

Environmental Studies Program: Ongoing Study

Field	Study Information
Title	Synthesis of Contaminants Data for Cook Inlet: Evaluation of Existing Data as “Baseline Conditions” and Recommendations for Further Monitoring (AK-21-02)
Administered by	Alaska Regional Office
BOEM Contact(s)	Caryn Smith (caryn.smith@boem.gov)
Procurement Type(s)	Cooperative Agreement
Conducting Organization(s)	Cook Inlet Regional Citizens Advisory Council
Total BOEM Cost	\$324,850 plus Joint Funding (\$80,327)
Performance Period	FY 2021–2024
Final Report Due	September 2024
Date Revised	February 16, 2023
Problem	Contaminant background levels in Cook Inlet Planning Area water and sediment are necessary for supporting National Environmental Policy Act (NEPA) analyses of potential impacts from Federal outer continental shelf (OCS) oil and gas related activities.
Intervention	This study will compile existing information about a suite of contaminants to provide the foundation upon which to better evaluate any potential impacts to water and sediment quality from Federal OCS oil and gas related activities in Cook Inlet.
Comparison	This study will produce a contaminant baseline that can be compared against promulgated Federal and State water quality criteria.
Outcome	The resulting data synthesis would facilitate a thorough analysis of potential oil and gas impacts on water and sediment quality. The results of the report would identify information needs and recommend a sampling and monitoring program.
Context	Cook Inlet Planning Area

BOEM Information Need(s): Synthesized, updated, and readily accessible contaminants information would support environmental analyses for future Cook Inlet Planning Area lease sales, Exploration Plans, and Development and Production Plans. Baseline data compared against promulgated water and sediment quality criteria is necessary to assess potential impacts of future OCS activities. This information would also be used to develop a sampling and monitoring program to inform contaminant data collection for the Cook Inlet Planning Area.

Background: Since oil industry operations began in Cook Inlet in the late 1960s, there have been various contaminant assessments, usually focusing on hydrocarbons and heavy metals in the water column, sediments, or tissues of resident organisms. Most of these efforts were targeted on specific areas of the Inlet, such as produced water discharge locations, or were otherwise limited in scope. Although several

projects have assessed anthropogenic contaminant sources, few were designed as monitoring programs or used a statistical approach that allows for interpretation of background levels and natural sources. The more comprehensive studies include “Sediment Quality in Depositional Areas of Shelikof Strait and Outermost Cook Inlet” (OCS Study MMS 2000-024) by the former Minerals Management Service (MMS) and the Integrated Environmental Monitoring and Assessment Program (ICIEMAP) led by the Cook Inlet Regional Citizens Advisory Council (CIRCAC).

Objectives:

- Identify and compile existing organic and inorganic contaminants data, as well as a comprehensive list of any known or potential contaminant sources for the Cook Inlet Planning Area.
- Assess the comparability of prior statistical designs and analytic methods and, when combined, as representative of baseline conditions in the Cook Inlet Planning Area.
- Evaluate the data in relation to Federal and State regulatory threshold levels.
- Recommend a study approach that would assess baseline conditions in Cook Inlet and monitor sediment contaminants (e.g., hydrocarbons and priority metals) in areas potentially impacted by Federal OCS oil and gas related activities.

Methods: This study will compile existing inorganic and organic contaminants data and metadata for the water column, sediment, and benthic infaunal tissue in the Cook Inlet Planning Area. Efforts will focus on hydrocarbons, metals, technologically enhanced naturally occurring radioactive materials (TENORMs), and the Environmental Protection Agency’s (EPA’s) 126 priority pollutants. Researchers will collect associated data, such as total suspended sediments (TSS), salinity, total organic carbon (TOC), sediment grain size, and other concomitant data. They will assemble data into an integrated dataset and develop visualization tools to facilitate data exploration, summaries, sharing, and interactive comparisons. The researchers will conduct a meta-analysis, including comparisons against current threshold levels published by EPA, State of Alaska, and the National Oceanic & Atmospheric Administration (NOAA) (e.g., ambient water quality criteria, human health criteria, Alaska Water Quality Standards, 18 Alaska Administrative Code [AAC] 70, and NOAA sediment criteria).

A team of experts (contaminants specialists and statisticians) will evaluate the dataset for comparability of results and its “representativeness” of conditions in Cook Inlet and identify recommendations for further study.

Specific Research Question(s):

1. Does the meta-analysis provide for a contemporary comparable baseline of contaminant data in the Cook Inlet Planning Area?
2. Do background contaminant levels exceed current EPA, State of Alaska, and NOAA promulgated threshold levels?
3. What areas in the Cook Inlet Planning Area, if any, could benefit from further contaminant sampling and monitoring to fill information needs?

Current Status: Ongoing, data analysis underway.

Publications Completed: None

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

References:

Boehm, P.D. 2001. Sediment Quality in Depositional Areas of Shelikof Strait and Outermost Cook Inlet. OCS Study MMS 2000-024. Cambridge, MA: Prepared by Arthur D. Little, Inc. for USDOI, MMS, Alaska OCS Region. 345 pp.