

Appendix H

Compensatory Mitigation Options Study, 2009

STATTER HARBOR IMPROVEMENTS

CBJ Docks and Harbors Department
Contract No. DH08-081



MARCH 2009

COMPENSATORY MITIGATION OPTIONS STUDY

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PROJECT BACKGROUND

The CBJ Docks and Harbors Department has been planning major improvements at Statter Harbor for many years. Harbor usage has increased steadily over the last two decades, due to the harbor's location near a large population base and popularity with locals and visitors. Harbor infrastructure and facility upgrades, however, have not kept pace with the demands of the harbor's diverse commercial and recreational users. The congestion caused primarily by limited harbor space often triggers conflicts between the harbor's various patrons.

In 2005, the CBJ Docks and Harbors Board adopted the Statter Harbor Master Plan for the harbor's future. The plan outlines extensive improvements to address harbor issues. After the Plan was completed, the CBJ obtained funding from ADF&G through the U.S. Fish and Wildlife Service (USFWS), the Federal Aid in Sport Fish Restoration Act (Dingell-Johnson/Wallop-Breaux) for the Plan's prescribed improvements.

Project components include:

- Construction of a two-lane boat launch and additional parking
- Redevelopment of uplands between Bay Creek and existing boat ramp
- Expansion of on-site parking, vehicle circulation, staging, and loading areas for all operations
- Access improvements to and from Glacier Highway coordinated with DOT&PF plans

PURPOSE AND NEED

The purpose of the proposed Statter Harbor Improvements Project is to improve safety and reduce congestion by increasing harbor efficiency through incorporation of improvement plans identified in the Statter Harbor Master Plan. The proposed improvement plans would meet the needs for:

- Safe access to harbor
- Improved pedestrian access
- Adequate onsite parking
- Increased boat launch capacity and efficiency
- Reduced congestion
- Separated user groups

Under existing conditions, commercial boats, recreational motorboats, and kayaks share a deteriorated two-lane boat launch in a congested area, which creates unsafe conditions and results in long waiting times. The use of the existing launch facility is limited during low tides. The inability for boat launch operations to occur during extreme low tides causes traffic back ups in the parking lot. Additionally, some of the harbor's older facilities are in need of repair or replacement.

The purpose of this study is to summarize initial mitigation options for use during project permitting. Additional options may be possible following further discussions with the agencies during the permitting process.

MITIGATING UNAVOIDABLE IMPACTS

On March 31, 2008, EPA and the U.S. Army Corps of Engineers (COE) issued revised regulations governing compensatory mitigation for authorized impacts to wetlands, streams, and other waters of the U.S. under Section 404 of the Clean Water Act. These regulations are designed to improve the effectiveness of compensatory mitigation to replace lost aquatic resource functions and area, expand public participation in compensatory mitigation decision making, and increase the efficiency and predictability of the mitigation project review process.

The Statter Harbor Improvements project will include placing fill and structures into waters of the United States below the High Tide Line (HTL). Under the Clean Water Act (CWA), the discharge of dredged or fill materials must be authorized by the COE, or other approved State under CWA Section 404 guidelines. Authorized fills or discharges must be avoided and minimized to the greatest extent feasible. In accordance with Compensatory Mitigation for Losses of Aquatic Resources, 40 CFR Part 230 Subpart J and 33 CFR Part 332, appropriate and practical compensatory mitigation is required for projects that cause unavoidable adverse impacts to wetlands, streams, and other aquatic resources. Measures have been taken to avoid and minimize adverse effects to the surrounding environment resulting from this project, however, it is likely that additional compensatory mitigation will be required. The appropriate form and amount of compensatory mitigation will be determined during the permitting phase of this project.

The Mitigation Sequence is a guide to assist in the determination of mitigation efforts required under the CWA Section 404 regulations. The Mitigation Sequence is as follows:

- Step 1** Avoid
- Step 2** Minimize
- Step 3** Compensate

Through various planning exercises, public and agency meetings, open houses, coordination meetings, and conceptual design preparation, avoidance and minimization have been executed where practicable:

- Construct an armored slope to retain intertidal fill
--no marine seawall under preferred alternative
- Perform temporary maintenance on DeHarts moorage floats
--instead of demolishing, floats would remain in place for the immediate timeframe under preferred alternative
- Utilize upland areas for parking
--no retail space in the upland areas under preferred alternative
- Utilize developed intertidal areas for parking and access to harbor use
--no retail space in developed intertidal areas under preferred alternative
- Retain the existing boat yard and boat haul-out facility
- Shift the proposed location of the double-lane boat ramp to the east
--to utilize existing contours, dredging activities would not be required under preferred alternative
- Relocate the shelter/scenic overlook to uplands area away from Auke Bay Tower Condominium (ABTC)
- Provide additional trailer and vehicle parking spaces
--no parking spaces designated specifically for charter and tour busses under preferred alternative
- Reduction of footprint will allow Bay Creek to flow within existing stream meanders without the need for rechannelization efforts, further minimizing impacts to aquatic resources and existing ecosystems
- Commercial passenger for hire boarding float would not be built
--No dredging activities would be required under preferred alternative

PERMITTEE-RESPONSIBLE MITIGATION

Permittee-responsible mitigation can be further broken down into four categories:

- Restoration**
- Establishment**
- Enhancement**
- Preservation**

The mitigation would be performed after the COE permit and Section 404 Certification were issued. Mitigation can be performed on-site or off-site.

RESTORATION

Restoration of Bay Creek: Because Bay Creek is an anadromous fish stream, the introduction of a fish ladder with a series of pools and riffles created along the creek meander would allow greater access to the under-road culvert, thereby aiding salmon spawning within Bay Creek. Other successful similar efforts in the community include improvements in Salmon Creek at the Douglas Island Pink and Chum (DIPAC) site and at the Lena Beach Picnic Creek location. Recent discussions with ADFG Habitat Biologist indicate a preference for natural rock weirs and pools rather than concrete structures at the highway culvert.



Lena Beach—Picnic Creek



DIPAC—Salmon Creek

ESTABLISHMENT

At this time, the creation or establishment of a wetland has not been considered for Compensatory Mitigation for the Statter Harbor Improvements Project.

ENHANCEMENT

Stream Rechannelization: Bay Creek, which borders the site to the west, is a listed anadromous salmon creek by the Alaska Department of Fish and Game (catalog # 111-50-10390). Alaska Department of Fish and Game Anadromous Stream Atlas shows the following fish habitat in the stream :

- Lower Stream – Intertidal area - Coho salmon rearing, Pink salmon spawning
- Mid Stream – Immediately below highway – Pink salmon spawning
- Upper Stream – Approximately 1/8 mile upstream of highway – Coho salmon rearing.



Bay Creek

Proposed improvements to the area, including the addition of fill material into Auke Bay, the installation of a sewage treatment plant, and the construction of Glacier Highway and Auke Bay Elementary School, have resulted in numerous modifications to the creek. At present, the creek is leading to a 5' diameter culvert under Glacier Highway, with ultimate outflow into Auke Bay. The location of Bay Creek in relationship to the proposed upland improvements creates a noteworthy opportunity from both a harbor user and environmental standpoint. Designs could be implemented such that Bay Creek could be restored through the redesign of a natural stream profile with pools, riffles, and the use of native stream bed materials including gravels, boulders, and organics. By planting native trees, shrubs and grasses along the stream bank, food sources, shelter and habitat for invertebrate, fish, birds and other wildlife could be developed. This restored ecosystem would not only mitigate construction impacts, but provide an outstanding educational tool to nearby Auke Bay Elementary School and UAS students.

A healthy anadromous creek will also expand the opportunity for recreational fishing and the addition of fishing platforms and interpretive display panels could prove beneficial for habitat education purposes. Additional interpretive panels and viewing platforms could also be included in the mitigation measures for impacts to the eel grass beds adjacent to the creek. These enhancement amenities can be of great benefit by educating the community on the importance of these ecosystems.

PRESERVATION

Eelgrass Preservation: Preservation of intertidal and subtidal eelgrass areas will require special consideration. Existing eelgrass bed mapping has been performed and will aid in evaluating project impacts and preparing plans for preservation of this important marine seagrass species. The following reports detail observed eelgrass beds within the proposed project area: 'Preliminary Assessment of Potential Impacts to Eelgrass from a Proposed Float and Ramp in Auke Bay, Alaska' prepared by Battelle Marine Sciences Laboratory in 2004 for PND, 'Report on Intertidal Zone at Auke Bay Harbor' prepared by Art Dunn in 2004 for PND as part of the proposed Auke Bay Loading Facility, and technical memorandum NMFS-ADSC-182, 'Eelgrass Habitat and Faunal Assemblages in the City and Borough of Juneau' by Pat Harris, et. al . Recent relocation and replanting regimes coupled with barrier piles and signage to create eelgrass protection zones have proven successful at the City and Borough of Juneau's Auke Bay Loading Facility site. Similar methods of preservation could prove beneficial to the success of this project.



Project Site—proposed fill pad location



Project Site—Lower Bay Creek



UTILIZE EXISTING CONSERVATION EASEMENT AT AUKE NU COVE

CBJ’s current Auke Bay Loading Facility project required mitigation measures to satisfy unavoidable impacts resulting from the proposed activity. For this mitigation, the CBJ was required to obtain a significant tidelands parcel within Auke Nu Cove through DNR Conveyance procedures. The purpose was to create a conservation parcel predominantly for the protection of eelgrass and other important habitat. The CBJ may wish to pursue the Auke Nu Cove Conservation Easement for mitigation purposes associated with the proposed improvements at Statter Harbor.

At the request of the National Marine Fisheries Services, as part of the Auke Bay Loading Facility project, the CBJ took measures to conserve part of Auke Nu Cove. DNR’s land conveyance describes Lot 2 as 27.6 Acres of land to be conserved for mitigation purposes. The 27.6 acres of eelgrass habitat and wetlands conservation is valued at approximately \$1.656 million based on \$60,000 per acre, a figure currently used for other high valued wetlands in the region. Because the total footprint that required mitigation was 4.12 acres, based on the \$60,000 per acre figure, this would yield a required mitigation effort of \$247,200. This gives a surplus of \$1.409 million, or 23.483 acres remaining in the easement that could potentially be utilized for mitigation efforts associated with Statter Harbor Improvements.

CREATE NEW CONSERVATION EASEMENT

Seven sites discussed with NMFS for possible new conservation easements include the following locations, see Figure 1.

Mendenhall Peninsula—Mendenhall Peninsula is located within a developed residential area and will require neighborhood input.

Tee Harbor—Tee Harbor is a heavily used recreational fishing area, a residential area, as well as home to a private marina. This location will require neighborhood input.

Waydelich Creek—Waydelich Creek, while located in close proximity to the project site, is home to many residents, in addition to several condominium buildings, this location will require neighborhood input.

Auke Village—Auke Village is a celebrated local picnic and serene beachfront recreation area. Community use of the area is high and it is located adjacent to Tongass National Forest. This location would well suit a conservation easement as community members will most likely agree that this pristine area be preserved into perpetuity for generations to come.

Bay Creek—Bay Creek is located in the immediate project vicinity. In order to maintain an existing sewer outfall within this area, an easement for the sewer line would need to be located within the conservation easement.

Echo Cove— Echo Cove is located at the end of the Juneau road system. Eelgrass beds are located adjacent to the existing Echo Cove Boat Launching facility. Nearby properties are privately held. Traditional use includes boat anchorages, fishing and other recreational use.

Bridget Cove—The largest eelgrass beds located within the City and Borough of Juneau are within Bridget Cove. The CBJ owns several parcels of land within the area. The areas of mapped eelgrass beds are broken into three smaller sections: *Bridget Cove-North* contains several privately owned parcels and the area behind Mab Island is often used as a weather anchorage during rough seas. An existing aquatic farmsite lease, ADL 106835, is currently held by the Krestof Clam Company east of Mab Island. Lands at *Bridget Cove-Central* and *Bridget Cove-South* are held by the CBJ. No known tidelands leases exist at the locations of the eelgrass beds.

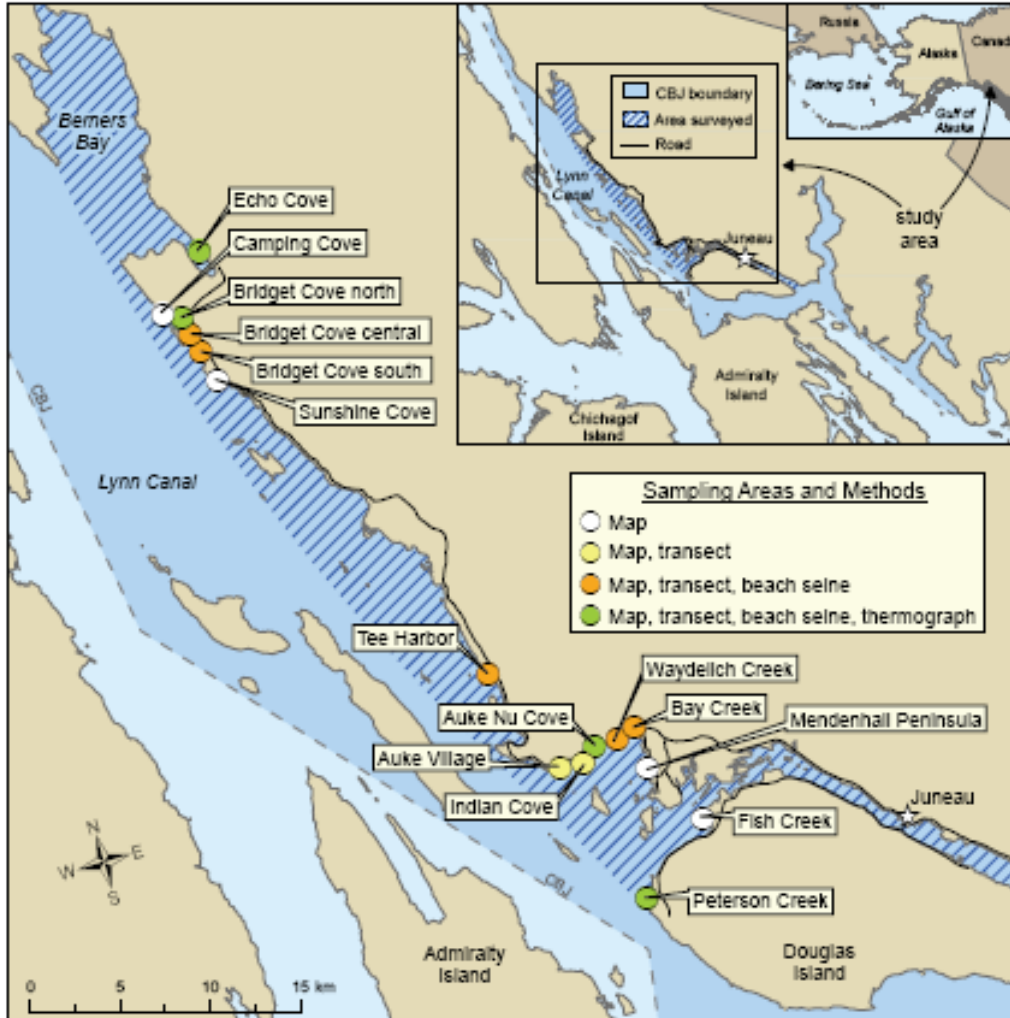


Figure 1.-- Eelgrass (*Zostera marina*) locations sampled within the City and Borough of Juneau (CBJ), Alaska. At each location, all eelgrass beds were mapped with global positioning system technology, and some beds were sampled on transects for eelgrass characteristics (e.g., percent cover) and by beach seine for faunal assemblages. Daily water temperatures were recorded at some locations with thermographs. All sampling was from 2004 to 2007. Individual locations are shown in Figures 2-15.

FIGURE 1: Eelgrass mapping throughout City and Borough of Juneau—Technical memorandum NMFS-ADSC-182, 'Eelgrass Habitat and Faunal Assemblages in the City and Borough of Juneau' by Pat Harris, et. al.

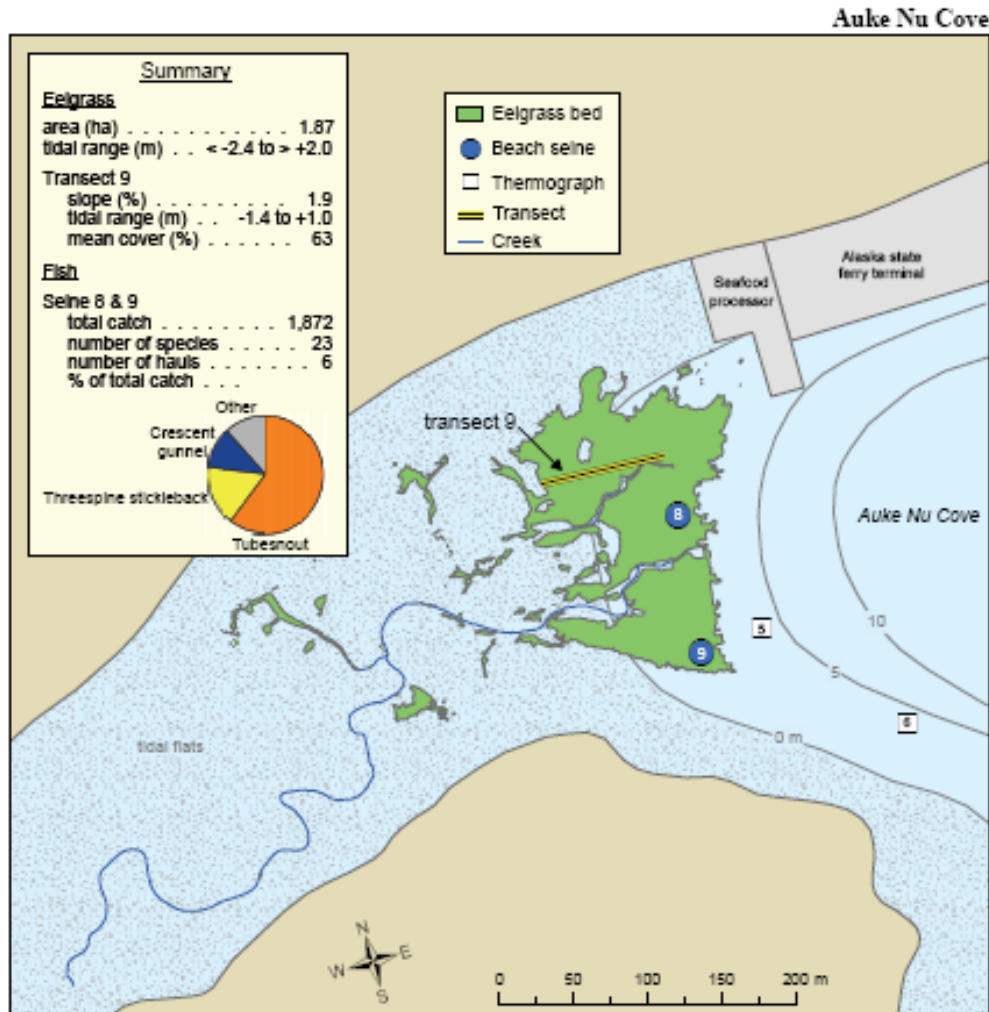


Figure 11.-- Eelgrass (*Zostera marina*) beds sampled at Auke Nu Cove, Juneau, Alaska, in summer 2004 to 2007. Eelgrass was mapped with global positioning system technology. Shown are an eelgrass transect, fish sampling sites (beach seine), and water temperature monitoring sites (thermographs). See Figure 1 for location within the City and Borough of Juneau.

FIGURE 2: Eelgrass mapping at existing conservation easement located at Auke Nu Cove—Technical memorandum NMFS-ADSC-182, 'Eelgrass Habitat and Faunal Assemblages in the City and Borough of Juneau' by Pat Harris, et. al.

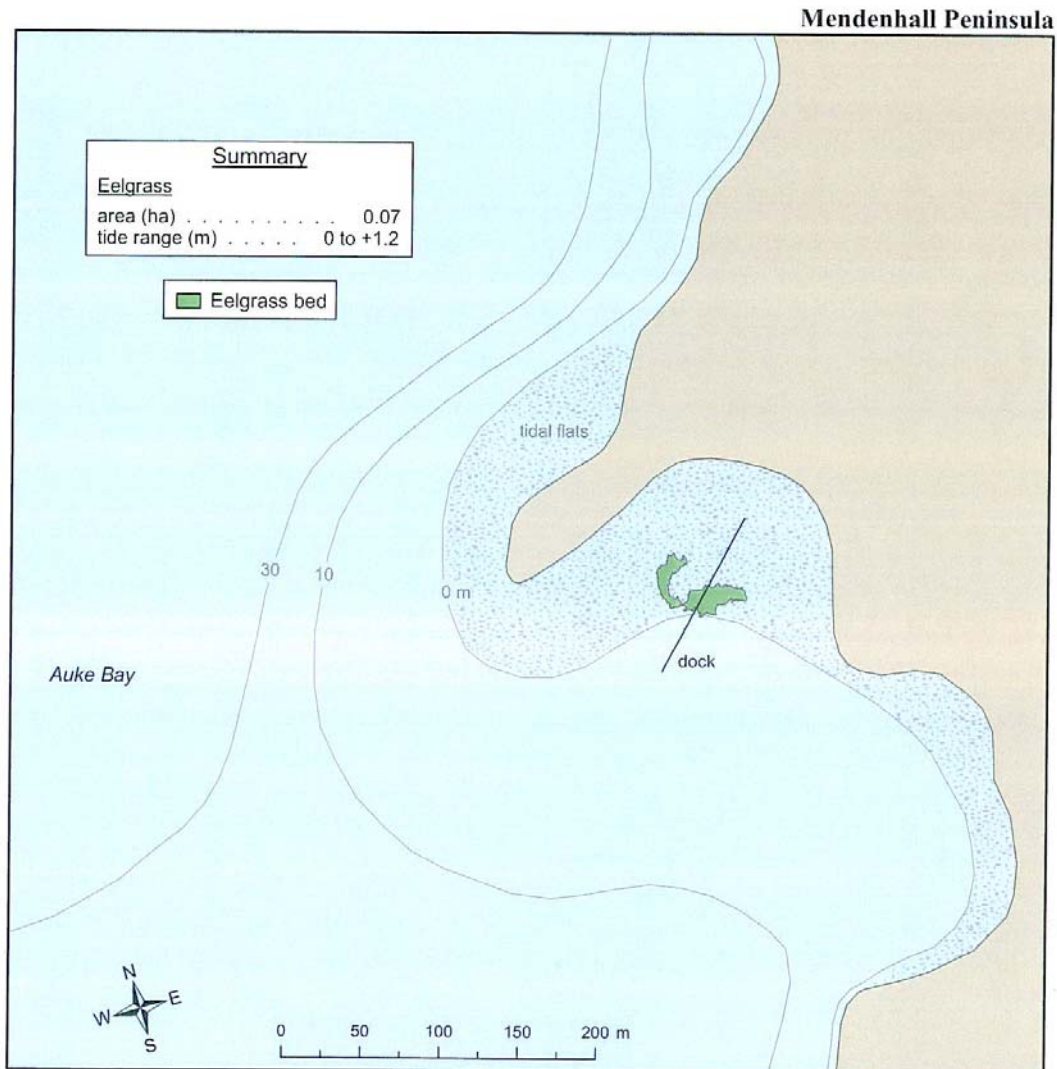


Figure 14.-- Eelgrass (*Zostera marina*) bed sampled on the Mendenhall Peninsula, Juneau, Alaska, in winter 2007. Eelgrass was mapped with global positioning system technology. See Figure 1 for location within the City and Borough of Juneau.

FIGURE 3: Eelgrass mapping at proposed conservation easement locations—Technical memorandum NMFS-ADSC-182, ‘Eelgrass Habitat and Faunal Assemblages in the City and Borough of Juneau’ by Pat Harris, et. al.

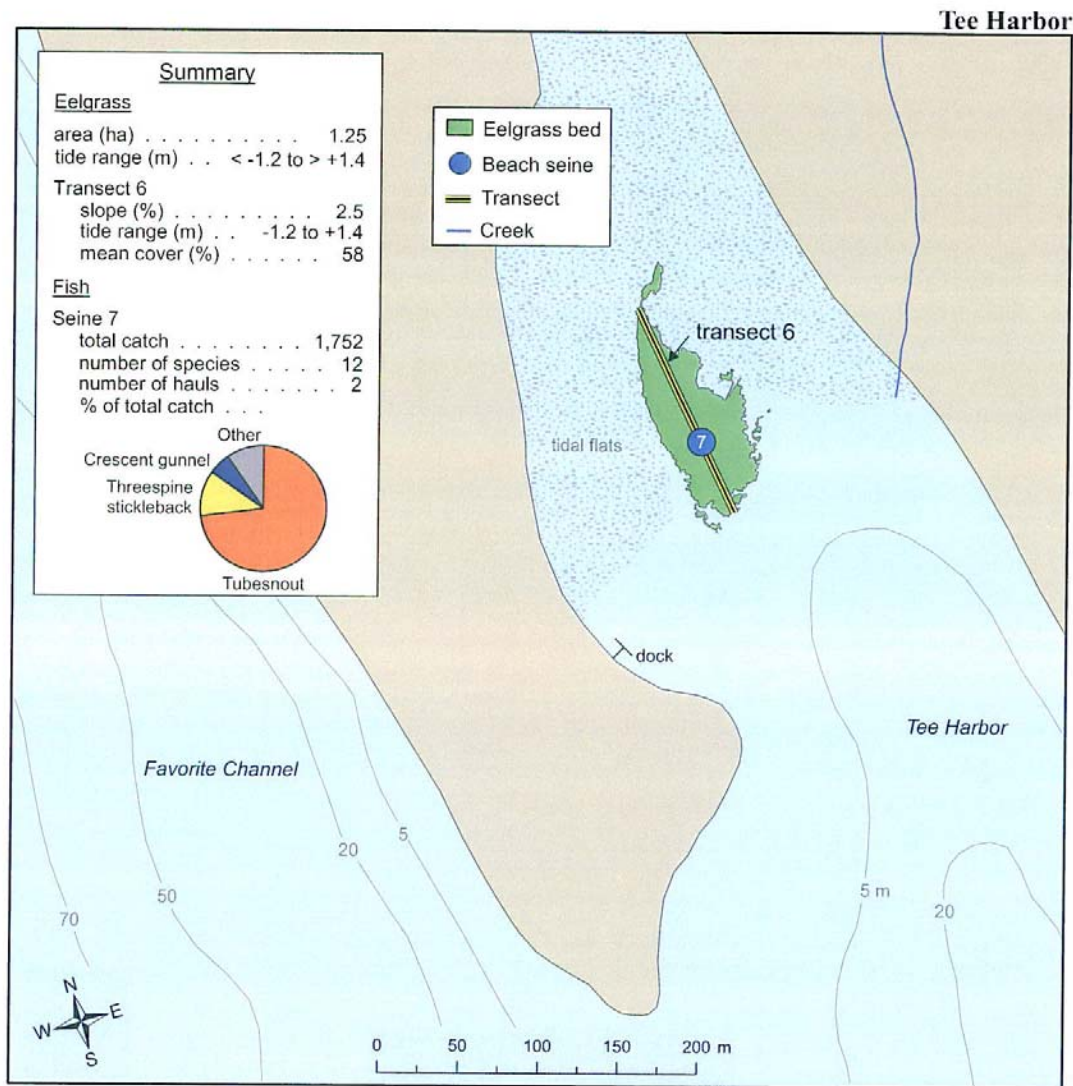


Figure 8.-- Eelgrass (*Zostera marina*) bed sampled at Tee Harbor, Juneau, Alaska, in summer 2005 and 2006. Eelgrass was mapped with global positioning system technology. Shown are an eelgrass transect and fish sampling site (beach seine). See Figure 1 for location within the City and Borough of Juneau.

FIGURE 3: Eelgrass mapping at proposed conservation easement locations— Technical memorandum NMFS-ADSC-182, 'Eelgrass Habitat and Faunal Assemblages in the City and Borough of Juneau' by Pat Harris, et. al.

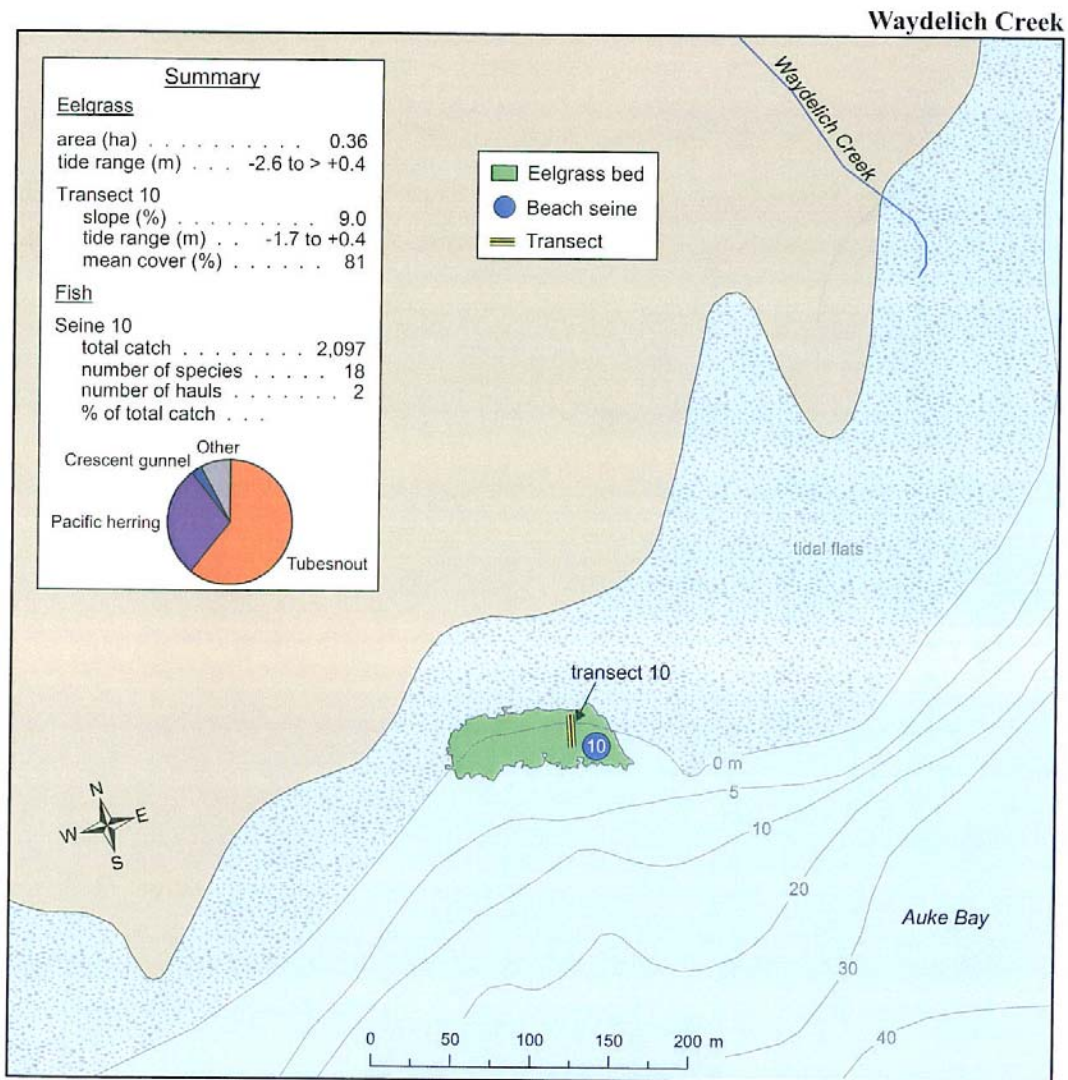


Figure 12.-- Eelgrass (*Zostera marina*) bed sampled near Waydelich Creek, Juneau, Alaska, in summer 2004 to 2006. Eelgrass was mapped with global positioning system technology. Shown are an eelgrass transect and fish sampling site (beach seine). See Figure 1 for location within the City and Borough of Juneau.

FIGURE 3: Eelgrass mapping at proposed conservation easement locations— Technical memorandum NMFS-ADSC-182, 'Eelgrass Habitat and Faunal Assemblages in the City and Borough of Juneau' by Pat Harris, et. al.

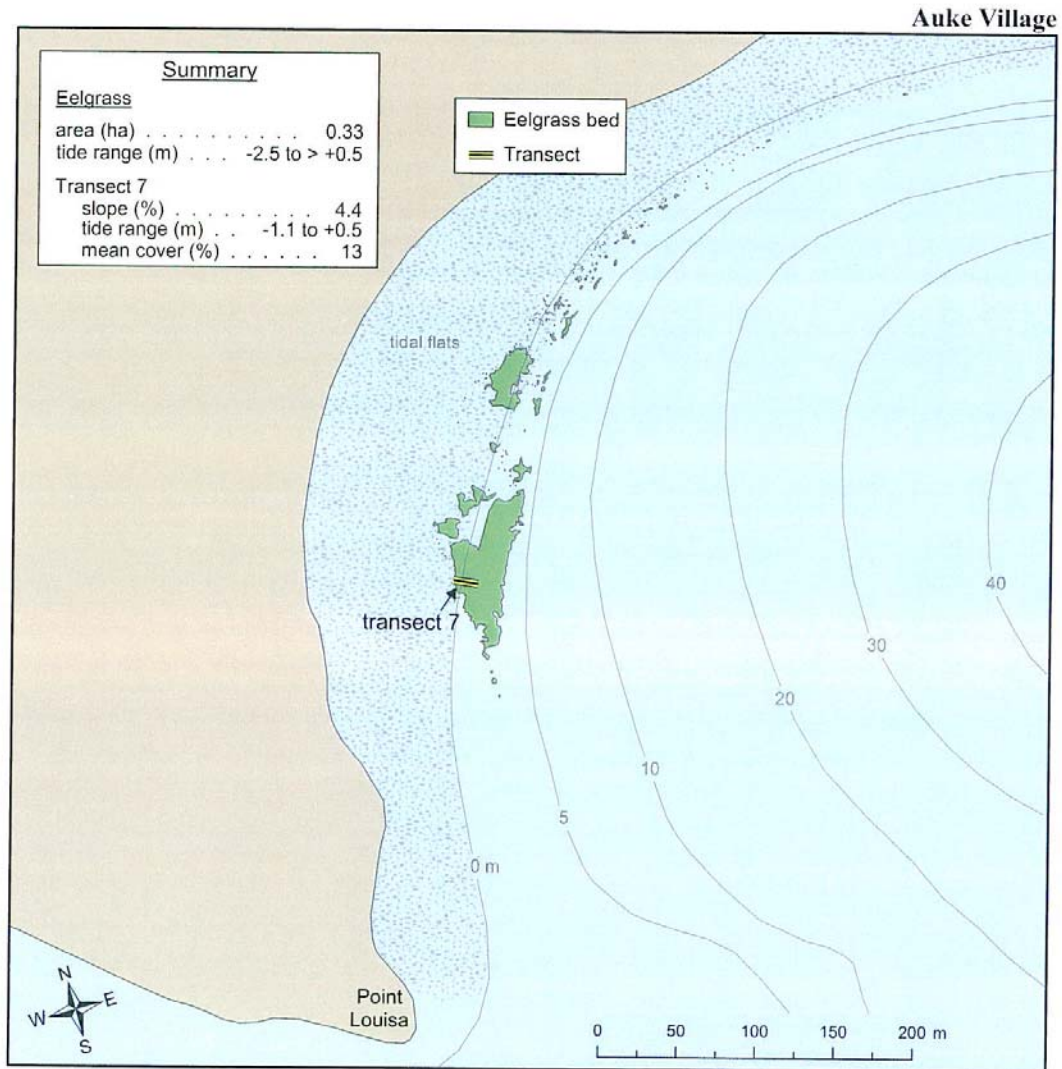


Figure 9.-- Eelgrass (*Zostera marina*) beds sampled at Auke Village, Juneau, Alaska, in summer 2004 and 2005. Eelgrass was mapped with global positioning system technology. Shown is an eelgrass transect. See Figure 1 for location within the City and Borough of Juneau.

FIGURE 3: Eelgrass mapping at proposed conservation easement locations—Technical memorandum NMFS-ADSC-182, 'Eelgrass Habitat and Faunal Assemblages in the City and Borough of Juneau' by Pat Harris, et. al.

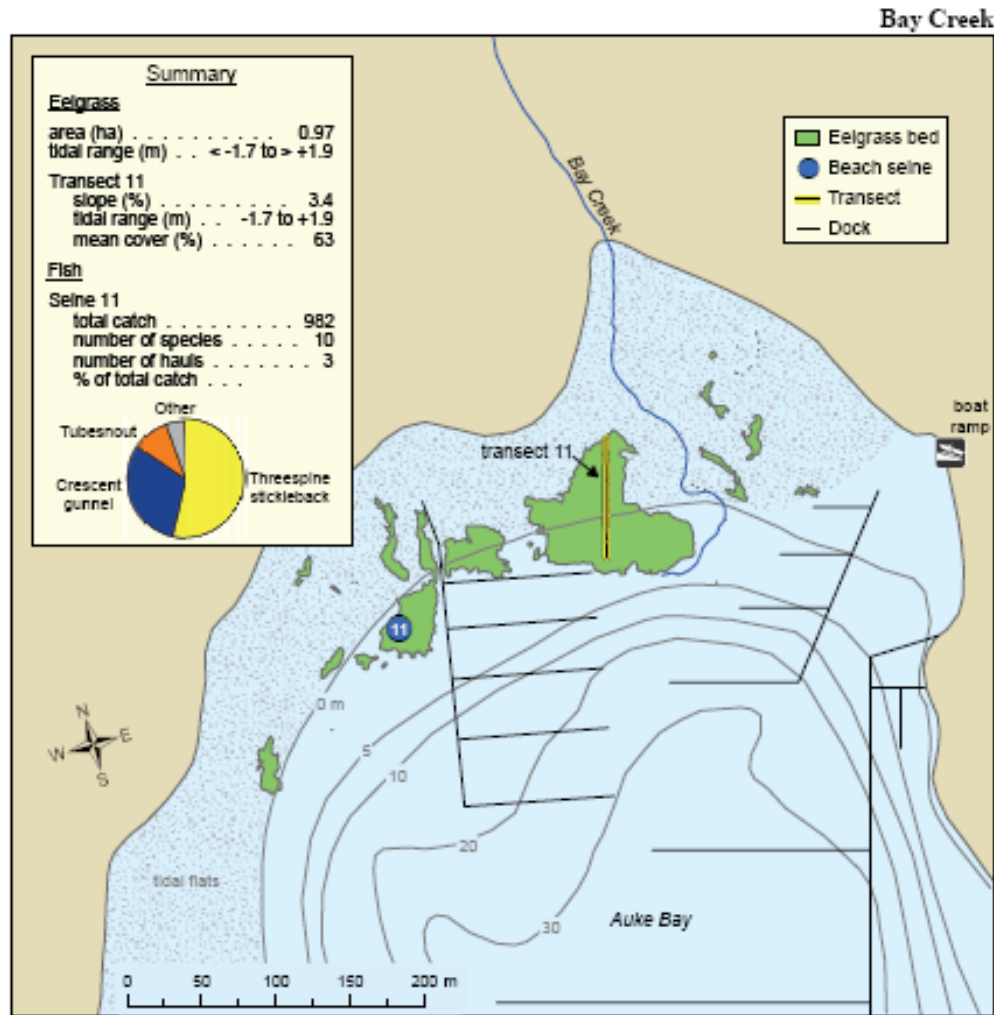


Figure 13.-- Eelgrass (*Zostera marina*) beds sampled near Bay Creek, Juneau, Alaska, in summer 2004 to 2007. Eelgrass was mapped with global positioning system technology. Shown are an eelgrass transect, fish sampling site (beach seine), and private and public docks. See Figure 1 for location within the City and Borough of Juneau.

FIGURE 3 (cont.) : Eelgrass mapping at proposed conservation easement locations—Technical memorandum NMFS-ADSC-182, 'Eelgrass Habitat and Faunal Assemblages in the City and Borough of Juneau' by Pat Harris, et al.

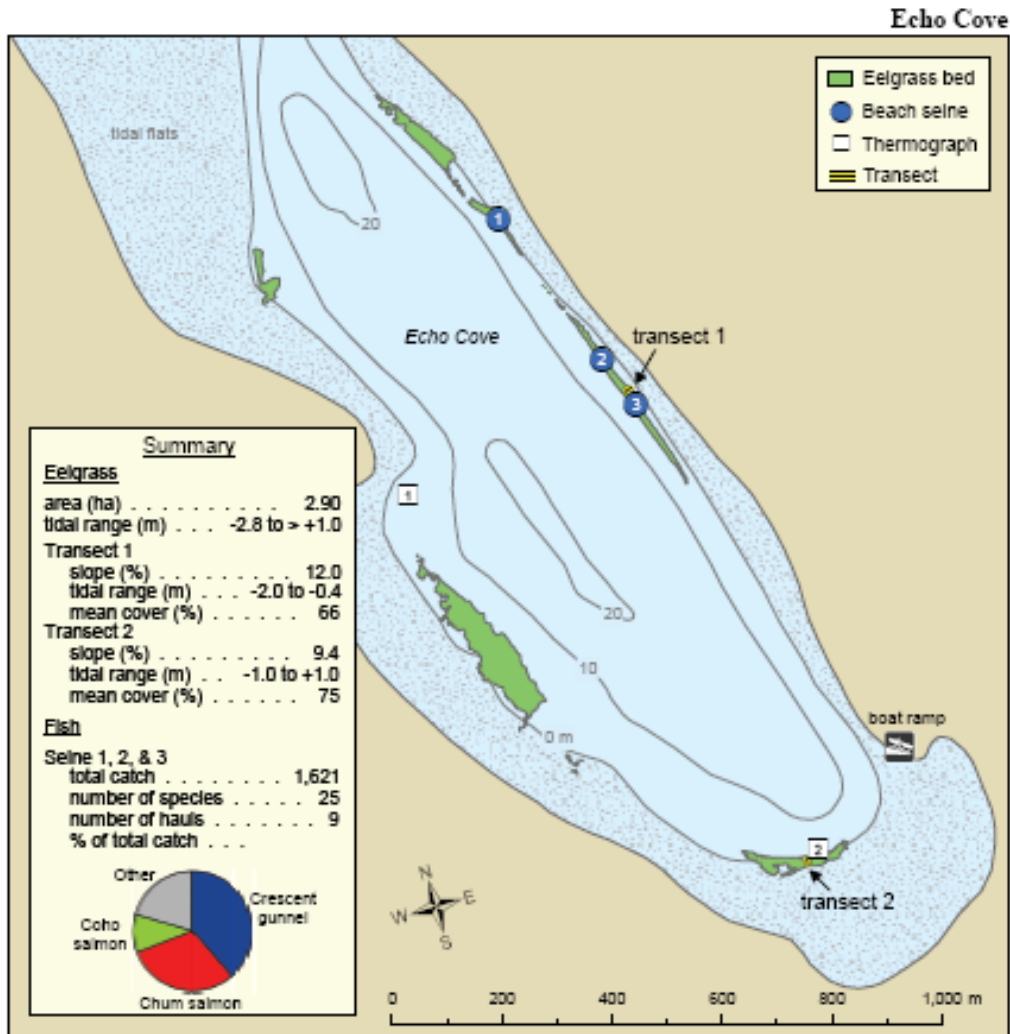


Figure 2.-- Eelgrass (*Zostera marina*) beds sampled at Echo Cove, Juneau, Alaska, in summer 2004 to 2007. Eelgrass was mapped with global positioning system technology. Shown are eelgrass transects, fish sampling sites (beach seine), and water temperature monitoring sites (thermograph). See Figure 1 for location within the City and Borough of Juneau.

FIGURE 3 (cont.) : Eelgrass mapping at proposed conservation easement locations—Technical memorandum NMFS-ADSC-182, 'Eelgrass Habitat and Faunal Assemblages in the City and Borough of Juneau' by Pat Harris, et al.

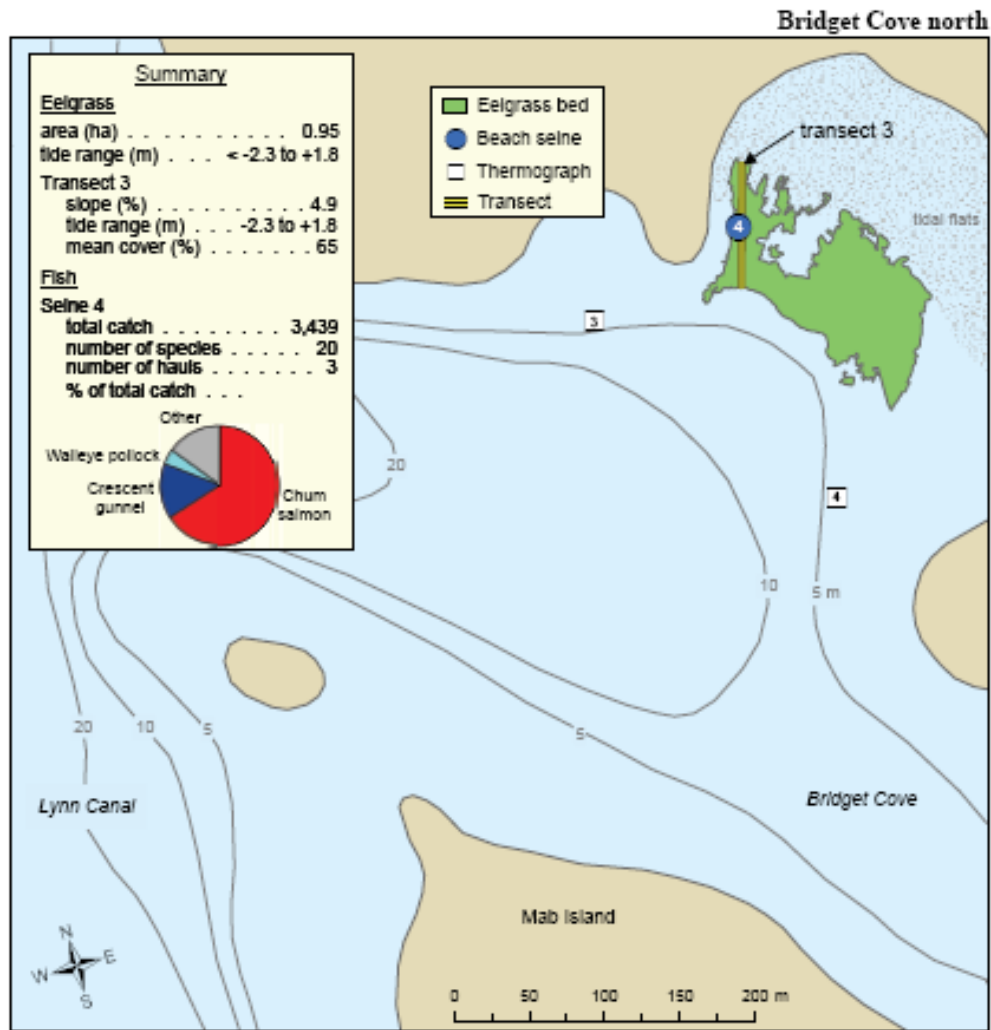


Figure 4.-- Eelgrass (*Zostera marina*) bed sampled at the north end of Bridget Cove, Juneau, Alaska, in summer 2004 to 2006. Eelgrass was mapped with global positioning system technology. Shown are an eelgrass transect, fish sampling site (beach seine), and water temperature monitoring sites (thermographs). See Figure 1 for location within the City and Borough of Juneau.

FIGURE 3 (cont.) : Eelgrass mapping at proposed conservation easement locations—Technical memorandum NMFS-ADSC-182, 'Eelgrass Habitat and Faunal Assemblages in the City and Borough of Juneau' by Pat Harris, et al.

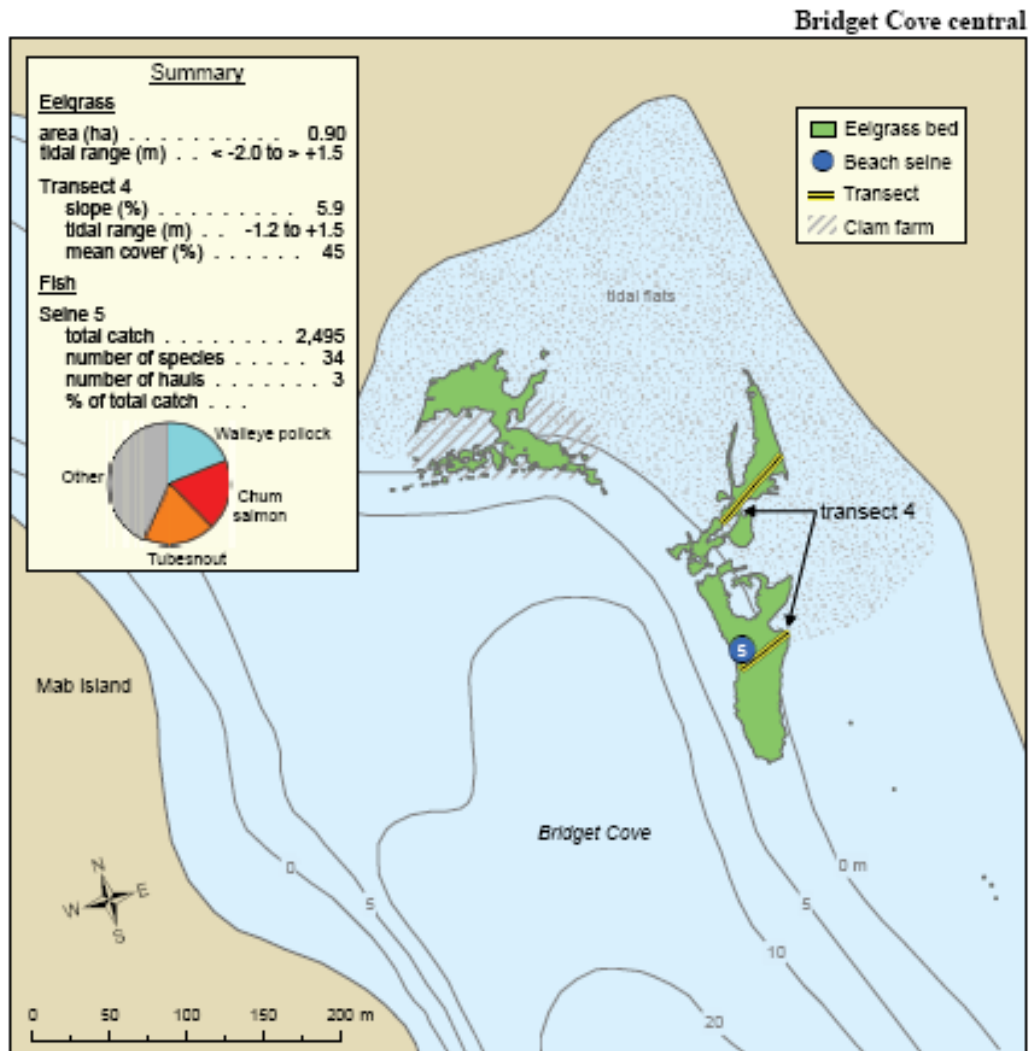


Figure 5.-- Eelgrass (*Zostera marina*) beds sampled at the central area of Bridget Cove, Juneau, Alaska, in summer 2004 to 2007. Eelgrass was mapped with global positioning system technology. Shown are an eelgrass transect, fish sampling site (beach seine), and private clam farm. See Figure 1 for location within the City and Borough of Juneau.

FIGURE 3 (cont.) : Eelgrass mapping at proposed conservation easement locations—Technical memorandum NMFS-ADSC-182, 'Eelgrass Habitat and Faunal Assemblages in the City and Borough of Juneau' by Pat Harris, et al.

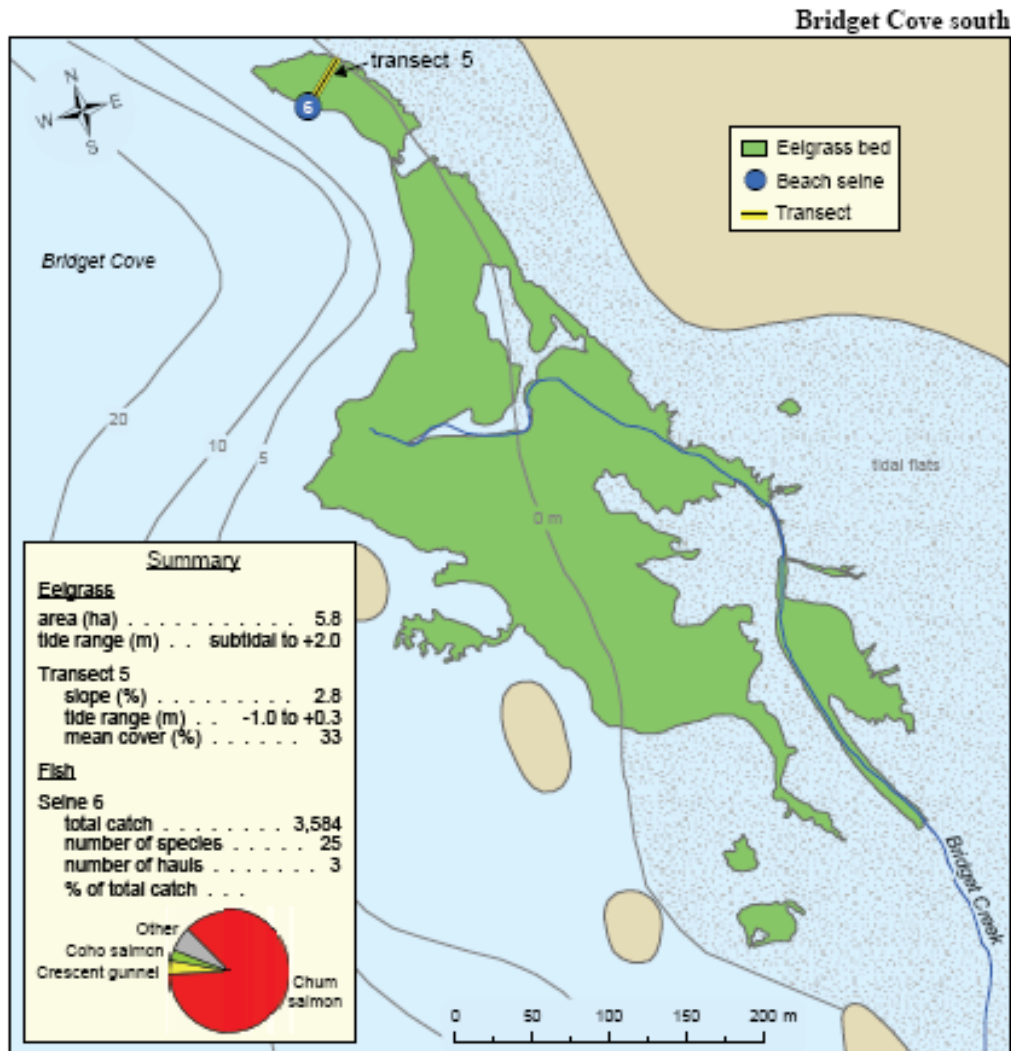


Figure 6.-- Eelgrass (*Zostera marina*) beds sampled at the south end of Bridget Cove, Juneau, Alaska, in summer 2004 to 2006. Eelgrass was mapped with global positioning system technology. Shown are an eelgrass transect and fish sampling site (beach seine). See Figure 1 for location within the City and Borough of Juneau.

FIGURE 3 (cont.) : Eelgrass mapping at proposed conservation easement locations—Technical memorandum NMFS-ADSC-182, 'Eelgrass Habitat and Faunal Assemblages in the City and Borough of Juneau' by Pat Harris, et al.