

# **EVOSTC ANNUAL PROJECT REPORT**

**Project Number:**..... 050749

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

**Time period covered by report:**..... October 1, 2004 – September 30, 2005

**Date of Report:**..... August 8, 2005

**Report prepared by:** .....Anne Hoover-Miller

**Project website address (if applicable):** .....

**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.

## **FY05 Project Tasks**

### **FY 05, 1st quarter (October 1, 2004-December 31, 2004)**

October: Project funding approved by Trustee Council  
October 31: Order parts and assemble cameras for Day Harbor.  
November 30: Test still camera system in Seward to identify operating constraints and ensure winter operations.

### **FY 05, 2nd quarter (January 1, 2005-March 31, 2005)**

January 24-26: Marine Science in Alaska Symposium  
March 31: Renew Maintenance Contract with SeeMore Wildlife.

### **FY 05, 3rd quarter (April 1, 2005-June 30, 2005)**

April 15 Install prototype still cameras at haulout sites in Day Harbor  
April 30 Begin preparing video cameras system for summer operation  
May 15 System fully functional, begin recording data

### **FY 05, 4<sup>th</sup> quarter (July 1, 2005-Sept 30, 2005)**

September 1: Annual Report

## ***Objective 1. Aialik Bay Video Monitoring System***

### **Permits**

The National Park Service approved placement of a remotely controlled video camera above Pedersen Glacier.

### **Renewal of SeeMore Wildlife Contract:**

Due to extended three-year funding, we were able to negotiate a three-year contract with SeeMore Wildlife, Inc., that excluded anticipated capital lease costs of \$40,000 for equipment. We modified our budget to provide support for a Graduate Research Assistant (Caroline Jezierski) for 12 months and an intern (TBD) for 6.6 months during FY06 to assist in the processing of images from the video monitoring in Aialik Bay.

### **Aialik Bay Video Monitoring**

The Aialik Bay video monitoring system was refurbished in May 2005 as extensive damage occurred during the winter. In addition a new camera was installed on the south side of Pedersen Glacier. The system was fully functioning by May 15<sup>th</sup>, 2005. Equipment problems were experienced in late May and early June, but camera operations stabilized after repairs were made on June 7. The Pedersen Glacier ceased operating on 7/21/05 due to damage by bears. A repair trip conducted on 7/27/05 was not successful because the helicopter was unable to land on the rough terrain near the site; however, repairs, including replacement

of the camera, were successfully made on 8/6/05. The new camera operated well for 3 days then began degrading in quality. By 8/25/05 the camera has completely failed in a manner similar to that caused by the bears. New camera protection is being explored to discourage continued damage and another repair trip will be made in early September.

Pupping appeared 1-2 weeks early this year and seals are using ice near Pedersen Glacier more consistently than the ice near Aialik Glacier, despite frequent visits by kayakers in Pedersen Lake. Counts near Pedersen Glacier have exceeded 400 seals, the highest attendance observed at that location. In contrast, seal attendance near Aialik Glacier was consistently low (<160 seals). Maximum counts that include both Aialik and Pedersen Glaciers reached 565 seals on August 9, 2005, a 36% increase from counts obtained in 2004.

#### **Other activities:**

##### **Marine Science in Alaska Symposium**

A poster "Harbor Seals: Tractable sensors of ecological change?" was presented by A. Hoover-Miller at the 2005 annual Marine Science in Alaska Symposium.

#### *Objective 2. Day Harbor Monitoring*

A signed grant funding agreement was not completed until 12/15/04 which delayed ordering of equipment. An initial camera with controller was ordered and received and tested to identify alternative power options that may improve the reliability of operations in the field.

##### **Testing of Timelapse Digital Cameras**

Testing of a Coolpix 5700 camera with DigiSnap 2800 intervalometer provided inconsistent results where the camera irregularly ceased operating without automatically restarting. Conditions that resulted in loss of operation were not identified. Symptoms were similar to those experienced by P. Boeving, NMFS NMML, using the same camera and intervalometer.

A Coolpix 8700 digital camera also was tested. Although the DigiSnap 2800 intervalometer identified the Coolpix 8700 as a compatible model, the camera ceased functioning and required repair of the lens mechanism. It was discovered that the Coolpix 8700 has a built-in intervalometer that allows time-lapse photography for up to 1,800 images. Both the Coolpix 8700 and 8800 are limited to 4 GB compact disk cards; the Coolpix 5700 is limited to a 2 GB compact flash card. Due to storage and intervalometer limitations, images will need to be downloaded on a monthly basis. Images will need to be taken every 30 minutes rather than every 15 minutes as originally proposed.

During the third quarter, four self-contained camera systems were developed using Nikon Coolpix 8700 and 8800 cameras. Each system includes a 10-15 watt solar panel, 6 watt charge controller, 12 amp-hour 12 volt sealed battery, and a Nikon 12 volt power converter for the Nikon Coolpix 8700 camera. Equipment was mounted in waterproof pelican cases with a window installed for the camera's view. The system appeared to provide adequate power for summer use. Within each case, space is available to provide for extra batteries for winter use.

Initially, the cameras performed well and the system appeared considerably more energy efficient than the original design using the Coolpix 5700 and Harbortronics 2800 controller. Nevertheless, the cameras have been plagued with "lens error" problems that have required multiple repairs. Field installation of the cameras is not planned until the system stabilizes with all cameras working reliably without lens problems. Testing during winter conditions will be conducted in Seward where cameras can be regularly monitored.

##### **Permits**

A permit from the Department of Natural Resources was requested for placement of the camera in three general locations in Day Harbor. Department of Natural Resources Land Use Permit LAS#28185 was issued on June 14, 2005, and allows the use of remote monitoring equipment in Day Harbor through May 29, 2010. This permit allows placement of cameras in all regularly used haulouts and potential expansion of the system to cover nearly all identified haulouts in the fjord.

#### *Overall Progress*

The video monitoring project in Aialik Bay is on task and on schedule despite difficulties with equipment caused by wildlife. The digital time-lapse camera system for Day Harbor is requiring additional design and testing to provide a reliable monitoring platform.

**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 that originally proposed with the following exceptions:

A University of Alaska graduate student, Caroline Jezierski, will be funded through this grant to conduct field and camera-based research in Aialik Bay. Her graduate research focuses on interactions between kayakers and harbor seals. She will aid in processing and analyzing images obtained through the camera systems.

The still digital camera system has required additional design, development, and testing. Testing will continue through March 2006 in Seward where the cameras can be closely monitored.

**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 2005, community involvement has included 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

Atkinson, S and D. Sitzler. 2005. Semi-Annual Progress Report of Alaska SeaLife Center activities as part of the Ocean Alaska Science and Learning Center. Alaska SeaLife Center, Seward, Alaska. 32pp

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

A. Hoover-Miller. 2005. Harbor Seals: Tractable sensors of ecological change? Marine Science in Alaska Symposium. (Poster) on January 24-26, 2005, Anchorage.

2005 Sea Kayak Symposium 7-9 May, Anchorage: Presentation on the remote camera system and operating kayaks around harbor seals.

Miller's Landing Orientation 16 May 2005, Seward: Presentation on Aialik Bay research and kayak interactions

Hosted workshop with local kayak guides on 26 May 2005 to discuss natural history of harbor seals on glacial ice, the camera system, and effects of kayaks on harbor seals.

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

- 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 (wind direction, velocity, temperature, pressure, humidity)
- Vessel Interaction database.
- Video library on time-lapse tape and higher quality real-time VHS for shorter periods.
- 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.*

Due to three-year funding, we were able to negotiate a three-year contract with SeeMore Wildlife, Inc., that excluded anticipated capital lease costs of \$40,000 for equipment. We modified our budget to provide support for a Graduate Research Assistant (Caroline Jezierski) for 12 months and an intern (TBD) for 6.6 months during FY06 to assist in the processing of images from the video monitoring in Aialik Bay. The modification was approved by the EVOS Restoration Program Coordinator for the Alaska Department of Fish and Game on 5/5/05.