

MMS ENVIRONMENTAL STUDIES PROGRAM: ONGOING STUDIES

Region: Alaska

Planning Area(s): Beaufort Sea, Chukchi Sea

Title: Arctic Fish Ecology Catalogue (AK-07-05)

MMS Information Need(s) to be Addressed: MMS needs organized fish ecology and behavioral information for NEPA analysis of fisheries resources, including Essential Fish Habitat and rare species. Study products will be used in post-sale NEPA analysis, review of EPs, DPPs and other reviews for post-sale and post-exploration MMS decision making and mitigation. Also, study results will be used in similar pre-lease analyses and documentation for later Chukchi Sea Lease Sale(s) in the *Outer Continental Shelf Oil and Gas Leasing Program 2007-2012*.

Total Cost: \$475,000 plus Joint Funding

Period of Performance: FY 2008-2011

Conducting Organization: USGS

MMS Contact: [Chief, Alaska Environmental Studies Section](#)

Description:

Background: A comprehensive synthesis of ecological and behavioral information concerning arctic fishes of Alaska is important to MMS fisheries scientists investigating arctic fish resources. The MMS co-funded the most recent reference on Alaskan fishes. However, the latter is primarily a taxonomic key to Alaska fish species with summary distribution maps. A companion volume describing the ecology and behavior of important fish species has yet to be funded. Limited sub-arctic commercial and forage fish data are available in gray literature, e.g., the NMFS groundfish assessment documents for Gulf of Alaska, the Bering Sea and Aleutian Islands. Arctic fish ecological and behavioral information has not been synthesized; it is only available piecemeal from a wide range of peer-reviewed and gray literature.

Objectives:

- Synthesize ecological and behavioral information into species by species accounts Arctic Alaska fish, including future information needs, for use by MMS NEPA analysts
- Synthesize reviews of present knowledge of general arctic fish ecology topics.

Methods: This study will 1) Develop review of the knowledge of each fish species that may occur or expand into Arctic Alaska waters; 2) include freshwater, diadromous, and marine fish species occurring in the Beaufort and Chukchi Seas and possibly adjacent Arctic waters (eastern Russia and western Canada); 3) synthesize ecological and behavioral information into a desk reference catalogue for use by MMS NEPA analyst.

The first portion of the catalogue will include species-specific accounts 1-3 pages in length per species. Pertinent information for each species will include: species binomen; synonymy; common names; illustration; field marks; diagnostic features; geographical distribution (including GIS maps of documented occurrences and habitat areas by life history stage); biology (e.g. reproductive biology); behavior, ecology, and habitat (e.g. life history strategy, habitat types and areas, migration); size; interest to fisheries; literature; and remarks. Data deficiencies and areas for future research for each species will be identified.

The second portion of the catalogue will include articles synthesizing ecological and behavioral information by topic. Broad topics will include, but are not limited to: environmental and organism constraints, foraging and feeding ecology, bioenergetics, use of time and space, growth, reproduction, predation and parasitism, competition and mutualism, dynamics of population abundance and production, life history strategies, fish assemblages, information needs and areas for future research.

The study will publish as a desk reference available to fisheries scientists and the greater public to use in research and education.

Current Status:	In procurement
Final Report Due:	July 2011
Publications Completed:	None
Affiliated WWW Sites:	http://www.mms.gov/alaska/
Revised Date:	January 2009