

SEMI-ANNUAL PERFORMANCE REPORT

Grant Number: NA07NMF4390364

Amount of Grant: \$344,843

Project Title: Acoustic Monitoring of Beluga Whales and Noise in Cook Inlet

Grantee: Alaska Department of Fish & Game

Cooperators: Scientific staff from the NMFS, Alaska SeaLife Center, & Hawaii Institute of Marine Biology

Award Period: From 1 October 2007 through 30 September 2010

Period Covered by this Report: 1 October 2008 through 31 March 2009

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Summary of Progress and Expenditures to Date

Fieldwork Accomplishments

No fieldwork was conducted during this reporting period.

Revision of Research Approach

When this project was first proposed, there was the recognition that deploying acoustic recorders on moorings in Cook Inlet would be challenging due to the extreme environmental conditions of the inlet, especially the large tidal fluctuations and sedimentation. Further, the amount of research conducted on the acoustics of beluga whales is quite limited. Based on the success of the field trials conducted in Cook Inlet during the summer of 2007 (see previous progress report) and progress on other beluga acoustic projects, the approach to our study was reviewed and revised during the current reporting period, yet our research objectives have remained the same:

1. Monitor acoustic call data from Cook Inlet belugas to improve the understanding of their (a) seasonal presence in the lower and mid regions of Cook Inlet and (b) the occurrence of seasonal shifts in their distribution.
2. Monitor acoustic call data from killer whales to improve the understanding of their seasonal presence in Cook Inlet.

3. Increase the information of seasonal ambient noise levels, both natural and anthropogenic, in Cook Inlet.

Specifically, a Revised Scope of Work was submitted and approved by NMFS, and the primary revisions including the following:

Equipment

In contrast to the original proposal that included 4 mooring packages using one type of acoustic recorder (i.e., the EAR), the new approach will be to deploy 6 mooring packages each with 2 types of acoustic recorders (i.e., an EAR & C-POD). The overall cost of equipment purchases will be ~15% greater than originally proposed. The reason to use both types of acoustic recorders is to obtain data from belugas across a broader frequency range, thus increasing the probability of detection. In contrast to when the original proposal was drafted, information on C-PODs was quite limited, whereas in the last year the recorders have been successfully recorded beluga calls and whistles. Thus, acoustic data will be collected from 3 additional locations within Cook Inlet; the proposed mooring locations are shown in the Figure on page 4.

Personnel

When the proposal was initially drafted, knowledge of a very similar project that was proposed by the Alaska SeaLife Center (ASLC) was not available. Once personnel from the two projects became aware of the similar objectives of their respective studies, they agreed to collaborate. The ASLC project is nearly completed, and personnel from that project (Shannon Atkinson & Justin Jenniges) will now be involved in this project, contributing their expertise. Contracts will be established with the University of Alaska and Alaska SeaLife Center, for Atkinson and Jenniges, respectively.

Jennifer Ewald was listed as a 'senior acoustic technician' in the original proposal, and she provided important information and expertise through the field studies conducted in 2008. She is not expected to be involved in the study in the same capacity for the duration of the study.

Dr. Marc Lammers and Dr. Whit Lo Au are the scientists that design and manufacture the EARs, and a contract will be established with them to procure and program the EARs, which is in contrast to the original proposal. Further, anticipating that a substantial amount of acoustic data will be collected, a data processor will be hired and trained under Dr. Lammer's guidance. The employment of the data processor is in contrast to the original proposal that included a graduate student for data analysis. Based on discussions and recommendations received during the development of the study, the decision was made that the project was not yet suitable for a graduate study, and a full-time data processor was a better approach to expedite data analyses.

Because the C-PODs are a distinctly different type of acoustic recorder than the EAR, the key individual that has successfully recorded beluga acoustic signals with C-PODs will assist in the initial programming of the device and integration with the EAR on the same mooring. This individual, Manolo Castellote of Spain, will also perform some of the initial data analyses. His involvement will be established through a contract, which represents an additional contribution to the project. Manolo has applied for an NRC post-doc at the National Marine Mammal Laboratory, and if he receives the post-doc this project will likely represent a portion of his studies.

Coordination and Collaboration

Several other acoustic studies in Cook Inlet, most involving belugas, are being conducted and others are in the planning stages. This project will work with NMFS staff to ensure coordination and collaboration among projects is pursued to maximize productivity and minimize duplication.

Schedule and Milestones

Spring/Summer 2009 – Autumn 2009

- Deployment of acoustic recorders in Cook Inlet
- Preliminary acoustic data analyses
- Determination of possible over-winter deployments

Winter 2009-2010 – September 2010

- Possible overwinter deployments
- Completion of acoustic data analyses
- Report preparation
- Seeking of additional funds for extension of project

Project Costs

Of the remaining project funds (~\$265,000) the majority (~\$230,000) will be spent by autumn 2009. Any remaining funds will be spent in 2010 on data analyses and report preparation.

