

EVOSTC ANNUAL PROJECT REPORT

Project Number:..... 050749

PI Name:Anne Hoover-Miller, Shannon Atkinson, PhD

Time period covered by report:..... October 1, 2005 – September 30, 2006

Date of Report:..... August 31, 2006

Report prepared by:Anne Hoover-Miller

Project website address (if applicable): ... <http://www.oceanalaska.org/research/sealrvm.htm>

Work Performed: Summarize work performed during the reporting period, including any results available to date and their relationship to the original project objectives. Explain deviations from the original project objectives, procedural or statistical methods, study area or schedule. Also describe any known problems or unusual developments, and whether and how they have been or can be overcome. Include any other significant information pertinent to the project.

FY06 Project Tasks

FY 06, 1st quarter (October 1, 2005-December 31, 2006)

October 15	Winterize system for dormancy; begin data analysis
November 30	Test still camera system in Seward to identify operating constraints and ensure winter operations
December 31	Submit manuscript for publication

FY 06, 2nd quarter (January 1, 2006-March 31, 2006)

January 12-16	Annual Marine Science in Alaska Symposium
March 31	Renew maintenance contract with SeeMore Wildlife
March 31	Submit manuscript for publication

FY 06, 3rd quarter (April 1, 2006-June 30, 2006)

April 30	Begin preparing video cameras system for summer operation
May 15	System fully functional, begin recording data

FY 06, 4th quarter (July 1, 2006-September 30, 2006)

September 1	Annual Report
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Objective 1. Aialik Bay Video Monitoring System

Aialik Bay Video Monitoring

Camera operations continued from October 1 through November 2, 2005, at diminished monitoring levels due to camera function, weather, and personnel availability.

In spring 2006, the maintenance contract with SeeMore Wildlife was continued. The Aialik Bay camera system was refurbished on April 29, 2006 and was fully operational on May 8th. Observations are ongoing and expected to continue through mid-October 2006. Capability to digitally record 120 mb of video in the field was added to the system to obtain higher quality images than can be transmitted to the ASLC. Digitized images on a hard drive will be retrieved periodically from the recording site for use at the ASLC. Testing the communications, controls, and video quality are ongoing and should be complete prior to the 2007 field season.

During the spring, ice at Aialik Glacier was more abundant than has been seen in recent years. Despite the prevalence in ice, numbers of seals remained relatively low (generally less than 200). Ice in Pedersen Lake also was more abundant and persistent than in previous years. The lake remained frozen late into the spring, and recession of the glacier produced abundant large bergs that persisted throughout the summer. Unlike during 2005, seals did not pup in Pedersen Lake. Coyote activity on the ice was observed more frequently throughout the summer. During the pupping period, coyotes were repeatedly observed traversing the pan ice. Disturbance of seals was associated with coyote activity, and the presence of coyotes may have adversely affected pupping in Pedersen Lake. More than 480 seals were counted during the molting period. During the molt, most seals hauled out at Pedersen Glacier with relatively low numbers counted at Aialik Glacier.

In addition to video monitoring observations, Caroline Jezierski conducted field studies at Pedersen Lake to observe the ambient behavior of seals and interactions between harbor seals and kayakers from July 7 to August 9, 2006. Field and camera observations will be analyzed during the fall and winter.

Objective 2. Day Harbor Monitoring

Testing of Timelapse Digital Cameras

Due to poor digital camera performance of the Nikon Coolpix cameras and limited image storage, a modified design that combines video images recorded onto a field digital video recorder (DVR) (designed by SeeMore Wildlife Inc.) with the use of digital still cameras is being investigated. Inclusion of the video technology will provide more frequent image capture and image redundancy while the digital cameras provide close-up images of focal haulouts on a less frequent basis.

The field digital video recorder was purchased and installed in Day Harbor in late June 2006. The DVR is being operated in time-lapse mode to provide an overview of the haulout area; digital cameras will be used to supplement observations by providing detailed images of selected rock haulouts for shorter periods of time (approximately 1-2 months). Redundancy from using both methods is expected to provide greater reliability than either mode alone. In July 2007, a Coolpix 8800 digital camera unit was installed to cover a small haulout not visible to the video camera. Despite the use of 4 solar panels exposed to the east, energy consumption of the DVR exceeded energy generation. During periods of insufficient energy, the DVR unit temporarily shut down. With sufficient recharging the unit successfully restarted. Coverage was markedly reduced during periods of low light levels. Refinements are ongoing to improve image quality and evaluate energy consumption and solar energy requirements. Field testing will continue throughout the winter.

Overall Progress

The video monitoring project in Aialik Bay is on task and on schedule. The digital time-lapse camera system for Day Harbor is requiring additional design and testing.

Future Work: Summarize work to be performed during the upcoming year, if different from the original proposal. Describe any proposed changes in objectives, procedural or statistical methods, study area or schedule. **NOTE:** *Significant changes in a project's objectives, methods, schedule or budget require submittal of a new proposal subject to the standard process of proposal submittal, technical review and Trustee Council approval.*

Future work will follow the original proposal.

The remote digital camera system has required additional design, development and testing.

Coordination/Collaboration: Describe efforts undertaken during the reporting period to achieve the coordination and collaboration provisions of the proposal, if applicable.

Strong collaborations with the Ocean Alaska Science and Learning Center, National Park Service, and Port Graham Corporation have continued throughout the year. A Memorandum of Understanding between the Alaska SeaLife Center and the Port Graham Corporation that allows placement of a repeater on their lands has been renewed through December 31, 2007. Continued collaboration with the National Park Service has allowed the placement of a new camera adjacent to Pedersen Glacier.

Community Involvement/TEK & Resource Management Applications: Describe efforts undertaken during the reporting period to achieve the community involvement/TEK and resource management application provisions of the proposal, if applicable.

During 2006, community involvement has included multiple public presentations to acquaint vessel operators (including kayakers) in Anchorage and Seward with our observations systems in Aialik Bay, information we have learned using the

cameras, and recommendations for responsible vessel operation. Special attention has been given to the kayak industry. A workshop was held at the Alaska SeaLife Center for local kayak guides where information was provided on our camera system, harbor seals in ice environments, and responses of seal to vessels, including kayaks. Valuable discussions yielded insight from kayak guides pertaining to their observations and experiences in minimizing their impact on wildlife. In addition C. Jezierski has maintained contact with kayak guides that continue dialogue and sharing of information with people interacting with the public.

The ASLC/OASLC also provides daily public presentations throughout the summer on harbor seals in Aialik Bay and the video monitoring system.

Information Transfer: List (a) publications produced during the reporting period, (b) conference and workshop presentations and attendance during the reporting period, and (c) data and/or information products developed during the reporting period.

NOTE: Lack of compliance with the Trustee Council's data policy and/or the project's data management plan will result in withholding of additional project funds, cancellation of the project, or denial of funding for future projects.

(a) Publications produced during the reporting period

Hoover-Miller, A. A., S. Atkinson and P. Armato. 2006. Temporal shifts in pupping phenology of harbor seals in a declining and recovering harbor seal (*Phoca vitulina richardi*) population in Aialik Bay, Alaska, was submitted to Marine Mammal Science in December 2005. It was not accepted in its current form. A revised manuscript is being developed that will address reviewer comments and include data from the 2006 field season.

Hoover-Miller, A., C. Jezierski, S. Conlon and S. Atkinson. 2006. Harbor seal population dynamics and responses to visitors in Aialik Bay, Alaska. 2005 Report to the Ocean Alaska Science and Learning Center and the National Park Service. April 2006. 44p.

Jezierski, C. 2006. Pinniped viewing guidelines. Alaska Seas & Coasts. Alaska SeaGrant. March 2006.

(b) Conference and workshop presentations and attendance during the reporting period

Hoover-Miller, A., S. Atkinson and P. Armato. 2005. Use of Pupping Phenology to Assess Reproductive Success of Harbor Seal Populations. 16th SMM Biennial Conference on the Biology of Marine Mammals. December 12-16, 2005. (Poster)

Hoover-Miller, A. and S. Atkinson. 2006. Changes in Harbor Seal Population Dynamics in Aialik Bay 2006 Marine Science in Alaska 2006 Symposium. January 22-25, 2006. (Oral)

Hoover-Miller, A., S. Atkinson and P. Armato. 2006. Temporal shifts in pupping phenology of harbor seals in a declining and recovering harbor seal (*Phoca vitulina richardi*) population in Aialik Bay, Alaska. Marine Mammals of the Holarctic. Sept 10-14, St. Petersburg, Russia. (Oral)

Jezierski, C. 2006. Miller's Landing Orientation 16 May 2005, Seward: Presentation on Aialik Bay research and kayak interactions. (Oral)

Jezierski, C. 2006 Alaska Sea Kayak Symposium 12-14 May, Anchorage: Presentation on the remote camera system and operating kayaks around harbor seals. (Oral)

Jezierski, C. and A. Hoover-Miller. 2006. Harbor Seal (*Phoca vitulina*) – Kayak Interactions in Pedersen Lake, Kenai Fjords National Park. 2006 Marine Science in Alaska 2006 Symposium. January 22-25, 2006. (Poster)

Jezierski, C. and A. Hoover-Miller. A Comparison of Harbor seal (*Phoca vitulina*) behavior in the presence and absence of kayaks in Pedersen Lake, Kenai Fjords National Park. Wildlife Society Annual Conference, September 2006, Anchorage, Alaska. (Poster)

(c) Data and/or information products developed during the reporting period

Hosted workshop with local kayak guides on May 3, 2006 to discuss natural history of harbor seals on glacial ice, the camera system, and effects of kayaks on harbor seals.

Jezierski, C. and S. Conlon. SeaExtreme Episode 2: Kayaking with Seals, Alaska SeaLife Center documentary of remote video monitoring and kayak interactions with harbor seals in Aialik Bay, released May 2006, Seward, Alaska.

Databases associated with remote monitoring.

- Standard Database: includes counts of seals and sea otters, timelapse video tape log, standard VHS video log, weather at surveys times (observations and measurements from weather equipment on Squab Island including wind direction, velocity, temperature, pressure, and humidity).
- Vessel Interaction database.
- Video library of time-lapse tape and real-time VHS tapes from Aialik Bay remote video cameras.
- Still image library. Still pictures taken from the video cameras that document events, ice distribution, and glacier movements.

Budget: Explain any differences and/or problems between actual and budgeted expenditures, including any substantial changes in the allocation of funds among line items on the budget form. Also provide any new information regarding matching funds or funds from non-EVOS sources for the project.

NOTE: *Any request for an increased or supplemental budget must be submitted as a new proposal that will be subject to the standard process of proposal submittal, technical review, and Trustee Council approval.*

Remaining 2005 funds budgeted to support development of remote still-digital camera monitoring system were used to purchase a digital video recorder for field testing during the winter 2006 to evaluate differences in quality of images, system reliability, and energy management.