BOEM ENVIRONMENTAL STUDIES PROGRAM: ONGOING STUDIES

BOEM OCS Region: Alaska

Planning Area(s): All Planning Areas

Title: Support for NOPP Project on Improving Cetacean Electronic Data Loggers (satellite-tracked tags for marine mammal studies) (NT-10-03)

BOEM Information Need(s) to be Addressed: This study will enhance BOEM's ability to research the important ecological issues of cetacean feeding, migration, and other habitat uses by improving an important research tool. Subsequent environmental studies using this tool will produce valuable information on migrating marine mammals, which, in turn, will be used for impact analyses and consultations under NEPA, ESA and MMPA, pertaining to offshore activities, including renewable energy projects, in all leasing areas.

Total Cost: (in thousands) $ 450 plus joint funding

Period of Performance: FY 2010-2015 with extended POP

Conducting Organization: Cascadia Research via NOPP with Office of Naval Research

BOEM Contact: James Price

Description:

Background: In recent years, BOEM has funded studies employing satellite-tracked tags attached to beluga and bowhead whales in the Alaskan Arctic and sub-Arctic waters and has plans to use this instrument on walruses in the Chukchi Sea. The tags are instruments attached to the bodies of selected animals and tracked by satellites. They can record information about the tagged animals such as the depths and durations of the animals' dives in addition to basic environmental information such as the temperature and salinity of the water in which they are diving, and other environmental variables of ecological significance. The recorded information is transmitted back to researchers through the tracking satellites when the animals return to the surface.

The seasonal migration of tagged bowhead whales in the Beaufort Sea this past winter and spring (2008 – 2009), to cite one example, has been observed with great success. The whales are tracked night and day, in good weather or bad, during times of extensive ice cover and not, making this observational technique a very valuable augmentation of existing observational methods using ships and aircraft. When location and dive information is combined with ancillary environmental information like prevailing ice cover, significant understanding of bowhead habitat use is gained, and a significant enhancement of BOEM's environmental risk assessments is realized.

The U. S. Navy recently undertook a development effort to enhance the informational gathering capability of tags for marine mammal research. In addition, The Office of Naval Research conducted a Cetacean Tag Design Workshop in March 2009. The workshop evaluated the three main attachment designs and the existing and future "features" with consideration of the longevity of the tags and possible injuries and other health impairments incurred by the tagged animals. The workshop established the basis of the National Oceanographic Partnership Program (NOPP) project that will be partially funded by this study.
The previous, U. S. Naval effort to improve the tags quickly resulted in tags of greater reliability and with the capability to measure and record temperature and salinity. (Measuring salinity (electrical conductivity) was a technological challenge given the natural electrical currents running through the skins of tagged animals.) The improved tags quickly became available to researchers and provided a significant enhancement to marine mammal research.

The next round of improvements, to be facilitated by this study, are likely to again be implemented quickly and offer BOEM-funded and other environmental studies longer animal tracking and longer records of ecological parameters measured by the tags. In addition, they will likely reduce the adverse impact on the tagged animals' health and longevity, critically important when studying threatened or endangered species. The likely quick improvement to BOEM's marine mammal studies makes the investment in this study worthwhile.

Objective: The objective of this study is to solicit and jointly fund research projects in the following two areas pertaining to satellite-tracked tags for marine mammal investigations.

Research Area 1.: improving and testing tag attachment designs or "features" of current tag attachments that will maximize tag attachment duration and consistency for each of the three types of tags. These projects will investigate the causes of tag success and tag failure (rejection, loss) to optimize attachment duration and consistency for each tag type with the least possible adverse effect on the animal.

Research Area 2.: evaluating the potential near- and long-term physical, physiological, and/or behavioral effects of each of the three tag attachment types on tagged animals. These projects will perform follow-up examinations on the effects of the various tag attachments (harpoons, bolts, suction cups, etc.) on animals in captivity and/or wild populations with good follow-up capabilities.

Methods: Following the usual NOPP process, a broad agency announcement (BAA) will be disseminated in the early fall of 2009 soliciting proposals in the two research areas described above. The proposals submitted will be peer reviewed by a panel of experts selected by the JIP and participating industrial and governmental agencies and then ranked according to their scientific merit. Also, the proposals will be concurrently internally reviewed by the agencies, evaluating them based upon their value to the

missions of the agencies. Funding will be awarded through negotiations among the participants and based upon both scientific merit and agency needs.

Current Status: Ongoing

Final Report Due: June 30, 2015

Publications Completed: (none to date)

Affiliated WWW Sites:
http://www.nopp.org/wp-content/uploads/2014/12/Calambokidis.TaggingHealthImpactWhales.2010.pdf

Revised Date: March 2015

ESPIS: Environmental Studies Program Information System
All *completed* ESP studies can be found here:
http://www.data.boem.gov/homepg/data_center/other/espis/espisfront.asp