



# NOAA FISHERIES

## Accomplishments of the Alaska Region's Habitat Conservation Division in Fiscal Year 2019



Figure 1. A student on the island of St. Paul holds up a sea urchin during a field trip as part of Bering Sea Days in September 2019.

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 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. By leveraging these partnerships, we work together to better execute the Alaska Region's mission: *the science-based stewardship of living marine resources and their habitat in the waters of the North Pacific and Arctic Oceans off Alaska*. The Alaska Region's mission responsibilities include supporting sustainable fisheries, recovering and conserving protected species, and promoting healthy ecosystems and resilient coastal communities.

This report highlights HCD's accomplishments for Fiscal Year 2019, from October 1, 2018 through September 30, 2019. The format of this Report reflects our commitment to HCD's six overarching goals.

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## **Goal #1: Identify and pursue opportunities to conserve and restore marine and anadromous water habitats**

### *Mitigation and Restoration Projects*

#### **Restoration Center Programmatic EFH Consultation**

Sam Simpson worked with Erika Ammann (NOAA Restoration Center - RC) on updating the Programmatic Essential Fish Habitat (EFH) Consultation that HCD and the RC completed in 2012. A programmatic consultation results from a determination by the RC that restoration projects may adversely affect EFH for managed species in coastal, estuarine, and riverine locations within Alaska. The final document is the result of a cooperative effort to assess the potential adverse effects of RC program activities to EFH in Alaska, and describe best management practices (BMPs; i.e. EFH Conservation Recommendations) to avoid and minimize adverse effects to EFH. The previous consultation took effect on August 20, 2012 and covered a period of up to five years. The current effort serves to renew it for another five years (2019-2024).

#### **National Mitigation Policy Workshop**

Sam Simpson attended the second edition of this workshop at the Portland West Coast Region office. The group first met in Boulder in 2017 to draft mitigation policy statements. The Portland meeting was to discuss the status and timeline of the policy, and brainstorm ideas for its training and implementation. The group also went through the policy statements and some final suggested edits. Regarding its implementation, Sam emphasized that procedures should be clear to facilitate staff's understanding of the policy and recommended providing case studies and real examples during training. Detailed presentations were given on Habitat Equivalency Analysis for calculating habitat values and Portland Harbor Mitigation banking. On the final day, the group visited the Alder Creek and Linnton Mill Restoration projects, which are both products of compensatory mitigation. Stuart Levenbach (NOAA Chief of Staff) joined the group for this, and for a lengthy afternoon discussion on multipurpose mitigation banks and how they might align with NOAA's Blue Economy Initiative.

### *Regional Coastal Resilience Assessments*

#### **Alaska Coastal Resilience Assessment (CRA)**

NOAA Fisheries has partnered with the National Fish and Wildlife Foundation and the University of North Carolina Asheville's National Environmental Modeling Analysis Center to develop Regional Coastal Resilience Assessments (CRA), through the [National Coastal Resilience Fund](#). Jodi Pirtle represented NOAA Fisheries on the Advisory Committee in 2019, as the Alaska CRA effort launched. CRA identify Resilience Hubs, areas of open space surrounding the densest population centers and immediate community infrastructure, where conservation projects may have the greatest potential to benefit both human community resilience and fish and wildlife. NOAA Fisheries is interested in CRA as a tool to support our mission-driven actions to promote habitat conservation and resilient coastal communities.

### *Oil Spill Response and Planning*

#### **Oil Spill Drills**

##### [Crowley Alaska Tankers 2018 Full Scale Exercise](#)

Seanbob Kelly attended this drill on October 10-11, 2018 in Valdez. The purpose of this exercise was to provide participants with an opportunity to perform and execute current oil spill response management concepts and plans for a simulated oil spill in the Prince William Sound

Area. The exercise focused on the command and control of the simulated event and met the requirements of the National Preparedness for Response Exercise Program. Seanbob represented HCD as part of the Environmental Unit in the Planning Section and considered EFH as part of the response. The exercise was attended by industry, the State of Alaska, and numerous Federal agencies. In all, over 250 professionals actively participated in the command structure.

### *Hydropower Projects*

#### **Hydropower Prioritization Presentation to Sam Rauch**

In April, Sue Walker, Sean Eagan, and Alisha Falberg (NOAA General Council) gave a presentation to Sam Rauch (NMFS Deputy Assistant Administrator for Regulatory Programs), Emma Htun (Special Assistant), and Headquarters Hydropower Staff from the Greater Atlantic and Southeast Region on project prioritization, fish passage, and AKR hydropower projects and accomplishments. This is part of a series of regional hydropower program briefings that developed out of the national fish passage program review conducted last year. Sam and Emma were pleased with the Region's ability to prioritize projects based on impacts to trust resources, other agency involvement and NMFS resources, and our ability to leverage additional resources for needed expertise on important projects such as Susitna.

#### **Interagency Hydrology Committee for Alaska**

Sean Eagan hosted the meeting for this Committee at NMFS for the first time in five years in September 2019. The droughts in both southern Southeast Alaska and the Anchorage/Kenai area were major topics. On the Kenai Peninsula, some streams not fed by glaciers experienced record low flows which necessitated water rationing as expected, whereas adjacent streams fed by melting glaciers had their highest recorded August flows. Water consumption at any scale does not need to be reported in Alaska at this time. The drought is highlighted a need for reporting and ADNR is encouraging voluntary reporting to Alaska Water Use Data System. The Committee is continuing work on a white paper to highlight hydrology data gaps in Alaska, as many watershed analysis tools will not function with the current spatial resolution of Alaska's hydrography data set.

#### **Acting AKR Hydropower Coordinator**

Sean McDermott, Hydropower Coordinator from the Greater Atlantic Region (GAR) arrived in Juneau in July 2019 and was acting AKR Hydropower Coordinator from August through December 2019, overlapping with Sue Walker prior to her retirement in September. His job plan includes becoming familiar with AKR's hydropower projects and workload, transferring organizational skills from GAR to AKR, and learning how to say things like Igiugig and Egegik. This opportunity for succession planning is the result of a recommendation from an external review of the NMFS fish passage program to allow for cross-regional and headquarters experience for hydropower staff. Sue, Sean M., and Sean Eagan participated in the National Hydropower Team Meeting in the DC area in September, leading a session on succession planning.

#### **Cooper Lake Hydropower Project**

Sue Walker, hydropower coordinator, participated in a meeting of the Interagency Committee (IAC) December 12<sup>th</sup>, 2018 to plan future monitoring of salmon and riverine habitat in Cooper Creek for the remaining 30 years of the Cooper Lake hydropower license. As a result of a 2008 Settlement Agreement (SA) between Chugach Electric and state and federal resources

agencies, the Cooper Lake hydropower project was modified to remediate the effects of partial dewatering and cold stream flows that resulted in loss of salmon spawning and rearing in Cooper Creek from 1954 to 2015. Remediation included a \$21 million diversion structure which allowed more water for electrical generation and warmer flows in Cooper Creek to restore salmon spawning and rearing. Loss of U.S. Forest Service (USFS) in-kind funding for required monitoring necessitated additional funding sources and restructuring the monitoring plan agreed to in the SA to fit within the reduced budget. Plans developed for the 2019 and 2020 monitoring years include a proposal for competitive funding by NMFS that, if successful, would allow for a post-diversion aquatic habitat survey of Cooper Creek.

### **Eklutna Dam Fish and Wildlife Mitigation Agreement**

On September 28<sup>th</sup>, 2018, Sue Walker and Alisha Falberg (NOAA General Counsel) participated in the kick-off meeting to implement the 1991 Eklutna Dam Fish and Wildlife Mitigation Agreement. Lt. Governor Byron Mallott chaired the meeting. All parties to the agreement attended the meeting, including state and federal agencies, municipal utilities, non-profits, and tribal organizations. The 1991 Agreement outlines a process for mitigating the effects of the Eklutna dam on fish and wildlife and their habitats. Sue offered that NOAA works through similar Federal Energy Regulatory Commission (FERC) processes routinely, and has the technical expertise to assist the utilities in identifying contractor needs.



*Figure 2. Alisha Falberg (General Counsel) at the Eklutna Dam*

In March 2019, Sue, Sean Eagan, Alisha, and Erika Ammann met with electrical utility owners to discuss implementing the Agreement. Under the current schedule, the mitigation program will be approved by the Governor by 2023/24 and implemented between 2027 and 2032. This cooperative process is expected to restore anadromous EFH to the Eklutna River and hopefully the Lake. There are numerous considerations, ranging from rate payers to recreational and land use.

In July 2019, Sue and Sean worked with the utilities, other agencies, non-profits, and tribal organizations to plan implementation of a legal agreement for the mitigation of the impacts of

the upper Eklutna Dam. The lower dam was demolished last year and all flow from Eklutna Lake is now diverted from the Eklutna River and passes through the power plant; this water represents about 90% of Anchorage and Eagle River's water supply. Dam removal spurred acceleration of the mitigation process by several years. Technical workgroups will develop a study plan to be implemented in the next two to three years. Study results will guide a mitigation plan to restore wildlife, salmon, and habitat to the Eklutna River and possibly Eklutna Lake. The 1991 Agreement states that equal consideration will be given to power generation, infrastructure, municipal water, recreation, economics, and fish and wildlife. The Governor of Alaska will be the final arbitrator of the plan this group develops. [Learn more about the Eklutna Hydro project.](#)

### **Grant Lake Hydropower Project**

In November 2018, Sue Walker participated in public meetings for the proposed Grant Lake Hydropower Project on Grant Lake and Grant Creek in the Kenai River Watershed, which are part of FERC's environmental review. All areas addressed in the Draft Environmental Impact Statement (DEIS) were covered including fisheries, habitat effects, temperatures, spawning sediment, recreation, mining, and socioeconomic impacts. FERC informed stakeholders that their new nationwide agency policy is to not require monitoring of resources such as salmon escapement, juvenile salmon production, or persistence of spawning gravels for a new project that would be licensed to be constructed and operated for 30 to 50 years. FERC rejected a cooperatively developed biotic monitoring plan due to the new anti-monitoring policy. NMFS worked with all parties to develop a Memorandum of Understanding (MOU) that would allow this monitoring plan to be implemented for this Kenai River watershed project.

Sue and Sean Eagan reviewed FERC's EFH determination and DEIS for the relicensing of the proposed project and submitted a complete review in March 2019. Grant Creek supports spawning and rearing EFH for several salmon species. FERC has determined that relicensing would have minor adverse effects on Chinook, coho and sockeye salmon habitat and on migrating adult and juvenile salmonids due to temporary increases in turbidity and suspended sediment during in-water construction activities and reduced spring and summer flows during project operations for the life of the license. The project would draw water from Grant Lake, bypass a non-anadromous portion of upper Grant Creek, and discharge waters below the upper boundary of the anadromous reach. Instream flows would be reduced in the summer and increased in winter. FERC staff have recommended some of NMFS' collaboratively developed mitigation measures. These include minimum flows to increase access to side-channel rearing habitats in winter, channel maintenance flows at least twice during every ten-year period, seasonal down ramping rates, and limits to water temperature fluctuations. FERC has concluded that these measures would provide an overall benefit to EFH in project waters.

In September 2019, NMFS, Alaska Department of Fish and Game (ADF&G), U.S. Fish and Wildlife Service (USFWS), and Kenai Hydropower, Inc. finalized a MOU requiring monitoring to assess the condition of adult spawning and juvenile rearing EFH for the project's expected 40-year license. FERC rejected similar requests from all the parties of the MOU to include this necessary monitoring into the new 40-year license for this project, thus the parties entered into this MOU independent of the FERC license. The MOU has been signed by all parties.

### **Hiilangaay**

Sean Eagan continued to work with Alaska Power and Telephone on the specific design and construction of the tailrace fish barrier, and on minor amendments to both the Discharge

Monitoring Plan and the License. Substantial progress was made on construction in 2019 and it appears likely they will generate power in 2020.

### **Igiugig Hydrokinetic Project**

Ocean Renewable Power Corporation (ORPC) submitted a Final Hydrokinetic Pilot License Application to FERC for a horizontal helical turbine that would be anchored to the bottom of the Kvichak River at the outlet from Lake Iliamna. It generates power captured from the river's flow into the Igiugig micro-grid and would generate a large percentage of the electricity for the small village, population 50. ORPC has been developing hydrokinetic generation since 2010, and has prototypes operating in Eastport, Maine; County Kerry, Ireland; and in the Tanana River in Nenana. Sue Walker submitted EFH Conservation Recommendations and FPA Conservation Recommendations to FERC for the hydrokinetic turbine at Igiugig in May 2019. NMFS recommended that the project not be operated during the two-week peak of sockeye salmon smolt outmigration - when up to 20,000,000 sockeye smolt would pass the turbine in a single day, and about 50,000,000 in the two-week peak of outmigration. FERC issued a 10-year pilot license in late May which did not include NMFS's recommendations of a two-week stoppage, indicating that underwater cameras and a biologist present during smolt outmigration would allow them to quickly suspend operation should an issue arise. The project operated for a few hours in late June, before being suspended due to mechanical problems. It was restarted in the Fall of 2019 so next spring will be the first opportunity to evaluate its effect on the millions of outmigrating juvenile sockeye.

### **Nuyakuk**

Nushagak Cooperative of Dillingham initiated the process to license and build a hydropower facility on the Nuyakuk River in the Nushagak watershed. It would remove about  $\frac{2}{3}$  of the river water above a steep cascade, run it through turbines and return it to the river below the cascade. Since this is a major salmon river, NMFS plans to be actively involved in the review of this project

### **Susitna-Watana Project Review Closure**

As a final act before retiring, Sue Walker filed a Technical Review of Water, Fish, and Aquatic Resource Studies for the Susitna-Watana Hydroelectric Project with FERC. This filing brought closure to a multi-year review process. Alaska Energy Authority initiated the licensing of the Susitna-Watana Hydroelectric Project in 2012 and by 2016 they had put the licensing proceedings in abeyance. As proposed, the project had potential to substantially impact NOAA trust resources, with potential implications for endangered species. Our technical review documents the progression of environmental study reports completed for the proposed project, and provides comments on the many study reports. Should this project be re-initiated in the future, this technical review will assist our staff and other stakeholders in familiarizing themselves with the licensing process, studies performed, unresolved issues related to the completed work, and recommendations for future studies.

### **Sweetheart Lake Hydropower Project**

Sue Walker and Sean Eagan attended the annual meeting of the Sweetheart Lake Hydropower Project hosted by Juneau Hydropower, Inc. Although the project has a FERC License (P-14873) and a completed Endangered Species Act (ESA) Section 7 Consultation, the project has not started construction because it lacks an intertie electricity distribution agreement with the local utility, other permits, and funding.

## *Invasive Species*

### **Marine Infrastructure Marine Invasive Management**

In October 2018, Linda Shaw joined colleagues from ADF&G and USFWS at the Arctic Biodiversity Conference in Rovaniemi, Finland. Linda presented a poster on the 2018 Bering Sea Days invasive species educational component in St. Paul and participated in two Arctic invasive species sessions, including a data mobilization workshop. Her poster presentation prompted a conversation with the World Wildlife Fund of Canada about ballast water management, as well as engagement, networking, and other numerous productive exchanges to move this topic forward.

Linda continues to work with the Western Regional Panel's Coastal Committee, discussing BMPs for marine invasive species biofouling management for mobile marine infrastructure. The discussion of the BMPs will be vetted in practicality reviews with their respective affected industries. Contacts for each sector will be sought for the western coastal States, including Alaska.

### **Committee for Noxious and Invasive Pest Management (CNIPM)**

Linda Shaw attended the annual CNIPM Annual Conference (now renamed the Alaska Invasive Species Partnership) with NOAA Invasive Species Coordinator Jeanette Davis. Linda presented on the Dutch Harbor Marine Invasive Species BioBlitz and Bering Sea Days on St Paul. Linda also had productive conversations with Jeanette and State of Alaska Invasive Species Coordinator Tammy Davis regarding NOAA's shipping proposal for the Arctic, the involvement of the NOAA Arctic Council Protection of the Marine Environment (PAME), and aligning this effort with work on fouling BMPs through the West Regional Panel Coastal Committee.

The CNIPM chose Linda Shaw's nominee the Smithsonian Environmental Research Center (SERC) to receive their annual "Invader Crusader - Organization" award. Linda serves as an ex-officio member of the CNIPM board. For more than thirty years, SERC has spearheaded innovative and forward-thinking investigations to inform and challenge our collective consciousness of marine invasions in Alaska. SERC researchers have conducted wide ranging studies on marine invasive species in Alaska including ballast water management, hull fouling surveys, citizen science monitoring, and BioBlitz events. One of these events held in Sitka led to the discovery of the colonial tunicate marine invader, *Didemnum vexillum*.

### **EFH Recommendations for Dock Clean Ups**

In May 2019, two action agencies accepted NMFS EFH Conservation Recommendations to help to stop the spread of invasive species in Alaskan harbors. The USCG has agreed to survey a dock in Sitka known to be infested with invasive species, remove them prior to underwater pressure washing, and report to NMFS. The Bureau of Land Management (BLM) is working with Linda Shaw to comply with NMFS EFH Conservation Recommendations and ensure that the reused Adkinson Dock does not spread invasive species.

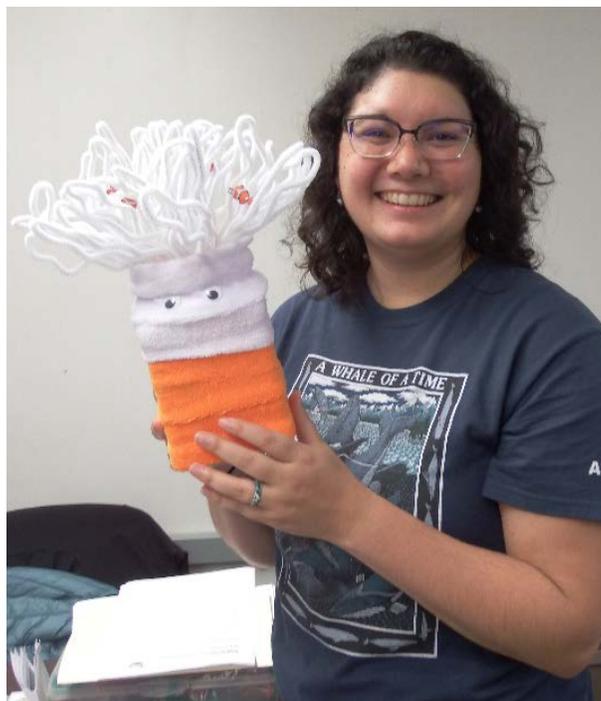
### **Bering Sea Days**

In September 2019, Linda Shaw and Barb Lake along with Gail Ashton and Katherine Newcomer of the SERC participated in the Bering Sea Days event in St Paul. Curricula on invertebrate and invasive species included presentations, games, lab work with live specimens, field trips, and student projects. In addition, students had the opportunity to explore monitoring techniques such as genetic tissue sampling and Environmental DNA (eDNA) water sampling using specimen collections.



*Figure 3. St. Paul students practicing their skills in water sampling.*

Students learned about invertebrates by crafting their own. As an example, Linda and Barb combined forces to create Ataqan (which means “one” in the Aleut language as a personal name), an anemone made from a plastic jar, terry cloth headbands, pipe cleaners, and google eyes.



*Figure 4. HCD administrative assistant Barb Lake poses with Ataqan the Anemone.*



Figure 5. Students pose with their own crafted invertebrates.

While on St. Paul, Linda and Barb also observed that a subadult fur seal was entangled with a packing strap around its neck. This was reported to the Environmental Compliance Officer of the Aleut Community who responded and successfully disentangled both this animal and another entangled animal they discovered nearby.

### **Alaska Invasive Species Strategic Planning Workshop**

Linda Shaw and co-facilitators Jodi Pirtle and Seanbob Kelly participated in this workshop in September 2019 in Anchorage to begin the process of developing a strategic plan on this topic. NMFS Invasive Species Coordinator Jeanette Davis attended from Headquarters, along with representatives from Federal and State agencies, non-profits, tribes and industry to identify themes, priorities, and actions for an Alaska plan on invasive species in terrestrial, freshwater, and marine areas.

## **Goal #2: Provide Essential Fish Habitat (EFH) Conservation Recommendations that maximize mission-critical benefits for Fishery Management Plan (FMP)-managed species and their habitats**

### *EFH Consultations on Fishing Activities*

#### **Marine Stewardship Council (MSC) and Responsible Fisheries Management (RFM) Certification**

Alaska groundfish fisheries - Bering Sea/Aleutian Islands (BSAI) Atka mackerel, flatfish, Pacific cod, Walleye pollock, and rockfish, as well as Gulf of Alaska (GOA) flatfish and rockfish - are under assessment for MSC and RFM certification in 2019. Certified fisheries mean that stocks with healthy populations were harvested with minimal impact on the marine environment in an area with effective, responsive, and responsible management, and certification has become increasingly important in global markets. MSC and fishing industry representatives contacted HCD, requesting information developed for the 2017 EFH 5-year Review that could provide insight on the effects of those fisheries on habitat. Specifically, the assessment team was interested in information and maps of habitat showing commonly encountered habitat types (e.g., sand, gravel) and vulnerable habitats (e.g., corals, sponges, vents, sea pens) for BSAI and GOA, and fishing area maps for these fisheries that can show level of overlap/impact with the above habitat types. John Olson continues to refine the Fishing Effects model with a focus on validation of outputs.

## *EFH Consultations on Non-Fishing Activities*

### **Consultation Tracking**

The new consultation tracking system, the Environmental Consultation Organizer (ECO), launched in March 2019. The Office of Protected Resources (OPR) led this project, working closely with the Office of Habitat Conservation (OHC) on development. Sam Simpson, Cindy Hartmann Moore, Seanbob Kelly, and Matt Eagleton were involved at various stages throughout the development process. All ESA and EFH consultations must be entered into this system. Other actions like technical assistance or early coordination can also be entered. ECO Version 2.0 launched in July 2019, incorporating new features and enhanced functionality, including post-completion editing capabilities, email reminders, ability to export record searches to Excel, a Public Portal, and more.

### **Oil and Gas Activities**

#### [Alaska Liquid Natural Gas \(AK-LNG\) Pipeline Project](#)

NOAA Fisheries Alaska Region has been in discussions regarding the proposed AK-LNG pipeline project since the winter of 2014. FERC convened and led numerous meetings and workshops over the years to provide details on the project's design, construction, and potential impacts. The project requires the construction and operation of an LNG pipeline and ancillary infrastructure extending from the production fields on the Arctic coast to liquefaction and shipping terminals on Cook Inlet in the south. Marine and freshwater EFH are present throughout the project's alignments. This project also received FAST-41 designation, establishing an expedited permit process.

At numerous times since 2014, HCD staff Doug Limpinsel, Matt Eagleton, and Lydia Ames have attended meetings and discussions to provide comments and recommendations to mitigate impacts to EFH and associated fisheries. Throughout this process, HCD staff coordinated with FERC, NOAA Headquarters Offices of Protected Resources (PRD) and HCD, NOAA Fast-41 Administrators, and various contractors supporting each of the Agencies. The resulting EFH Consultation was recently completed 40 days prior to the due date and FERC incorporated the majority of NOAA's EFH recommendations into the EFH assessment, EIS, and project planning efforts.

#### [Willow Project Preliminary Draft Environmental Impact Statement](#)

ConocoPhillips has proposed to develop oil and gas resources in the Willow prospect, located in the National Petroleum Reserve-Alaska. BLM is the lead federal permitting agency for this project, and NMFS is a cooperating agency in the development of the EIS. Sam Simpson reviewed preliminary sections sent by BLM, including draft project alternatives, figures, and EFH sections. She sent BLM preliminary comments to consider when finalizing the DEIS for public review, including a recommendation to use a greater range of adjectives (e.g. adverse, minimal, temporary, etc, rather than effect or no effect) when describing potential project impacts to EFH and a suggestion to reference NMFS' Impacts to EFH from Non-Fishing Activities in Alaska Report when developing mitigation measures for project-related impacts. BLM released the DEIS to the public on August 23, 2019; an EFH Assessment is still forthcoming. Seanbob Kelly has taken over environmental review of this project and submitted comments for early coordination on October 15, 2019.

### [Bulk Fuel Facility Wastewater Discharge](#)

Alaska Department of Environmental Conservation's (ADEC) Wastewater Discharge Authorization Program (WDAP) Oil and Gas Section has developed several Alaska Pollutant Discharge Elimination System (APDES) permits for individual bulk fuel facilities in coastal locations around Alaska. Jodi Pirtle provided early coordination with ADEC staff developing EFH information for permits for facilities near the cities of Wrangell, Kodiak, Valdez, and a location near Point Thompson on the Beaufort Sea. Jodi has also worked with ADEC WDAP staff to develop an EFH information training session in the near future.

## **Mining Activities**

### [Pebble Mine](#)

Doug Limpinsel and Sean Eagan spent many weeks in spring 2019 reviewing the Draft EFH Assessment (D-EFH), DEIS, and countless supporting reports and documents for the Pebble project. Topics of these documents include regional groundwater aquifers, surface water and instream flows, water quality, water quantity, geology, metal and chemical toxicology. These are all important EFH attributes that currently support salmon abundance in these headwaters, river systems, and downstream systems that could be impacted by the mine.

In June, HCD staff assisted PRD with a letter to USACE laying out the deficiencies in the D-EFH, including the underestimation of the spatial extent and likelihood of adverse effects to EFH. In August, Doug, Sean, Matt, and Lydia Ames worked to finish a table of detailed comments for USACE on the D-EFH, DEIS, and extensive list of new documents on groundwater, water chemistry, and tailings dam failure risk. The USACE requested comments on how the Pebble Mine plan will affect EFH; however, the plan is in constant flux, which makes providing EFH Conservation Recommendations challenging. The list of comments, which will become part of the permanent record on the project, reiterated an agency position that has not changed over the years of reviewing this project: The Pebble Mine will pose significant risk to many miles of EFH habitat in the Koptuli and Talarik watersheds.

### [Kensington Mine 10-Year Expansion](#)

The USFS began the NEPA process to permit Coeur Alaska's continued mining near Berners Bay from 2022 to 2032. Sean Eagan attended the EIS kickoff meeting and site visit. The Kensington mine plans to extract approximately 4.5 million tons of ore from the Kensington, Julian, and Raven ore bodies. They plan to double the size of the existing wet tailings storage facility built in Lower Slate Lake. Public scoping started in September 2019, and publication of a Draft EIS is targeted for June 2020. HCD will be involved in the planning/NEPA process to protect anadromous fish habitat in Slate Creek and Berners Bay. Our goal is to insure a wide variety of tailing storage methods (dry stack, paste, and pond) are fully analyzed and that storing the tailings on the Comet side is given equal consideration. Storing tailings behind a large tailings dam is a long-term risk to EFH in Slate Creek and shallow marine habitat in Berners Bay.

### [Safety Sound, Nome Mining Exploration](#)

IPOP, LLC applied for a U.S. Army Corps of Engineers (USACE) nationwide permit (NWP) to conduct baseline surveys, minor dredging, and disposal activities as part of their exploration program. The proposed activities include collection of soil sample borings and water quality information, as well as environmental baselines studies as part of a larger scale operation planned for the future. Sam Simpson provided a response to the General Permit Agency Coordination letter, issued by the USACE as part of the NWP process. The response included

EFH consultation guidance for USACE in the anticipated event of additional permitting for this project and a request to be informed of findings from the water quality and environmental baseline surveys.

### [Red King Crab and Salmon EFH Measures and Mining Operations](#)

USACE recently released a General Permit for *Floating Mining Operations in Alaska State Navigable Waters* for public comment in May 2019. The permit includes new measures to protect red king crab and salmon in anadromous rivers and marine waters, including Norton Sound. In recent years, researchers and scientists from the Alaska Pacific University (APU) and the AFSC partnered with HCD on regular baseline sampling, analysis, monitoring, and new side-scan sonar technologies to inform studies on the benthic environment and red king crab in Norton Sound. This science is very valuable in informing HCD and USACE for EFH consultations. Coordination of the science, management, and the local mining and commercial fishing communities proved vital to the conservation of marine resources to balance mining and fishery interests. [Learn more about this effort on the NOAA Fisheries website.](#)

### [Transboundary Mines](#)

#### Transboundary Roundtable Discussion

Senator Lisa Murkowski organized this roundtable discussion to introduce the U.S. and Canadian International Joint Commission (IJC) to the Alaska-British Columbia transboundary region and explore the unique challenges and concerns posed by mine development in British Columbia. Gretchen Harrington, Sean Eagan, and Julie Speegle (NMFS AKR Public Affairs Officer) attended this discussion along with many other attendees, including four IJC members; Senators Murkowski and Sullivan; Alaska State legislators; Commissioners from ADNR, ADF&G, and ADEC; Central Council of Tlingit and Haida Indian Tribes; Salmon Beyond Borders; Alaska fishing industry representatives; Alaska mine industry representatives; U.S. Geological Survey (USGS), EPA, and USFS. Discussions centered on the impacts from past, current, and proposed mines in watersheds that flow into the major rivers in Southeast Alaska, as seen in the map below.



Figure 6. British Columbia/Alaska Transboundary Mines and Watersheds

HCD works with Federal and State partners to encourage British Columbia’s government to monitor and minimize adverse impacts to water quality, fish, and fish habitat from the mine activities.

#### Red Mountain Mine

Sean Eagan evaluated the Environmental Assessment produced by the Canadian Environmental Assessment Agency (CEAA) for the Red Mountain Mine, a mid-sized transboundary underground gold and silver mine. The proposal includes options for thickening the tailings to 50% solids and then placing them in a permanent tailings pond adjacent to Bitter Creek. The site on Bitter Creek is 15 miles upstream from U.S. waters in the Portland Canal. This tailings management pond will be engineered more conservatively than the one at the Mount Polly Mine and will hopefully contain the submerged mine tailings for centuries. NMFS’s letter advocated for ultra-thickened cement tailings (paste) as opposed to a pond, in order to protect our shared fishery and CEAA responded that our concerns were being considered.

### Ports and Harbors

#### Kake

The City of Kake is demolishing the existing dock and replacing it with a rubble-mound breakwater and a re-anchored seaplane float. In November 2018, Sean Eagan provided EFH Conservation Recommendations to the USACE regarding pile removal, fill placement, and compensatory mitigation for areas where the subtidal and intertidal lands will be raised above the high tide line.

#### Kotzebue

Lydia Ames and Seanbob Kelly sent an EFH Conservation Recommendation letter to USACE in response to their Feasibility Study for the Navigation Improvements Project at Cape Blossom in Kotzebue. The proposed project seeks to eliminate navigational inefficiencies by dredging approximately 707,000 cubic yards of sediments to create a channel to a newly constructed

trestle-supported dock. There is potential for the temporary resuspension of contaminated sediments associated with this project, but the improved navigation will eliminate the need for vessels to lighter fuel twice as they do now, reducing the risk of oil spills and other ship-based contamination. HCD's main concern for the disposal of the large amount of dredged is submerged aquatic vegetation (SAV) like eelgrass. HCD recommended that USACE further investigate the potential disposal area to identify habitat for SAV and identify seasonal changes to the lifecycle of SAV in response to sea ice, freshwater input, and ice gouging.

### Nome

Seanbob Kelly and Lydia Ames commented on USACE's Environmental Assessment for Modifications to the Port of Nome in May 2019. EFH Conservation Recommendations included beneficial use of dredged material, long-term monitoring of new/extended structures, and collection of presence and absence fish species data.

In August, Seanbob hosted a meeting to discuss the proposed harbor improvements at Nome. The proposed deep draft harbor has huge implications for the region and its fisheries. HCD has been working USACE, the State of Alaska, the U.S. Coast Guard (USCG), Norton Sound Economic Development Corporation, and representatives of Nome's fishing community to ensure that impacts to EFH are minimized. To mitigate potential adverse impacts, HCD and USACE are expanding on HCD's EFH Conservation Recommendations in order to 1) identify high quality benthic habitat, 2) identify areas of benthic habitat that could be enhanced in vertical complexity, and 3) to implement a long-term monitoring regime to ensure that EFH impacts have been mitigated. The meeting included a review of the data collected and plan for next steps. The information gained will inform future EFH consultations and mitigation measures.

### Petersburg

Seanbob Kelly and Lydia Ames met with USACE in November 2018 to discuss proposed navigation improvements to Petersburg's south harbor. The existing harbor condition poses a navigation hazard due to shoaling as a result of isostatic rebound; the project would deepen the harbor to enable safe navigation. The estimated 62,500 to 92,500 cubic yards of dredge material is not appropriate for upland disposal, so USACE reviewed options for disposal in Thomas Bay and Frederick Sound. HCD staff worked with USACE to review drop-camera footage of habitat in potential disposal areas and assess research needs in order to collaboratively choose a disposal site in Frederick Sound that would minimize adverse impacts to EFH. This site actually has the potential for habitat creation in a location of relatively low productivity. This project was a good example of early coordination; Seanbob and Lydia responded to USACE's EFH Assessment in February with agreement of the determination of "not likely to adversely affect EFH" and no additional EFH Conservation Recommendations since they had already been incorporated into the Assessment.

### St. George

Lydia Ames and Seanbob Kelly have been working with USACE, PRD, and USFWS on harbor improvements at St. George. The current harbor on the south side of the island was built in the 1980s and is unsafe for navigation due to seiche and standing wave conditions. The Tentatively Selected Plan is a brand new harbor on the north side of the island, which has a very different wave and ice condition than the south side. The village of St. George hopes that this new harbor would increase fuel transport and storage capacity as well as support a fishery economy. The main HCD resource concern is crab, especially the overfished St. Matthew Blue King crab.

Lydia participated in an interagency site visit to St. George with the USACE and USFWS in June 2019. The goal of this trip was to conduct baselines surveys to determine habitat type, habitat usage, and other baseline conditions. Lydia assisted the Corps in conducting fish abundance surveys using crab pots and camera surveys to characterize the seafloor habitat in the project area and possible dredge disposal sites.



*Figure 7. Biologists Chris Hoffman and Mike Rouse with the U.S. Army Corps of Engineers prepare a drop camera to characterize the bottom type at possible dredge disposal sites off the island of St. George.*

Lydia also helped the Corps and USFWS characterize nearshore habitat in the area and usage by the variety of species on the island, including birds and northern fur seals.

In August, Lydia and Mike Williams (PRD) attended a meeting with USFWS and USACE to discuss mitigation efforts. This project is still in the Feasibility Study phase; this meeting served as a brainstorming session to develop a rough cost estimate for any potential mitigation. Topics discussed included timing windows, beneficial use of dredged material, construction buffer zones, harbor operations plan, recreational use plan, and deconstruction of old processing facilities as compensatory mitigation. This project is serving as a pilot for the AKR's new FWCA Regional Coordination Process. Lydia worked closely with USFWS and PRD to develop a final FWCA report in September 2019, which included the discussed mitigation efforts for NMFS trust resources.

Seanbob met with USACE in September 2019 to review the feasibility analysis, evaluate the biological survey data collected in June, and explore the potential for beneficial use of dredged material. The approximate 290,000 cubic yards of rocky material from proposed blasting and dredging could potentially benefit EFH by enhancing larval and early juvenile crab habitat. HCD staff provided the Habitat Association tables necessary to initiate the effort to enhance Crab EFH in the Bering Sea and Seanbob and Lydia will continue to work with USACE and NPFMC to develop it further.

## Unalaska

Lydia Ames and Seanbob Kelly met with the USACE in February 2019 to discuss EFH mitigation options for proposed blasting and dredging in Unalaska. This project would allow deeper draft vessels to safely enter Iliuliuk Bay, eliminating the need to lighter fuel and reducing the risk of oil spills. A highlight in that discussion was the possibility of using the 182,000 cubic yards of large rocky dredged material to create a reef that could serve as beneficial habitat for larval and juvenile stages of some federally managed species. Long-term monitoring options were also proposed to measure and assess the success of the mitigation effort. Lydia and Seanbob submitted these EFH Conservation Recommendations in response to USACE's Feasibility Report and Environmental Assessment in March 2019.

## Whittier

Lydia Ames and Seanbob Kelly submitted a letter to USACE in May 2019 regarding proposed construction of a new facility in Passage Canal in Whittier, which would require dredging of a currently unknown quantity of sediments. Although the exact contamination level of these sediments is unknown, this is the site of a former tank farm and undoubtedly contains high levels of diesel and other contaminants. USACE has incorporated many of the EFH Conservation Recommendations proposed by HCD throughout our early coordination to reduce impacts to EFH including upland disposal, silt curtains, and oil absorbent booms, but the extent of the impact is still unknown due to the lack of data and details. USACE's relatively new SMART permitting process calls for EFH Conservation Recommendations before much of the key data is collected. Lydia and Seanbob continue to work closely with USACE to ensure collection of all pertinent data to make appropriate recommendations to minimize impacts to EFH.

## Transportation Infrastructure

### Haines Highway

This 22-mile project begins in Haines and involves filling several acres of wetlands and placement of riprap along the Chilkat River's eastern bank in order to protect the improved road. As mitigation, Alaska Department of Transportation (ADOT) plans to build in-river fish habitat structures, protrusions into the river to make the bank less linear, and lengthen tributary channels to create salmon habitat. Phase one, milepost 3.9 – 12, is 50 percent constructed. Fish have been observed in all fish passage structures and the wetlands are functioning well. Many of the in-river fish structures have washed downstream. Although Phase II design is 90 percent complete, the design team and resource agencies are redesigning fish habitat structures so they are more durable.

### Tongass Narrows Project

Sean Eagan submitted EFH Conservation Recommendations to Alaska Department of Transportation and Public Facilities (ADOT&PF) in February 2019 for the Tongass Narrows Project. Sixteen species of fish and several species of marine mammals are represented in the area. The project replaces the Gravina Access Project (bridge between Ketchikan to Gravina Island) by constructing or refurbishing six different docks near the Ketchikan Airport. ADOT&PF expects the project to take two years to complete. ADOT&PF accepted all our EFH Conservation Recommendations and purchased mitigation credits to offset filling a small area of tidal wetlands.

### [U.S. Coast Guard Aids to Navigation](#)

LTJG Lydia Ames held an initial meeting in March 2019 with members of the USCG Civil Engineering Unit (CEU) and their contractor, Wood PLC, to discuss a 5-year Programmatic Consultation for in-water USCG actions in the Gulf of Alaska (GOA). These actions include regularly scheduled maintenance of USCG facilities and fixed aids to navigation, as well as new construction at larger sites such as Seward, Sitka, and Kodiak. CEU intends to work closely with HCD throughout the next year to conduct this formal EFH consultation to develop BMPs and mitigation measures for all planned actions.

### [Yakutat Transportation Improvements](#)

The City and Borough of Yakutat (CBY) is applying for ADOT grant funds to improve maritime transportation by improving connections to the surface transportation system, infrastructure on land at the Alaska Marine Highway Ferry Terminal, and connecting roads. CBY would use the funds to extend and retrofit the existing dock and retrofit the Ankau Bridge, which is nearly 60 years old. The grant application requires CBY to contact environmental agencies regarding permits or authorizations required for the project, including NMFS under the EFH provisions of the MSA. Sam Simpson responded and described HCD's responsibilities, what triggers an EFH consultation, and provided resources that further detail the process if a consultation is necessary. She also directed CBY to PRD for any inquiries related to marine mammals.

## **Seafood Processing and Aquaculture**

### [Offshore Seafood Processors](#)

The Environmental Protection Agency (EPA) proposed to reissue a National Pollutant Discharge Elimination System General Permit for offshore seafood processors, which authorizes seafood processing waste discharges to waters of the US EEZ off Alaska. Jodi Pirtle and Gretchen Harrington provided consultation and EFH Conservation Recommendations to EPA in August, 2018, following discussions with EPA that began in July, 2018 with AKR Protected Resources Division (PRD). EPA revised the draft permit, following revision to the Biological Evaluation by AKR PRD. EPA did not revise the permit to include EFH Conservation Recommendations. Public comment concluded in May, 2019 and the final permit is in development.

### [Oyster and Kelp Farms](#)

Linda Shaw and Sean Eagan reviewed and submitted EFH Conservation Recommendations on a number of proposed aquaculture operations in the Gulf of Alaska. EFH Conservation Recommendations include approaches to minimize disturbance to aquatic vegetation, avoid introduction of invasive invertebrates, and encourage the removal of any introduced materials like docks, lines, and trays from the ocean at the end of the lease. Though effects on EFH from individual operations appear small, many other aquaculture applications are working their way through the state and federal licensing process; there may be cumulative impacts of all aquaculture projects.

## **Climate Change**

### [Ecosystem Transformation](#)

Ecosystem processes can change naturally over time. However, the increasing frequency and intensity of climate variability is now widely recognized as an anthropogenic influence across terrestrial and marine biomes. In an effort sponsored by the American Fisheries Society (AFS) and The Wildlife Society (TWS) and led by USGS, a team of twenty specialists representing diverse fisheries and wildlife disciplines from different regions have assembled to convene a

workshop and produce two synthesis reports. Doug Limpinsel represented AKR HCD as a contributing author on this team.

The draft reports were presented at the first ever AFS-TWS Joint Conference held in Reno, Nevada in October 2019. The reports present a decision-making framework using a “Resist”, “Accept”, or “Direct” change approach (RAD) to adaptively manage for ecological change at different scales to maximize conservation of species, ecosystems, and ecosystem services. The reports will help inform policy and science communication strategies, engage the broader membership of both societies, and inform decision makers and the public. Other team members made several presentations highlighting examples of RAD implementation, subsequent adaptive management case studies, or well documented examples of changing ecosystems influencing species range and distributions. Both of the team’s manuscripts have been submitted to a variety of scientific journals and are currently under review.

#### [American Water Resources Association \(AWRA\) Meeting](#)

The AWRA held a meeting in Juneau in September 2019, providing an update on stream monitoring activity. USGS monitors temperatures in 57 streams, 24 of which set all-time records and most of which topped out above 20° C, which is an upper limit for salmon habitat. In an effort to establish a baseline before the construction of several massive permitted mines in British Columbia, USGS also established monthly water quality monitoring on the Asek, Taku, Stikine, and Unuk Rivers. Finally, the AWRA informed attendees that atmospheric rivers are responsible for 40% of the total moisture that hits the west coast. An atmospheric river is a 500-kilometer wide corridor of moisture laden air stretching at least 2,000 kilometers into the Pacific. They typically move more water than the Mississippi River.

#### **Other Projects**

##### [Kivalina Evacuation Causeway](#)

The village of Kivalina sits on a low spit and is in danger of being flooded by large waves during fall storms. ADOT&PF built a seven-mile road from a local hill to the Kivalina Lagoon this winter. Sam Simpson, Matt Eagleton, and Sean Eagan wrote EFH Conservation Recommendations on alternatives for crossing the 0.7-mile wide Kivalina Lagoon in 2017. In April 2019, Sean started a consultation on how to mobilize a rock sorting plant and crushing equipment across the Lagoon to the mainland, considering the ice went out two months early this spring. The contractor built and then removed a temporary crossing once the rock processing equipment was on the mainland. This allowed the contractor to armor the 2,000-foot causeway which is now substantially complete. The final step in the evacuation infrastructure is constructing the abutments and placing the bridge which is currently being moved to Kivalina in pieces.

### **Goal #3: Continually identify data gaps and information needs, and use the best available science to conduct EFH reviews and consultations that support sustainable fisheries management, healthy marine ecosystems, and community resilience**

#### *[Participate in National EFH Coordination](#)*

##### **National Habitat Leadership Team (NHLT)**

Gretchen Harrington participated in the NHLT meetings in Honolulu in October 2018 and on Maryland’s Eastern Shore in May 2019. The NHLT is comprised of HCD Assistant Regional

Administrators (ARAs) from each region, NOAA Restoration Center leadership, and Habitat leadership from Silver Spring. NHLT Meeting Objectives are:

- Share successes and lessons learned individually and collectively toward the common goal of conserving habitat
- Strengthen relationships and connection with team members
- Broaden perspectives on approaches to conservation through place-based partner engagement
- Engage in meaningful topics for the NHLT's collective attention

Both of these meetings reinforced the value of having the NHLT come together on a regular basis to share information and ideas and collaborate on important efforts to advance habitat science and coastal resilience. These efforts include the Fish Passage Program, National Mitigation Policy, Mitigation Tools for Corals, Regional Office Organizational Excellence Efforts, NOS Office of Coastal Management (OCM) Coastal Resilience Program, National Fish and Wildlife Foundation (NFWF) Coastal Resilience Program, and Habitat Focus Areas.

These meetings are also opportunities to visit habitat-related projects in different parts of the country. In Hawaii, the Team visited restoration sites on the island of Hawaii, the Honolulu fish auction, and coral research and restoration at the Hawaii Institute of Marine Biology. In Maryland, the Team visited with local partners and toured some project sites. These engagements stimulate discussions about NHLT's programs, challenges, and opportunities.

### **Council Coordinating Committee (CCC) Habitat Workshop**

Matthew Eagleton and John Olson attended a CCC Habitat Working Group Workshop in Portland, Oregon. The goal of the workshop was to create a focused cross-regional forum for EFH practitioners at the Councils and Regional Offices to share best practices within the Councils' authority with respect to EFH consultations on non-fishing and offshore marine planning actions. EFH regional participants from the CCC Habitat Workgroup Meeting then stayed to attend the 2019 National EFH Coordinators Workshop.

### **EFH Coordinators**

Sam Simpson participated in the regular EFH Coordinators meetings until her resignation from HCD in July 2019. This group meets regularly to discuss national habitat and administrative topics, including the possibility of drafting a document on elevation procedures of development projects under different statutes, Programmatic EFH Consultations completed with NOAA/NMFS as the action agency, the rollout of the Environmental Consultation Organizer, National Mitigation Policy, and FWCA training. Updates from headquarters include the hiring of new permanent National EFH Coordinator Ian Lundgren, changes in EFH budget, possible training for FAST-41 projects, and notes from the Habitat Protection/ARA calls. NMFS is also working with USFWS and National Conservation Training Center (NCTC) to develop a curriculum on "Planning for a Changing Climate." In regional round robins at the meetings, Sam updated everyone on FY19 discretionary funds proposals, initiation of the Habitat and Ecological Processes Research (HEPR) Team's review of FY19 EFH Research Fund Proposals, AKR's planning for the 2022 EFH 5-year Review, finalization of the Programmatic EFH Consultation with the NOAA Restoration Center, DEIS and EFH Assessment reviews for the Pebble Mine and AK-LNG projects, and planning for the 2020 Western Groundfish Conference in Juneau.

The group met in person for the first time since 2016 in Portland in August; Matt Eagleton and John Olson attended after the CCC Habitat Workgroup Meeting. EFH Coordinators discussed lessons learned from the recent CCC Workshop and what should carry over to the EFH Coordinators meeting, recapped accomplishments from the 2015 Ann Arbor EFH meeting and EFH Guidance status, defined target audiences for EFH Guidance, and described the purpose, need, and proper level of detail for EFH Guidance (both Regions and Headquarters). EFH Coordinators were also charged to review and update the 2004 National EFH Guidance Document. New guidance will provide a much-needed update to EFH Guidance, now some 15 years old. The new document will also serve as a basis to better understand the nuances of EFH and EFH Consultation.

### *Advance EFH Science*

#### **EFH 5-Year Review**

In March 2019, Sam Simpson presented to the NPFMC's Ecosystem Committee on the early planning approach for the 2022 EFH 5-year Review, with an accompanying document prepared by Sam Simpson, Jodi Pirtle, John Olson, Matt Eagleton, and Gretchen Harrington. The purpose of this discussion was to remind the committee of what was completed in the 2017 Review with regard to EFH revisions in FMPs, and potential EFH updates to consider for the 2022 Review - through the lens of the direction received by the Council in 2017. HCD received feedback from the Ecosystem Committee, including recommendations to validate/ground-truth the fishing effects and species distribution models implemented in 2017, consider updating the cumulative impacts analysis (particularly with regard to climate change), and requests to further investigate non-MSA fishing activities (incorporating Pacific cod state fishery harvests and traditional ecological knowledge). Because this was a high-level presentation to get the 2022 Review conversation started, the Ecosystem Committee requested a detailed update in 2020.

#### **EFH Research Plan Proposals**

In November 2018, Matt Eagleton (AKR EFH Coordinator), Sam Simpson, John Olson, and Jodi Pirtle assisted AFSC's Habitat Ecological and Processes Review (HEPR) scientific panel in review of FY19 EFH proposals. Each year, approximately \$350,000 is anticipated to fund EFH research: \$250,000 from AKR and \$75,000 from AFSC. In FY19, the coordinated research effort received 10 funding requests, totaling nearly \$733,000. The review process concludes with a meeting between the HCD ARA, HEPR program lead, and regional EFH Coordinator to choose which research projects receive funds, as funding allows. Since the development of the coordinated research plan in 2005, the effort has provided 115 projects more than \$6,000,000 to fund EFH research objectives.

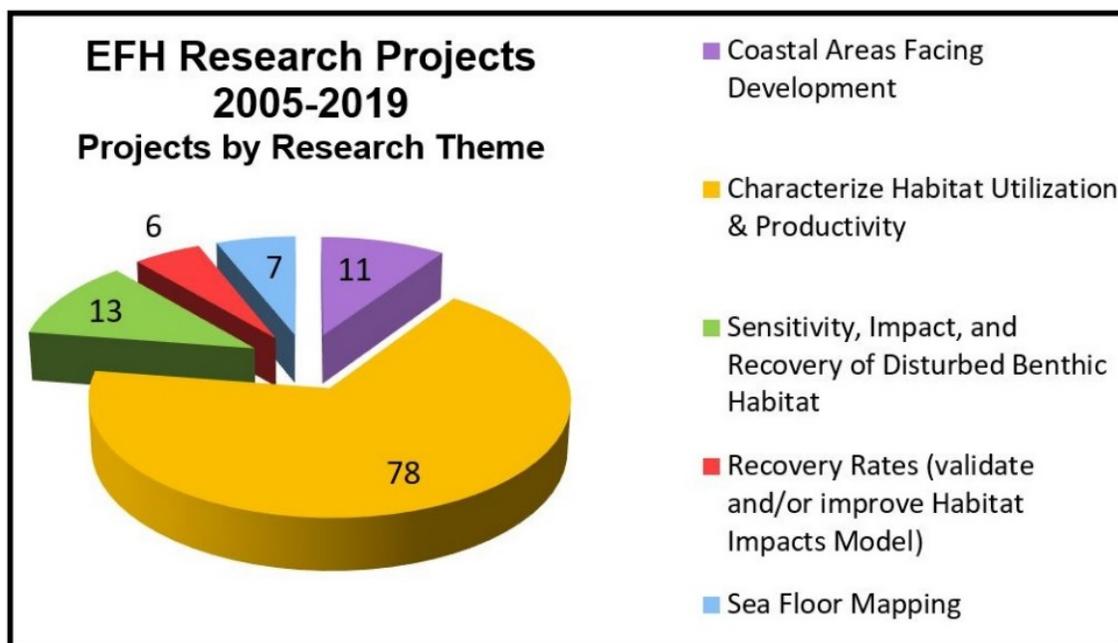


Figure 8. EFH Research Projects 2005 2019: Projects by Research Theme

### Nearshore Fish Atlas Update

An Update to the Nearshore Fish Atlas (NFA) for Alaska was completed in 2019 through support from the Alaska EFH Research Plan (Mandy Lindeberg and Jodi Pirtle with Darcie Neff FY18, FY19). NFA is a database of nearshore fish and fish habitat data that was originally released online in 2012 in partnership with AKRO and is curated internally by AFSC Auke Bay Lab. When the NFA Update project began in 2018, NFA holdings included catch data from 1998-2016 for more than 1,300 beach seine hauls and 249 nearshore bottom trawls and midwater trawls. With this update, we have integrated more than 25 new data sets provided by 7 organizations that sampled nearshore areas around Alaska. This effort extended the database coverage to 1995-2018 with a total of 5,154 beach seine hauls, 1,017 trawls, 58 fyke net sets, 112 jigging efforts, 360 gillnet sets, and 227 purse seine hauls, which increased pre-project NFA holdings by more than three-fold. Further updates are planned for FY20 with an additional 322 beach seine hauls and 703 trawls, resulting in a more than four-fold increase in data holdings. The updated version of NFA will be published online in FY20, replacing the current 2012 version. This update to NFA is supporting current EFH modeling and mapping efforts working to improve EFH information for species life stages in the nearshore marine environment off Alaska.

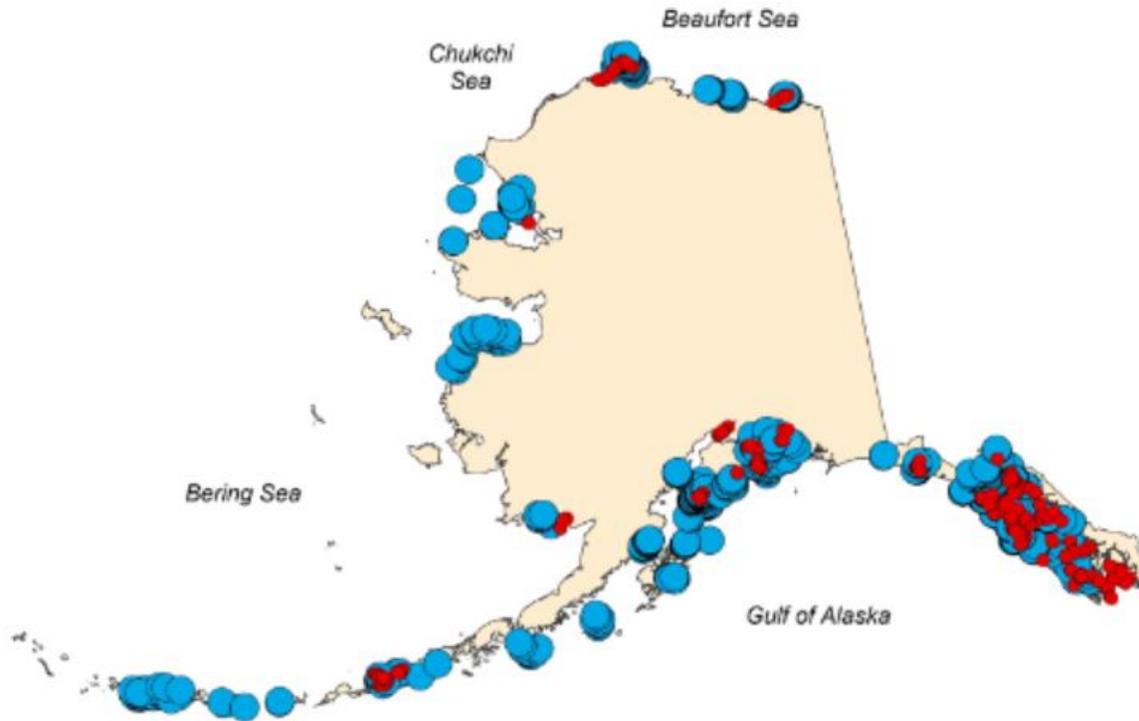


Figure 9. Map of the updated spatial representation of datasets in the Nearshore Fish Atlas (NFA) showing expanded coverage in Alaska. Red dots are original NFA sites, and blue dots are the newly integrated sites.

## **Goal #4: Provide habitat expertise based on the best available science to improve habitat conservation and facilitate Ecosystem-Based Fishery Management (EBFM)**

### *Implement EBFM*

#### **NHLT EBFM Coordination**

In October 2018, Gretchen Harrington and Jodi Pirtle led a discussion with an accompanying presentation at a meeting of the NHLT on Integrating Habitat and EBFM with working examples from the Alaska Region of NOAA Fisheries. This activity represents an ongoing effort to link habitat science, management, and conservation activities with EBFM in collaboration with AKR, AFSC, NPFMC, and OHC, in support of the 6 Priorities of the NMFS EBFM Policy of 2016 and the habitat milestones in the Alaska EBFM Roadmap Implementation Plan of 2018.

#### **Alaska EBFM Roadmap Implementation Plan**

Jodi Pirtle co-authored the [Alaska EBFM Roadmap Implementation Plan](#) (Alaska's Plan) as a member of a cross-divisional team with staff from AKR SFD and AFSC. Alaska's Plan details priority actions and milestones for the next five years to meet the Guiding Principles of the [NMFS EBFM Policy](#) (2016) through the [NMFS EBFM Roadmap](#) (2016). The intention is that coordinated implementation of EBFM across mandates will lead to greater efficiency and will enable NMFS to explicitly consider trade-offs between fisheries, fishery species, and other ecosystem components and processes, including habitat, that affect or are affected by fisheries. Several relevant habitat priority actions and milestones were included in Alaska's Plan.

## NOAA Fisheries National EBFM Workgroup

NMFS EBFM Roadmap called for a National EBFM Coordinator and a National EBFM Workgroup (EBFM WG) composed of staff from Regional Offices, Science Centers, and Headquarters. Jodi Pirtle has been participating for AKR HCD along with Kara Meckley for OHC and representatives from AKR SFD and AFSC. EBFM WG shares information and coordinates internal expertise to ensure strong linkages between science and management priorities to guide the implementation of the NOAA Fisheries EBFM Policy and Roadmap. EBFM WG is planning an in-person meeting for 2020.

## Essential Fish Habitat (EFH): An Ecosystem Approach

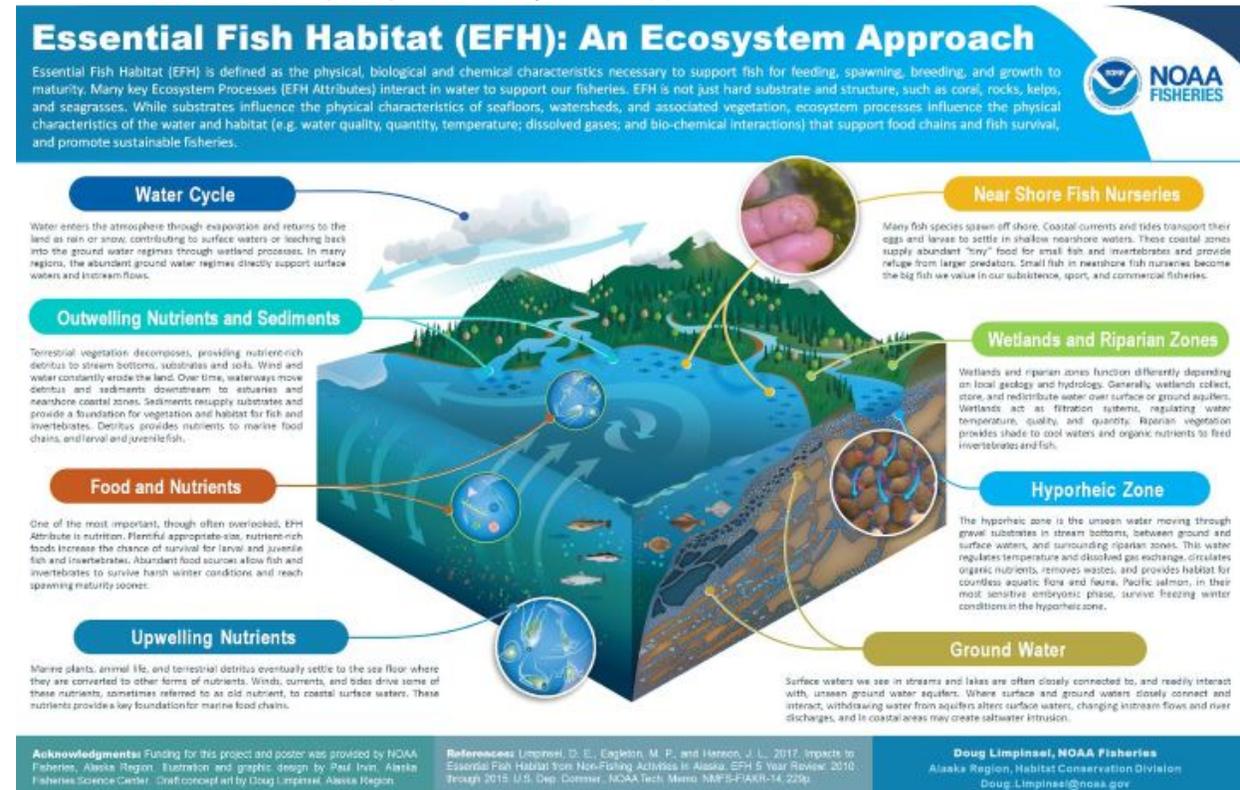


Figure 10. Essential Fish Habitat: An Ecosystem Approach

Over years of discussions and EFH Consultations, HCD has repeatedly been asked - what exactly is EFH? Beyond congressional statutory definitions or descriptions in NOAA documents, there are few plain language explanations or specifically illustrated examples that identify the correlation between water-influenced ecosystem processes and the numerous elements that comprise EFH attributes. Doug Limpinsel conceived the idea of creating a series of graphic illustrations for educational use and internal NOAA presentations to communicate these concepts. Starting first from Doug's pencil sketches, Paul Irvine from the AFSC designed the final graphics which evolved into the current poster. This rendering is a template representing the first of several more detailed posters representing riverine, estuarine, and marine biomes. The poster has made appearances at AFS Alaska Chapter meetings and the Joint Conference of the AFS Region and Wildlife Societies in 2019. It is also being distributed and used as an educational tool in several schools in Alaska and is available to the public at NOAA Fisheries Alaska. [The poster can be found on the NOAA Fisheries website.](#)

## Ecosystem-Socioeconomic Profiles

### Stock Assessment Workshop on Ecosystem Socioeconomic Profiles (ESPs)

AFSC held a stock assessment workshop in Seattle May 28-31, 2019 to share and coordinate information to develop ESPs for Alaska stocks. The Stock Assessment and Fishery Evaluation (SAFE) Reports have traditionally included an Ecosystem Considerations Chapter, which will now become the ESP. In this section, stock assessment authors, Plan Teams, and the NPFMC will develop and track stock-level metrics and indicators related to the productivity and health of the stock. Jodi Pirtle presented on species distribution models developed for EFH definitions by AFSC and AKR. Jodi and Chris Rooper (AFSC) contributed EFH species distribution models to the first ESP for sablefish in 2018, and 2019, which included maps of sablefish habitat and information on important habitat descriptors by life history stage, including pelagic larvae, settled juveniles, older juveniles, and adults. HCD has a long history of working with the stock assessment programs at AFSC. The ESP framework is an opportunity to extend habitat information to support stock assessment processes for Alaska. AFSC will host two subsequent annual meetings to develop ESPs for Alaska stocks in 2020 and 2021.

## Habitat Models and Maps

### New Alaska EFH Web App

In December 2018, HCD launched the new NOAA Fisheries [AKR Alaska EFH Web Application](#), an ESRI-powered ArcGIS online platform to host the complete and updated collection of Alaska EFH maps. The App includes new, peerless SDM-based maps of habitat-related distribution (EFH Level 1) and density (EFH Level 2) for North Pacific and Arctic FMP species, including newly mapped life stages and seasons developed for the EFH 5-year review and update that concluded in 2018.

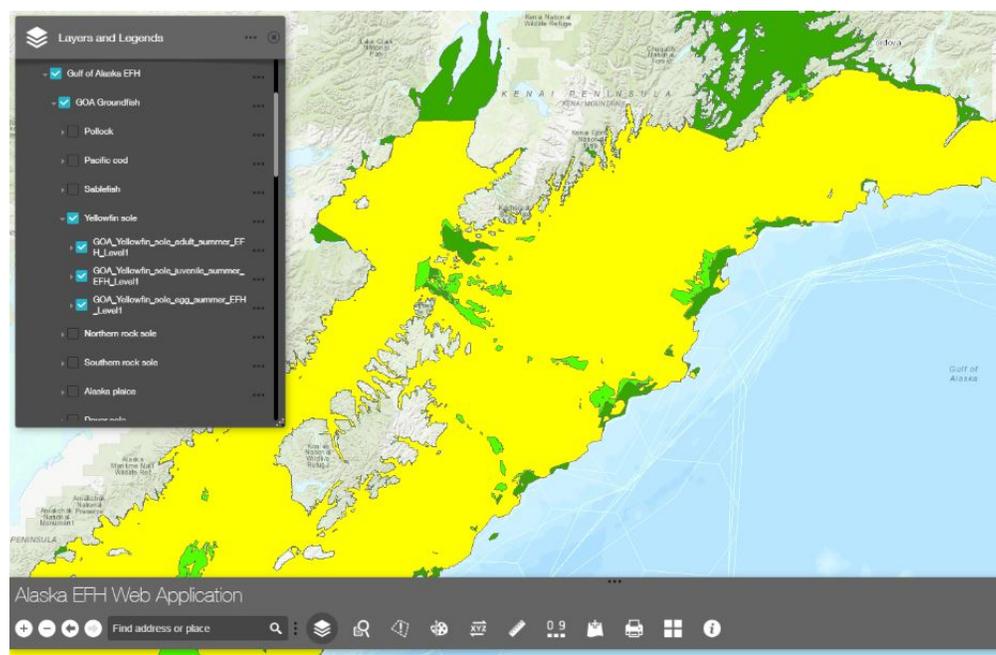


Figure 11. Example of yellowfin sole EFH Level 1 maps for three life stages in the Gulf of Alaska, from the new EFH Web App

The new online map interface provided by the Alaska EFH Web App is intended to provide an improved, efficient, and effective way to view, search, and query EFH map information. We are currently in a stage of conceptualizing updates to improve user functionality of the App and HCD staff are providing training to agency contacts to assist with the successful implementation of this new EFH information resource for Alaska. The new EFH maps are also available on the [National EFH Mapper](#) and the map shapefiles can be downloaded through our web page.

Thanks to all who have developed, contributed, and continue to update and improve the mapper, including Steve Lewis (Sustainable Fisheries Division - SFD), Jodi Pirtle, John Olson, Lydia Ames, and AFSC EFH modelers. Happy Mapping!

### **EFH Modeling Workshop**

The AFSC held a workshop on Alaska EFH species distribution modeling in Seattle February 13-14, 2019. AKR updated EFH for Alaska in 2017, when NPFMC accepted a distribution modeling approach to update EFH information levels for many FMP-managed species. A new EFH 5-year review began in 2019 with modeling and analysis to take place for a possible EFH update during this cycle. Jim Thorson (AFSC HEPR Program Leader) and Jodi Pirtle led the workshop, which brought together researchers to present and discuss current EFH modeling efforts and research development goals to ensure that we make long-term progress to improve the EFH designations for Alaska.

### **Deep Sea Coral Modeling Workshop**

NOAA's West Coast Deep Sea Coral Research and Technology Program (DSCRTP) Research Initiative hosted a workshop at the AFSC in Seattle on February 19-20, 2019. Participants, including John Olson and Jodi Pirtle, presented workshop components and discussed best practices for deep-sea coral distribution modeling to guide future modeling efforts and data collection aimed at improving and validating model predictions as part of the regional research initiatives for the U.S. West Coast and Alaska. A manuscript detailing workshop recommendations with case study examples by participants is forthcoming, with contributions by Jodi Pirtle and John Olson. The DSCRTP, part of NOAA Fisheries OHC, was established by the MSA to identify, locate, and map deep-sea coral habitat in consultation with the regional fishery management councils. Regional focus will return to Alaska beginning in 2020, with a planning meeting to be held in Juneau May 2020. Read more about the DSCRTP at <https://deepseacoraldata.noaa.gov/>

### **Groundfish Life History Synthesis**

A peer-reviewed manuscript was published in the [December 2018 issue of the Journal of Sea Research](#) that brought together experts in fisheries ecology and stock assessment to synthesize the life history ecology of arrowtooth flounder and the sensitivity of this ecologically important predator to ecosystem change in the Gulf of Alaska. Jodi Pirtle contributed species distribution models and maps for three arrowtooth flounder life stages that demonstrate shifts in habitat specificity and depth with size and age. Jodi's contribution applied a similar approach to her models developed for the Gulf of Alaska Integrated Ecosystem Research Program and the EFH update of 2017.

## **Goal #5: Participate in partnerships within and outside of NOAA that influence habitat conservation for FMP-managed species**

### ***National Fish Habitat Partnership (NFHP)***

Cindy Hartmann Moore and Erika Ammann continue to participate in the NFHP Coordination Team's quarterly calls. Topics covered include NFHP Board updates, FY19 NOAA Science and Technology funding, ShoreZone, increasing recreational fishing engagement, and regional updates for fish habitat partnerships, Waters to Watch program, Beyond the Pond, Habitat Month, NFHP Science and Data Committee, and World Fish Migration Day. World Fish Migration Day is a bi-annual one-day global celebration to spread awareness of the importance of open rivers and migratory fish. On World Fish Migration Day, organizations from around the world coordinate their own events around the common theme of the connection between fish, rivers, and people. The next World Fish Migration Day will be on May 16, 2020.

NOAA's OHC has a priority this year to partner with the recreational fishing community on habitat conservation projects. Their goal is to raise the visibility of NOAA's habitat work within the angling community and enhance collaboration with the recreational fishing community. Cindy is coordinating with the Southeast Alaska Land Trust staff to collect and present information on their bank stabilization and recreational fishing access project on Douglas Island that may benefit from collaboration with NOAA.

### ***Southeast Alaska Fish Habitat Partnership (SEAKFHP)***

#### **SEAKFHP Steering Committee**

Cindy Hartmann Moore and Sean Eagan participate in SEAKFHP Steering Committee bi-monthly meetings. Topics regularly discussed include grant opportunities, partner updates, and upcoming events. Different partners regularly present on topics including effects of climate change on food webs, habitat modeling, potential effects of Pebble Mine on salmon habitat, efforts to rebuild the University of Alaska Southeast (UAS) geographic information system (GIS) Library.

#### **NOAA Coastal Funding Opportunity**

Gretchen Harrington, Cindy Hartmann Moore, Erika Ammann, and Steve Lewis (SFD) worked with SEAKFHP's coordinator Debbie Hart and others on a proposal for coastal assessment for a funding opportunity sponsored by NOAA Fisheries Office of Science and Technology. Funding is available for regional marine habitat assessment projects that will support NMFS's habitat-related mandates as well as the regional and national assessment needs of the NFHP program. The proposed project will unite a variety of data sources currently available for aquatic habitats at or near the shoreline across Southeast Alaska. The project will provide a secure, sustainable, and publicly available data repository, map viewer, and decision support tool to allow users access to important habitat information and key data resources. This data resource will help to support a wide array of decisions across the region by federal and state agencies, tribes, municipalities, restoration practitioners, and others. The NFHP Science and Data Committee selected this project for funding in FY19, and NOAA Fisheries Office of Science and Technology provided the funds in the 2nd quarter of FY19.

#### **State of Alaska Open Data Platform**

The November meeting of the SEAKFHP Steering Committee included a presentation by the Alaska Department of Commerce, Community, and Economic Development's Division of Community and Regional Affairs. They highlighted their [new community database online](#)

[system](#). The new system uses ESRI's ArcGIS online and an open data platform. This tool is useful for fisheries social economic analyses and it provides maps that could be useful for habitat project reviews and other mission critical information.

### **Environmental DNA (eDNA)**

In April 2019, Sean Eagan attended the eDNA meeting at Lena point organized by SEAKFHP. This technology recognizes genetic material present in water by either specifically targeting for one or two species or searching for many organisms at once (meta-barcoding). ADF&G has not accepted eDNA as the method of determining anadromous waters at this time.

## **ShoreZone**

### **ShoreZone Updates and New Applications**

A new Indefinite Delivery Indefinite Quantity (IDIQ) contract was awarded for ShoreZone on June 14, 2019. The IDIQ is the contract vehicle used to implement the AKR's *ShoreZone* 5-Year plan. Tasks covered in the SOW for this IDIQ include imaging, re-imaging, mapping, re-mapping, shore stations, imagery and mapping applications, data and web delivery, tools and applications outreach, education, communication, and other *ShoreZone* products.

Cindy Hartmann Moore continues to work with partners within NOAA and across the state to advance the data distribution, research applications, and practical uses of ShoreZone data. Notable highlights from the past year include:

- The use of ShoreZone data to model marine debris distribution in Alaska, in collaboration with the Restoration Center, NOS, and Coastal and Ocean Resources. NOS currently has marine debris grant opportunities for research and removal. Development of a *ShoreZone* marine debris model would fit under the research grant. The grant, if applied for and awarded, could facilitate more applications of the extensive ShoreZone data.
- Coordination with the Western Alaska Landscape Conservation Cooperative (WALCC)
- New Aleutians and Norton Sound mapping data in the ShoreZone data set are available online. Approximately 94% of the state has *ShoreZone* imagery, and approximately 98% of this area is mapped.

[Come fly Alaska's coastline!](#)



Figure 12. ShoreZone Coastal Habitat Mapping Program in Alaska

### PEP AK Intern Works with ShoreZone

The Alaska Region was proud to partner with University of Alaska Fairbanks (UAF) in the inaugural year of the Partnership for Education Program for Alaska (PEP AK). The goal of PEP AK is to prepare undergraduates from under-served populations for entry into the NOAA workforce, with particular focus on students from rural and Alaska Native communities. NOAA Fisheries in Alaska regularly works with rural and Alaska Native communities on issues related to fisheries, protected species, and habitat management. Preparing the next generation's workforce to meet these needs, especially with a changing climate that disproportionately impacts these communities, is critical.

The program hosts undergraduates in an education and workforce program through one summer. The students participate in a short course at UAF led by faculty with cutting edge research expertise, AKR policy staff, and indigenous knowledge holders. The course is followed by an internship with the Regional Office or the Ted Stevens Marine Research Institute (TSMRI). Seven interns participated in the program this year in PRD, HCD, and at TSMRI, and will join a cohort of undergraduates at UAF on a National Science Foundation (NSF)-funded Research Experience for Undergraduates program.

HCD hosted PEP intern Joseph Monsef, a Juneau local who will continue his studies at UAS in the fall of 2019. Joseph worked with Cindy Hartmann Moore to identify the users of Shorezone and how they use Shorezone to complete their missions more efficiently. This information will help the managers of Shorezone determine the information that is to be made available on the ShoreZone web site and how it is presented.

A highlight of Joseph's work was an interview with Wendel Raymond, a PhD student at the College of Fisheries and Ocean Sciences at UAF about how he has found uses for ShoreZone. In his research, Wendel used ShoreZone imagery to identify areas of eelgrass in which to

conduct field research. Wendell put Joseph in contact with other individuals who he believes have used ShoreZone. Joseph finished his summer project with a 15-minute presentation alongside his fellow PEP interns.

### **ShoreZone Partner Meeting and Steering Committee Meeting**

Gretchen Harrington, Cindy Hartmann Moore, Steve Lewis (SFD), and Dune Rothman (ISD) participated in the 2-day ShoreZone partner meeting in Portland in July 2019. Topics covered included ShoreZone tools, Coastal and Marine Ecological Classification System, management and access, enhanced mapping, and a 40-year historical perspective of ShoreZone. The meeting included a collection of discussions, from behind-the-scenes data collection and management to the amazing projects ShoreZone data has been used for. The presentations showcased the breadth of uses to which ShoreZone imagery and mapping can be applied. Presenters included researchers from the University of Victoria and UAF and practitioners from World Wildlife Fund, Department of Fisheries and Oceans Canada, Archipelago Marine Research Ltd., Pacific States Marine Fisheries Commission, Oregon Department of Land Conservation and Development, Pacific Salmon Foundation, and the U.S. National Park Service. The meeting closed with planning work and Steering Committee meetings.



*Figure 13. ShoreZone Partner Meeting and Steering Committee Meeting. Left to right: Sue Saupe (CIRCAC), Jim Noel (NMFS Contractor), Sarah Cook (CORI), Steve Lewis (NMFS AKR SFD), John Harper (CORI), Mary Morris (Archipelago Marine), Jacklyn Barrs (WWF Canada), Dr. Rebecca Allee (NOAA NOS), Joseph Monsef (PEP Intern), Cindy Hartmann Moore (NMFS AKR HCD), in front Danial Rothman (NMFS AKR ISD). Not pictured: Gretchen Harrington, taking picture*

### **ShoreZone Training Given to State of Alaska Employees**

Cindy Hartmann Moore and Sue Saupe from Cook Inlet Regional Citizens Advisory Council (CIRCAC) hosted a training for a group of State of Alaska employees on ShoreZone in September 2019. Attendees included staff members from ADEC's Division of Spill Prevention and Response (SPAR), ADF&G, and ADNR. The ADEC training organizer reported that ADEC staff especially appreciated the technical depth of how the data was produced and how to

access it on-line. The session ended with a discussion on potential partners to help complete ShoreZone imagery and mapping in Alaska.

## **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**

### *Staff Education*

#### **Contracting**

In October 2018, Cindy Hartmann Moore and Sue Walker, along with Pete Jones, Gilbert Mendoza, Mike Pearson (OMD); Steve Lewis and Scott Miller (SFD); Ray Howard (ISD); Barbara Mahoney and Mike Williams (PRD) participated in the Professional and Technical (ProTech) training at TSMRI. ProTech is a suite of contracting vehicles that consists of IDIQ multiple award contracts, multiple award and single award Blanket Purchase Agreements, and other contract types. Topics covered include identifying requirements, establishing the team, developing the requirements package, understanding the NOAA Acquisition and Grants Office Servicing Acquisition Division, managing task order performance, processing contract close out, and understanding the proper role of service contractor. Twelve of the seventeen ProTech awardees attended and eleven of these awardees made presentations. The presentations included information detailing the company's capabilities and experience, as well as the skills of ProTech's subcontractors. NMFS staff were able to introduce themselves to the company's staff and inform those present of our contract needs.

In November 2018, Cindy Hartmann Moore, Ray Howard (ISD), Mike Pearson (OMD), and Mike Williams (PRD) attended the 1st annual NMFS contracting officer representative (COR) training event in Kansas City, Missouri. It was a three-day training held at the National Weather Service's training center, including lunch presentations and long training days. Some of the topics covered include COR program goals and objectives, COR delegation memo and responsibilities, invoicing, professional and technical competencies, ProTech, COR records management, and breakout sessions with group exercises on best practices, challenges and obstacles. The training concluded with an evaluation and recommendations for agenda topics for the 2nd annual NMFS COR training event.

#### **Leadership Challenge**

Several staff members from the Anchorage Office, both PRD and HCD attended and participated in the Leadership Challenge Workshop in February 2019. Attendees evaluated their own leadership and communication styles and committed to staying accountable to improving themselves as communicators and leaders. Special thanks to Dana Whitely and the Employee Advisory Council for providing these training opportunities.

#### **NOAA Ocean Satellite Data Course**

In March 2019, NOAA's [CoastWatch](#) provided a course on working with NOAA ocean satellite data at TSMRI in Juneau. The course focused on data access and integration with R statistical software and ArcGIS workflows for NOAA Fisheries users. Jodi Pirtle attended the training and is currently developing satellite predictor variables that may be helpful to describe EFH in species distribution models for Alaska's FMP species. Similarly, PolarWatch is a new satellite

data platform in development that will provide greater access to data products for high latitudes, including Alaska.

### **USACE Dredging Seminar**

In April 2019, Lydia Ames, Seanbob Kelly, and Barb Mahoney (PRD) participated in the 2019 Alaska Environmental Considerations in Dredging Seminar hosted by the USACE Alaska District. The district brought staff from the USACE's Engineer Research and Development Center (ERDC) to host this two-day seminar, with attendees from the State of Alaska, EPA, and USFWS. Among the topics explored at the seminar were beneficial use of dredge material, upland placement, open water placement, and an intense regulatory overview.

### **U.S. Corps of Engineers SMART Planning Process**

In June 2019, Seanbob Kelly represented HCD at the USACE presentation of their SMART planning process, which is a recently implemented system intended to improve USACE's Feasibility Studies while continuing to follow the traditional 6-step planning process required by their Principles and Guidelines. Attendees included members from USFWS, PRD, ADF&G, and representatives from the Corps Headquarters and other Pacific Regions. HCD contributed to the meeting by highlighting the potential conflicts between the EFH Consultation process and the SMART planning process.

### **Length of Service Awards**



*Figure 14. Sam Rauch speaking in Juneau*

It's not often that the agency's deputy assistant administrator for regulatory programs makes it to Juneau. That's why it was so momentous that Sam Rauch was able to visit the Alaska Regional Office Tuesday, Feb. 26. To highlight the dedication and importance of AKR employees during Sam Rauch's visit, Regional Administrator Jim Balsiger proudly handed out

awards to regional staff. Fifteen staff members received Length of Service Awards, including HCD's Seanbob Kelly (10 years), Doug Limpinsel (25 years), and Sue Walker (30 years).



Figure 15. Doug Limpinsel and Seanbob Kelly with their Length of Service Awards

### **Employee of the Year in Professional/Scientific/Technical Achievement**

Sue Walker received this prestigious award in June 2019. Sue excels in her role as Hydropower Coordinator for HCD. She successfully carried out the agency's responsibilities under the FPA for the Grant Lake Hydropower Project, and represented AKR in the national initiative for the Fish Passage Program Review.



Figure 16. Sue Walker accepts her Employee of the Year Award from Doug Mecum

### ***Fellowship and Postdoctoral Positions***

#### **Meredith Pochardt**

Meredith Pochardt joined HCD in August 2019 as an Alaska State Sea Grant Fellow in the Juneau office. Meredith spent several years as Executive Director of the Takshanuk Watershed Council in Haines, Alaska. Meredith is working with Jodi Pirtle, the HCD EFH 5-Year Review

team, and NPFMC staff to review and develop new information for the Prey Species Component of EFH in the FMPs. Meredith earned her MS from Oregon State University in 2019, with research focused on Eulachon population structure in southeast Alaska, using eDNA. Meredith's fellowship project also harnesses her eDNA expertise to develop and implement an invasive species monitoring program for European green crab in southern southeast Alaska in collaboration with Linda Shaw. Meredith has already engaged with the public around the state regarding the utility of eDNA and her studies since arriving in her fellowship with HCD, including presentations to the Skagway Traditional Council regarding ongoing eulachon population monitoring and research in Northern Lynn Canal and to the Southeast Environmental Conference on potential application of eDNA for tribal environmental monitoring projects. Meredith has also shared her knowledge of salmon life history, habitat, ecology, and management with students at Juneau Montessori middle school and Prescott College's Integral Adventure and Ecological Sustainability course.

#### **Dr. Jennifer Marsh**

Jen Marsh joined HCD in August 2019 in the Anchorage office as a postdoctoral research associate. Jen is developing species distribution models for Arctic fish and crabs with applications to EFH. Jen earned her PhD from UAF in 2019, where her research focused on Arctic cod ecology and population dynamics. Jen was formerly an Alaska State Sea Grant Fellow with HCD. Jen advisors are Jodi Pirtle and Franz Mueter (UAF), and her work is supported by funding through BOEM. Jodi and Jen are coordinating this work within the larger EFH species distribution modeling effort at AFSC. Models and maps from Jen's work will be presented as an update to EFH information for the Arctic FMP during the current EFH 5-year Review.

#### **Dr. Arnaud Grüss**

Arnaud Grüss is developing a practical modeling approach to map habitat for fish and crabs in the nearshore marine environment, which he began in September 2019. Arnaud is a Research Associate with the University of Washington School of Aquatic and Fishery Sciences in Seattle, Washington. Arnaud brings a high caliber of spatial modeling and ecology expertise to this project, which is supported through NOAA Fisheries OHC. Arnaud is collaborating on this project with co-PIs Jodi Pirtle, Jim Thorson (AFSC), Mandy Lindeberg (AFSC), and Tim Essington (UW). Arnaud has accepted a position as a spatial population modeler with the New Zealand National Institute of Water and Atmospheric Research, beginning March 2020.

#### **Dr. Cheryl Barnes**

Cheryl Barnes joined HCD in September 2019 in the Anchorage office while completing her dissertation from UAF, which focuses on ecological interactions among important groundfish in the Gulf of Alaska, including arrowtooth flounder, Pacific halibut, and walleye pollock. Cheryl will begin a postdoctoral research position where she will develop dynamic species distribution models for groundfish in the Bering Sea and examine the utility of including temporal and spatial components in these models to describe spatial shifts in stock distribution and habitat over time. Cheryl will begin in January 2020 with Tim Essington's lab at UW, in collaboration with Jim Thorson, Jodi Pirtle, Kirstin Holsman (AFSC), and Kerim Aydin (AFSC). This work is supported through the NOAA Fisheries Office of Sustainable Fisheries.

### ***Outreach, Conferences, and Presentations***

Habitat conservation is the foundation for sustainable fisheries. HCD shares information about our efforts through a variety of venues. These include professional meetings, conferences,

publications, and presentations to the public. In addition to any already mentioned in this document, HCD also participated in the following outreach and education events during FY19:

- Alaska Business Magazine Interview about ShoreZone
- Alaska Forum on the Environment
- AFSC Board of Directors Retreat
- AFSC Groundfish Seminar Series
- American Fisheries Society (AFS) Alaska Chapter
- Arctic Biodiversity Conference
- Fisheries Innovation for Sustainable Harvest (FISH) Seminar
- Forest Service Minerals and Geology Webinar
- International Conference on Aquatic Invasive Species
- International Deep Sea Coral Symposium
- Wakefield Symposium
- National Hydropower Association Regional Meeting
- National Hydropower Climate Work Group
- National Hydropower Program Succession Planning

## Final Word

Healthy Oceans can be described as marine fisheries, habitats, and biodiversity sustained within healthy and productive ecosystems. NMFS's long-term goal of Healthy Oceans begins with healthy habitats. The work that HCD engages in to conserve, protect, and restore living marine resources through consultations and other activities is critical in providing for resilient coastal communities and ecosystems. Healthy habitat is necessary for sustainable fisheries, protected resources, and almost every other NOAA and NMFS program. Simply put, HCD's work provides the foundation for the "house that NOAA built." In 1996, Congress strengthened that foundation by amending the Magnuson-Stevens Act (MSA) to include EFH provisions. Congress stated in the MSA: "One of the greatest long-term threats to the viability of commercial and recreational fisheries is the continuing loss of marine, estuarine, and other aquatic habitats."

All living marine resources are vulnerable to habitat degradation, which can threaten the biodiversity on which they depend. These habitats are at risk from human activities, which degrade or destroy habitat quality and quantity. HCD's efforts to conserve habitat are as diverse as the resources NMFS manages. These efforts are both reactive and proactive in nature. Staff involvement in these activities includes:

- Identification and conservation of EFH through the use of the best and most-recent science available
- Providing guidance to stakeholders
- Fishery management activities
- Environmental reviews of fishing and non-fishing activities in order to avoid, minimize, or offset the adverse effects of human activities on EFH, including climate change and ecosystem-based considerations
- Conservation of living marine resources in Alaska
- Active participation in partnerships and the NOAA Habitat Blueprint.

[Come visit us and learn more!](#)