

## **BOEM ENVIRONMENTAL STUDIES PROGRAM: Ongoing Studies**

**Region:** Alaska

**Planning Area(s):** Beaufort Sea, Chukchi Sea

**Title:** Joint Funding Opportunities in Existing Marine Fish Studies  
(AK-10-09)

**BOEM Information Need(s) to be Addressed:** Data on the distribution, abundance and feeding ecology of fish in the offshore environment is valuable for understanding key ecological transfer events that cascade to higher trophic level predators. This information is valuable for assessing oil-spill risks. Data on fish will be useful in Essential Fish Habitat and NEPA analysis in terms of fish themselves and as prey items for marine birds and mammals. Information resulting from fish surveys will be useful for developing mitigation measures to reduce potential impacts to upper trophic level birds, fish, and marine mammals from proposed oil and gas exploration and development activities.

**Total Cost:** \$225,981

**Period of Performance:** FY 2010-2014

**Conducting Organization:** Various

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### **Description:**

**Background:** More information about fishes in the Chukchi and Beaufort seas is needed because marine fish fill an essential role in the Arctic ecosystem by consuming small prey and themselves providing a food resource for larger fishes, birds, marine mammals, and people. The Chukchi and Beaufort seas are outside the range of the NOAA Alaska Fishery Science Center regular fish trawl surveys, subsistence and commercial fisheries are presently limited to very near shore (within 3 nmi), and the logistical effort and cost of offshore fishery investigations can be prohibitive. Often there are existing research venues that collect important fish data and specimens. To address this information need for arctic fishes, this project will build off other recently established (and ongoing) at-sea survey programs that will collect distribution data on key fish species (demersal and pelagic) via partnership and collaboration among the NOAA-Fisheries, the Alaska Monitoring and Assessment Program (AKMAP) from the Alaska Department of Environmental Conservation (ADEC), U.S. Coast Guard (USCG), the Russian-American Long-term Census of the Arctic (RUSALCA), and other vessel-based programs both inshore and offshore of lease areas.

Additional baseline data for fish species in the Chukchi and Beaufort seas will help explain effects of climate change. Such information will help to distinguish between anthropogenic and natural effects of change without a basis of comparison. Thus it is important to assess the distribution and abundance of fishes in the Chukchi Sea prior to oil exploration, and oil extraction in the Beaufort. Current research focuses on current and historic distribution and ecology of demersal fishes in the Chukchi Sea Lease Area for small bottom fishes. Those

collections enhance the NOAA-funded joint US-Russian RUSALCA program that collects fishes further north, south, and west. However, sampling of fishes in Lease Sale 193, especially in the vicinity of the leases, is lacking. Additionally opportunistic sampling within the Beaufort Sea areas is also needed. There remains a paucity of data for demersal fishes in these areas and information for pelagic fishes is lacking entirely. Filling these needs will be valuable for addressing impacts from oil and gas exploration.

Objectives:

- Estimate the spatial distribution, species composition and feeding ecology for fish species in designated and potential planning areas.
- Process the data (GIS based maps and attribute tables) for entry into BOEM Fish database for future accessibility and to facilitate new information for Oil-Spill-Risk Analysis and Essential Fish Habitat designations
- Preserve specimens for further study and for Alaska Museum voucher specimens.
- Identify high priority locations for mitigation or deferral areas under consideration in environmental assessments.

Methods: Fish samples, as well as abundance and distribution data, will be collected on ships of opportunity, primarily via partnership and collaboration among the NOAA-Fisheries, AKMAP, USCG, RUSALCA, and other vessel-based programs both inshore and offshore of lease areas. If permitted, scientific personnel may be deployed to assist in sample collection.

Implement quantitative ecological analyses of existing 2008 Western Beaufort Sea Marine Fish and Invertebrate Survey data with emphasis on ecological relationships among fish species, prey, habitats and communities.

**Current Status:** Ongoing

**Final Report Due:** Multiple final reports (expected 2011, 2012, 2014).

**Publications Completed:**

Pirtle, J. L. and F. J. Mueter. 2011. Beaufort Sea Fish and their Trophic Linkages: Literature Search and Synthesis. BOEMRE 2011-021. 49pp.

**Affiliated WWW Sites:** <http://www.boem.gov/akstudies/>

**Revised Date:** December 2012

**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](http://www.data.boem.gov/homepg/data_center/other/espis/espisfront.asp)