

MMS ENVIRONMENTAL STUDIES PROGRAM: ONGOING STUDIES

Region: Alaska

Planning Area: Beaufort Sea

Title: Synthesis of Time-Interval Changes in Trace Metals and Hydrocarbons in Nearshore Sediments of the Alaskan Beaufort Sea: A Statistical Analysis (AK-93-48-64)

MMS Information Needs to be Addressed: This study will consolidate and conduct statistical analyses of trace metal and hydrocarbon data in sediments along the Alaskan Beaufort Sea for monitoring potential effects of offshore oil and gas activities. Findings will increase knowledge of the mechanisms of environmental change. Study results will be used for NEPA analysis and documentation for the proposed Beaufort Sea Lease Sales and for DPPs.

Total Cost: \$82,184

Period of Performance: FY 2008

Conducting Organization: CMI, UAF

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

Description:

Background For comparison to OCS development areas, it is important to establish measurements of trace metals and hydrocarbons in sediments of the Alaskan Beaufort Sea. The marine sediments of the North Slope may be a sink for both organic and inorganic anthropogenic compounds. Sediments may serve as transfer pathways to higher trophic levels. Environmental accumulation is of particular concern in the Arctic where marine organisms, being lipid rich, with relatively simple and short food chains and low biodiversity, may be especially vulnerable to bioaccumulations.

Objectives The primary objective of this study is to consolidate and statistically characterize the concentrations of 12 metals (V, Cr, Cu, Ni, Zn, As, Cd, Pb, Sn, Ba, Fe and Mn) in the mud fractions (<63 micrometre [μm] size) and HG and hydrocarbons in gross sediments sampled in the past several decades across the Beaufort Sea.. This statistical analysis will help to develop criteria for detecting metal and hydrocarbon accumulation resulting from marine and other human activities in the Beaufort Lagoon region as well as elsewhere in the Alaskan Beaufort Sea.

Methods

1. Consolidate data on a suite of trace metals and hydrocarbons that have been gathered by the authors on CMI/MMS and Outer Continental Shelf Environmental Assessment Program funded projects.
2. Conduct a statistical analysis on the data to characterize the distribution, sources (natural and anthropogenic), and regional differences.

3. Detect site-specific time-interval differences and extent of contamination during the past 30 years.

Current Status: Awaiting draft final report from CMI.

Final Report Due: August 2008

Publications Completed: None

Affiliated WWW Sites: <http://www.mms.gov/alaska/>
<http://www.sfos.uaf.edu/cmi/>

Revised Date: March 2008