

**FEDERAL AID
FINAL PERFORMANCE REPORT**

ALASKA DEPARTMENT OF FISH AND GAME
DIVISION OF WILDLIFE CONSERVATION
PO Box 25526
Juneau, AK 99802-5526

COOPERATIVE ENDANGERED SPECIES CONSERVATION FUND

PROJECT TITLE: Delineating non-breeding habitat of Steller's eiders

PRINCIPAL INVESTIGATORS: Dan Rosenberg

COOPERATORS: none

GRANT AND SEGMENT NR: E-13

PROJECT NUMBER: 1

WORK LOCATIONS: Bering Sea with emphasis on Togiak Bay and southern Kuskokwim Bay

REPORT PERIOD: 1 June 2007 – 31 May 2008

I. PROBLEM OR NEED THAT PROMPTED THIS RESEARCH

Three breeding populations of Steller's eiders are recognized, two in Arctic Russia (Atlantic and Pacific) and one in Alaska (U.S. Fish and Wildlife Service 2002). The Alaska breeding population of Steller's eiders was listed as threatened in 1997 (Federal Register 62(112): 31748-31757). The cause(s) for the decline is unknown. The majority of the Pacific population (eastern Russia and Alaska breeders) molts and winters in Alaska where the listed population integrates with the Arctic Russian population.

Identifying and protecting important non-breeding habitats and the relationship of birds using these habitats to the listed population, were identified as high priority recovery tasks by the Steller's eider Recovery Team in January 2007. In addition, resource managers need more information on eider distribution, abundance, and habitat affiliations for endangered species consultation and to adequately prepare and review NEPA documents.

Recovering a threatened species depends upon determining its rate of population change and identifying factors limiting population growth. Estimates of annual survival of known-age cohorts can help identify mechanisms affecting population change and guide recovery efforts. Second-year (subadult) birds do not migrate to the breeding grounds and their summer distribution and habitat use has not been well documented. In spite of extensive banding efforts on the Alaska Peninsula, few known age birds have been banded (Dau et al. 1999).

At-sea surveys conducted before second-year (SY) and adult birds begin to molt will allow researchers to classify birds by plumage before they become difficult to distinguish and identify habitat use for SY birds. Capture and marking known-age

birds will aid in the development of a demographic model and future recoveries of these birds will identify habitat linkages and help delineate the distribution of the listed population.

This information becomes increasingly important as oil and gas leasing is scheduled for Bristol Bay (North Aleutian Basin) and Bristol Bay waters may be affected by activities of the proposed Pebble Mine.

II. REVIEW OF PRIOR RESEARCH AND STUDIES IN PROGRESS ON THE PROBLEM OR NEED

OBJECTIVE 1: Develop a better knowledge of the distribution and abundance of non-breeding Steller's eiders in western Alaska and evaluate threats to sustainability of non-breeding habitat.

Sporadic summer surveys have been conducted in the region from northern Bristol Bay to southern Kuskokwim Bay since the early 1970's (Bailey 1983, Petersen et al. 1991, Seppi 1997, Shaw et al. 2004). Larned (2002) and Dau and Mallek (2005, 2007) fly aerial surveys for Steller's eiders and other waterbirds in northern Bristol Bay and southern Kuskokwim Bay during spring migration.

Steller's eiders commonly pass through the area during spring and fall migration (Petersen et al. 1999, Larned 2002, Dau and Mallek (2005, 2007). Togiak, Chagvan, Nanvak, Goodnews, and Carter Bays are all used as staging areas by Steller's eiders during spring migration (Larned 2002, Dau and Mallek 2005, 2007); from one hundred to several hundred molting (flightless) birds have been reported for Cape Pierce, Chagvan, Nanvak, and Goodnews Bay in mid- to late-summer (Petersen et al. 1991, Shaw et al. 2004, HDR 2007); and Steller's eiders have been observed at Carter Bay and Hagemeister Island in late-summer (Bailey 1983, Seppi 1997) but not reported as flightless.

When identified, all birds were thought to be males except for HDR (2007) who identified a few second-year or female birds in Goodnews Bay (HDR surveys were conducted in June and July 2007, after our surveys). Changes in abundance or distribution may have occurred since summer surveys were conducted in the 1970's and 80's and additional molting sites may exist. Most areas in western Alaska have not been thoroughly surveyed during late-spring and summer.

In 2005, a marked second-year (SY) female Steller's eider, satellite tagged in Kodiak, remained in Togiak Bay following the northward migration of breeding birds, and appeared to molt on the north side of Hagemeister Island near Hagemeister spit (D. Rosenberg, unpubl. data). This bird may be indicative of a region where other SY birds spend the summer and molt. In 2005, using satellite telemetry, we discovered a new molting location in lower Cook Inlet where subsequent surveys identified over 2,500 molting birds (D. Rosenberg, unpubl. data).

We began surveys in Togiak Bay on June 9, 2007 (See Job/Activity 1 A below). We chose this time period because it was after breeding birds departed the area on their northern migration but prior to molt (Rosenberg, unpubl. data). Remaining birds would likely be non-breeders that would potentially molt in the region. As adults would still be in nuptial plumage we would be able to identify birds to age and sex. This would indicate the potential for second-year birds to molt in the area, a prerequisite to further activities.

OBJECTIVE 2: Investigate opportunities for capturing and marking molting flocks that we identify.

Molting Steller's eiders are usually captured by using small boats to drive or herd them into traps placed on nearby beaches (Dau et al. 1999). To our knowledge, no one has attempted to capture molting birds in these areas. Opportunities for capturing and marking molting flocks depended primarily upon their abundance and distribution, their distance to shore, shoreline bathymetry and geomorphology, the presence of a nearby (within 1-2km) shallow sloped beach and the magnitude of tidal currents. As we were only identifying pre-molting flocks we based our predictions on areas where historical molting locations and extant observations coincide. We also investigated the potential to capture flighted birds in these same areas prior to molt.

OBJECTIVE 3: Identify the annual distribution, habitat use, survival rates, and relationship of these birds to the listed population.

Following reconnaissance (if we observed sufficient numbers of second-year birds molting in the areas identified above) our plan was to return in subsequent years and capture and mark known age birds.

III. MANAGEMENT IMPLICATIONS

Managers cannot delineate the listed population from the non-listed population throughout the molting and wintering range nor have we adequately delineated the distribution of non-breeding birds during spring and summer.

Documenting the full extent of non-breeding habitat for Steller's eiders will guide resource managers in assessing and if necessary mitigating for the affects of development activity within their range and potentially improve population surveys and modeling. Documenting annual changes in the number of second-year birds may provide as an index of annual productivity. Knowledge of habitat conditions at summer staging areas for SY birds may help identify the causes of population declines in the listed population.

IV. SUMMARY OF WORK COMPLETED ON JOBS FOR LAST SEGMENT PERIOD ONLY (1 June 2007 – 31 May 2008)

JOB/ACTIVITY 1A: Survey areas where we previously located satellite transmitted birds and nearby areas that may provide suitable molting habitat including Togiak Bay and Hagemeister Island, Chagvan, Nanvak, Goodnews and Carter Bays.

This survey was undertaken to determine the extent of Steller's eider use of the region between Togiak Bay and Hagemeister Island on the south to Carter Bay on the north during June 2007 (Fig. 1). This is a period when non-breeding birds remain in the area following the northward departure of the breeding population. During this time of year birds are flight capable and males are in breeding plumage and easy to separate from females and subadult birds.

Surveys were conducted from 9–15 June 2007. Surveys were conducted by 2 observers from the flying bridge of a 47' shallow draft seiner using 10x binoculars and if necessary 12x image stabilized binoculars or a 60x spotting scope when conditions allowed. Survey speed was a maximum of 7 knots but often slower.

We began our survey from the village of Togiak and proceeded west along the north shore of Togiak Bay. In addition to the north shore of Togiak Bay we surveyed portions of Carter Bay, Goodnews Bay, Chagvan Bay, outside the mouth of Nanvak Bay, and the northwest coast of Hagemeister Island (Fig. 1).

Surveys were conducted opportunistically as tides allowed. Not all portions of bays were surveyed because water depths were often less than the 1 meter draft of the survey vessel and scheduling conflicts with the charter vessel restricted survey time. This did not allow us to wait for more favorable tide cycles. Surveys were conducted opportunistically when traveling between bays. If weather allowed we followed the coast within 200 meters but time constraints precluded a complete shoreline survey.

We observed Steller's eiders in Hagemeister Strait (Mid-Air Reef, Asigyukpak Spit), Chagvan Bay, Goodnews Bay, and Carter Bay (Table 1). The majority of birds were adult males (after-second year) in nuptial plumage. Brown birds (females and SY birds) comprised 7.5% of our observations. These birds were in mixed flocks with adult males. Based on the width of white in the anterior and trailing edge of the speculum, we identified all brown birds as SY. Our identifications were not positive on all birds due to the variation in white feathering on the speculum but we were confident that at minimum a large majority of brown birds were SY birds. Thus, the percentage of SY birds identified in Table 1 represents a maximum estimate and may be slightly less.

When conducting surveys we may have also counted birds more than once as they were flight capable and moved around during the survey. This was primarily a factor in Goodnews Bay where estimates ranged from a minimum of 95 to a

maximum of 199 Steller's eiders. We believe the lower estimate is probably more accurate and is consistent with other recent estimates (Shaw et al. 2004, HDR 2007). Age ratios were similar for both our higher and lower estimates.

We identified several locations where non-breeding birds stage prior to the annual wing molt and have recorded the ratio of adult to SY birds at these locations. However, the number of SY birds at these locations does not warrant the cost to attempt to capture and mark birds. As the number of second-year birds is dependent upon prior year productivity and overwintering conditions it will vary annually and we may propose additional surveys in future years.

JOB/ACTIVITY 1B: Evaluate habitat conditions and potential habitat changes in areas where populations are currently found. Map distribution of non-breeding birds.

We did not have time to evaluate habitat conditions. Birds were generally observed in shallow nearshore waters or hauled-out near the mouths of bays or along spits. Eel grass beds were often in the vicinity. We observed non-breeding birds in nearshore areas of Hagemeister Strait, Chagvan Bay, Goodnews Bay, and Carter Bay (Carter Spit) (Fig. 1).

A gravel staging and loading operation is next to eider staging areas on the south spit of Goodnews Bay and construction of a seafood processing plant is scheduled for the same area. Barge traffic, fuel storage, set net fishing activity, subsistence hunting, and 4-wheeler and skiff traffic occur in this area. No signs of human disturbance were observed (HDR 2007).

JOB/ACTIVITY 2A: Assess site conditions (tidal currents, beach topography, use areas), and logistics to determine future possibility of capturing molting birds for purposes of banding and marking known-age cohorts.

Birds were generally observed in shallow nearshore waters or hauled-out near the mouths of bays or along spits. The mouths of bays are often narrow, amplifying tidal currents. Shallow sloped beaches were present nearby in all areas. All bays we surveyed were very shallow with navigation restricted at low tide. Strong tidal currents and shallow water depths may restrict capture operations to periods around slack high tide. Capturing flighted birds is also restricted by strong tidal currents and may be limited to periods around slack tides.

JOB/ACTIVITY 3A: Capture and mark (band, transmitters) molting birds.

This activity was not conducted as the number of second-year birds did not warrant the cost to attempt capture and mark them (see above). In other years more SY birds may be present making it cost effective.

LITERATURE CITED

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U.S. Fish and Wildlife Service. 2002. Steller's eider recovery plan. U. S. Fish and Wildlife Service, Ecological Services, Fairbanks. 25pp.

V. PUBLICATIONS

None at this time.

VI. APPENDIX

Table 1. Number of Steller's eiders classified by plumage characteristics and percent composition of second-year males and females by location.

Figure 1. Survey route and location of flocks of Steller's eiders observed from boat surveys conducted from 9–15 June 2007.

Table 1. Number of Steller's eiders classified by plumage characteristics and percent composition of second-year males and females by location. Total represents maximum number as some double counting may have occurred.

Location	Total	Adult Males	SYM ¹ or Female	Percent SYM ¹ / Female
Mid-Air Reef	29	27	2	6.9
Asigyukpak Spit	2	2	0	0.0
Goodnews Bay	199	183	16	8.0
Carter Bay	55	50	5	9.1
Chagvan Bay	130	122	8	6.2
Total	415	384	31	7.5

¹ Second-Year Male

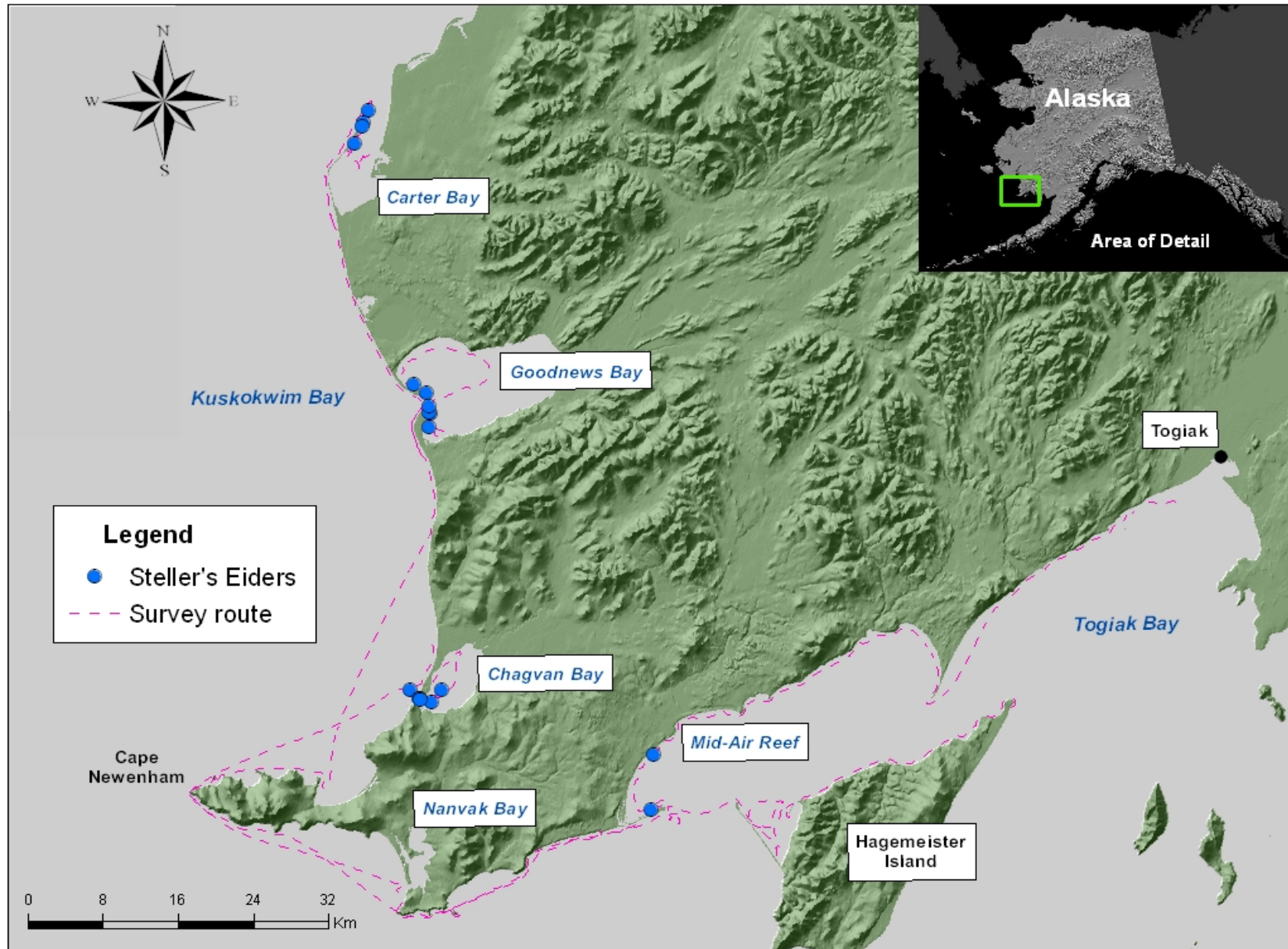


Figure 1. Survey route and location of flocks of Steller's eiders observed from boat surveys conducted from 9–15 June 2007.

4. This will require multiple years of surveys and/or telemetry. We will also compare our locations with what is known from any previous surveys. This has not been completed.
5. We narrowed departure dates in 2003 to a 2-week window between March 26 and April 11. We did not fly surveys in the fall to get arrival dates but have estimates from anecdotal observations and local knowledge.
6. From aerial and boat surveys we were able to assess the feasibility of capturing eiders in lower Cook Inlet.

Some portions of this project will not be completed because during the course of this project, which was being assisted by USFWS, the USFWS received funding from the Mineral Management Service to conduct a similar, but more comprehensive monitoring program. Completion has been delayed due to unforeseen events with our partners, Cook Inlet Keeper, in completing the matching GIS component of this project. More time will allow them to complete this task.

Project Costs: Federal share \$ 21,693 + match share \$ 1,529 = total cost \$ 23,222
(Costs show funds committed. Match portion will increase with activity by 3rd party on project in the coming spring.)

Prepared By: Dan Rosenberg, WB III

Date: December 16, 2003

**FEDERAL AID
FINAL PERFORMANCE REPORT**

ALASKA DEPARTMENT OF FISH AND GAME
DIVISION OF WILDLIFE CONSERVATION
PO Box 25526
Juneau, AK 99802-5526

COOPERATIVE ENDANGERED SPECIES CONSERVATION FUND

STATE: Alaska

GRANT AND SEGMENT NR.: E - 2 - 1

PROJECT NR.: 2

WORK LOCATION: Cook Inlet

PROJECT DURATION: 1 January 2003 – 30 June 2004

PROJECT REPORTING PERIOD: 1 January 2004 – 30 June 2004

PROJECT TITLE: Population Status and Distribution of Steller's Eider

Project Objectives:

The general objective of this study was to improve our knowledge of the status, distribution, and population trend for Steller's eiders wintering in Lower Cook Inlet Alaska by:

1. improving knowledge of habitat use and distribution within wintering areas;
2. improving survey methodology and population estimates;
3. documenting age and sex structure of winter flocks;
4. identifying fidelity to wintering sites;
5. identifying arrival and departure dates for wintering Steller's eiders; and
6. exploring capture and marking opportunities for future research.

During this reporting period the specific objective was to complete the GIS portion of the project by mapping the distribution and abundance of Steller's eiders in lower Cook Inlet.

Summary of Project Accomplishments during reporting period:

1. A GIS was developed in ArcView 3.3 software that depicts the distribution and abundance of Steller's eiders in lower Cook Inlet from aerial and boat surveys from 1999-2003.

Reporting period Project Costs:

Federal share \$ 2,772.13 + state share \$ 7,276.48 = total cost \$ 10,048.61
(State share includes \$3,300 in-kind for use of state skiffs in project.)

Summary of Project Accomplishments in addition to this reporting period:

1. Completed 2 aerial surveys along the eastern shore of lower Cook Inlet from Kachemak Bay to Cape Kasilof and 1 along the western shore of lower Cook Inlet from Tuxedni Bay to Cape Douglas. Conducted boat surveys in Kachemak Bay and in lower Cook Inlet from the Homer Spit to Clam Gulch. We planned to conduct additional repetitions but could not due to poor weather.

2. Conducted a repeat aerial surveys along the east side of lower Cook Inlet and followed with a boat survey. Weather (see above) prevented us from our original objective of 3 repeat aerial surveys of the same transects.
3. Conducted boat surveys to test feasibility of documenting age and sex structure from skiffs and videographed large flocks to determine sex ratios. We could not get age ratios from video.
4. This will require multiple years of surveys and/or telemetry. We will also compare our locations with what is known from any previous surveys. This has not been completed.
5. We narrowed departure dates in 2003 to a 2-week window between March 26 and April 11. We did not fly surveys in the fall to get arrival dates but have estimates from anecdotal observations and local knowledge.
6. From aerial and boat surveys we were able to assess the feasibility of capturing eiders in lower Cook Inlet.

Some portions of this project were not completed because during the course of this project, which was being assisted by USFWS, the USFWS received funding from the Mineral Management Service to conduct a similar, but more comprehensive monitoring program.

Total Project Costs:

Federal share \$ 24,465.13 + state share \$8,805.48 = total cost \$ 33,270.61

Prepared By: Dan Rosenberg

Date: September 22, 2004

**FEDERAL AID
INTERIM PERFORMANCE REPORT**

ALASKA DEPARTMENT OF FISH AND GAME
DIVISION OF WILDLIFE CONSERVATION
PO Box 25526
Juneau, AK 99802-5526

COOPERATIVE ENDANGERED SPECIES CONSERVATION FUND

STATE: Alaska

GRANT AND SEGMENT NR.: E - 4 - 1

PROJECT NR.: 1

WORK LOCATION: Lower Cook Inlet

PROJECT DURATION: 25 September 2004 – 30 September 2006

PROJECT REPORTING PERIOD: 25 September 2004 – 24 September 2005

PROJECT TITLE: Population Structure and Distribution of Steller's Eider

Project Objectives:

Objective 1: Improve knowledge of habitat use and distribution on the east side of Cook Inlet.

Job/Activity 1a: Conduct boat surveys to locate, count, and record locations of eider flocks.

Job/Activity 1b: Map distribution using GIS and overlay with bathymetry.

Objective 2: Improve survey methodology and population estimates;

Job/Activity 2a: Conduct photographic census of eider concentrations and compare boat surveys with USFWS aerial estimates.

Objective 3: Document age and sex structure of winter flocks;

Job/Activity 3a: Classify eiders by sex using photographic and visual techniques; continue to explore photographic techniques for aging eiders in the field.

Objective 4: Identify routes, and timing of movements from wintering to breeding areas to improve timing and interpretation of spring migration surveys, identify use of specified areas in the Bering Sea and Gulf of Alaska, and identify affiliations between wintering, breeding, and molting areas.

Job/Activity 4a: Capture and mark eiders with satellite transmitters to improve knowledge of seasonal distribution and site fidelity of birds wintering in coastal Alaska.

Objective 5: Identify Alaskan breeding birds molting in Cook Inlet, check for avian influenza, and sample for contaminants, and genetic markers.

Job/Activity 5a: Capture molting birds, band, and collect blood samples and cloacal swabs

Summary of Project Accomplishments:

1. Boat surveys were attempted on 2 occasions in February 2004 but neither could be completed due to weather.

2. See # 1 above. An aerial survey and photographic census of molting flocks on the west side of Cook Inlet was completed in September 2005. We located 2100 Steller's eiders molting in Kamishak Bay. No boat surveys were conducted due to weather and USFWS did not fly aerial surveys of the east side of Cook Inlet.

3. No surveys were conducted in Cook Inlet due to weather. Limited surveys were conducted in Kodiak. Results have not been fully analyzed.

4. In concert with Steller's Eider Habitat Conservation Planning Project we marked 21 Steller's eiders with satellite transmitters in Kodiak in March 2005. We identified routes and timing of movements to Russian breeding areas for 9 females and 4 males and identified molting locations for 6 females and 3 males. We identified affiliations between wintering areas in Kodiak, breeding locations in Russia, and molting locations in Cook Inlet and on the Alaska Peninsula.

5. No Alaskan breeding birds were identified in Cook Inlet through satellite telemetry. Poor weather aborted plans to capture and band molting birds in Kamishak Bay, test for avian influenza and collect blood samples. An unsuccessful trip was attempted in September 2005.

Project Costs: Federal share \$9,180.64 + state share \$3,060.21 = total cost \$12,240.86

Prepared By: Dan Rosenberg

Date: January 18, 2006

**FEDERAL AID
FINAL PERFORMANCE REPORT**

ALASKA DEPARTMENT OF FISH AND GAME
DIVISION OF WILDLIFE CONSERVATION
PO Box 25526
Juneau, AK 99802-5526

**Cooperative Endangered Species Conservation Fund
SAFE HARBORS GRANT**

STATE: Alaska

GRANT AND SEGMENT NR.: E-7-SH

PROJECT NR.: 1.0

WORK LOCATION: Primarily Yukon-Kuskokwim Delta

PROJECT DURATION: 1 April 2002 – 30 June 2003

PROJECT REPORTING PERIOD: 1 April 2002 – 30 June 2003

PROJECT TITLE: Reducing Exposure of Spectacled and Steller's Eiders to Lead Shot Through Education and Training of Hunters on Private Lands

Project Objectives:

1. Reduce exposure of spectacled and Steller's eiders to lead shot on private lands.
2. Increase the use of nontoxic shot by hunters in eider habitats.
3. Promote the availability of nontoxic shot ammunition in communities in and near eider habitats.

Summary of Project Accomplishments:

- 1-3. From 1 April 2002 through 30 June 2003 we conducted 37 clinics and reached 716 hunters. Two clinics were conducted in Wainwright, and Pt. Lay, (spectacled and Steller's eiders breeding habitat). Two clinics were conducted in Newtok and Chefornek (breeding habitat for spectacled and Steller's eiders). Two clinics were conducted in Chignik Lagoon and King Salmon (Stellar's eider migration and wintering habitat) and one clinic in Selawik (spectacled eider post breeding habitat). By supplying non-toxic ammunition, encouraging the use and demonstrating the lethality of steel shot on waterfowl through the use of hands-on and audio-visual strategies we are able to reduce exposure of spectacled and Steller's eiders and increase the use of non toxic shot. By inviting storeowners and village leaders to these clinics we are able to encourage them to increase the availability of steel shot to local hunters.

Project Costs: Federal share \$30,029 + state share \$9,809 = total cost \$ 39,838

Prepared By: Lee Rogers, Project Coordinator

Date: September 4, 2003

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: 2.0

Project Title: Distribution and Abundance of Steller's Eiders

Project Duration: February 28, 2003 to December 31, 2005

Project Reporting Period: February 28, 2003 to February 28, 2004

Project Interim Report Due: May 29, 2004

Location: Statewide

Project Objectives:

The objectives of this study are to improve knowledge of the status, distribution, and population trend for Steller's eiders breeding in Alaska by:

1. Identifying routes and timing of movements from wintering to spring staging areas to improve population estimates from spring surveys;
2. Identifying affiliations of wintering birds with breeding areas;
3. Improving knowledge of distribution on the Yukon-Kuskokwim Delta and North Slope;
4. Documenting age and sex structure of winter flocks; and
5. Collecting blood samples to contribute to studies of contaminants and genetic variation in wintering aggregations.

Summary of Project Accomplishments:

1. Identifying routes and timing of movements.

Work is in progress. Ten birds, (5 males and 5 females) were marked with satellite transmitters and 10 (5 males and 5 females) were marked with VHF transmitters. Locations of satellite birds are being received every 2 days and plotted. Tracking of VHF birds is ongoing. Aerial flights have been conducted in Kodiak, the Alaska Peninsula, and Bristol Bay.

2. Identifying affiliations of wintering birds with breeding areas.

Work is in progress. Birds are currently in spring migration and have yet to arrive at breeding areas.

3. Distribution on the Yukon-Kuskokwim Delta and North Slope.

Work is in progress. Birds are currently in spring migration and have yet to arrive at breeding areas.

4. Age and sex structure of winter flocks.

First year completed. Have determined sex for over 1,800 birds in Cook Inlet and Kodiak. May not be possible to get good age ratio data in field – working on methods.

5. Collecting blood samples.

Collected 23 samples of whole and heparinized blood, 40 samples of blood for genetics, and 40 viral swabs. Samples have been transferred to the Alaska SeaLife Center and USGS Molecular Ecology Lab.

Problems or Deviations from Work Plan:

Five of 10 satellite implanted birds and 4 of 10 subcutaneous implanted VHF birds died within several days of release. No specific cause has been determined. This reduced our sample size.

Anticipated Focus Next Reporting Period:

Continue with all of the above. Discuss modifying surgical and handling methods with Steller's Eider Recovery Team to reduce post-surgical mortality. Consider deploying some VHF and satellite transmitters in lower Cook Inlet in November.

Interim Project Costs (estimated):

Federal share	\$ 80,400
State share	\$ 26,000
Total	\$106,400

Prepared By: Dan Rosenberg, ADF&G Division of Wildlife Conservation

Report Date: May 23, 2004

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: February 28, 2003 to February 28, 2004

Project Interim Report Due: May 29, 2004

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. Fisheries spatial and temporal distribution— In this reporting period, vessel activity profiles were compiled and mapped by port of landing for ports with significant vessel activity from September through April, as measured by ADF&G fish ticket landing records. Twelve ports in the area of eider winter range received an average of 30 to 3,500 landings from 1998 through 2002 during September through April. For these ports, the spatial distribution of vessel landing activity was mapped by fishery and port profiles were graphed by day and fishery as a way of indexing vessel transiting activity in nearshore areas, and visualizing the specific times that vessel transit activity may overlap eider utilization.
2. Distribution of lighted fishing vessels in nearshore areas— This project component will occur during the next reporting period, following the description of coastal light intensity (objective 3).
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 detectable and that there are sufficient cloud-free windows of opportunity. Further analysis of OLS imagery will occur during the next reporting period.

4. Enhanced seabird monitoring in observer programs—In this reporting period, seabird identification capabilities of ADF&G onboard observers were enhanced. Seventy copies of “Beached Birds” (2nd ed), from the University of Washington, Coastal Observation and Seabird Survey Team (COASST) program, were purchased to help observers identify incidentally caught seabirds in the hand. In addition, 70 copies of the “National Geographic Field Guide to the Birds of North America” were purchases for general seabird identification.

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: Description of nearshore vessel activity by area of fishing, and detailed investigation of OLS imagery (objectives 2 and 3).

Interim Project Costs (estimated):

Federal share:	\$2,390
State share:	\$4,348
Total:	\$7,638

Prepared By: Fritz Funk, ADF&G Division of Commercial Fisheries

Report Date: May 27, 2004

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: 4.0

Project Title: Susceptibility of Eiders to Impacts of Coastal Wind Generation Facilities

Project Duration: February 28, 2003 to December 31, 2005

Project Reporting Period: February 28, 2003 to February 28, 2004

Project Interim Report Due: May 29, 2004

Location: Statewide

Project Objectives:

The objectives of this component are:

1. Facilitate the testing and evaluation of ground observations and radar observations to detect and quantify movements of eiders near potential wind-generation sites in coastal areas.
2. Assist in the collection of data on eider occurrence and movements at Gambell (particularly in fall) and Hooper Bay (particularly in spring) to evaluate feasibility and siting considerations for wind generation facilities.
3. Contribute toward development of a database on seasonal waterfowl movements in areas of western and northern Alaska as related to potential windfarm developments.
4. Attempt to document mortality of eiders at towers already in place (e.g., FAA, communications) at Gambell and Hooper Bay.

Summary of Project Accomplishments:

1. Testing and evaluation of ground observations and radar observations— Designed the sampling strategy, data-collection formats, and sampling schedule for the study. Consultant also coordinated with AVEC on the sampling.
2. Evaluate feasibility and siting considerations for wind generation facilities at Gambell and Hooper Bay— AEA and AVEC staff met with USFWS personnel. Consultants met with local stakeholder groups at Hooper Bay prior to data collection.
3. Development of a database on seasonal waterfowl movements in areas of western and northern Alaska as related to potential windfarm developments—evaluating the concept and potential contributors.
4. Document mortality of eiders at towers already in place— Field monitoring and data collection for 20 days. These data consisted of visually determined movements, numbers, and species-composition of birds moving near the proposed windfarm during the period when Spectacled Eiders first arrive on land on the YKD prior to breeding in spring.

Problems or Deviations from Work Plan: No deviations from Work Plan.

Anticipated Focus Next Reporting Period: Continued monitoring and evaluation of data.

Interim Project Costs (estimated): Costs below reflect commitment of funds from ADF&G to AEA and contracts to AVEC. Contract fieldwork began in April, so only a small portion of project funds have been expended.

Federal share	\$60,000
State share	\$20,000
Total	\$80,000

Prepared By: Reuben Loewen, Alaska Energy Authority

Report Date: May 24, 2004

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: 2.0

Project Title: Distribution and Abundance of Steller's Eiders

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 study are to improve knowledge of the status, distribution, and population trend for Steller's eiders breeding in Alaska by:

1. Identifying routes and timing of movements from wintering to spring staging areas to improve population estimates from spring surveys;
2. Identifying affiliations of wintering birds with breeding areas;
3. Improving knowledge of distribution on the Yukon-Kuskokwim Delta and North Slope;
4. Documenting age and sex structure of winter flocks; and
5. Collecting blood samples to contribute to studies of contaminants and genetic variation in wintering aggregations.

Summary of Project Accomplishments:

1. Identifying routes and timing of movements—Work is in progress. Movements of four birds (2 males and 2 females) captured in March 2004 and marked with satellite transmitters were monitored throughout the winter of 2004-2005. Locations of satellite birds were received every 5 days and plotted. Due to battery failure, signals terminated in late-winter and early spring.

In 2005 we changed handling protocols in order to keep birds in captivity pre- and post-surgery to try and reduce post-release mortality. Fieldwork began in February with the development of the holding facility in Kodiak. We began capture operations on 26 February 2005. We captured 49 Steller's eiders and placed satellite transmitters in 21 birds (15 females and 6 males). Twelve birds were held in captivity to acclimate to the holding facility prior to surgical implantation of the satellite transmitter, and nine birds were held post-surgery only. Three implanted birds died in captivity prior to release. Eighteen birds were released to the wild. Two of these died within 2 weeks of release. All of the remaining 16 birds were alive during the reporting period. Movements are being monitored every 36 hours during spring migration.

2. Identifying affiliations of wintering birds with breeding areas—In 2004, we identified 3 breeding areas in the Russian Arctic used by Kodiak birds, as well as spring and fall staging areas and the timing of migration. Work is in progress for 2005 birds that are currently in spring migration and have yet to arrive at breeding areas (Figure 1).
3. Distribution on the Yukon-Kuskokwim Delta and North Slope—No Kodiak birds went to the Yukon-Kuskokwim Delta or North Slope during the breeding season in 2004 or 2005.
4. Age and sex structure of winter flocks—Second year completed. We determined sex composition for another 400 birds in Kodiak. Data are being analyzed, but it has been difficult to get good age ratio data in field to accurately assess immature males from females.
5. Collecting blood samples—We collected blood samples for genetics and disease screening, and collected viral swabs from all captured birds. Samples have been transferred to the Alaska SeaLife Center and USGS Molecular Ecology Lab.

Problems or Deviations from Work Plan:

The additional costs associated with holding birds in captivity did not allow us to continue work in Cook Inlet in spring 2004. We discovered a new Steller's eider molting area in Kamishak Bay and plan to survey the area in September 2005 and test the feasibility of capturing and banding molting birds.

Anticipated Focus Next Reporting Period:

Continue with all of the above. A report on the success of the captive holding program and the movements of birds marked in 2005 will be produced. We will focus on analysis of winter sex ratio information because there is no reliable method to accurately assess age ratios in the field.

We will consider deploying five satellite transmitters in lower Cook Inlet in November 2005 or March 2006, depending on the feasibility of capture and availability of funds.

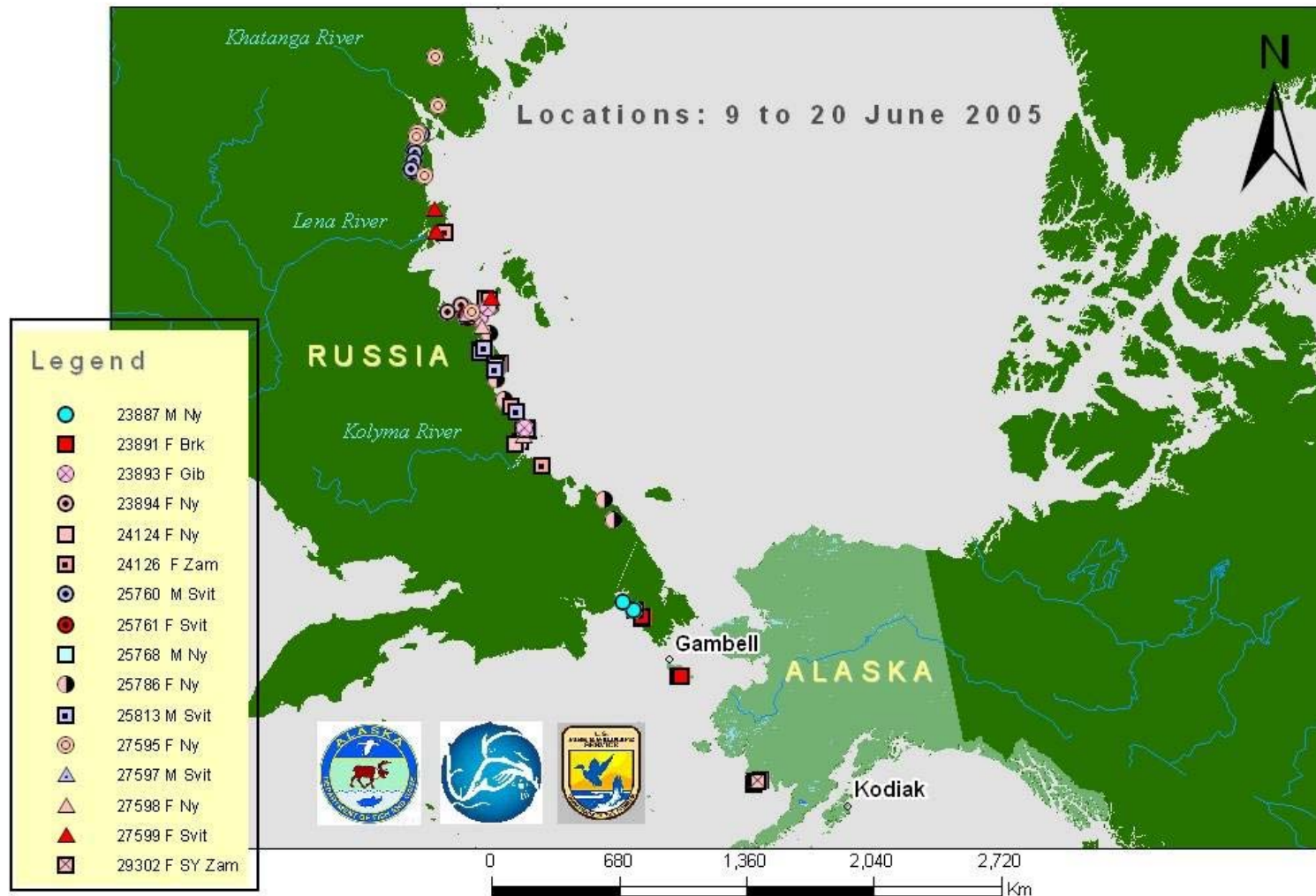
Interim Project Costs This Period (estimated):

Federal share \$84,000
State share \$28,000
Total \$112,000

Prepared By: Dan Rosenberg

Report Date: June 15, 2005

Steller's Eider Satellite Telemetry Kodiak, AK 2005



Dan Rosenberg ADF&G Preliminary Data/Not for Citation

Last Updated June 20, 2005

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

Prepared By: Fritz Funk, ADF&G Division of Commercial Fisheries

Report Date: June 15, 2005

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

Grant Number: E-5-HP

Grant Segment: 1

Grant Title: HCP for Alaska Coastal Species: Studies Related to Listed/Candidate Marine Birds

Project Number: 4.0

Project Title: Susceptibility of Eiders to Impacts of Coastal Wind Generation Facilities

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. Facilitate the testing and evaluation of ground observations and radar observations to detect and quantify movements of eiders near potential wind-generation sites in coastal areas.
2. Assist in the collection of data on eider occurrence and movements at Gambell (particularly in fall) and Hooper Bay (particularly in spring) to evaluate feasibility and siting considerations for wind generation facilities.
3. Contribute toward development of a database on seasonal waterfowl movements in areas of western and northern Alaska as related to potential windfarm developments.
4. Attempt to document mortality of eiders at towers already in place (e.g., FAA, communications) at Gambell and Hooper Bay.

Summary of Project Accomplishments:

1. Testing methods—Testing and evaluation of methods for ground and radar observations of eiders have been completed at three study sites. Sampling strategies, data-collection formats, and sampling schedules have been developed by the contractor in proposed protocols for future site-specific studies. Field methods will be applied under the direction of the Alaska Village Electric Cooperative (AVEC).
2. Field data collection—Final reports were produced AVEC and the Alaska Energy Authority (AEA) by Alaska Biological Research (ABR) on abundance and movements of eiders and other birds to assess feasibility and siting considerations for potential wind generation facilities at three sites (copies enclosed). Fieldwork was completed during November 2002 and a final report was issued in March 2004. Fieldwork focused on spectacled and Steller's eiders was conducted during spring 2004 at Hooper Bay; the final report was produced April 2005. Mekoryuk studies were conducted during fall 2004, with a final report issued in April 2005. AEA, AVEC, and ABR staff collaborated with ADFG on annual work plans, project design, and review of results. They also consulted with USFWS field office personnel to advise on plans and progress, as well as transmit final reports.

3. Database development—During this reporting period, AEA, AVEC, and ABR conceptually explored development of a regional database on seasonal waterfowl movements in areas of western and northern Alaska. The product would be intended as a general planning tool for initial assessment of potential windfarm developments and risks to birds. A recent commitment has been made to develop a pilot project in 2005, including an evaluation of the availability of basic datasets (e.g., USFWS survey data, landforms, weather information), GIS format and accessibility needs, and the scope of applications.
4. Mortality data from existing structures—Data on mortality of eiders at existing towers were collected to the extent possible at all three major study sites. Field monitoring and data collection consisted of visually determined movements, numbers, and species composition of birds moving near potential windfarm sites during the period of study. In addition, consultants conducted surveys for dead birds near existing towers and interviewed local residents to gather historical reports of mortalities.

Problems or Deviations from Work Plan: No deviations from work plan.

Anticipated Focus Next Reporting Period: Development of the pilot project for a regional GIS-based planning tool for potential windfarm sites. Work will focus on accessing datasets, designing GIS program structure, and determining the value and utility of applications.

Interim Project Costs (estimated): During this reporting period, AEA and AVEC expended grant and match funds as shown below. To date, total expenditures on this project component have been about \$97,400 including a federal share of \$73,000.

Federal share	\$ 41,700
State share	\$ 13,900
Total	\$ 55,600

Prepared By: Reuben Loewen, Alaska Energy Authority

Report Date: June 15, 2005

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

Grant Number: E-5-HP

Grant Segment: 2

Grant Title: HCP Alaska Coastal Species: Studies Related to Listed/Candidate Marine Birds

Project Number: 2.0

Project Title: Distribution and Abundance of Steller's Eiders

Project Duration: February 28, 2003 to December 31, 2006

Project Reporting Period: June 16, 2005 to June 30, 2006

Project Final Report Due: December 31, 2006

Location: Statewide

Project Objectives:

The objectives of this study are to improve knowledge of the status, distribution, and population trend for Steller's eiders breeding in Alaska by:

1. Identifying routes and timing of movements from wintering to spring staging areas to improve population estimates from spring surveys;
2. Identifying affiliations of wintering birds with breeding areas;
3. Improving knowledge of distribution on the Yukon-Kuskokwim Delta and North Slope;
4. Documenting age and sex structure of winter flocks; and
5. Collecting blood samples to contribute to studies of contaminants and genetic variation in wintering aggregations.

Summary of Project Accomplishments:

1. Identifying routes and timing of movements—Work is in progress. Movements of four birds (2 males and 2 females) captured in March 2004 and marked with satellite transmitters were monitored throughout the winter of 2004-2005. Since then, we have monitored the movements (using satellite telemetry) of 16 birds (11 females, 5 males) captured in Kodiak in March 2005 and in March 2006 we placed transmitters in an additional 5 females wintering in Kodiak. Four of the birds marked in 2005 (3 females, 1 male) were still transmitting location data as of 10 June 2006.

The median departure date from Kodiak in 2005 (n=16) was 12 April (range 20 March – 26 April). The median departure date in 2006 from Kodiak (n=9) was 7 April (range = 26 March – 19 April). The majority of birds went directly to the Alaska Peninsula. Port Heiden (including Seal Island Lagoon) was the preferred staging area (11 birds) and the most westerly. Two birds went to Kamishak Bay in lower Cook Inlet. Other sites used for staging on the Alaska Peninsula included Ugashik Bay (n=1) and Egegik Bay (n=1). One bird either bypassed the Alaska Peninsula or spent very little time there and was first located in Chagvan Bay after departing Kodiak. Alaska Peninsula arrival dates in 2005 were from 10–29 April and in 2006 from 26 March to 19 April. Peak arrival times were from 13–16 April in 2005

and 4–10 April in 2006. In 2006, location data were transmitted every 5 days, so mean departure dates from Kodiak and mean arrival dates on the Alaska Peninsula were the same (distance from Kodiak to Port Heiden is approximately 500km). We identified additional spring staging areas in western Alaska (Chagvan and Goodnews bays, Kuskokwim Shoals) and spring staging areas in the Gulf of Anadyr, Russia. Primary molting sites were located on the Alaska Peninsula (Nelson Lagoon, Port Heiden). Other areas used by molting birds included Kamishak Bay (lower Cook Inlet), St. Lawrence Island, and Hagemeister Island.

2. Identifying affiliations of wintering birds with breeding areas— In 2004, we identified 2 breeding areas in the Russian Arctic (Lena River Delta and New Siberian Islands) and a male spent time at a possible third breeding area in Chukotka (west of the primary breeding areas). Twelve birds marked in 2005 went to breeding areas in the Russian Arctic between the Indigirka River and Taimyr Peninsula. Half of these nested in the Indigirka-Yana lowlands. Birds marked in 2006 are currently in spring migration and have yet to arrive at breeding areas. No birds went to nesting areas in western or northern Alaska. We also identified spring and fall staging areas and the timing of migration.
3. Distribution on the Yukon-Kuskokwim Delta and North Slope—No Kodiak birds went to the Yukon-Kuskokwim Delta or North Slope during the breeding season in 2004 or 2005. One second-year female remained in nearshore waters of the Yukon-Kuskokwim Delta and Bristol Bay during the summer.
4. Age and sex structure of winter flocks—Two years completed. No additional data in 2006.
5. Collecting blood samples—We collected blood samples for genetics and disease screening, and collected viral swabs from birds captured in 2004 and 2005. Samples have been transferred to the Alaska SeaLife Center and USGS Molecular Ecology Lab and we are awaiting analysis. No additional blood or viral samples were collected in 2006.

Problems or Deviations from Work Plan:

We discovered a new Steller’s eider molting area in Kamishak Bay and surveyed the area in September 2005 and discovered 2,200 molting Steller’s eiders. Weather prevented us from testing the feasibility of capturing and banding molting birds in 2005 but we plan on attempting to capture and mark molting birds in 2006. Logistics did not allow us to deploy satellite transmitters in Cook Inlet in 2005 but we were able to deploy five satellite transmitters in Kodiak in March 2006. Two birds marked in 2006 and one bird marked in 2005 died during a winter storm in March of 2006.

Anticipated Focus Next Reporting Period:

Continue with all of the above. A final report will be produced.

Interim Project Costs This Period (estimated):

Federal share \$43,520
State share \$14,507
Total \$58,027

Prepared By: Dan Rosenberg

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, 2006

Project Reporting Period: June 16, 2005 to June 30, 2006

Project Final Report Due: December 31, 2006

Location: Statewide

Project Objectives:

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. Work on fishery distributions with respect to Steller's eiders was completed during the last reporting period and will be synthesized in the final report.
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—Analysis of OLS imagery will be completed during the final reporting period.
4. Enhanced seabird monitoring in observer programs—Completed in prior reporting period.

Problems or Deviations from Work Plan: None.

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

Interim Project Costs (estimated): No expenditures this period.

Prepared By: Fritz Funk, ADF&G Division of Commercial Fisheries

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

Grant Number: E-5-HP

Grant Segment: 1

Grant Title: HCP for Alaska Coastal Species: Studies Related to Listed/Candidate Marine Birds

Project Number: 4.0

Project Title: Susceptibility of Eiders to Impacts of Coastal Wind Generation Facilities

Project Duration: February 28, 2003 to December 31, 2006

Project Reporting Period: June 16, 2005 to June 30, 2006

Project Final Report Due: December 31, 2006

Location: Western Alaska

Project Objectives:

The objectives of this component are:

1. Facilitate the testing and evaluation of ground observations and radar observations to detect and quantify movements of eiders near potential wind-generation sites in coastal areas.
2. Assist in the collection of data on eider occurrence and movements at Gambell (particularly in fall) and Hooper Bay (particularly in spring) to evaluate feasibility and siting considerations for wind generation facilities.
3. Contribute toward development of a database on seasonal waterfowl movements in areas of western and northern Alaska as related to potential windfarm developments.
4. Attempt to document mortality of eiders at towers already in place (e.g., FAA, communications) at Gambell and Hooper Bay.

Summary of Project Accomplishments:

1. Testing methods—Testing and evaluation of methods for ground and radar observations of eiders were completed at three study sites during the previous reporting period. A synthesis of field methods has been provided to the Alaska Energy Authority (AEA) and Alaska Village Electric Cooperative (AVEC) for use in future project planning studies.
2. Field data collection—Completed in the previous reporting period. Final field project reports by Alaska Biological Research, Inc. (ABR) were produced and submitted with the last progress report and to USFWS field office personnel.
3. Database development—After initial conceptual discussions with AEA, AVEC, and ABR about development of a regional database on seasonal waterfowl movements in areas of western and northern Alaska, specific work plans were not developed. Final efforts will be made to determine whether AEA and AVEC are willing to sponsor development of a project model to be implemented in the future, including an evaluation of basic datasets (e.g., USFWS survey data, landforms, weather information), GIS format and accessibility needs, and the potential scope of applications.
4. Mortality data from existing structures—Results were reported in the previous progress reports and products.

Problems or Deviations from Work Plan: The project sponsors have not followed through on intentions to develop a pilot project for a regional database on seasonal waterfowl movements.

Anticipated Focus Next Reporting Period: ADF&G will consult with AEA and AVEC to see if they will engage in development of the regional database model. If they do not wish to continue additional work, existing data from other project objectives will be assembled and synthesized in the final grant report.

Interim Project Costs (estimated): During this reporting period, no grant funds were expended on this project.

Federal share	\$ 0
State share	\$ 0
Total	\$ 0

Prepared By: Tom Rothe, Alaska Department of Fish and Game