk M.S.,** Alaska Sea Grant State Fellow
- **LTJG Stefanie Coxe,** Resource Specialist
- **Sean Eagan, M.S.,** Hydropower Coordinator
- **Charlene Felkley,** Essential Fish Habitat (EFH) Coordinator (Acting)
- **Bill Hines,** Marine Resource Specialist
- **Seanbob Kelly, M.S.,** Fisheries Biologist
- **Barb Lake,** Administrative Assistant
- **Doug Limpinsel, M.S.,** Fisheries Biologist
- **Joshua Markwell,** Administrative Assistant
- **Jen Marsh, PhD,** Postdoctoral Research Associate, University of Alaska Fairbanks
- **John Olson,** Fisheries Biologist
- **Linda Shaw,** Wildlife Biologist
- **Ellen M. Ward, PhD.,** Resource Management Specialist
- **Molly Zaleski,** Resource Management Specialist

Matthew Eagleton, Celine Cousteau and Jean Michel Cousteau. Photo Credit: NOAA Staff

Goal #1

Identify and pursue opportunities to conserve and restore marine and anadromous water habitats.

Gathering green crab data.
Photo Credit: Taylor Stumpf

Environmental DNA (eDNA)

We are exploring the use of environmental eDNA to understand the presence and distribution of fish, crab, marine mammals, and invasive species in coastal Alaska. Beyond species distribution, there are multiple potential applications including early detection of invasive species and harmful algal blooms, and the detection of species such as pinto abalone that inhabit difficult-to-survey, rocky habitats. Early steps to learn more about the process included Linda Shaw attending a presentation by CD3 Systems about their DNA tracker. The tracker uses autonomous miniaturized digital droplet technology to run PCR analysis of environmental DNA. The technology allows for finer scale detection of eDNA that is present in the environment outside of cellular structure.

Despite continuing challenges due to the COVID pandemic, the Metlakatla Green Crab monitoring and eDNA project was able to work with the Metlakatla Indian Community (Taylor Stumpf and Dustin Winter) and NOAA contractor Meredith Pochardt to conduct a full season of green crab trapping and a September sampling for green crab eDNA on Annette Island. After a remotely delivered training session, traditional trapping was done at nine locations total, and twice a month consistently at five locations from both shore and boat. Samples for eDNA will be analyzed in Juneau by Meredith Pochardt for both green crab using qPCR methods and community structure with metabarcoding methods.

Other Goal #1

Environmental Protection Agency Vessel Incidental Discharge Act Update: We tracked proposed regulations by the U.S. Environmental Protection Agency (EPA) under the Vessel Incidental Discharge Act (VIDA). VIDA requires EPA to set national standards for various discharges, including ballast water and biofouling. Under the current proposal, commercial vessels less than 79 ft in length and all commercial fishing vessels are exempt from both Federal and State regulation of incidental discharge except for ballast water. The rule would preempt State regulations of discharge unless they are no more stringent than the Federal regulations, representing a regulatory "ceiling" rather than a "floor". The regulations pertain heavily to the State-Federal relationship, and Alaska currently has no regulations in place that will be affected by the proposals. We will continue to track this action and incorporate any appropriate changes into processes under our authority, specifically the EFH 5 year review.

Igiugig In-river Turbines: The river turbines sitting on the bottom of the Kvichak River produced energy for ten months in 2020 and are now the longest operating in-river electricity generation project in the U.S. Igiugig village members took drone footage showing the returning adults hugging the river banks where the current is slower; they consistently stayed away from the spinning turbine in the deepest part of the channel. There are cameras mounted on the unit to document smolt interaction, however, they failed so the turbines were turned off during smolt outmigration. Annual maintenance showed more small dings than expected, but no structural problems. In 2021, the camera troubleshooting continued, a shore-based sea-container sized battery was added, and construction started on a second turbine unit. We continue to monitor the turbines' effects on this important salmon run.

Alaska DOT Fish Passage Culvert Debris Clean-up: Molly Zaleski participated in a call with representatives from the Federal Emergency Management Agency (FEMA), Alaska Department of Transportation (DOT), and Alaska Department of Fish and Game (ADFG) to review the DOT's clean-up plan of culverts in Southeast Alaska blocked by debris. The clean-up effort comes from the disaster declaration (FEMA-DR-4585-AK) after the storms, flooding, landslides, and mudslides between November 30 and December 2, 2020. We provided recommendations, along with ADFG's Habitat Division, for best management practices and will continue coordinating with DOT and FEMA to maintain a list of cleared culverts, impacted streams, and fish species affected.

Mendenhall Glacier Mineral Withdrawal: We provided a letter of support for a proposed withdrawal of 4,560 acres of National Forest System Lands from mineral exploration and development near Mendenhall Glacier. The proposal is in anticipation of new land exposure through glacial recession. Our letter cited the importance of protecting salmon EFH from mineral mining activities in and around Mendenhall Lake and the connecting streams.

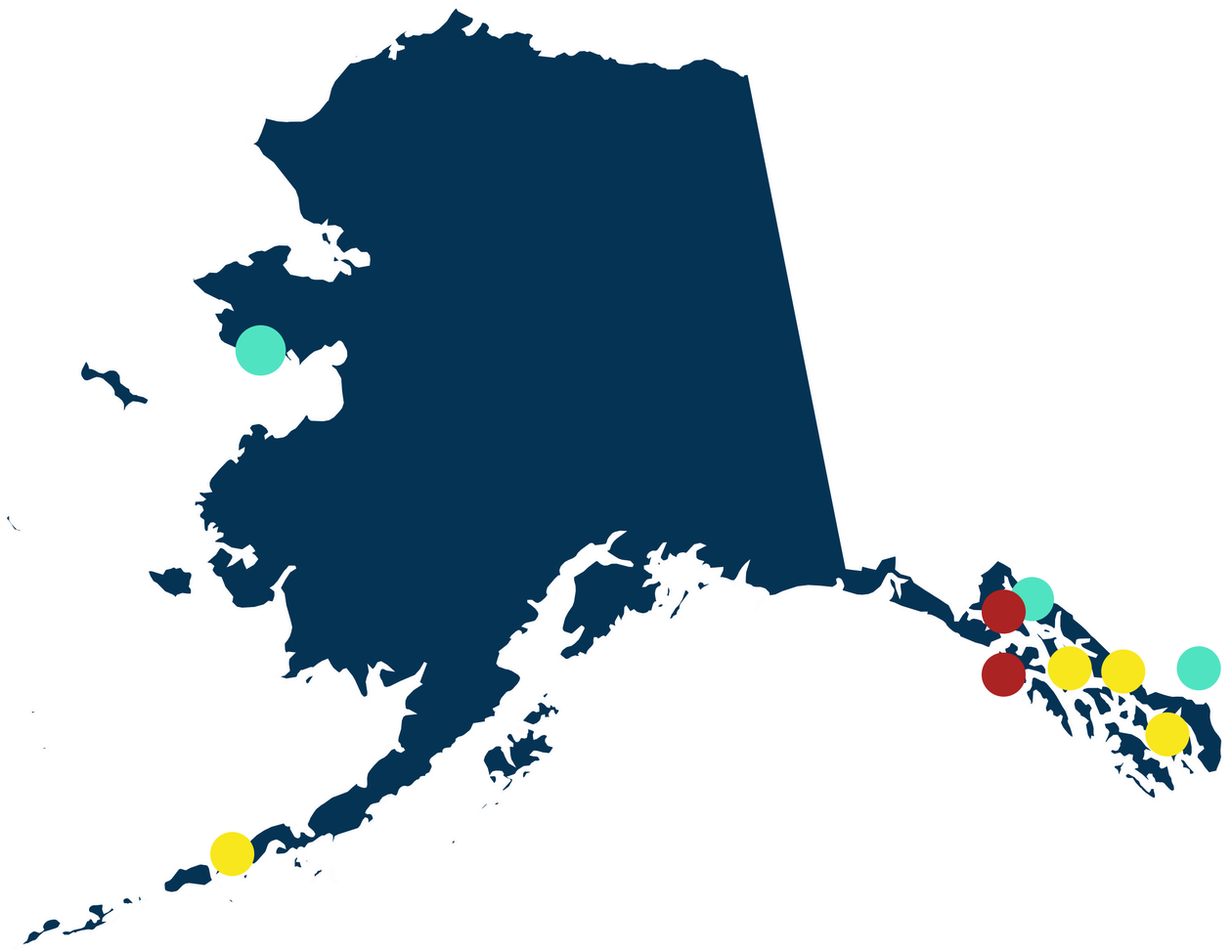
Goal #2

Provide EFH conservation recommendations that maximize mission-critical benefits for Federally managed species and their habitats.

IPOP, LLC Gold Dredge Mining Proposal Bonanza Channel, Nome

IPOP plans to dredge and discharge nearly 5 million cubic yards of spoils from 195 acres of pristine estuarine and stream habitat near Nome that is important to local subsistence users and is designated as EFH for Pacific salmon. The dredge mine operation in Bonanza Channel was originally planned to begin in June 2020, but they did not receive the required permits. They proposed a new 3-step plan: exploratory drilling, case study, and the full-scale mine, but timelines are undecided. Throughout the year, Seanbob Kelly and Stefanie Coxe gave presentations to and met with representatives of the Village of Solomon, Greater Atlantic Region Habitat and Ecosystems Services Division, state and federal agencies, and the NPFMC Ecosystem Committee to discuss topics including: permit applications, status updates, and mitigating climate change through carbon sequestration. This cross agency communication and coordination began in 2018 and will likely track the project into the future. We notified the U.S. Army Corps of Engineers (USACE) to say the action(s) may adversely affect EFH resources and provided conservation recommendations in regards to the alteration or removal of benthic substrates used by crab and the disruption of migratory corridors used by Pacific salmon stocks. We will continue to explore regulatory options, like NEPA and FWCA, in addition to MSA, in attempts to minimize adverse impacts to the habitat.

Projects by Location



Docks and Harbors: We consulted on many dock and harbor projects this year. Some of these included: 1) We provided EFH conservation recommendations to the USACE for the construction of three docks in Port St. Nicholas near Craig, Alaska. 2) A meeting between Seanbob Kelly, Molly Zaleski, and USACE to review EFH conservation recommendations we had provided in a formal letter for a dredge and dock project in Wrangell Narrows. 3) USACE hosting an initial, virtual iteration meeting, attended by Seanbob and Stefanie Coxe, to review a feasibility study for Akutan Harbor Improvements. We look forward to staying involved in USACE's process. 4) We provided scoping comments and a response to an EFH assessment for the U.S. Coast Guard's (USCG) proposed waterfront improvements to Base Ketchikan.

Transportation Infrastructure: We consulted on two projects aimed at moving people or planes. 1) We provided conservation recommendations to the U.S. Federal Aviation Administration for the construction of a new Seaplane Base in Sitka, Alaska. 2) Molly Zaleski and Ellen Ward reviewed a Hoonah project proposal to improve the Harbor Way sidewalk and walkway. The proposal has been delayed as the planners consider alternative improvement options connecting a walkway from the shoreline to Pitt Island, which holds the community's cemetery.

Mines: HCD worked on three mine projects in addition to IPOP. 1) Coeur Alaska Inc. is proposing to raise an existing tailings dam in order to extend the life of Kensington Mine. We provided draft Environmental Impact Statement (EIS) comments and requested that the EFH assessment clearly articulate potential damage to fish and crab habitat in Berners Bay. We expect another request for mine expansion in 2030. 2) Three of our EFH conservation recommendations were included as mandatory conditions in the exploratory drilling permit from Roanan Corp/Hyder Ventures for their proposed Riverside Mine project in the Salmon River Watershed on U.S. Forest Service (USFS) land. 3) Sean Eagan and Molly Zaleski attended a Greens Creek Mine meeting reviewing their scoping comments on a proposal to increase the tailings storage capacity by 4 to 5 million cubic yards. They highlighted concerns over salmon and Gulf of Alaska (GOA) groundfish habitat in anadromous streams and Hawk Inlet.

Other Goal #2

Lowell Creek Flood Diversion: Lydia Ames, Seanbob Kelly, and Stefanie Coxe consulted with USACE about an Environmental Assessment for the upcoming Lowell Creek Flood Diversion project. Based on their review, we agreed with the USACE's conclusion that there would be no adverse impacts to EFH. The flood control improvements would prevent flooding events which have the potential to deposit debris and pollution that can adversely impact EFH.

Montana Creek Site Visit: Molly Zaleski visited the proposed ATV easement plan in Juneau, AK. The site visit was facilitated by the Southeast Alaska Fish Habitat Partnership (SEAKFHP) and led by Trout Unlimited and ADFG members. Concerns for the plan include stream crossings and disturbance to coho and chum salmon EFH in Montana and McGinnis Creeks and their tributaries, as well as ground breakup and landslides from the disturbance of glacial-marine deposits. The Juneau Offroad Association suspended their plans a few weeks after the site visit to develop more public support.

Early Coordination for Aquaculture Projects: Molly Zaleski provided early coordination technical assistance, including EFH conservation recommendations, to aquaculture farmers as they develop their projects within permitting process. Recommendations included monitoring for loss of gear, avoiding established eelgrass and kelp beds, proper disposal of oyster shells, and reliable sourcing of materials to limit the risk of introducing invasive species.

Goal #3

Use the best available science to conduct EFH reviews and consultations that support sustainable fisheries, healthy marine ecosystems, and resilient coastal communities.

Impacts to Essential Fish Habitat from Non-fishing Activities in Alaska

The 5-year review of the Impacts to Essential Fish Habitat from Non-Fishing Activities in Alaska is ongoing and an important step supporting our consultation requirements. The goal of this review is to update our current understanding of habitat related scientific literature and provide better EFH conservation recommendations to further avoid, minimize, and mitigate impacts to EFH and associated fisheries. This living document is in need of updates to accurately represent recent research, including adding aquaculture, hydropower, and scuttling sections. The process began with a solicitation of our staff comments on the strengths and weaknesses of the 2017 report and collecting suggestions on how to represent EFH attributes in each chapter. A work plan was established to organize teams by chapter, biomes, and subject matter expertise. Within each team a lead was established and members selected to read and review sections, determine what sections need to be rewritten or revised, and serve as peer reviewers. A final updated document is expected in April 2022.

Other Goal #3

Greens Creek. Photo Credit: Molly Zaleski

Hecla Greens Creek Tailings Expansion: In their Supplemental EIS, Hecla Mining proposed to locate space for approximately four to five million cubic yards of tailings to support continued mining for another decade. The current dry stack tailing's pile occupies approximately ½ square mile and is about 400 feet high. They are analyzing the expansion's effect on EFH in four streams with anadromous habitat. Molly Zaleski advocated the analysis of impacts to EFH in Hawk Inlet which supports a larger number of fish species. Sean Eagan is assisting Molly with groundwater issues. In 2021, they both attended the interagency scoping meeting and provided scoping comments. Molly was able to participate in a U.S. Forest Service (USFS) annual inspection of the mine site in August and she mentioned EFH habitat in Hawk Inlet. We await the release of a draft Environmental Impact Statement (EIS) from the USFS for review.

Goal #4

Provide habitat expertise based on the best available science to improve habitat conservation and facilitate ecosystem-based fisheries management.

2022 EFH 5-Year Review: New Species Distribution Model and EFH Mapping Tools in Development

A major action for HCD has been developing the 2022 EFH 5-year Review (2022 Review) of the ten EFH components in Fishery Management Plans (FMPs), which is in progress. The 2022 Review includes new EFH ensemble species distribution modeling (SDM) in support of Component 1 (habitat descriptions and identification). The new ensemble SDMs, developed in collaboration with AFSC, map habitat related distribution, abundance, and vital rates for Alaska species under an FMP. Four studies are contributing new information for the 2022 Review:

- New EFH Level 2 and 3 descriptions and maps for life stages of groundfishes in the Gulf of Alaska (GOA), Bering Sea, and Aleutian Islands (BSAI) for the GOA and BSAI FMPs.
- New EFH Level 2 descriptions and maps for the Crab FMP.
- New EFH Level 2 and 3 descriptions and maps for the pelagic early life history stages of sablefish and Pacific cod using biophysical individual-based models for the GOA FMP.
- New EFH Levels 2 and 3 descriptions and maps for species in the Arctic FMP.

This body of work is innovative and inclusive of many contributors who are developing new habitat science for federally managed species in Alaska.

We evaluated new approaches to develop stock specific indicators from habitat research, including from the ensemble SDMs and new temporally dynamic SDMs that have the potential to demonstrate the effects of climate change on EFH availability and spatial stock structure in our ecosystems. AFSC's GOA Atlantis Ecosystem Model team is using the new ensemble SDM EFH maps in their assessment of the GOA ecosystem for FMP species. The new ensemble SDM EFH maps will be applied to research in the stock assessment Ecosystem and Socioeconomic Profiles as metrics of species habitat-related distribution and abundance. We are very excited that habitat science contributing new EFH information is extensible to support stock assessment and other ecosystem-based fisheries management (EBFM) information needs.

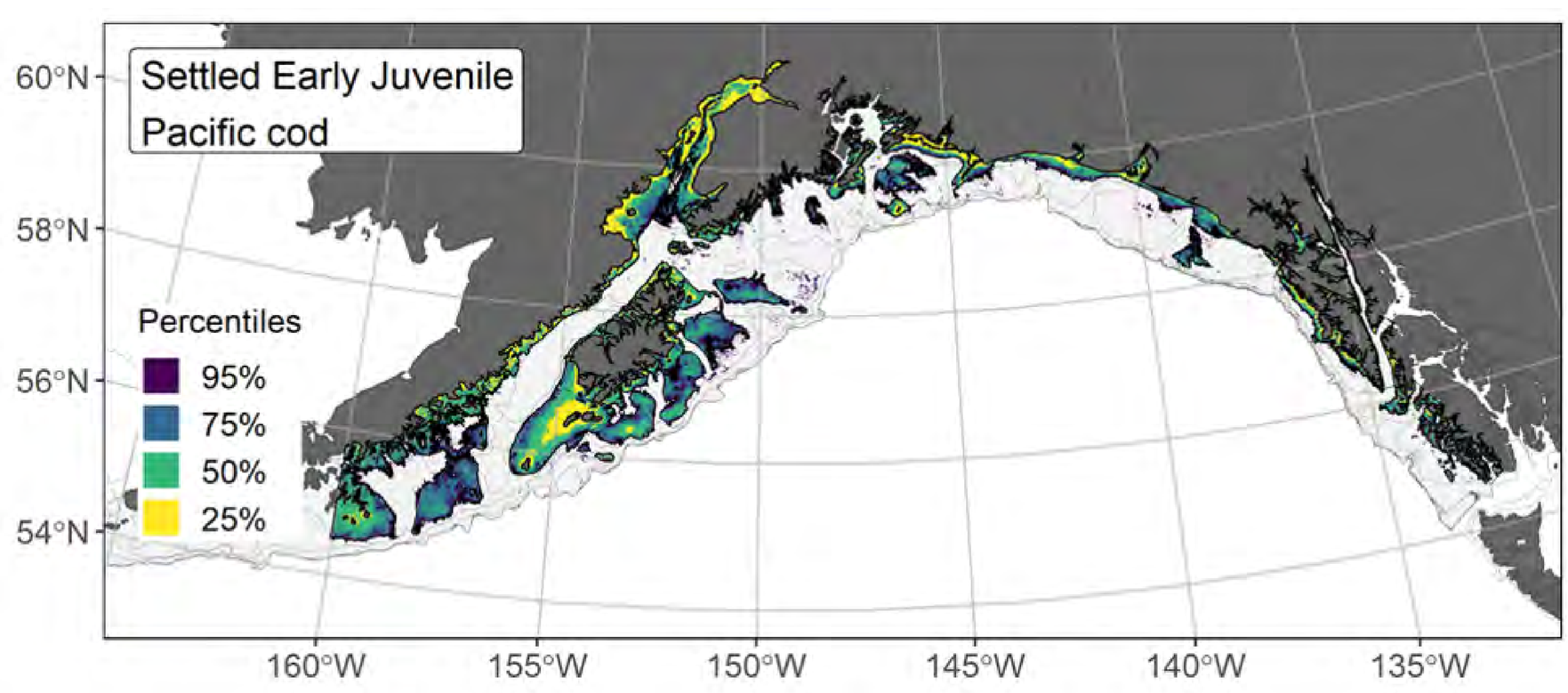


Figure 1. EFH area is the cumulative top 95% of locations for settled early juvenile Pacific cod based on the predicted probability of suitable habitat from a species distribution model fit to the catch locations and environmental variables representing habitat attributes for this species.

In April 2021, the Component 1 team presented its review process plan to the Council and the Scientific and Statistical Committee. The review plan detailed the ongoing work to improve the EFH descriptions and maps, and to understand fishing effects, minimize adverse impacts from non-fishing effects, improve prey information, and plan for research. A similar update was provided in May 2021 to the Crab Plan Team, where the Component 1 team highlighted the review timeline with the Council, opportunity for stock assessment author and stock expert to review new EFH information, and new EFH research in development for crabs.

The Component 1 team initiated review of the draft ensemble SDM methods and results with stock authors in May and concluded on September 1, 2021. A comprehensive peer review of the EFH Component 1 information by the stock authors is a new addition in the 2022 Review, where it is a goal to continually improve the review process and coordination with the stock assessment community, building on past 5-year Reviews. The Component 1 team then presented progress on the 2022 Review to the joint meeting of the Groundish Plan Teams in September 2021.

This effort to develop new ensemble SDMs and other stock specific EFH tools, in support of the 2022 Review will continue into fiscal year 2022. The new EFH Component 1 information based on current science, in combination with the Component 2 Fishing Effects analysis, will support habitat conservation, stock assessment, and other EBFM information needs, and better inform fisheries management.

Other Goal #4

Hydropower, River Flow, and Salmon: Hydropower development and operation has the potential to affect the quality and accessibility of habitat for anadromous fish like Pacific Salmon. We review and provide technical expertise for many hydropower projects in Alaska with the goal of protecting anadromous fish and their habitat. The Nuyakuk and Eklutna Hydropower Projects highlight our principal efforts in FY21. The Nushagak Utility restarted the licensing process for their Nuyakuk Project, a proposed run-of-river hydropower project on the Nuyakuk River to offset diesel generated power in Dillingham. The Nuyakuk River supports a significant Sockeye Salmon population. Based on technical assistance from Sean Eagan, the Nushagak Utility drafted a proposed study plan that included a life cycle model studies for Sockeye and Chinook salmon, a new type of study for hydropower in Alaska. The life-cycle model will interact with the proposed fish passage studies to determine the level of effect this facility could have on the salmon population and the Bristol Bay fisheries. If the Nuyakuk Project is built, it will eliminate 14,000 tons of CO2 annually; however, there is some risk to the large sockeye run. Quantifying that risk is the challenge for the upcoming 2-year study period.

The Eklutna Hydropower Project currently diverts all the water from the Eklutna River for power generation, leaving seven miles of dry river bed. Three Anchorage utilities are examining options to give equal consideration to Pacific Salmon habitat as a use of the Eklutna River. A 1991 agreement exempted the utilities from FREC licensing provided they implement a plan to reestablish salmon habitat. Sean Eagan actively participated on a technical working group to support development of a draft study plan which will inform implementation of the Eklutna River Restoration Study Plan. One significant action was the release of water from the Upper Eklutna Dam in three phases (high, medium, and low flows). This action slowly moved accumulated sediment from behind the former lower dam site and began the studies to determine how much water is necessary to create salmon habitat in the river. This was the first deliberate water release from the upper dam in 65 year and an important step in facilitating the return of salmon.

EBFM: Our EBFM workgroup held a workshop on applications of Ecosystem Status Reports (ESR) within EBFM. This four day workshop included regional and topical presentations followed by large group discussions and regional breakout groups led by Jodi Pirtle and others. Outcomes of the workshop will support the development of management priorities that will benefit from information in the ESRs, determine mechanisms to incorporate this information to the fishery management decision making process, and engage Regional Offices, Councils, and other policy-makers in the use of EBFM science products.

ShoreZone Illustrated Data Dictionary: We supported the development of a data dictionary for ShoreZone. The data dictionary is an interactive document designed to help users learn more about ShoreZone mapping. It features definitions and example images for coastal attributes such as habitat class, biobands, the oil residence index and the environmental sensitivity index, as well as an overview of the ShoreZone unit delineation process and spatial framework.

Goal #5

Participate in partnerships within and outside of NOAA that influence habitat conservation for FMP-managed species.

Partnering with the USACE

We co-hosted a three part cross-training series with USACE in April to support our interagency relationships. Seanbob Kelly and Stefanie Coxe organized and conducted the three session series to facilitate better communication, early coordination, and improve outcomes for each agency. The series kicked off when our staff gave an EFH 101 presentation to the USACE. The second session was hosted by USACE to discuss regulatory authorities and expectations. Each session included an informational slideshow with time for questions afterward. The final meeting was a Q&A session. The goals of this coordination effort were to increase each agency's understanding of missions, authorities, processes, and to open a dialog. We promoted ways to take proactive measures through early coordination prior to initiation of EFH consultations. This interagency cross-training was informative for all attendees and provided context for nearly a dozen projects we coordinate on with USACE every year. It is important that we initiate and participate in this type of event to maintain open communication among agencies.

Only through high quality engagement and productive dialogue among USACE and HCD staff can we decrease uncertainty gaps and increase our ability to conserve FMP-managed species together. We look forward to repeating this and other cross-training events annually.

Federal Partnerships

Federal Partnerships are critical to our ability to fulfill HCD's goals and objectives. The following work focused on improving these partnerships and extending our reach to serve our stakeholders. Results of this work include improving efficiency, consistency, and quality of outcomes on projects requiring EFH consultations and building interagency peer relationships.

EPA: Several vessel scuttles took place this past year. HCD's John Olson, Charlene Felkley and Matt Eagleton worked with the EPA and local governments to determine locations to minimize the impacts to EFH. HCD also consulted on a "vessel graveyard" north of Unalaska Island and potential partnerships/coordination with field activities of the 2020-2023 AK Deep-Sea Coral and Sponge Initiative.

USFS: A USFS-HCD Interagency Training is in the works! HCD staff (Molly Zaleski and Ellen Ward) have met with two USFS staff to plan a meeting between the partner agencies. The goal is to develop a mutual understanding of commonly proposed project types, EFH procedures, and the rationale for EFH conservation recommendations.

Bureau of Offshore Energy Management (BOEM): Molly Zaleski and Ellen Ward participated in a series of informal check-ins with BOEM to discuss future EFH consultations, introduce climate change-related conservation recommendations, and front-load consultation questions. One anticipated project to review is a new draft EIS for Lease Sale 258 in Cook Inlet for oil and gas. This review will be an opportunity to consider new conservation recommendations that address operations-associated methane emissions from oil and gas infrastructure.

Other Goal #5

National Mitigation Team: Ellen Ward has participated on the National Mitigation Team to develop a new National NOAA Mitigation Policy and accompanying procedures for the agency. This mitigation policy will support development of effective mitigation measures in our EFH consultations. Ellen served on a subteam to write the climate change section of the Policy (April 2021); led a team of four employees to draft the climate change section of the accompanying procedures (May 2021); and led the development of a training module for the climate change sections of the policy and procedures (September 2021).

Deep-Sea Coral and Sponge Initiative: John Olson serves as a member of the steering committee for the 2020-2023 Alaska Deep-Sea Coral and Sponge Initiative. This three-year, $2.1 million dollar initiative sponsored by the NOAA's Deep Sea Coral Research and Technology Program (DSCRTP) will fund field work in Alaska to examine the location, distribution, ecosystem role, and status of deep-sea coral and sponge habitats based upon regional research priorities identified by the DSCRTP, the NPFMC and the EFH Research Plan. HCD proposals funded include updating coral & sponge covariates in the Fishing Effects (FE) model, developing a risk assessment for corals and sponges at risk from fishing activity, and refining FE model estimates of impacts from longlines and pots by developing submersible camera systems. John is a co-principal investigator on projects to validate GOA coral and sponge models with ship-based stereo drop cameras, and assessing the effectiveness of area closures in the Aleutian Islands for maintaining healthy deep-sea coral and sponge communities.

Southeast Alaska Fish Habitat Partnership: Ellen Ward, Molly Zaleski and Erika Amman (OHC Habitat Restoration Center, Anchorage) are NOAA representatives for SEAKFHP. As SEAKFHP partners, they attended regular meetings to learn about fish habitat research and restoration opportunities and provide input on projects led by other agencies. SEAKFHP receives funding from the National Fish Habitat Partnership and partner responsibilities include reviewing funding proposals that align with the group's conservation strategies. Similar to engagement with SEAKFHP, our staff provided regional updates to the national team and tracked funding opportunities through the National Fish Habitat Partnership.

Green Crab Outreach Sign Project: Linda Shaw and Barb Lake collaborated with ADFG, Kachemak Bay Estuarine Research Reserve, Metlakatla Indian Community and NOAA contract graphic designer Paul Irvin to develop a regional outreach sign for invasive green crab. The sign will highlight the threat of green crab, how to identify a green crab and what to do if you find them. The outreach signs will be set up in southern Southeast Alaska communities at greatest risk of finding green crab invading from British Columbia.

Invasive Green Crab outreach poster.

Alaska Mapping Executive Committee Coastal Subcommittee and Annual Coastal Mapping Summit: Ellen Ward and Jodi Pirtle, with Bob McConnaughey (AFSC), represented NMFS at the Alaska Mapping Executive Committee Coastal Subcommittee meetings. The meetings were primarily focused on development and early coordination for the Alaska Coastal Mapping Strategy Implementation Plan, a new Alaska Coastal Mapping Hub Site and Tracking Dashboard, and agency updates on coastal mapping in Alaska. Ellen presented agency updates on NMFS Nearshore and Coastal Habitat Work in Alaska at the 3rd Alaska Coastal Mapping Summit in December 2020. The presentation highlighted advances in ShoreZone, the Nearshore Fish Atlas, and EFH mapping.

Across Borders: Molly Zaleski and Sean Eagan participated with Canadian and U.S. agencies on trans-boundary mines via the Canada-US Transboundary Mining Working Group and the Eskay Creek Mine Revitalization Project. NOAA Fisheries is a Technical Advisor for a proposed transboundary mine, the Eskay Creek Revitalization Project, in British Columbia. We highlighted potential downstream impacts from mining operations and tailings dam failures from any one of the three proposed dams during the Environmental Assessment Office's initial comment period. The proposed mine sites drain into the Unuk River watershed, which is designated EFH within U.S. waters for all five Pacific Salmon species.

Climate Science Strategy: Ellen Ward coordinated with regional divisions to develop AKR's priority statement for the NOAA Fisheries Climate Science Strategy Regional Action Plans for the Gulf of Alaska, Eastern Bering Sea, and Arctic as part of executing the NOAA Fisheries Climate Science Strategy. The goal of the Regional Action Plans is to develop research plans that position NOAA as the national leader in defining what's changing, what's at risk, and how to respond to climate-related changes in marine and coastal ecosystems. Ellen also served as a member of the Management-Oriented Synthesis team as part of a broader group from the AFSC working to extend the Bering Sea Regional Action Plan.

Western Alaska Integrated Science Conference: Sean Eagan presented three climate related topics at the virtual Western Alaska Integrated Science Conference. The topics includes a proposed downscaled climate model for the Nushagak Watershed; a MIKE SHE watershed model for the Nushagak watershed that will be able to integrate the cumulative effect of multiple mines on water temperature and chemistry; and a fine-tuned model to investigate future flows and temperatures in the river at the proposed Nuyakuk Hydropower facility. This information development of Federal Power Act Section 10(j) and Section 18 fish passage requirements to protect migrating salmon. The Nushagak Cooperative will use the future flows information to evaluate potential energy generation in different months over the project's lifespan.

Best Management Practices for Marine Invasive Species and Commercial Fishing Vessels: Linda Shaw participated in the Western Regional Panel (WRP) Coastal Committee to produce a final outreach product on best management practices for preventing the spread of marine invasive species from commercial fishing vessels. This topic was presented in draft form to the NPFMC Ecosystem Committee and the resulting feedback shared with the Coastal Committee. The Executive Committee of the WRP on Aquatic Invasive Species gave final approval, resulting in the publicly available guidance cards on biofouling.

Goal #6

Improve HCD Organizational Excellence and Cohesion by integrating the Alaska Region Shared Values with our workplace interactions and products: Integrity, Respect, Collaboration, Accountability, and Open Communication.

Team Development in Action

Over the past few years, AKR has been committed to a Change Strategy that enables us to collectively transform how we think about our culture, shared values, work norms, and overall performance, leading to a cultural shift in our organization. As we strive to capitalize on our strengths, we also recognize the need to build this vision within our Division through team-based training and development that will foster better relationships, enhance team working skills, and produce more effective solutions to meeting HCD's goals and AKR's mission. HCD launched our Team Development Program on March 31st!

Our Team Development Program (TDP) implements P. Lencioni's 5-Behaviors Model of building high-functioning teams from a foundation of trust up through results and AKR-Way principles such as strategic planning and execution, measuring success, becoming a learning organization, and teamwork. We completed a launch workshop in March and five 4-hour training sessions from April through September with our lead trainer Kate McGoldrick. In between sessions we engaged in individual learning and leader and peer led activities to put into practice new tools to improve how we work together and ultimately HCD's results.

Feature cont.

Following formal training, we are sustaining momentum with emphasis on team effectiveness and strategic planning. We have been learning and practicing feedback skills, implementing expectations for accountability, and working on AKR's Strategic Planning while reflecting on the first stage of our own strategic prioritization process. This new phase also finds us taking the skills and tools we are developing in the TDP into our day-to-day work. We see the results of our improved teamwork in the recent peer-review of the Non-fishing Effects Report and how we are prioritizing our Division's work. In FY22, we will continue HCD's strategic prioritization process, continue to improve team effectiveness, build our HCD TDP Toolbox, and engage in program transfer to share our learning pathways with the organization.

As team members, each of us is playing an integral role in co-creating HCD's desired future state. The outcomes of engaging in the 6-month training and team-based action learning program have been: feeling empowered to do our work, working better together, and producing high quality results to meet HCD goals and enhance mission-performance. We celebrate our accomplishments to date and will continue to learn and grow as this program continues. We are so pleased that AKR has made this investment in HCD and we are proud of each other in our sincere efforts to innovate, learn, adapt, and grow together as a Division team. We are becoming the team that we want to be now and in the future in this opportune time of change.

Tackling the Climate Crisis

New Climate Change Conservation Recommendations for EFH: Ellen Ward developed and presented an overview of new EFH conservation recommendations applicable to oil & gas and other large emissions projects in Alaska to a variety of groups in NMFS, partner action agencies, and the NMFS National EFH Coordinators (alongside Matt Eagleton). This work forms part of AKR's response to section 216(c) of the Executive Order (EO) on Tackling the Climate Crisis at Home and Abroad. EO 14008 directs NOAA to consider how to make fisheries and protected resources more resilient to climate change, including through changes in management and conservation measures.

Contributing to the Fifth National Climate Assessment: Ellen Ward served as an Agency Chapter Lead for the Alaska chapter of the Fifth National Climate Assessment (NCA5), an interagency effort that brings together hundreds of experts from federal, state and local governments, as well as the academic, non-profit, and private sectors. Preparation of the NCA5 is ongoing and publication is anticipated in late 2023. Until the NCA5 publication is released, the Fourth National Climate Assessment is available.

Other Goal #6

Disaster Recovery Support Workshop: Seanbob Kelly and Molly Zaleski attended NOAA's first Disaster Recovery Support Workshop, a two day virtual workshop hosted by NOAA's Disaster Preparedness Program and the University of New Hampshire's Coastal Response Research Center. The workshop focused on how NOAA supports community and environmental needs after disasters through the Recovery Support Functions (RSF) outlined in the National Disaster Recovery Framework. Seanbob and Molly learned the RSFs and NOAA's role in disaster recovery. They identified the key recovery opportunities for NOAA engagement and outlined next steps to enhance internal recovery coordination processes to address key opportunities.

Alaska Sea Grant Fellowship focused on Pinto Abalone: Our Sea Grant Fellow, Ashley Bolwerk, is working on a pinto abalone focused project. This project will explore coordination, research needs, aquaculture potential, and cultural significance of pinto abalone from a community-based perspective. Linda Shaw met extensively with possible partners and coordinated the selection of Ashley for this Alaska Sea Grant Fellowship.

Abalone harvest. Photo Credit: Ashley Bolwerk,

Chairing the American Fisheries Society Diversity, Equity and Inclusion Committee: At the American Fisheries Society (AFS) Alaska Chapter Meeting, Cheryl Barnes chaired the Diversity, Equity, and Inclusion Committee and served on the meeting planning committee for this year's virtual meeting in March. Cheryl coordinated a number of activities including affinity groups and the student-mentor lunch. Cheryl also led the AKR discussion about the Lavender Scare in June.

Intranet Page: Sean Eagan, Stefanie Coxe, Charlene Felkley, and Joshua Markwell worked to redesign and maintain the internally used HCD intranet page. This resource allows AKR staff to quickly and efficiently find updated information on EFH documents and tools, consultation and writing aids, new employee resources, and contact information.

Outreach and Publications

AKR HCD staff contribute to the advancement of habitat science, outreach, and education on many issues through many media outlets. Below are some of those outlets.

- **Doug Limpinsel,** American Fisheries Society publication, Responding to Ecosystem Transformation: Resist, Accept, or Direct? This work also led to additional outreach:
  - A video abstract of the paper
  - An associated press release announcing the publication
  - A follow-up publication in Frontiers in Ecology and the Environment, Managing for RADical ecosystem change: applying the Resist-Accept-Direct (RAD) framework

- **Molly Zaleski and Sean Eagan**, radio interview on Kensington mine expansion

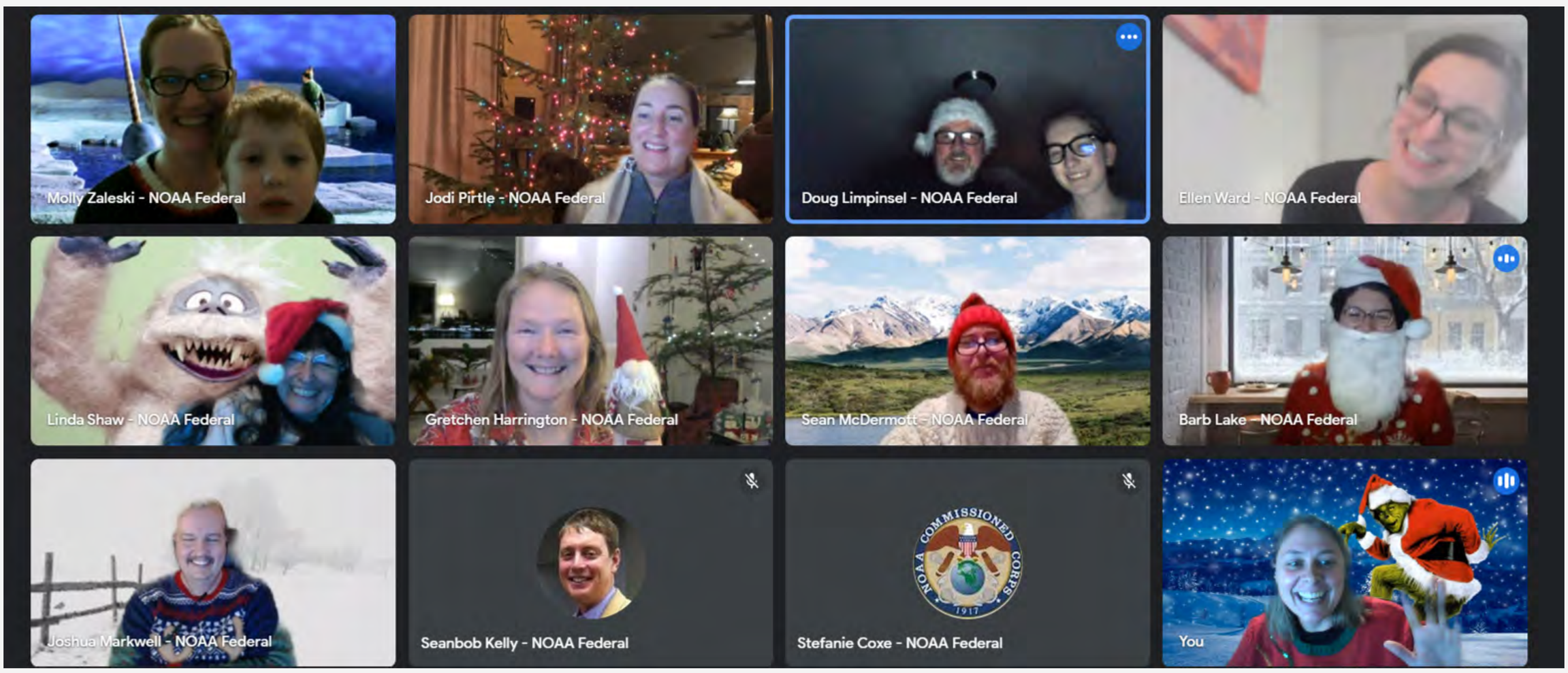
- **Dr. Ellen Ward,** Communications Biology publication, Muskrats as a bellwether of a drying delta

- **Dr. Jennifer Marsh**
  - Marsh JM , Mueter FJ, Pirtle JL. 2021. Model-based Fish Distributions and Habitat Descriptions for Arctic Cod (*Boreogadus saida*), Saffron Cod (*Eleginus gracilis*) and Snow Crab (*Chionoecetes opilio*) in the Alaskan Arctic. Anchorage (AK): U.S. Department of the Interior, Bureau of Ocean Energy Management. 58 p. Report No.: OCS Study BOEM 2021-056. Contract No.: M19AC00009.

- **Dr. Jodi Pirtle**
  - ICES Advice Workshop on Predictive Habitat Models, Marine Habitat Mapping Working Group, workshop report
  - Fisheries Research publications, Modeling nearshore fish habitats using Alaska as a regional case study
  - Fishery Bulletin, Comparison of model types for prediction of seafloor trawlability in the Gulf of Alaska by using multibeam sonar data

- **Gretchen Harrington**, article in the Cordova Times, *DNA data will improve coastal fisheries management*

- **Sean McDermott,** Marine and Coastal Fisheries publication, A Review of River Herring Science in Support of Species Conservation and Ecosystem Restoration



Matthew Eagleton

Thank you for your Service....We will miss you.

Departure

This year, HCD says “goodbye” to Matt Eagleton. Matt’s long and storied career began with NMFS in the late 1980s; spanning activities both in the field (as a NOAA Corps Officer) and in the Region (where he was at the forefront of Essential Fish Habitat Policy). While we all know that HCD’s work provides the foundation for the “house that NOAA built,” that house has been forever “mattified,” because of Matt’s work in conserving habitat. We will miss Matt and wish him and his family “fair winds and following seas.”

-Jeanne Hanson, Ret. ARA HCD