ALASKA DEPARTMENT OF FISH AND GAME
FEDERAL AID PROJECT
ANNUAL PERFORMANCE REPORT

Grant Number: E-5-HP
Grant Segment: 1
Grant Title: HCP Alaska Coastal Species: Studies Related to Listed/Candidate Marine Birds
Project Number: 3.0
Project Title: Interaction of Eiders with Fisheries and Vessels
Project Duration: February 28, 2003 to December 31, 2005
Project Reporting Period: May 28, 2004 to June 15, 2005
Project Interim Report Due: June 28, 2005
Location: Statewide

Project Objectives:
The objectives of this component are:

1. Describe the fisheries, spatial and temporal distribution of fishing effort, and fisheries utilization of ports of landing near and in the winter range of the Steller's eider.
2. Determine whether low-light imagery from DMSP/OLS sensors can describe the distribution of lighted fishing vessels in nearshore areas. If vessels can be detected, describe the distribution of fishing fleets near Steller's eider winter habitat for areas and days with cloud-free OLS imagery from 1992-2002.
3. Establish baseline coastal light intensity levels for the Alaska Peninsula and other areas of concern for days with cloud-free OLS imagery from 1992-2002.
4. Enhance seabird monitoring in observer programs for state-managed fisheries.

Summary of Project Accomplishments:

1. Fishery distributions with respect to Steller's eiders—In this reporting period, groundfish and herring fleet distributions were mapped with respect to Steller's eider distributions:
    a. Groundfish Trawl Fishery Effort—Haul records from observed trawls were obtained from NMFS for 1990-2003, comprising 542,543 observations. Density contours of trawl effort by target fishery and year were prepared and mapped in ArcGIS to compare with Steller's eider wintering distribution and migration pathways.
    b. Herring sac roe fisheries occur along the path of the spring northward migration of Steller's eiders. Herring fishery locations were prepared as ArcGIS polygon coverages.
    c. Snapshots of Steller's eider distributions during FWS spring migration surveys were prepared as georeferenced raster overlays from published aerial survey maps.
    d. Eastern Bering Sea ice coverage data were obtained from the National Ice Center, and polygons of ice coverage by percent cover were prepared for overlays on fishery and Steller's eider distributions.

e. Spring migration timing synthesis—Overlays of Steller's eider migration snapshots, ice cover, and fishery locations were prepared as layers in ArcGIS. Trial animations of the overlays by date within years were prepared to better understand potential fishery interactions around the spring migration time period.

f. Alaska Peninsula Light Regime—Data describing the annual light regime for the Alaska Peninsula (at Cold Bay) was obtained from the U.S. Naval observatory and graphically summarized by defined levels of darkness: astronomical twilight, nautical twilight, civil twilight and sunrise/sunset.

g. Eider Vessel Strike Analysis—Recorded Eider vessel strikes from the Seabird Observer Notes database were obtained and screened for observations where time of strike was known. These vessel strikes were compiled and plotted on Alaska Peninsula Light Regime. Steller's eider bird strikes occurred only in January and February during hours of darkness. King eider vessel strikes occurred only in March and April and only during hours of darkness. These vessel strikes occurred only during the overwintering period for eiders. By the time of spring migration, the light regime has expanded considerably.

h. Vessel traffic by port of landing—Ship landing data for Alaskan ports was obtained from the United States Coast Guard (USCG) for 2003 and 2004 for vessels larger than 300 metric tons. This information was from the USCG Ship Advanced Notification System (SANS) database and includes various pieces of information about the ship. These data will be summarized by port for ports near eider wintering grounds and migration routes, to attempt to describe the level of non-fishing vessel activity near these areas.

2. Distribution of lighted fishing vessels in nearshore areas—This project component will occur during the final reporting period, following the description of coastal light intensity (below).

3. Baseline coastal light intensity for the Alaska Peninsula—A preliminary survey of archived OLS imagery identified that coastal light intensity from small-scale activities and small communities are readily detectible and that there are sufficient cloud-free windows of opportunity. Further analysis of OLS imagery will occur during the final reporting period.

4. Enhanced seabird monitoring in observer programs—Completed in prior reporting period.

Problems or Deviations from Work Plan: None, other than objectives 2 and 3 were delayed to the next reporting period.

Anticipated Focus Next Reporting Period: Detailed investigation of OLS imagery (objectives 2 and 3), and synthesis of project findings.

Interim Project Costs (estimated):
Federal share: $10,125
State share: $ 4,881
Total: $15,006

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Report Date: June 15, 2005