Study to be Discussed

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39	AQ	Arctic Air Quality Impact Assessment Modeling	1
41	MM	Chukchi Acoustic, Oceanography and Zooplankton Study: Hanna Shoal (Extension of CHAOZ)	2
43	IM	Coastal Marine Institute (extension)	3
45	IM	Cook Inlet Workshop: Information Status & Research Planning	4
47	PO	Enhanced Verification and Interpretation of Arctic Ice Formation, Distribution, and Density	5
49	IM	*Support for the 2012 United States-Canada Northern Oil and Gas Research Forum	6
51	MM	*Walrus Seasonal Distribution and Habitat Use in the Eastern Chukchi Sea	7
53	**FE**	**Physical and Chemical Analyses of Crude and Refined Oils: Laboratory and Mesoscale Oil Weathering**	**8**
55	SS	Subsistence Mapping of Wainwright, Point Lay, and Point Hope	9

AQ = Air Quality IM = Information Management PO = Physical Oceanography	FE = Fates & Effects SS = Social Systems HE = Habitat & Ecology	MM = Marine Mammals and Protected Species REN = Renewable Energy

* Denotes project that remains contingent on collaboration with external groups.

Alaska OCS Region   **Tentative Ranking: 8**

BOEM Information Need:

- The Alaska OCS Region uses an oil weathering model (OWM) to provide analysts with site-specific, common, quantitative information on potential spilled oil behavior and weathering; information not provided by the BOEM oil-spill-risk-analysis trajectory model. The OWM calculates the persistence of the lighter, but most toxic components of the oil slick and the dispersion of oil into the water with or without the presence of ice.   The behavior and weathering of spilled oil is very dependent on the specific chemistry of oil—a major reason for the difference in oil persistence and environmental damage from the *Exxon Valdez* and *Deepwater Horizon* spills.

Background:

## A) Relationship with Previous Work/Efforts

- The weathering of spilled oil is very dependent on the specific composition and physicochemical properties of each oil. The Alaska OCS Region has helped develop and currently uses the SINTEF OWM to estimate the fate and persistence of spilled oil.

Background:

B) Relationship with Concurrent/Future Efforts

- The OWM has recently been improved as part of the Oil-in-Ice Joint Industry Program (JIP) to better incorporate Arctic and cold weather conditions.   The use of the OWM in Alaska OCS Region NEPA assessment process is limited by having a small subset of lab-analyzed oil samples specific to the Alaska OCS and North Slope to run through an OWM.
- This proposed research will be informed by results from BSEE's TAR study "Validation of the Two Models Developed to Predict the Window of Opportunity for Dispersant Use in the Gulf of Mexico." That project aims to improve prediction of the window of opportunity for successful chemical dispersant use in the Gulf of Mexico.
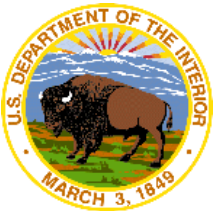
Study's Objectives:

- Expand the existing SINTEF OWM library of oil compositions to cover additional representative Alaskan OCS crude and marine fuel oils through a suite of standard oil composition analyses and mesoscale empirical weathering measurements.

<u>Methods:</u>

- This study will include a 5-year license for the JIP-updated Sintef OWM. This study will research and compile existing updated weathering data for Alaska State and OCS crude oils within the last 5 years. Existing lab weathering data for Alaskan State and OCS crude and marine fuel oils will be entered into the SINTEF oils library. Laboratory and mesoscale oil weathering tests will be conducted on approximately eight Alaskan crude or condensate oils (including: Oooguruk, Nikiakchuq, Northstar, Point Thompson, Alaska North Slope) and 2-4 refined oils (such as low-sulpher marine diesel, IFO and Bunker C).

Questions?