

## Accomplishments of the Alaska Region's Habitat Conservation Division in Fiscal Year 2010

*Pacific herring roe on eelgrass; Photo by Scott Johnson*

This report provides highlights of Habitat Conservation Division (HCD) activities from October 1, 2009 through September 30, 2010. HCD works with industries, stakeholder groups, government agencies, and private citizens to avoid, minimize, or offset the adverse effects of human activities on Essential Fish Habitat (EFH) and living marine resources in Alaska. HCD carries out NOAA Fisheries' statutory responsibilities for habitat conservation in Alaska under the Magnuson-Stevens Fishery Conservation and Management Act, Fish and Wildlife Coordination Act, National Environmental Policy Act, Federal Power Act, and other laws. HCD has two principal programs: identification and conservation of Essential Fish Habitat (EFH) through fishery management, and environmental review of non-fishing activities to minimize impacts to EFH or other habitats for living marine resources. HCD also supports habitat restoration projects in conjunction with the NOAA Restoration Center.

With staff located in the Alaska Regional Office in Juneau and an Anchorage field office, HCD coordinates extensively with other groups to facilitate habitat conservation. HCD works in close partnerships with numerous NOAA offices as well as other agencies and organizations such as the North Pacific Fishery Management Council, Army Corps of Engineers, Environmental Protection Agency, U.S. Fish and Wildlife Service, Bureau of Ocean Energy Management Regulation and Enforcement, U.S. Forest Service, Bureau of Land Management, Federal Energy Regulatory Commission, Federal Aviation Administration, Alaska Department of Fish and Game, Alaska Department of Natural Resources, Alaska Department of Transportation and Public Facilities, and a variety of industry and conservation groups.

## **Essential Fish Habitat and Fishery Management**

### EFH Five Year Review

HCD staff finalized a comprehensive review of the EFH components of North Pacific Fishery Management Council Fishery Management Plans (FMPs) to identify sections that should be revised to incorporate the best available scientific information. The national regulations implementing the EFH provisions of the Magnuson-Stevens Act call for a review of EFH information at least once every five years. The EFH sections of Alaska FMPs were last updated in 2006 based on the 2005 *Final Environmental Impact Statement for Essential Fish Habitat Identification and Conservation in Alaska*. HCD presented the review to the Council at its April 2010 meeting and the Council voted to initiate FMP amendments. Sections to be updated include refined EFH descriptions for several species by life history stage, a revised list of research needs, a new process and timeline for identifying Habitat Areas of Particular Concern, an updated analysis of the effects of non-fishing activities on EFH, and a discussion of habitat condition changes since 2005.

### Refining EFH for Pacific Salmon off Alaska

HCD collaborated with Alaska Fisheries Science Center salmon experts to develop a new methodology to refine the existing broad EFH descriptions for Pacific salmon in marine waters. Using funds from the NOAA Fisheries Office of Habitat Conservation, the analysis examined habitat parameters such as salinity, temperature, and depth as well as survey and catch data to produce a spatial representation of the marine habitat essential to salmon by species and life stage. The results will likely lead to narrowing the geographic scope of salmon EFH (currently identified as the entire Exclusive Economic Zone) based on a better understanding of the marine areas where salmon are most commonly found, and may also have application to other species such as sablefish.

### Habitat Areas of Particular Concern

Early in 2010 HCD staff worked with the Alaska Fisheries Science Center to develop a new process for the Council to consider identifying Habitat Areas of Particular Concern, including new ranking criteria. The Council approved the new process and adjusted the timing for the process to align with the EFH 5-year review schedule. Later in 2010 HCD staff worked with Alaska Fisheries Science Center experts to develop a proposal to identify six skate nurseries (egg case concentration sites) in the Bering Sea as Habitat Areas of Particular Concern. Skates lay their eggs in cases they deposit on the sea floor, and development of embryos within the cases can span over three years, making the nursery areas vulnerable to disturbance by bottom-tending fishing gear. The Council voted to proceed with an analysis of the proposal and associated management measures to protect these sites.

## **Environmental Review to Minimize Habitat Loss**

### Sitka Airport Runway Safety Area Extensions

HCD staff worked with the Federal Aviation Administration to finalize measures to avoid, minimize, and compensate for habitat losses due to improvements to the Sitka Airport. The project includes runway safety area extensions that would fill marine intertidal habitat, extension

of a parallel taxiway that will increase runoff, and the construction of a float plane ramp in marine waters where eelgrass is present. The project used a habitat equivalency analysis to determine appropriate types and levels of mitigation. This process was the first of its kind to be used for determining marine habitat mitigation in Alaska and may become a model for future projects.

HCD worked with other agencies to agree upon final mitigation that will preserve approximately 16.6 equivalent acres by the purchase of a parcel of shoreline to be conveyed to the City of Sitka with a conservation easement. The parcel will control access to and development of the adjacent tidelands and their



*Intertidal eelgrass at the Sitka Airport mitigation site; Photo by FAA*

extensive eelgrass beds, which were being considered for possible development of a cruise ship berth. The analysis showed that the purchase will compensate for the loss of habitat from the airport project by 2023, and then accrue indefinitely as the site is protected in perpetuity. HCD staff comments influenced the development of the habitat analysis, a new stormwater management plan for the airport, and the compensatory mitigation.

### Norton Sound Suction Dredging Projects

HCD's review of proposed commercial gold mining in Norton Sound near Nome resulted in the Army Corps of Engineers adopting special permit conditions to protect habitat for red king crabs and salmon. The proposed suction dredging had the potential to disrupt feeding, reproduction, and migration. HCD's conservation recommendations persuaded the Corps to require seasonal restrictions to protect red king crab feeding habitats and reproductive associations; timing and location restrictions to protect out-migrating juvenile salmon; and depth and visual inspection requirements to avoid disturbing red king crab mating pairs or clusters.

### Hydropower Development

HCD staff provided guidance to hydropower developers to minimize adverse impacts to salmon and their habitats. HCD staff were actively involved in monitoring the progress of existing projects, mostly consisting of lake taps or siphons diverting water from a natural lake into a penstock or tunnel. Several proposed projects entered the study plan phase in 2010, and HCD staff advised the applicants on methods to assess impacts on hydrology and stream and estuarine habitats. HCD staff also participated in the Federal Energy Regulatory Commission's licensing process for proposed traditional dam projects and hydrokinetic energy projects. Several tidal and in-river hydrokinetic projects conducted in-water tests in Alaska in 2010.

### Tidal Energy Development Workshop

HCD staff served on the steering committee for an international workshop on the potential environmental effects of tidal energy development. The workshop was held in Seattle and focused on building capacity to address the effects of tidal energy from turbines placed in the water column throughout the U.S. Participants from academia, research groups, regulatory

agencies, and industry discussed the effects of tidal energy development in the context of stressors (e.g., noise generated by device operation) and receptors (e.g., marine mammals in a project area), highlighting examples of tidal energy development in Puget Sound, Washington; Western Passage, Maine; and Cook Inlet, Alaska. Proceedings from the workshop will be published as a NOAA Technical Memorandum.

### Douglas Harbor Dredging

HCD staff helped to persuade the applicant for proposed dredging in Douglas Harbor not to use unconfined aquatic disposal for sediments contaminated with mercury. The elevated level of mercury in the harbor sediment is likely a relic of historic gold mining. Dredging to deepen and expand the harbor would expose buried layers of contaminated sediment at an old mine tailings



disposal site. In aquatic environments, sulphur-producing bacteria convert elemental mercury to methyl mercury, the most toxic form of mercury. The methyl mercury can move into the food web where it biomagnifies. For example, salmon exposed to mercury become vectors for the contaminant to spread to other

fish, marine mammals, seabirds, and humans. HCD worked closely with the Corps of Engineers, Environmental Protection Agency, US Fish & Wildlife Service, and the Alaska Departments of Natural Resources and Environmental Conservation to persuade the applicant to analyze additional disposal methods, including contained upland disposal and confined (capped) in-water disposal, to help keep methyl mercury from mobilizing in the food web.

### Point McKenzie Railroad Development

HCD's involvement with proposed railroad construction near Point McKenzie led to the documentation of uncatalogued anadromous streams and recommendations to the Federal Transit Administration to provide suitable fish passage through properly designed culverts. Our involvement focused on ecological connections to tidal habitats in upper Cook Inlet.

## **Habitat Restoration and Protection**

### Campbell Creek Estuary Protection

HCD worked with the Great Land Trust and other partners to promote the purchase and conservation of a 60 acre parcel of the Campbell Creek estuary. The parcel, located in the heart of Anchorage, is flanked by the Anchorage Coastal Wildlife Refuge and provides habitat for all five species of Pacific salmon as well as marine fish and wildlife, and supports endangered beluga whales that feed in the adjacent waters of Cook Inlet. The project, initiated in 2008, required raising \$6.9M to purchase the property or else risk having it opened for development. HCD led an initiative to secure \$1M in mitigation funds from the Port of Anchorage expansion project, which filled 130 acres of estuarine habitat at the mouth of Ship Creek about three miles

to the north. HCD also provided information to the land trust to assist with grant applications to numerous sources. These efforts are coming to fruition as the project is very close to securing the needed funds to close on the property. After some initial concerns were addressed, the project now has the support of local residents as well as the Municipality of Anchorage.



*GLT Executive Director Phil Shephard gives reporters a tour of the Campbell Creek Estuary; Photo by GLT .*

### New Expertise in Hydrology for Restoration and Hydropower Projects

HCD added a new staff position this year in a new discipline: hydrology. Eric Rothwell, our hydrologist, helps to review hydropower and hydrokinetic projects by examining existing hydrologic data, information about fish usage of the project area, and applicants' study plans and then providing technical input regarding water flows and related issues. For restoration projects he reviews project plans and provides input on fish passage and hydrologic constraints, and also works with other agencies and non-governmental organizations to identify restoration partners and potential projects. HCD's habitat biologists have benefitted from Eric's hydrologic analysis and interpretation of related data and models associated with civil works projects, mine proposals, and other projects.

### Ocean Clipper Removed from Fur Seal Rookery

HCD's efforts in partnership with the NOAA Restoration Center and NOAA Fisheries Protected Resources Division led to the removal of a derelict fishing vessel from a northern fur seal rookery on St. Paul Island. The F/V Ocean Clipper ran aground in 1987. The Coast Guard removed fuel, oil, and other pollutants but the vessel was not removed at the time due to extreme weather, remote location, and response crew safety. The wreck became an ongoing hazard to fur seals, many of which became trapped inside. HCD and the NOAA Restoration Center sought cooperation from Coastal America and the military's Innovative Readiness Training Program in 2007-08 to remove the vessel, but with no success. Finally, the NOAA Restoration Center was able to fund the removal under the American Recovery and Reinvestment Act. The removal was complicated by the degradation of the hull and a seasonal restriction to protect breeding, resting, and nursing fur seals, but the wreck was finally removed in April and May 2010.



*The wreck of the F/V Ocean Clipper on St. Paul Island; Photos by Marine Conservation Alliance Foundation*

### National Fish Habitat Action Plan

HCD participated in planning for a new Pacific Marine and Estuarine Fish Habitat Partnership pursuant to the National Fish Habitat Action Plan. The new partnership is considered a candidate for full recognition by the National Fish Habitat Board. Its focus would be estuaries and other tidal habitats along the Pacific coast from Baja to southeast Alaska. A coordinator is being hired and then work will begin on developing a strategic plan. The overall goal is to facilitate collaboration amongst stakeholder groups to promote the conservation of coastal fish habitat. HCD also continued to support other fish habitat partnerships in Alaska: the Matanuska Susitna Basin Salmon Habitat Partnership, Kenai Peninsula Fish Habitat Partnership, and Southwest Alaska Salmon Habitat Partnership. These are all locally-driven private and public efforts to improve fish habitat. HCD supports and promotes the partnerships in many ways, such as helping to write portions of Strategic Plans, looking for funding opportunities to promote habitat protection and restoration, and recognizing noteworthy outcomes by nominating partners for national awards.

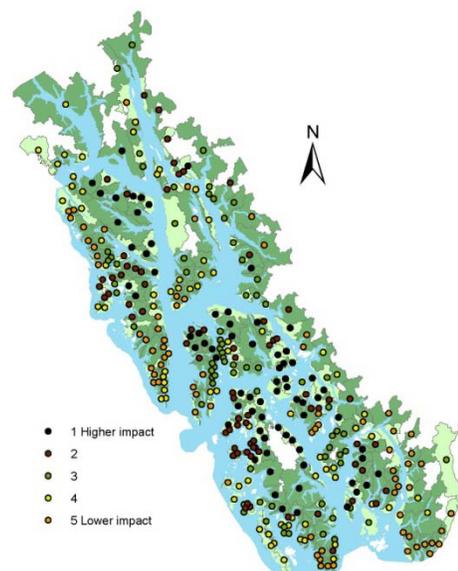
### Klawock Causeway Monitoring

HCD worked with the NOAA Restoration Center and non-governmental organizations to develop and implement a monitoring plan for the Klawock River restoration project. The project, funded under the American Recovery and Reinvestment Act, involves breaching a large causeway to improve tidal flushing of the estuary and access for salmon. Unfortunately the original grant did not cover sufficient monitoring to document anticipated ecological changes. The new monitoring plan includes measurements of salinity and temperature; observations of salmon to ascertain presence/absence at the new culvert; delineation of eelgrass beds; and sampling for fish species diversity within selected eelgrass beds. Pre-construction (baseline) monitoring began in January 2010 and post-construction monitoring will begin in April 2011.

## **Other Noteworthy Activities**

### Coastal Habitat Assessment

HCD was instrumental in completing the Alaska portion of a coastal fish habitat assessment in support of the National Fish Habitat Action Plan, which calls for a nationwide evaluation of fish habitat quality. HCD joined a national team of experts to identify the variables most important in determining anthropogenic causes of decreased fish habitat quality and conduct statistical analyses to compare estuarine and coastal areas based on these variables. Alaska would have been left out of the national assessment had HCD not agreed to develop an approach that could work with the limited data available for Alaska. Alaska lacked a spatial framework suitable for the analysis because Alaska was not included in a Coastal Assessment Framework developed by NOAA Ocean Service in the 1990s. That framework delineated



coastal watersheds into estuarine and coastal drainage areas and provided information on coastal and estuarine processes that could be used in conjunction with stressor data to evaluate nearshore water quality and fish habitat. In a very short amount of time, HCD staff replicated many of the components of the framework for Southeast Alaska (an area as large as about half the east coast of the US) and compiled data to develop a risk index for coastal and estuarine areas. The results of this analysis were included in the report “The Status of Fish Habitats in the United States in 2010” which will be published in January 2011. Over the next two years the national team will develop methods to tie the initial risk-based analysis to fish habitat, and HCD will expand the coastal assessment methodology to the rest of coastal Alaska.

### Sitka Bioblitz

As lead facilitator of the Marine Subcommittee of the Alaska Invasive Species Working Group, HCD staff partnered with the Alaska Department of Fish and Game, Smithsonian Environmental Research Center, Sitka Sound Science Center, Sitka Tribe, and San Francisco



State University’s Romburg Tiburon Center to host the first ever marine invasive species bioblitz in Southeast Alaska. A bioblitz is a rapid assessment of organisms present in a selected area, and this one targeted several invasive species that were known or suspected to occur in the Sitka area. Scientists and citizens surveyed ten sites over a weekend in June. The event demonstrated the feasibility of a marine invasive species bioblitz in Southeast Alaska, documenting the current distribution of botryllid tunicates in Sitka, experimenting with the removal of large botryllid colonies, searching for other marine invasive species, identifying vector opportunities for marine invasive species in the Sitka area, and informing and energizing Sitkans by engaging the community in an educational and fun activity.

*Finding a creature of interest during the Sitka Bioblitz; Photo by Katharine Miller*

### Discovery of a New Marine Invasive Species

HCD staff were part of the Sitka bioblitz team that discovered a new marine invasive species in Alaska: the colonial tunicate *Didemnum vexillum*. This species was discovered at a Whiting Harbor aquafarm. Genetic tests by San Francisco State University’s Romburg Tiburon Center later confirmed the species. The discovery of *D. vexillum* is a concern because this aggressive invasive is known from other parts of the world to smother benthic habitats from the intertidal zone to several hundred feet deep and negatively impact mariculture, habitat for commercial fisheries, and ecosystem integrity. Subsequent diver surveys by the Alaska Department of Fish and Game revealed a broad distribution in Whiting Harbor. HCD and partner agencies are coordinating the interagency response to maximize use of available resources and avoid duplication of effort.



*The invasive colonial tunicate Didemnum vexillum discovered on a Japanese lantern oyster cage in Sitka, Alaska; Photo by Linda Shaw*

## Nearshore Habitat Surveys

HCD staff assisted the Alaska Fisheries Science Center with surveys of fish in coastal habitats located near areas where we anticipate seeing development proposals in the near future. HCD compiles a priority list of sites for such nearshore sampling and helps with the field work

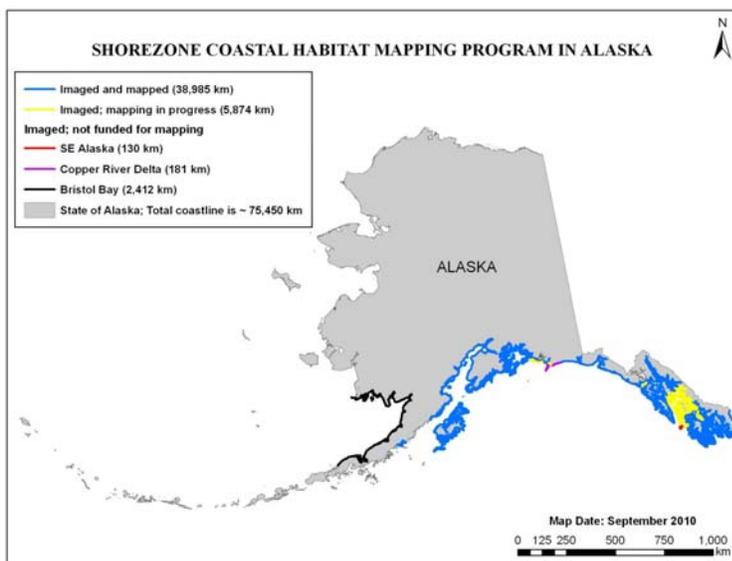


when possible. This year's work included sites in Valdez Arm and upper Cook Inlet using a standardized beach seine survey coupled with tidal habitat profiling. An unexpected result was the replicated catch of longfin smelt off Fire Island in upper Cook Inlet. In nearly 1,000 seine hauls throughout Alaska, this is the only location where NOAA Fisheries has captured longfin smelt. The information from these surveys is extremely valuable for HCD's environmental reviews and consultations with

agencies that authorize, fund, or undertake actions that may adversely affect EFH. The surveys enable HCD to provide site-specific data about the species and habitats that would be affected and the measures that should be taken to minimize adverse effects.

## ShoreZone Mapping

ShoreZone is a coastal habitat mapping and classification system in which spatially referenced aerial imagery is combined with geological and biological interpretation to characterize coastal features and allow users to virtually "fly" the coast from any computer with internet access. To date 47,582 km or approximately 63% of Alaska's shoreline has been imaged, which is an increase of 3% from last fiscal year. Fifty-one percent (38,985 km) of the imagery is mapped with geomorphic and biologic features identified and entered into the ShoreZone database. Mapping is in progress for an additional 5,874 km (8%). Imagery and mapping data are accessible via an interactive website to provide coastal habitat information to decision makers and the public ([www.alaskafisheries.noaa.gov/habitat/shorezone/szintro.htm](http://www.alaskafisheries.noaa.gov/habitat/shorezone/szintro.htm)).



HCD continues to work with other agencies and organizations to promote use of ShoreZone data and fund additional data collection. During FY10 HCD staff coordinated ShoreZone briefings for several agencies and a work session at the Alaska Marine Science Symposium; secured \$25,000 from the U.S. Fish and Wildlife Service's National Wildlife Refuge System for ShoreZone work; and contracted for two imaging surveys on the Alaska Peninsula that will be conducted in 2011.

*Progress made toward imaging and mapping Alaska's shoreline.*

### ShoreZone and the Coastal Marine Ecological Classification System (CMECS)

HCD funded two studies to support the multiagency effort to develop a CMECS system that is technology independent and facilitates integration of existing data into a single framework. The first study was a cross comparison of the ShoreZone biophysical coastal habitat mapping system with the CMECS Version III. The project demonstrated the challenges of moving data from one system to the other and provided one of the first examples of coastal habitat mapping within CMECS. The results of this study were beneficial to the CMECS working group and led to some changes in their proposed system. The second study is currently in progress. The goal is to develop and populate a CMECS dataset using the CMECS Version III and then conduct a comparative analysis of the datasets developed in these two tasks and an assessment of the strengths and weaknesses of each approach.

### Ocean Today Kiosk Installed



HCD directed funding to the Alaska Sea Life Center to support installation of an Ocean Today Kiosk – an interactive multimedia display that allows visitors to learn about marine habitat and other ocean issues via short videos. The kiosk is linked to the Smithsonian’s new ocean hall and was developed by NOAA in partnership with the Smithsonian. Coastal America, an interagency partnership that promotes the conservation of coastal resources, has been working to install kiosks at aquariums and other facilities nationwide. HCD co-chairs the Coastal America team in Alaska.

### Bronze Medal

HCD staff members Cindy Hartmann Moore, Linda Shaw, and Susan Walker received a Department of Commerce Bronze Medal award along with colleagues from the Alaska Region Analytical Team, Alaska Fisheries Science Center, and NOAA Acquisition & Grants Office for their work developing NOAA’s versatile ShoreZone/FishAtlas database and website as a tool to help identify and conserve valuable Alaskan coastal habitats. Congratulations!



*Pictured left to right: (back) NOAA Administrator Jane Lubchenco, Sue Walker, Linda Shaw, Sharon Kent, Mandy Lindeberg, Cindy Hartmann Moore, Deputy Assistant Administrator for Fisheries John Oliver, Deputy Director for Acquisition & Grants Tammy Journet, (front) John Thedinga, Steve Lewis, Scott Johnson*

Please visit our website:  
[www.alaskafisheries.noaa.gov/habitat](http://www.alaskafisheries.noaa.gov/habitat)