Program Administration

2013 - 2017

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Introduction

History

The Bureau of Ocean Energy Management (BOEM) administers the outer continental shelf (OCS) natural gas, oil, and marine minerals program overseeing the safe and environmentally sound leasing, exploration, and production of these resources within our nation's offshore areas. Under the 1978 OCS Lands Act Amendments, the BOEM Environmental Studies Program (ESP) was formally directed to provide information in support of the decisions involved in leasing and the planning and management of exploration, development, and production activities. The ESP research agenda is driven by the identification of specific issues, concerns, or information needs by federal resource managers partnering with state and local stakeholders. The ESP produces an annual studies plan identifying research priorities that focus on the following broad issues associated with development of OCS gas, oil, and minerals:

- What are the fates and effects of potential OCS-related pollutants (e.g., oil, noise, drilling muds, and cuttings, products of fuel combustion) in the marine and coastal environment and the atmosphere?
- What biological resources (e.g., fish populations) exist and which resources are at risk? What is the nature and extent of the risk? What measures must be taken to allow extraction to take place?
- How do OCS activities affect people in terms of jobs and the economy? What are the direct and indirect effects on local culture? What are the psychological effects of the proposed OCS activities?

Alaska Coastal Marine Institute Program Goals

The Bureau of Ocean Energy Management has joined with states and universities nationwide to establish a number of Coastal Marine Institutes to support research useful to the ESP and regional stakeholders. These partnerships provide a conduit for regional stakeholders to participate in research planning and information dissemination and to collaborate in research activities. Alaska's proximity to major offshore oil and gas producing areas positions it as a priority choice for such partnership. Although BOEM and the State of Alaska have distinct roles in management of OCS resources, both require reliable scientific input to inform decision making and management processes, as do communities and other stakeholders potentially affected by OCS operations. To that end, the Alaska Coastal Marine Institute (CMI) was created in 1993 by a Memorandum of Agreement (MOA) between the University of Alaska (UA) and the Bureau of Ocean Energy Management (previously Minerals Management Service). The CMI continues by MOA renewal every five years. To date, the CMI has been hosted by the University of Alaska Fairbanks, which is uniquely suited to participate by virtue of its flagship status within the state and has nationally recognized marine and coastal expertise relevant to the broad range

of OCS program information needs. As established by MOA, the Alaska CMI program goals for 2013–2017 were as follows:

1. Respond to BOEM, State and local scientific information needs and interests with local scientific expertise of national caliber in relevant disciplines and found at a major university in an active OCS region,
2. Broaden recognition and comprehension of study results through performance and presentation of findings by a highly credible local scientific research institution,
3. Improve existing local scientific capabilities and facilities for innovative scientific research relevant to OCS resource management issues,
4. Use the interdisciplinary environment of a research university to foster process oriented scientific studies, needed technologies and concepts, and syntheses of scientific information that will benefit environmental and resource management,
5. Achieve consensus between BOEM and the State of Alaska regarding the most important environmental research needs relevant to the OCS Program, and
6. Reduce the costs to the State of Alaska and BOEM of obtaining resource management information by co-funding information acquisition activities.

Alaska Coastal Marine Institute Research Goals

The intent of the CMI research program is to identify and examine potential environmental, economic and social impacts of OCS related activities. The program research priorities are guided by ESP research needs and must be pertinent to the OCS oil and gas program or the marine minerals mining program. Research funded through the CMI is used to inform resource management strategies and decision making, and it adds to the scientific knowledge base needed for safe and effective resource development activities in arctic and subarctic environments. CMI projects address issues related to fisheries, biomonitoring, physical oceanography, and the fates of oil, topics that are applicable to other regional concerns such as subsistence fisheries and northern shipping. The following framework issues were developed by the CMI to identify and bracket research areas to be addressed through the program:

- Scientific studies for better understanding marine, coastal, or human environments affected or potentially affected by offshore oil and gas or other mineral exploration and extraction on the outer continental shelf,
- Modeling studies of environmental, social, economic, or cultural processes related to OCS oil and gas activities in order to improve scientific predictive capabilities,
- Experimental studies for better understanding of environmental processes or the causes and effects of OCS activities,

- Projects which design or establish mechanisms or protocols for sharing of data or scientific information regarding marine or coastal resources or human activities to support prudent management of oil and gas and marine minerals resources, and
- Synthesis studies of scientific environmental or socioeconomic information relevant to the OCS oil and gas program. Projects funded through CMI are directed toward providing information which can be used by BOEM and the state for management decisions specifically relevant to BOEM mission responsibilities.

Alaska Coastal Marine Institute Administrative Structure

The Alaska Coastal Marine Institute was created through an administrative partnership between BOEM Alaska OCS Region and the University of Alaska Fairbanks, College of Fisheries and Ocean Sciences (CFOS). While the CMI program office, Director, and staff were housed at CFOS in Fairbanks, Alaska, both entities participated in administration and funding of the program. The federal side of the program received oversight from the Alaska OCS Region Studies Chief and a BOEM coordinating Project Officer.

Technical Steering Committee

A Technical Steering Committee (TSC) was established with two members from BOEM, two members from the University of Alaska (UAF), and two members from the State of Alaska (State). The purpose of the TSC was to ensure that BOEM, UA, and the State were represented in the identification of OCS related issues and selection of studies funded to address those issues. The members of the TSC have scientific qualification, policy and program management capability, and organizational standing sufficient to represent BOEM, UA, and State interests. Four TSC members retired from the committee during 2013–2018 included Dr. Dee Williams (BOEM), Dr. Rolf Gradinger (UAF), Dr. Larry Hinzeman (UAF) and Dr. Kimberly Kruse (Alaska Department of Natural Resources). At the time of this report, the TSC had one vacancy for a State representative and five active members: Catherine Coon (Studies Chief, BOEM Alaska OCS region), Dr. Heather Crowley (Project Officer, BOEM Alaska OCS region), Dr. Brenda Konar; (Associate Dean CFOS, CMI Director), Dr. Susan Sugai (UAF affiliate faculty), and Dr. Janet Rumble (Area Management Biologist, Alaska Department of Fish and Game).

Administrative Project Objectives

Objectives for the 2013–2017 Alaska CMI Administrative Project, established by MOA and BOEM cooperative agreement M13AC00003, included the following:

1. Coordinate and oversee annual solicitation/award cycles,
2. Liaison with stakeholders, researchers, and University and State agencies,
3. Ensure that study proposals, expenditures, and deliverables meet CMI requirements,
4. Provide post-award technical assistance, advice, guidance to recipients,
5. Coordinate the submission of project reports and deliverables,

6. Coordinate public research review seminars, and
7. Facilitate the Technical Steering Committee communication and activities.

2013–2017 Coastal Marine Institute Program Administration Summary

Overview

From 2013–2018, the CMI supported 28 new research projects and facilitated final reporting on nine projects carried forward from the 2008–2012 administrative cycle. Due to federal budget and programming uncertainties, new project funding was suspended in 2018, and the 2013–2017 CMI Administration cooperative agreement was extended through calendar year 2019. The CMI also reduced support staff effort to .75FTE in 2017 and subsequently laid off regular staff in 2018. At the time of this reporting, CMI administrative activities are supported using temporary staff to stretch funds remaining under the extended cooperative agreement.

Financial Summary

The CMI 2013–2017 Administrative Project (M13AC00003) received total BOEM funding of $501,501 for the period of performance April 9, 2013, through March 31, 2018. Annual incremental funding was received based on successful project progress. Due to funding and programming uncertainty, the project period of performance was extended to December 2019 to allow limited administrative support to continue for funded multi-year projects.

The UAF College of Fisheries and Ocean Sciences provided a 1:1 cost share on the project, primarily as salary and benefits. CMI administration was approximately 13% of the overall CMI program budget for 2013–2018; however, this cycle included nearly $70,000 of special projects funded from the administrative budget. Other major administrative expenses include salary, printing, meeting and seminar services, and office and computer supplies.

Annual Award Cycles

CMI projects funded in 2013, including CMI Administration, were identified in the last year of the previous administrative cycle and funding opportunities were initiated for federal fiscal years 2014–2017. Federal funding uncertainties precluded a call for new projects for federal fiscal year 2018; however, two students received support as an administrative special project during the extension year.

Annual award cycles included a call for short Letters of Intent (LOI) followed by a BOEM initiated federal Notice of Funding Availability. The calls for LOI were posted on the CMI website and sent electronically to researchers and appropriate offices at the University of Alaska, to various state and local agencies, and to relevant profit and non-profit corporations and stakeholders. Final proposal submissions were reviewed by the TSC, by BOEM agency staff, and externally by three peer reviewers per project. The TSC met to select proposals that were

subsequently forwarded to BOEM for funding. In addition to coordinating annual proposal/award cycles, CMI staff played an important role in pre-proposal advising and assisted researchers in concept and budget development.

Technical Steering Committee Support

The CMI TSC met annually in 2013–2018 to select new projects for funding and to hear project updates. The CMI administrative staff coordinated all communications required for the TSC to successfully accomplish their advisory role including routing proposals and reviews and arranging meetings.

Annual Research Reviews

Public seminar-style research reviews were held annually, concurrent with the Alaska Marine Science Symposium in Anchorage. Representatives from projects active at the time of review provided progress reports, including initial findings, and were available for questions from BOEM staff and the public. The annual research reviews provided an excellent opportunity for graduate students to practice conference presentations. Previously held in Fairbanks, the change in venue for the annual reviews has increased participation by the public and scientists but has limited access to the Fairbanks university community and disrupted distance delivery of the programming.

Post-award Support

The CMI staff spent significant time advising and coordinating researchers and University staff regarding administrative details involved in program funding. Common issues included cost share, project reporting, changes to project timelines, accounting setup, allowable expenditures, facility and administration costs, sub-award management and changes to scopes of work. Staff coordinated communications within the University and with BOEM to ensure timely administrative progress in support of research objectives.

Project Reporting/Deliverables

The CMI administrative staff monitored and coordinated reporting efforts for individual research projects over the 2013–2018 cooperative agreement period. This included organizing annual seminar reviews, calling for quarterly reports, and producing CMI annual reports that included updates for all active projects for that given period. CMI staff provided editorial and formatting support to publish 28 project final reports during the administrative cycle.

Special Projects

Two outreach projects and two student research projects were funded as special projects under the Administrative Project cooperative agreement. These included:

Children's book: *Apun the Arctic Fox*

Video reprints: *A Year in the Life of a Bowhead Whale*

Student projects: *Identifying Arctic Cod Hatch Dates and Locations in the Alaskan Arctic* (Zane Chapman); *The Influence of Water Flow in Structuring Subtidal Estuary Communities in Cook Inlet, Alaska* (Chris Guo)

2013–2017 Research Programming

Funded Projects

During the project period, CMI funded 20 research projects and 8 graduate student awards for a total of $3,549,741 of BOEM funding, subject to a 1:1 cost-share requirement. This was an increase from 12 projects funded under the 2008–2012 administrative project. Additionally, the CMI administrative project managed nine projects held over from the 2008–2012 administrative cycle, and eight active projects will extend beyond 2018. Figures 1–3 and Table 1 summarize research funded during the 2013–2017 administrative cycle.

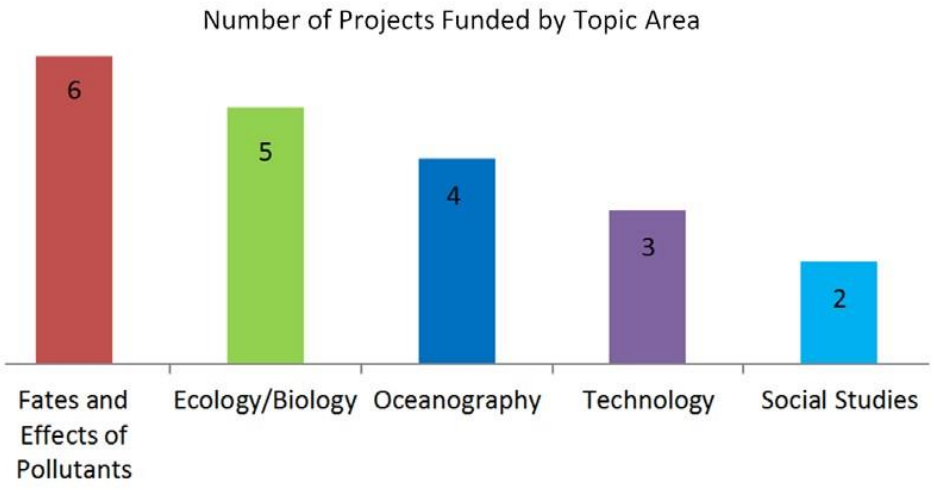

Figure 1. Number of CMI projects funded from 2013–2017, by topic area; excludes student initiative funding.

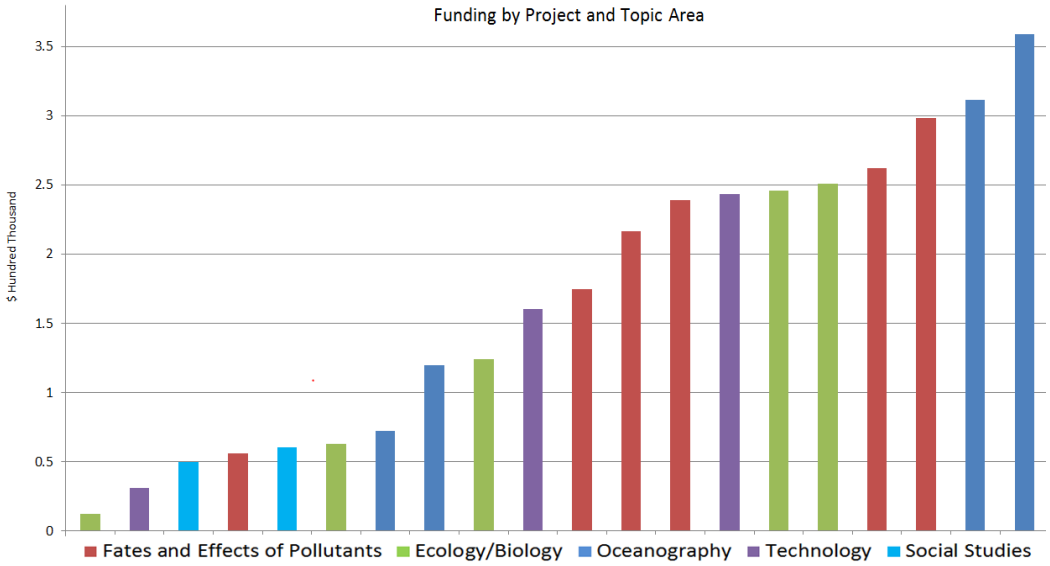

Figure 2. Project funding from 2013–2017, by project and topic area (colors); excludes student initiative funding.

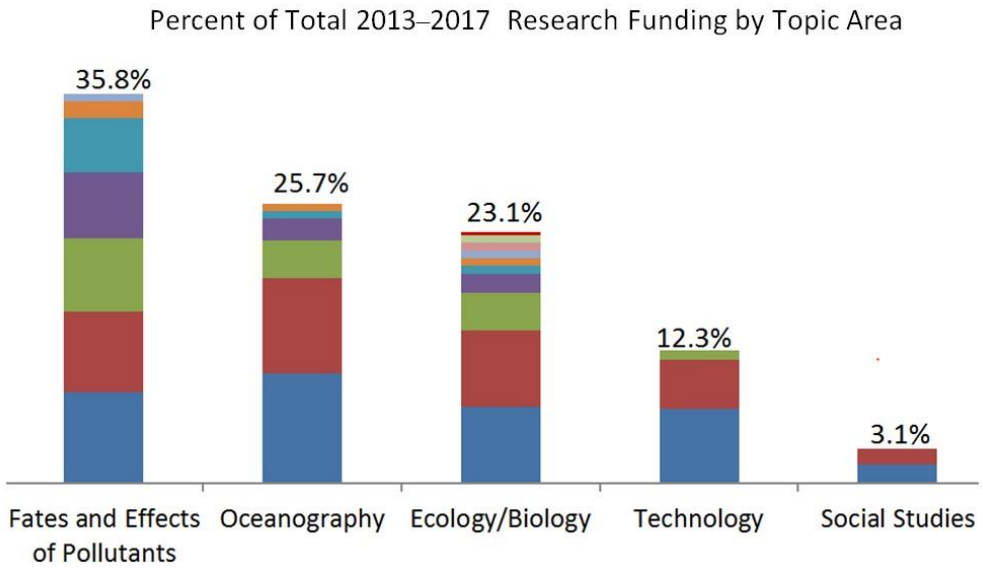

Figure 3. Percent of total of 2013–2018 CMI funding awarded, by topic area. Color segments represent the individual projects funded within each category.

Table 1. CMI funded research projects for federal fiscal years 2013–2018.

Project Title	Project PI	BOEM Agreement	BOEM Funding
Funded in 2013			
Development of an Accurate Model of the Beaufort and Chukchi Ice Drift and Dispersion for Forecasting Spill Trajectories	Anton Kulchitsky	M13AC00001	$ 359,078
Distribution and Abundance of Select Trace Metals in Chukchi and Beaufort Sea Ice	Rob Rember	M13AC00002	$ 262,073
Analysis of Benthic Communities on Weathervane Scallop Beds in Shelikof Strait	Gordon Kruse	M13AC00004	$ 12,160
Sensitivity to Hydrocarbons and Baselines of Exposure in Marine Birds on the Chukchi and Beaufort Seas	Tulla Hollmen	M13AC00005	$ 238,898
Funded in 2014			
Crude Oil Infiltration and Movement in First-year Sea Ice: Impacts on Ice-associated Biota and Physical Constraints	Eric Collins	M14AC00015	$ 298,214
Sea Level Measurements along the Alaskan Chukchi and Beaufort Coasts	Steve Okkonen	M14AC00016	$ 72,178
Testing the Use of Unmanned Aircraft Systems for Intertidal Surveys – Proof of Concept	Brenda Konar	M14AC00017	$ 31,254
Development and Testing of a Low-cost Satellite-tracked Ice Drifter for Arctic Alaska	Jeremy Kasper	M14AC00019	$ 243,286
Biodegradation and Transport of Crude Oil in Sand and Gravel Beaches of Arctic Alaska	Silkie Schiewer	M14AC00020	$ 56,310
Funded 2015			
Autonomous Carbon Glider Monitor Sea-Air CO^2 Fluxes in the Chukchi Sea	Claudine Hauri	M15AC00005	$ 160,317
Fate and Persistence of Oil Spill Response Chemicals in Arctic Seawater	Mary Beth Leigh	M15AC00008	$ 216,290
Alaska Monitoring and Assessment Program (AKMAP) Survey of Estuaries within the National Petroleum Reserve-Alaska	Douglas Dasher	M15AC00009	$ 250,594

Table 1. Continued.

Project Title	Project PI	BOEM Agreement	BOEM Funding
Funded in 2016			
Migration Trends for King and Common Eiders and Yellow-billed Loons Past Point Barrow in a Rapidly Changing Environment	Abby Powell	M16AC00002	$ 62,977
Characterizing Bacterial Communities in Beaufort Sea Sediments in a Changing Arctic	Alexis Walker	M16AC00004	$ 25,000
Identifying Sources of Organic Matter to Benthic Organisms in the Beaufort and Chukchi Outer Continental Shelves	Matthew Wooller	M16AC00005	$ 246,082
Measuring Wave Forces Along Alaska's Coastal Sea Ice	Mark Johnson	M16AC00006	$ 311,392
Intense Storm Activity and Impacts on Surface Climate and Ocean Properties	Yang Yang	M16AC00007	$ 25,000
Using Genotyping by Sequencing Population Genetics Approaches to Determine the Population Structure of Tanner Crab in Alaska	Genevieve Johnson	M16AC00011	$ 25,000
Northern Alaska Sea Ice Project Jukebox: Phase III	Leslie McCartney	M16AC00017	$ 60,663
Funded in 2017			
Benthic Habitat Mapping in Eastern Cook Inlet	Amanda Blackburn	M17AC00001	$ 25,000
Nearshore Food Web Structure on the OCS in Cook Inlet	Katrin Iken	M17AC00003	$ 124,402
Microbial Biodegradation of Alaska North Slope Crude Oil in Pacific Arctic Marine Sediments	Mary Beth Leigh	M17AC00005	$ 174,931
Using trace elements in Pacific Walrus Teeth to Track the Impacts of Petroleum Production in the Alaskan Arctic	Casey Clark	M17AC00006	$ 25,000
Coastal community Vulnerability Index and Visualizations of Change in Cook Inlet, Alaska	Davin Holen	M17AC00008	$ 50,000
Functional diversity of Epibenthic Communities on the Chukchi and Beaufort Sea Shelves	Lauren Sutton	M17AC00010	$ 23,548
High-frequency Characterization of the Physicochemical Parameters of Cook Inlet, Alaska	Amanda Kelley	M17AC00011	$ 120,094
Funded in 2018			
Identifying Arctic Cod Hatch Dates and Locations in the Alaskan Arctic	Zane Chapman	M13AC00003	$ 25,000
The Influence of Water Flow in Structuring Subtidal Estuary Communities in Cook Inlet, Alaska	Chris Guo	M13AC00003	$ 25,000
Total 2013–2018 Research Funding (does not include cost-share)			**$3,549,741**

Student Support

Ten of the 20 CMI research projects funded from 2013–2017 supported one or more students. Thirteen graduate students and three undergraduate students filled a variety of roles ranging from doing short fieldwork to serving as primary investigator. In addition, CMI started an annual funding initiative that provided partial support for eight graduate students through one-year $25,000 awards.

Cost Share

A 1:1 cost share is required for all CMI funded projects. The administrative project cost share was provided primarily by the University of Alaska Fairbanks, College of Fisheries and Ocean Sciences; however, special projects funded under the administrative budget contributed additional cost-share, including third-party contributions. Table 2 shows cost-share partners for the administrative period and demonstrates the breadth of collaboration in CMI programming.

Table 2. Cost-share partners for 2013–2018 CMI funded projects.

Alaska Department of Environmental Conservation	Institute of Northern Engineering, UAF
Alaska Department of Fish and Game	International Arctic Research Center, UAF
Alaska SeaLife Center	JAMSTEC
Anchorage Museum	Museum of the North, UAF
Arctic Supercomputing Center, UAF	Naidu Consulting
Arctic University of Norway	Naval Research Laboratory
Bigelow Laboratories	North Slope Borough
Center for Global Change, UAF	Oil Spill Response Institute
Civil and Environmental Engineering, UAF	Oregon State University
College of Fisheries and Ocean Sciences, UAF	Pacific Gyre
College of Natural Science and Mathematics, UAF	PenAir
Cook Inlet RCAC	Rasmuson Library, UAF
EVOS Trustee Council	Seward Marine Center
Fairweather, LLC	Shell Alaska
Geophysical Institute, UAF	Teck Alaska
Institute of Arctic Biology, UAF	Wildlife Conservation Society

Coastal Marine Institute Program Publications under M13AC00003

Bluhm, B., K. Iken, and L. Divine. 2015. Population Assessment of Snow Crab, *Chionoecetes opilio*, in the Chukchi and Beaufort Seas, Including Oil and Gas Lease Areas. Final Report, OCS Study BOEM 2015-029, University of Alaska Coastal Marine Institute and USDOI, BOEM Alaska OCS Region.

Carothers, C., S. Cotton, and K. Moerlein. 2013. Subsistence Use and Knowledge of Salmon in Barrow and Nuiqsut, Alaska. Final Report, OCS Study BOEM 2013-0015, University of Alaska Coastal Marine Institute and USDOI, BOEM Alaska OCS Region.

Clark, C. 2018. Using Trace Elements in Pacific Walrus Teeth to Track the Impacts of Petroleum Production in the Alaskan Arctic, in CMI Graduate Student Projects: Volume 2, B. Konar (Ed.). Final Reports, OCS Study BOEM 2018-058, University of Alaska Coastal Marine Institute and USDOI, BOEM Alaska OCS Region.

Gradinger, R. (Director). 2014. University of Alaska Coastal Marine Institute Annual Report No. 20. OCS Study BOEM 2014-0052, University of Alaska Coastal Marine Institute and USDOI, BOEM Alaska OCS Region.

Gradinger, R. (Director). 2013. University of Alaska Coastal Marine Institute Annual Report No. 19. OCS Study BOEM 2014-0112, University of Alaska Coastal Marine Institute and USDOI, BOEM Alaska OCS Region.

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Hauri, C., A. McDonnell, P. Winsor, B. Irving, and H. Statscewich. 2018. Development of an Autonomous Carbon Glider to Monitor Sea-Air CO2 Fluxes in the Chukchi Sea, Final Report, OCS Study BOEM 2018-016. University of Alaska Fairbanks and USDOI, BOEM Alaska OCS Region.

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Kulchitsky, A., J. Hutchings, J. Johnson, and B. Lewis. 2017. Siku: A Sea Ice Discrete Element Method Model. Final Report, OCS Study BOEM 2017-043, University of Alaska Coastal Marine Institute and USDOI, BOEM Alaska OCS Region.

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Mathis, J., and J. Cross. 2014. Biogeochemical Assessment of the OCS Arctic Waters: Current Status and Vulnerability to Climate Change. Final Report, OCS Study BOEM 2014-668, University of Alaska Coastal Marine Institute and USDOI, BOEM Alaska OCS Region.

McCarthy, P., and J. Perreault. 2016. Evaluating Chukchi Sea Trace Metals and Hydrocarbons in the Yukon River Delta, Alaska. Final Report, OCS Study BOEM 2016-078, University of Alaska Coastal Marine Institute and USDOI, BOEM Alaska OCS Region.

McCartney, L., and K. Brewster. 2018. Northern Alaska Sea Ice Project Jukebox: Phase III. Final Report, OCS Study BOEM 2018-027, University of Alaska Coastal Marine Institute and USDOI, BOEM Alaska OCS Region

Norcross, B., B. Holladay, and C. Mecklenburg. 2012. Recent and Historical Distribution and Ecology of Demersal Fishes in the Chukchi Sea Planning Area. Final Report, OCS Study BOEM 2012-073, University of Alaska Coastal Marine Institute and USDOI, BOEM Alaska OCS Region.

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Okonnen, S., R. Topp, and H. Foss. 2015. Arctic Currents: A Year in the Life of a Bowhead Whale. Final Report, OCS Study BOEM 2015-039, University of Alaska Coastal Marine Institute and USDOI, BOEM Alaska OCS Region.

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Schiewer, S., A. Iverson, and P. Sharma. 2015. Biodegradation and Transport of Crude Oil in Sand and Gravel Beaches of Arctic Alaska. Final Report, OCS Study BOEM 2015-041, University of Alaska Coastal Marine Institute and USDOI, BOEM Alaska OCS Region.

Sutton, L. 2018. Functional Diversity of Epibenthic Communities on the Chukchi and Beaufort Sea Shelves, in CMI Graduate Student Projects: Volume 2, B. Konar (Ed.). Final Reports, OCS Study BOEM 2018-058, University of Alaska Coastal Marine Institute and USDOI, BOEM Alaska OCS Region.

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Weingartner, T., C. Irvine, L. DeSousa, E. Dobbins, B. Adams, S. Danielson, R. Suydam, and W. Neatok. 2015. Satellite-tracked drifter measurements in the Chukchi and Beaufort Seas. Final Report. OCS Study BOEM 2015-022, University of Alaska Coastal Marine Institute and USDOI, BOEM Alaska OCS Region.

Yang, Y. 2017. Chukchi-Beaufort Seas Storms and Their Influence on Surface Climate, *in* CMI Graduate Student Projects: Volume 1, B. Konar (Ed.). Final Reports, OCS Study BOEM 2015-041, University of Alaska Coastal Marine Institute and USDOI, BOEM Alaska OCS Region.

The Department of the Interior Mission

As the Nation's principal conservation agency, the Department of the Interior has responsibility for most of our nationally owned public lands and natural resources. This includes fostering the sound use of our land and water resources, protecting our fish, wildlife and biological diversity; preserving the environmental and cultural values of our national parks and historical places; and providing for the enjoyment of life through outdoor recreation. The Department assesses our energy and mineral resources and works to ensure that their development is in the best interests of all our people by encouraging stewardship and citizen participation in their care. The Department also has a major responsibility for American Indian reservation communities and for people who live in island communities.

The Bureau of Ocean Energy Management

The Bureau of Ocean Energy Management (BOEM) works to manage the exploration and development of the nation's offshore resources in a way that appropriately balances economic development, energy independence, and environmental protection through oil and gas leases, renewable energy development and environmental reviews and studies.