ALASKA REGIONAL RESPONSE TEAM

Meeting Summary

0830 – 1630 Wednesday January 18, 2017
Pipeline Training Center
Fairbanks, Alaska

Note: Links in this document are no longer valid. All presentations are provided below in this document.

The meeting agenda may be viewed here.
Sign-in sheets may be viewed here.

Copies of the presentations and handouts are available on the Alaska Regional Response Team website, under ARRT Meetings. http://alaskarrt.org

Safety Briefing, Introductions, Opening Remarks

Mr. Nick Knowles, the Alaska Regional Response Team (ARRT) coordinator with the U.S. Environmental Protection Agency (EPA), welcomed the meeting attendees and conducted introductions. Mr. Chad Hutchinson, director of the Pipeline Training Center, provided a safety briefing for the facility, as well as a summary of the work of the Training Center.

The ARRT co-chairs— Captain (CAPT) Todd Styrwold, U.S. Coast Guard (USCG); Mr. Chris Field, (EPA); and Ms. Kristin Ryan, Alaska Department of Environmental Conservation (ADEC)—welcomed all the attendees to the meeting and offered opening remarks.

Review of Actions Since Last Meeting and Biennial Work Plan

CAPT Styrwold reviewed key ARRT-related actions and activities that have occurred since the last meeting, held in Nome, Alaska, in September 2016; these are listed here. He also reviewed the current Biennial Work Plan, available here.

Mr. Field also spoke on the Executive Leadership meeting held after the Nome ARRT meeting.

Ms. Ryan addressed some of the upcoming and recent changes to State rules on contingency planning. A manual is now available online that provides guidance for complying with State planning requirements. A proposed regulation regarding Medium-size tank facilities (Class II facilities) will require registration with ADEC to allow ADEC to be aware of facility locations are and to provide technical assistance to reduce incidents. The regulations project is closed for public comment and under internal review. For additional information visit the following webpage:
http://dec.alaska.gov/spar/regulation_projects/pprClass2Fac.htm

WORKING GROUP/SUBCOMMITTEE/TASK FORCE REPORTS

Area Contingency Plan/Regional Contingency Plan Task Force Update

Mr. Knowles summarized the proposal to reorganize how contingency planning is structured in Alaska. He provided an overview of the current and proposed framework, planning committees, and workgroups. He reviewed the work completed thus far, and the work remaining. A copy of his presentation is available here.

Questions/Comments:

Mr. Doug Helton, Department of Commerce, National Oceanic and Atmospheric Administration (NOAA) asked if a public review process approval beyond the ARRT is required to adopt and move forward with this proposal. Mr. Field replied that Mark Everett and he will determine whether a tribal consultation is necessary. Ms. Ryan stated that the State will require a regulatory change regarding the 10 subarea contingency plans and would also like to conduct another public review process.

Dr. Phil Johnson, Department of the Interior (DOI) summarized the comments submitted from DOI to the ARRT on Friday January 13, 2017. A primary concern of DOI is the division of the planning areas and a potential increase in planning workload. Mr. Field responded that he appreciates the concern regarding increased workload. He added that this proposal reflects requirements for improved planning updates and addresses the planning burden on agencies, in particular Sector Anchorage, with the number of subarea plans they are currently able to review and update in a timely manner.

Dispersant Avoidance Area Identification

Lieutenant Commander (LCDR) Matt Hobbie, USCG Sector Anchorage, presented an overview of the effort to identify dispersant avoidance areas. The purpose of this effort is to identify areas within the pre-authorization zone that should be excluded from pre-authorization. He stated that avoidance areas need to be identified by January 27, 2018, or the pre-authorization zone for that subarea will revert to a case-by-case process to approve the use of dispersants. He also noted that the avoidance areas are not areas where dispersant use will be prohibited, but rather that any dispersant use in those areas will need to be decided using the case-by-case decision-making process. A project website is available at: http://nukadraft.wixsite.com/avoidanceareas. A copy of his presentation is available here.

Science and Technology Committee

Ms. Catherine Berg, NOAA Scientific Support Coordinator, provided an update on the status of the Science and Technology Committee. She reviewed the "State of the Science for Dispersant Science in Arctic Waters" report. The report tasks were divided up among work groups; these have been completed or are expected to be so by the end of March 2017. She also reported on the Dispersant Use Avoidance Areas Technical Committee. The USCG plans to conduct research and development testing projects in the Arctic on the USCGC Healy in summer 2017. A copy of her presentation is available here.

Endangered Species Act Compliance Task Force

Ms. Berg also reported on the status of the Endangered Species Act (ESA) Task Force. An ESA Survey was sent to the On-Scene Coordinators (OSCs) in November 2016 asking for feedback on the steps taken in

regards to compliance. The task force has also created the "ESA Consultation Initiation Form" to document the consultation process. They are currently in the process of developing a post-response consultation close-out form to document the response actions and timeline, mitigation measures, and lessons learned from the emergency response. Ms. Berg has also put together a 2-hour ESA Section 7 Consultation Training course. A copy of her presentation is available here.

ARRT Cultural Resources Committee

Dr. Johnson provided an update on the status of the ARRT Cultural Resources Committee. The committee has not met since the last ARRT meeting.

ARRT Wildlife Protection Committee

Dr. Johnson also provided an update on the status of the ARRT Wildlife Protection Committee. The committee has not met since the last ARRT meeting. Some administrative changes are needed for Annex G Wildlife Protection Guidelines. He inquired of the co-chairs whether an effort is appropriate at this time pending a potential reformat with the proposed planning reorganization.

A Natural Resource Damage Assessment workshop was held in Anchorage, Alaska, that was well-attended. He stated that he hopes to sponsor this workshop every two to three years.

Food Safety Task Force Update

Mr. Doug Helton, NOAA, provided an update on the status of the ARRT Food Safety Task. The task force has completed a summary document regarding food safety and security issues. This was presented to the ARRT in September 2015 and is available on the ARRT website, here. The task force is looking at producing a streamlined document to assist in addressing food safety issues during an emergency response. They are seeking additional funding to complete this task.

Discussion of the ExxonMobil Point Thompson In-Situ Burn Exercise ARRT Activation

Mr. Field reported on the ARRT activation that was part of the October 21, 2016, ExxonMobil Point Thompson in-situ burn exercise. This was one of the required annual ARRT exercises. Mr. Knowles was the Federal OSC representative at the exercise. Among the lessons learned from this exercise was the need to take role of the ARRT members on telephone calls. He noted that he appreciated the comments from Joe Sarcone, U.S. Department of Health and Human Services.

Alternative Planning Criteria Update

LCDR Mark Neeland, USCG District 17 (D17), gave a presentation on the status the USCG Alternative Planning Criteria (APC). In 2015, D17 began developing an APC policy. However, USCG headquarters has prepared a draft national policy, which was re-opened for public comment on January 10, 2017 (www.regulations.gov, Docket Number USCG-2016-0437). Comments are due April 10, 2017. D17 will conduct public outreach, particularly in Western Alaska communities. Once the national policy is published, D17 will develop APC Guidance to address Alaska-specific concerns. A copy of his presentation is available here.

Polar Code Update

LCDR Neeland also spoke on the International Code for Ships Operating in Polar Waters (Polar Code) implementation, which went into effect January 1, 2017. The marine pollution rules went into effect immediately, and other requirements will be phased in over the next one to three years. The USCG's Office of Commercial Vessel Compliance issued a policy letter in December 2016 discussing Polar Code implementation. He noted that the biggest impacts will be on foreign vessels. The USCG also issued a Notice of Proposed Rule Making in November 2016 that would add a new Polar Ship Certificate to the list of existing certificates required to be carried on board all U.S. and foreign-flagged vessels subject to the International Convention for Safety of Life at Sea and operating in Arctic and Antarctic waters. In Alaska, the Polar Code applies to waters north of 60 degrees north, excluding Cook Inlet and Prince William Sound.

ON-SCENE COORDINATOR REPORTS

U.S. Environmental Protection Agency

Mr. Knowles presented on the recent activities of the EPA on behalf of the Alaska Federal OSCs. The activities he highlighted included the Trans Alaska Pipeline System worst case discharge response scenario gap analysis, recent health and safety training, the pipeline jurisdictional mapping tool, and the Kenai Peninsula vulnerability assessment. A copy of his presentation is available here.

U.S. Coast Guard Southeast Captain of the Port Zone

Captain (CAPT) Shannon Greene, USCG Sector Juneau, gave a presentation on spill responses in Southeast Alaska. She highlighted the response to the F/V Jewel, a mystery sheen in the Lake Street Neighborhood of Sitka, Alaska. She also reviewed the tribal outreach activities in Southeast Alaska, as well as upcoming events. A copy of her presentation is available here.

U.S. Coast Guard Prince William Sound Captain of the Port Zone

Commander (CDR) Joe Lally, Marine Safety Unit (MSU) Valdez, gave a presentation on spills and responses in Prince William Sound since October 2016. Of particular note was a radiation response at the Valdez Container Terminal. During a routine inspection, low levels of gamma and neutron radiation were detected in two shipping containers. The 103rd Civil Support Team from Anchorage responded to the site at the USCG's request and confirmed phosphorus-40 but not iridium-192 or neutron radiation. The Civil Support Team sent samples to the Department of Energy (DOE) for final analysis, and shipment was cleared for transportation after confirmation from DOE. CDR Lally also reviewed recent responses and exercises, and future projects, training, and exercises. A copy of his presentation is available here.

U.S. Coast Guard Western Alaska Captain of the Port Zone

CDR Stacy Mersel, USCG Sector Anchorage, reviewed the recent spill responses and lessons learned in Western Alaska. The primary spill contributor was the sinking of the M/V Exito in December 2016 near Unalaska, Alaska, which also resulted in two deaths. Another major response, which ultimately did not result in a release of any oil to the environment, was at Hilcorp's Tyonek Platform in Cook Inlet in November 2016. In this response, CISPRI was contracted by Hilcorp to remove approximately 20,000 gallons of diesel fuel that had leaked into one of the platform legs. CDR Mersel also reviewed recent

outreach and drills, planning activities and initiatives, and upcoming drills and exercises. A copy of her presentation is available here.

Alaska Department of Environmental Conservation

Ms. Ashley Adamczak, ADEC, reviewed recent cases and responses of ADEC. She also referred to the new Class II Facilities Regulations, which apply to facilities with storage capacity between 1,000 to 420,000 gallons and underground storage tanks greater than 500 gallons. She also remarked that ADEC is working on a survey and visioning process to improve response exercises; a report on this process will be available at http://dec.alaska.gov/spar/ppr/drills. A copy of her presentation is available here.

Mr. Calvin Terada (EPA) inquired whether the outreach to tanker truck companies conducted in spring 2015 had been successful. Ms. Adamczak responded that the outreach was in response to truck rollovers on the Dalton Highway, and many of the recent rollover have occurred on the Richardson Highway. An update and refresher training are being planned which will also include HAZMAT response.

Ms. Adamczak was also asked if any of the recent truck incidents are attributable to highway design and whether the Alaska Department of Transportation (ADOT) is investigating this matter. She responded that ADOT is looking into it, although two of the spills were due to equipment failure and not highway features.

GENERAL DISCUSSION TOPICS & SPECIAL PRESENTATIONS

Deployable Assets Available through Alaska Division of Homeland Security and Emergency Management

Mr. Bryan Fisher, Chief of Operations for the State Division of Homeland Security and Emergency Management (DHSEM), reported on the personnel and equipment assets and capabilities of the DHSEM and how they may be of assistance in a spill response. A copy of his presentation is available here.

State of Dispersant Science in Alaska

Ms. Kelly McFarlin, a PhD student from the University of Alaska, Fairbanks, presented on the state of dispersant science in Alaska. The major subjects she addressed are listed below:

- Biodegradation and the impact of chemical dispersants on biodegradation;
- Impact of dispersants on bacteria involved in biodegradation;
- 30–36% of unweathered crude oil biodegraded within 28 days; and
- Dioctyl sulfosuccinate (DOSS) saw 77% biodegradation in arctic surface water; Non-ionic surfactants were nearly 100% biodegraded.

A copy of her presentation is available here.

Arctic Spill Response Equipment Database

Mr. Steve Pearson, Bureau of Safety and Environmental Enforcement, provided a follow-up report on international arctic spill response equipment. He previously reported on the database at the January 2016 ARRT meeting in Anchorage. The purpose of this database is to identify oil spill response

equipment (government-owned and commercially owned) that may be used to respond to an arctic oil spill.

The final database was received in September 2016 and approved by the Arctic Council Emergency Prevention Preparedness and Response working group in December 2016. The next step is for the database to be presented at the Arctic Council ministerial meeting in May 2017 and published. A copy of his presentation is available here.

BSEE Marine Spill Calculator

This presentation was cancelled due to illness.

CONCLUDING COMMENTS AND REMARKS

Non-member meeting attendees were given the opportunity to offer public comments. One person requested to make a comment, as follows:

- Patty Burns, Alaska Department of Natural Resources (ADNR), stated that there is a lack of geographical information system (GIS) data to accurately identify land ownership/land status on the shore and tidelands. Currently, staff can quickly address and determine land status for small spills; however, ADNR would not have the staff capacity to make this determination for a large spill. Previously, ADEC provided ADNR with funding, but this is not available at this time. If desired by the OSCs, ADNR would take the steps to request additional funding via ADEC or other funding sources.
    - Mr. Calvin Terada stated that he saw value in the product and supported the development of a project scope to be used to identify funding sources.

Mr. Knowles expressed his appreciation to Mr. Field for his service to the ARRT, prior to his retirement at the end of April 2017. Mr. Field made some remarks regarding his retirement.

Representatives of the ARRT member agencies and the OSCs offered closing comments and remarks.

Upcoming Meetings

- Spring 2017 in Sitka (May 24–25, 2017)
- Fall 2017 in Cordova (September 19–20),
    - Sept 21 will be a meeting of the Alaska Planning Committee

Follow-up Subjects & Assignment of Tasks

- None Identified

Participant Summary:

Member Agencies Attendance

Member Agency	Present	Not Present
Alaska Department of Environmental Conservation	●	
Department of Agriculture	●	
Department of Commerce	●	
Department of Defense	●	
Department of Energy	●	
Department of Health and Human Services	●	
Department of Interior	●	
Department of Justice		●
Department of Labor		●
Department of Transportation		●
Environmental Protection Agency	●	
Federal Emergency Management Agency	●	
General Services Agency		●
U.S. Coast Guard	●	

Non-member Organizations in Attendance

Alaska Chadux Corporation
Alaska Clean Seas
Alaska Railroad
DOI, Bureau of Land Management
Prince William Sound Regional Citizens Advisory Council
State of Alaska, Department of Fish and Game
State of Alaska, Department of Natural Resources
State of Alaska, Division of Homeland Security and Emergency Management
The Response Group
University of Alaska Fairbanks
Cook Inlet Regional Citizens Advisory Council

"Since Last Meeting..."

- ARRT Annual Leadership Summit
- Biennial Work Plan 2017-2018
- Outreach to establish Dispersant Use Areas to be Avoided
- Area Planning Restructuring Task Force
- AESC Area Planning Questionnaire
- National Area Contingency Planning WG
- Planning/Response Calendar Coordination
- Arctic Council EPPR Small Communities Project
- Tribal Newsletter
- Letter from PWS RCAC re. Dispersants Monitoring Protocol
- USCG Marine Environmental Response (MER) Manual
- USCG ARRT Co-Coordinator

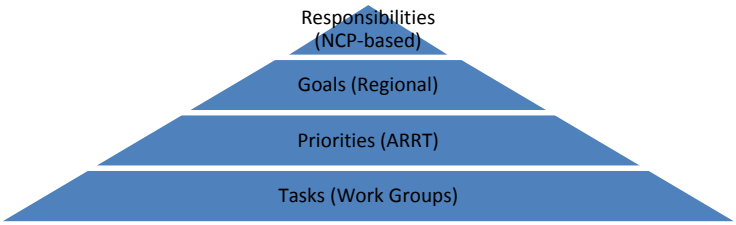
Supporting Federal and State On-scene Coordinators
Alaska RRT

Alaska RRT Biennial Work Plan
Calendar Years 2017 - 2018

Scope and Structure

This is the biennial work plan as set forth in Article VI of the Alaska RRT Charter. It outlines planned work over the two-year period for the Alaska RRT (ARRT) and its work groups and offers priorities for consideration by On-Scene Coordinators (OSC) and subarea committees, and area planning managers. This is a living document subject to the direction of the co-chairs, input from ARRT members, and the needs of the OSCs.

Article III of the Alaska RRT Charter describes the ARRT's **responsibilities** as articulated in the National Contingency Plan (NCP) at section 300.115. **Goals** expressed herein support those overall responsibilities, but account for the unique demands and complexities of the Alaska region. **Priorities** are intended to advance, in whole or part the Goals, but may also reflect more immediate needs or requirements. **Tasks** are specific, measurable, time-based initiatives usually assigned to work groups (i.e., committees and task forces), which advance Priorities.



Goals

Goals represent a best case long-term shared vision – spanning beyond two years, but are subject to external factors and resource and personnel availability. The goals are not prioritized. The ARRT shall:

- ❑ Continuously improve the Federal and State capabilities and plans to respond to an oil or hazardous substance incident.
- ❑ Enhance area planning and spill preparedness to keep pace with the expansion of oil exploration and production activities throughout remote Alaska, with particular emphasis on the Arctic.
- ❑ Enhance readiness of Alaska RRT members to support OSCs when called upon to respond to an incident.
- ❑ Provide a forum to exchange information on spill response technologies and procedures.
- ❑ Prioritize and coordinate the ARRT's combined resources and funding for optimum outcomes.
- ❑ Enhance outreach to and seek participation by federally recognized tribes in spill preparedness and response planning, including membership in the ARRT.

- ❑ Seek involvement of other stakeholders and all interested parties in spill preparedness and response planning.

- ❑ Provide guidance and support to the OSCs on spill response and subarea planning. The primary emphasis will be on the significant increased projections for shipping through the Bering Strait, circumpolar route, Great Circle Route, and southeast Alaska.

- ❑ Provide guidance and information to Alaska OSCs and agency planners regarding lessons learned from major national spills. Guidance and information from the major pipeline spills in the Lower 48 may have particular relevance to watershed spill planning in Alaska.

- ❑ Provide guidance and information on international developments in spill preparedness and response, federal rule-makings, federal R&D efforts and topics relevant to Alaska from major spill conferences. Multilateral agreements under development for the Arctic as well as bilateral agreements will be reported with consideration of how they affect operations in Alaska.

- ❑ Identify best practices and policies from other regions and identify features or information that would be useful for improving area planning in Alaska.

- ❑ Provide information and guidance on emerging technologies, industry preparedness & new initiatives, and other state or federal initiatives (e.g., vessel of opportunity programs and 24-hour cleanup capability).

- ❑ Advocate for improvements to the response system for Alaska.

- ❑ Advocate for improvements in the national response system via the NRT and report on developing initiatives such as the equipment surge project, SONS guideline updates, changes proposed for the National Response Framework, lessons learned from other key national incidents, procedures for retention of state response experts to fill ICS positions in major responses, and others.

- ❑ Encourage Alaska RRT members, On-Scene Coordinators, and other responders to attend relevant training, as appropriate.

- ❑ Track currency and status of federal, state, and industry pollution preparedness and response plans.

- ❑ Encourage greater subarea committee participation by federally-recognized tribes, industry, NGOs and the public.

Priorities

Priorities are meant to advance, in whole or part stated Goals, but may also reflect more immediate needs or requirements. Priorities for the next two-year period are:

- ❑ Continue to support FOSC-led efforts to establish dispersant avoidance (limitation) areas in the preauthorization zone portions of the five affected subareas (i.e., Bristol Bay, Aleutian Islands, Cook Inlet, Kodiak, Prince William Sound) by January 2018. All FOSCs shall also, in consultation with their subarea committee, identify avoidance areas in their subarea outside of the preauthorization zone (but this may be undertaken as a separate effort).

- ❑ In conjunction with the FOSCs and SOSCs, continue to evaluate opportunities to restructure the Alaska Region's Area Planning Framework including: conversion from subareas to areas with NCP-compliant Area Committees; reorganization of the current family of plans to NCP-compliant RCP and ACPs; and achievement of a steady-state compliant with all federal and state agency mandates.

- ❑ Where relevant to ARRT equities, ARRT member agencies will work collaboratively to implement the Reasonable and Prudent Measures (RPM) (with Terms and Conditions) from the NMFS ESA Biological Opinion and, to the maximum extent practicable, the Conservation Recommendations from the NMFS and USFWS Biological Opinions.

- ❑ Evaluate access to web-based technologies (i.e., WebEx, Go-To Meeting, etc.) to enhance the experience for call-in participants at ARRT meetings.

- ❑ Through the Science and Technology Committee (STC), lead interpretation of the findings of the national-level work group, and synthesize key messages for OSC's regarding the state of the science for dispersants in cold water and other relevant research topics.

- ❑ Review the most recent revision to Annex D of the Unified Plan, evaluate performance of the update, and make adjustments as appropriate.

- ❑ Ensure continued cooperation between the three UP signatory agencies, for training, exercises, and planning activities, through use of the ARRT private website calendar. http://private.alaskarrt.org/Calendar/Default.aspx

- ❑ Work toward ARRT-related objectives as stated in approved implementation plans and policy documents:
    - o National Strategy for the Arctic Region (NSAR), pg 13
    - o Departmental/Agency-specific Arctic plans
    - o National Response Team Plan for Incorporation of National Academy of Sciences Arctic Spill Response Assessment
    - o Alaska Arctic Policy Commission Final Report and Implementation Plan (specifically recommendations 2(d),(e),(f) and (h)
    - o *BP Deepwater Horizon/Macondo* Incident Specific Preparedness Review
    - o USCG/BSEE WCD Contingency Plan Analysis Report
    - o 16 DEC 2010 NRT Memorandum: Required ACP Revisions on Use of Dispersants on Oil Spills
    - o Presidential Executive Order on Enhancing Coordination of National Efforts in the Arctic (EO 13689)

Alaska RRT Biennial Work Plan
Calendar Years 2017 - 2018

Plan Status

- ❑ Unified Plan: Current version is Change 3 issued in January 2010. Due for revision 2015.
- ❑ Subarea Plans**:
  - o *Aleutians (May 2015) - current
  - o *Bristol Bay (February 2013) - current
  - o *Cook Inlet (December 2010) - revision underway
  - o Interior (April 2015) - current
  - o *Kodiak (March 2010) - overdue
  - o North Slope (May 2012) - current
  - o Northwest Arctic (January 2012) - 2017
  - o *Prince William Sound (October 2014) – current
  - o Southeast Alaska (April 2013) - current
  - o Western Alaska (February 2013) - current

  * Denotes a SCP that will require review and development of avoidance areas NLT January 2018, as per the approved chemical dispersant preauthorization plan.

  ** This schedule is subject to change pending resolution of a proposal to adopt the Area Planning Framework in use in other Regions (Area Contingency Plans, and a Regional Contingency Plan).

Scheduled Meetings

In accordance with ARRT Charter Article IV, Section 8, all members/alternates and OSCs are welcome to attend any ARRT meeting. To the extent practicable, the Standing Alaska RRT will hold a one-day meeting three times per year in conjunction with the relevant Subarea Committee meeting according to the following schedule/location as funds allow (ARRT Meeting in bold font):

- ❑ Winter 2017 in Fairbanks (January **18** & 19, 2017) [All Agencies & FOSCs meeting]
- ❑ Spring 2017 in Sitka (May 23 & **24**, 2017) [USCG, EPA, DOI, NOAA, ADEC please prioritize]
- ❑ Fall 2017 in Cordova (September 27 & **28**, 2017) [USCG, EPA, DOI, NOAA, & ADEC please prioritize]

  Annual ARRT Strategy Session in Anchorage September 29, 2017
- ❑ Winter 2018 in Anchorage (January 23-**24**, 2018) [All Agencies & FOSC meeting]
- ❑ Spring 2018 in Kenai (May 15-**16**, 2018) [USCG, EPA, DOI, NOAA, & ADEC please prioritize]
- ❑ Fall 2018 in Barrow (October 17 & **18** , 2018) [USCG, EPA, DOI, NOAA, & ADEC please prioritize]

Exercises

- ❑ Internal. As practicable, the Alaska RRT will initiate an annual "Worst Case Discharge" scenario from one of the Subarea Contingency Plans. The Alaska RRT co-chairs may request the assistance and participation of a FOSC to add realism to the exercise. Exercise results may be documented in the Alaska RRT meeting summary and considered by the Subarea Committee for use in updating the Subarea Contingency Plan, as needed. EPA and USCG will alternate as the lead for these exercises and will coordinate with ADEC in developing the exercise.
- ❑ External. As practicable, the Alaska RRT will participate in at least one exercise sponsored by Federal, State, or industry via a live activation. FOSCs and SOSCs should evaluate their exercise

schedules and make recommendations for exercises that are suitable for Alaska RRT participation. For example, FOSCs and SOSCs may identify Alaska RRT notification or activation as an exercise objective during the exercise design process.

Lessons Learned

During the OSC report-outs, the OSCs will be asked to walk through their response to recent significant incidents and summarize issues and lessons learned from those incidents.

For significant incidents where a Unified Command is activated, the Alaska RRT may request that the OSC conduct a hot wash and document lessons learned as part of the demobilization process. Upon request, the OSC will submit the lessons learned to the Alaska RRT and provide a briefing during the next regularly scheduled meeting. Examples of significant incidents may include: responses involving multiple federal/state/local agencies, high cost or intensive resource expenditures, and high media or political interest. Each subarea committee will consider these lessons learned reports to update their respective SCPs as appropriate.

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ALASKA AREA PLANNING INITIATIVE

TASK FORCE UPDATE

Nick Knowles

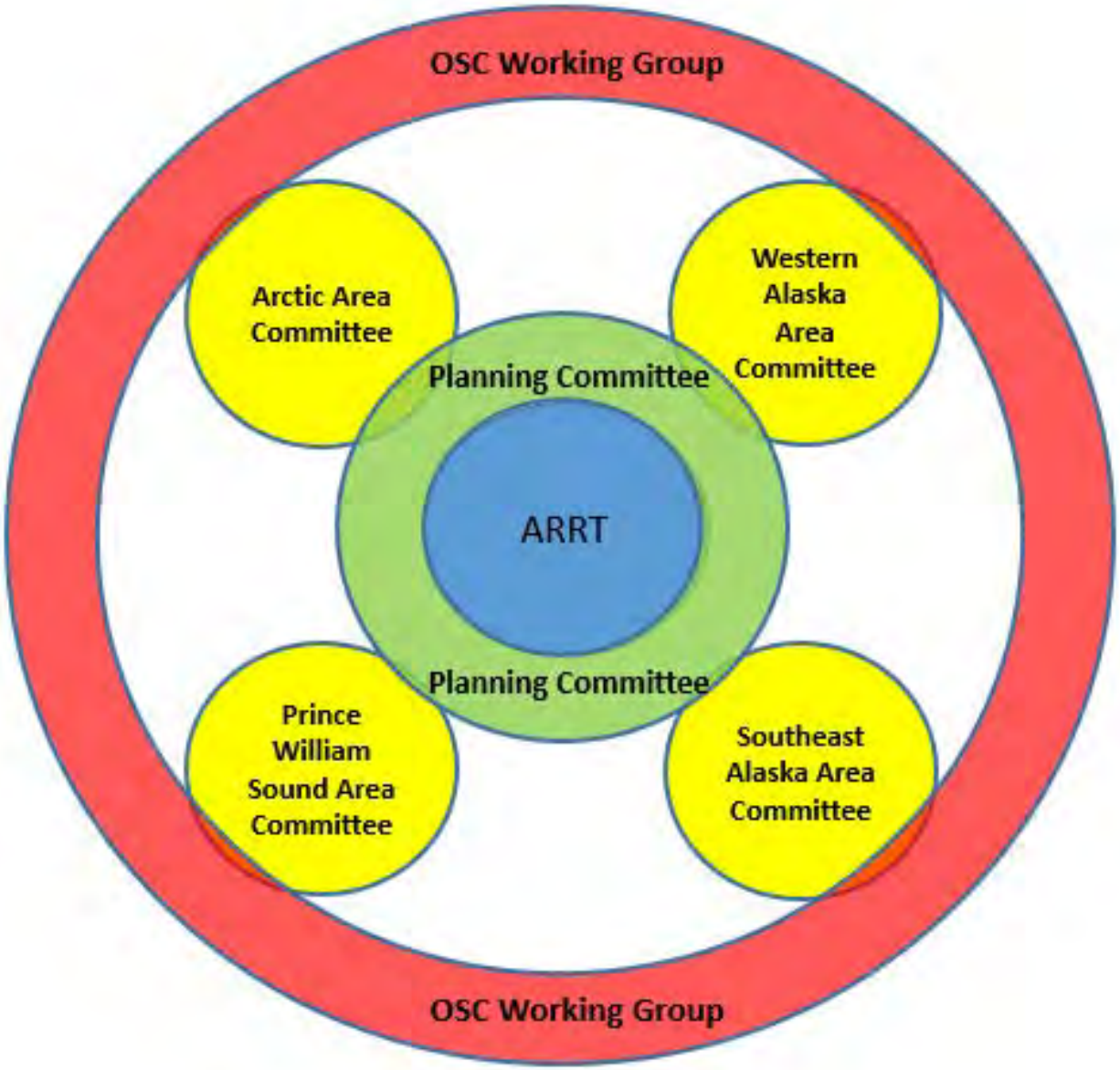
Alaska Emergency Response Planner

USEPA

http://dec.alaska.gov/spar/PPR/plans/regional_plan.htm

Legacy Framework vs. Proposed

Legacy Framework	Proposed Framework
Statewide Unified Plan	Statewide Regional Contingency Plan
Subarea Plans, but no Stand-alone Area Plans	Subarea Plans Within Area Plans
Updates Conducted by separate Subarea Committees and ARRT Task Forces	Updates Conducted by Planning Committee Workgroups
Area Plan Components Distributed Between UP and SCP's	Area Plan Components Consolidated Within Individual Area Plans
Temporary SAC as needed	Standing Area Committees
3 Subarea Plans Updated Per Year	≈ One Plan Updated Per Year (but reviewed annually)
Plans Organization Based on Original NCP Requirements	Plans Organized by ICS Structure



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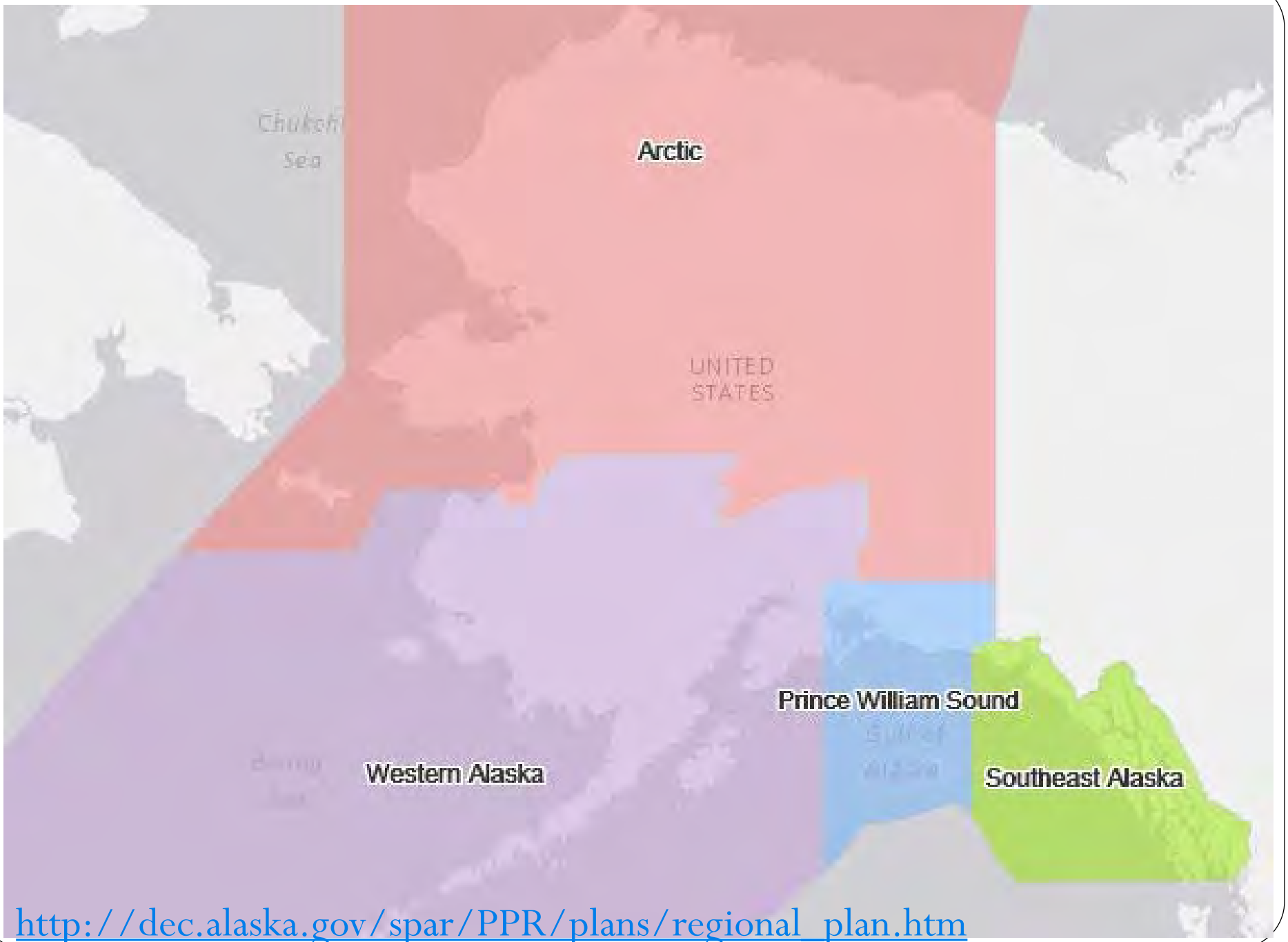

http://dec.alaska.gov/spar/PPR/plans/regional_plan.htm

Work Completed to Date

- Identify Proposed Planning Area Boundaries.
- Solicit Stakeholder Input on Overall Proposal.
- Propose Final Location of SCP/UP Components.
- Design Proposed Plans Structure. Draft Tables of Contents for ACP/RCP.
- Create Crosswalk Matrix to Illustrate Proposed Relocation of Plan Components from Existing Plans to Proposed Plans.

http://dec.alaska.gov/spar/PPR/plans/regional_plan.htm

Remaining Work

- Form and Convene Alaska Planning Committee
- Identify Workgroup Members for RCP and Each ACP
- Determine Resources Required/Available to Draft New Plans (Charge to Planning Committee)
- Produce Final Timeline for Creation/Promulgation of New Plans
- Draft New Plans
- Solicit Public Comment on Draft Plans
- Promulgate New Plans

http://dec.alaska.gov/spar/PPR/plans/regional_plan.htm

Decision Point/Course Correction From ARRT

- Is the ARRT Satisfied That the Task Force Work is Complete?
- Are the Lead Agencies Prepared to Commit Personnel to Staff the Alaska Planning Committee (RRT and OSC's)?
- Do OSC's and ARRT Agree with the Proposed Initial Charge to the Planning Committee (identify requirements/resources and draft timeline)
- When May Planners Expect Answers to These Questions?

http://dec.alaska.gov/spar/PPR/plans/regional_plan.htm

QUESTIONS?

State of Alaska website:
http://dec.alaska.gov/spar/PPR/plans/regional_plan.htm
40 CFR Part 300: http://www.ecfr.gov/cgi-bin/text-idx?tpl=/ecfrbrowse/Title40/40cfr300_main_02.tpl
ARRT website
http://alaskarrt.org

Nick Knowles
Alaska Emergency Response Planner
USEPA
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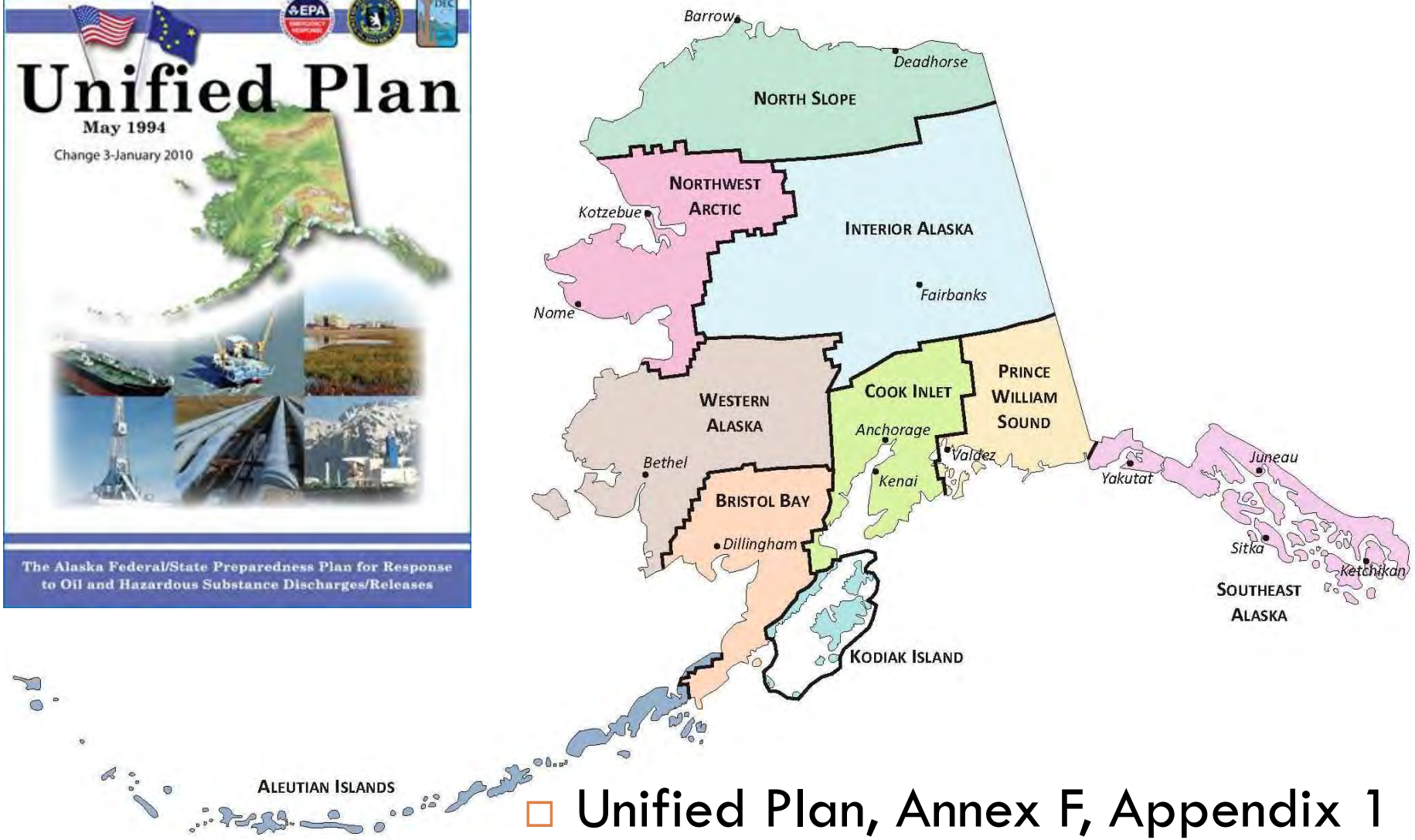
DISPERSANT AVOIDANCE AREA IDENTIFICATION

Contingency Planner

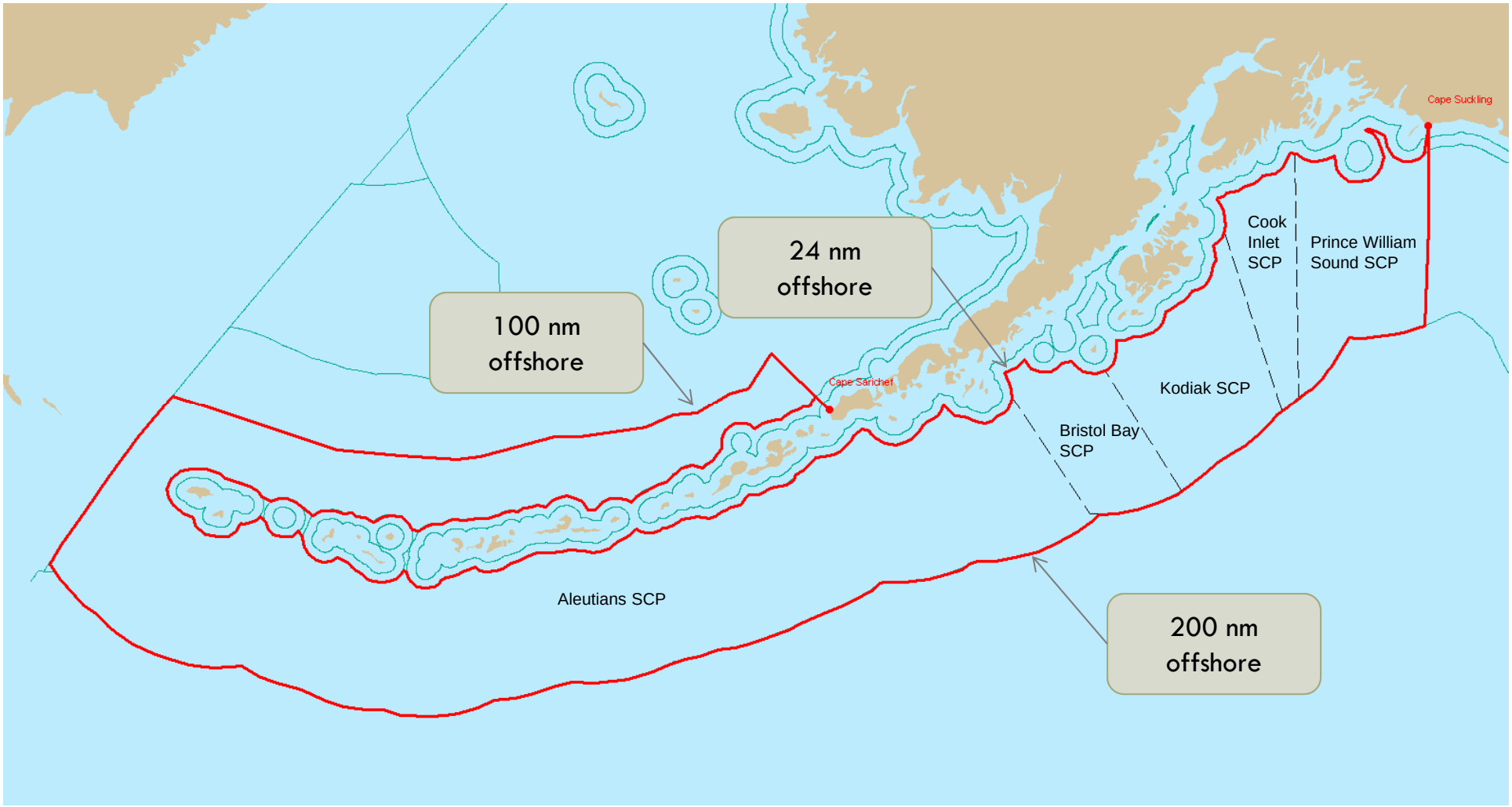
LCDR Matt Hobbie, USCG Sector Anchorage

Dispersant Use Plan for Alaska



- Unified Plan, Annex F, Appendix 1

Preauthorization Area



Subarea Committee Role

- USCG FOSC, EPA FOSC and SOSC engage Subarea Committees (includes federal/state natural resource trustees, federally recognized tribes, and stakeholders) to identify dispersant use avoidance areas in preauthorization area
- Identified locations added to a Dispersant Use Avoidance Areas section of each subarea contingency plan (SCP)
- Avoidance areas in preauthorization area reclassified as undesignated areas
- Complete within 24 months after authorization plan approval
  - If not completed in 24 months, any preauthorization area within SCP removed as preauthorization area until process completed

Undesignated Areas

- Undesignated Areas include all marine waters in Alaska outside of the Preauthorization Area.
  - Avoidance Areas may also be identified in the Undesignated Areas
  - The public may recommend Avoidance Areas in the Undesignated Area during the public comment period for the Preauthorization Area.
  - Recommendations will be saved for use in a future process.
  - Future revisions to all Avoidance Areas will be conducted in conjunction with Subarea Contingency Plan updates.

Project Coordination

Contacts	Tribal	Local Government	Public Interest	Native Corporations	Contacts
Cook Inlet Subarea	26	10	28	4	68
Prince William Sound Subarea	24	9	15	6	54
Kodiak Subarea	40	23	3	9	75
Aleutian/Bristol Bay Subarea	108	29	5	7	149
Industry	-	-	-	-	20
State and Federal Agencies	-	-	-	-	36
Media	-	-	-	-	14
Fisheries	-	-	-	-	24
Totals	198	71	51	26	440

Public Meetings

- Cook Inlet Subarea:
  - Kenai City Council Chambers, Nov. 10
- Prince William Sound Subarea:
  - Valdez Civic Center Ballroom, Nov. 16
- Kodiak Island Subarea:
  - Kodiak Borough Conference Room, Nov. 29
- Bristol Bay & Aleutian Islands Subareas:
  - City of Unalaska Council Chambers, Dec. 8

News Release

DATE: November 2, 2016
FOR IMMEDIATE RELEASE

U.S. Department of Homeland Security
United States Coast Guard

Date Nov. 2 2016

News Release

U.S. Coast Guard, U.S. Environmental Protection Agency & The State of Alaska Seek Input on Dispersant Avoidance Areas off the Coast of Alaska

KENAI, VALDEZ, KODIAK, UNALASKA, Alaska - A multi-agency team is seeking public input that will help guide the development of Dispersant Avoidance Areas within the Preauthorization Area as required by the Alaska Regional Response Team (ART) *Dispersant Use Plan for Alaska*. This plan was signed and entered in January 2016 and is part of the Alaska Federal State Preparedness Plan for Response to Oil and Hazardous Substance Discharges/Releases, also known as "The Unified Plan." Avoidance Areas will be included in Section I of appropriate Subarea Contingency Plans, in the event of an at-sea crude oil discharge. Avoidance Areas will guide the Federal On-Scene Coordinator (FOSC) in making dispersant use decisions. More information on Avoidance Areas and how to provide public comments is available on the project website: http://akrrt.wikispaces.com/avoidareas

The agencies will hold public meetings in four communities bordering the Preauthorization Area and review feedback until January 9, 2017. These meetings will feature presentations on the policy and science of dispersants, as follows:

Thursday, November 10, 2016
1 - 3 p.m.
Kenai City Council Chambers
210 Fidalgo Ave., Kenai, AK

Wednesday, November 16, 2016
1:30 - 3:30 p.m.
Valdez Civic Center Ballroom
113 Clifton Ct., Valdez, AK

Press Coverage

ALASKA Journal of Commerce

Alaska's plan for dealing with oil spills

Stakeholders and Native tribes are being asked to weigh in on updates

By: Megan Pacer

Morris News Service - Peninsula Clarion

Post date: Mon, 11/14/2016 - 12:46pm

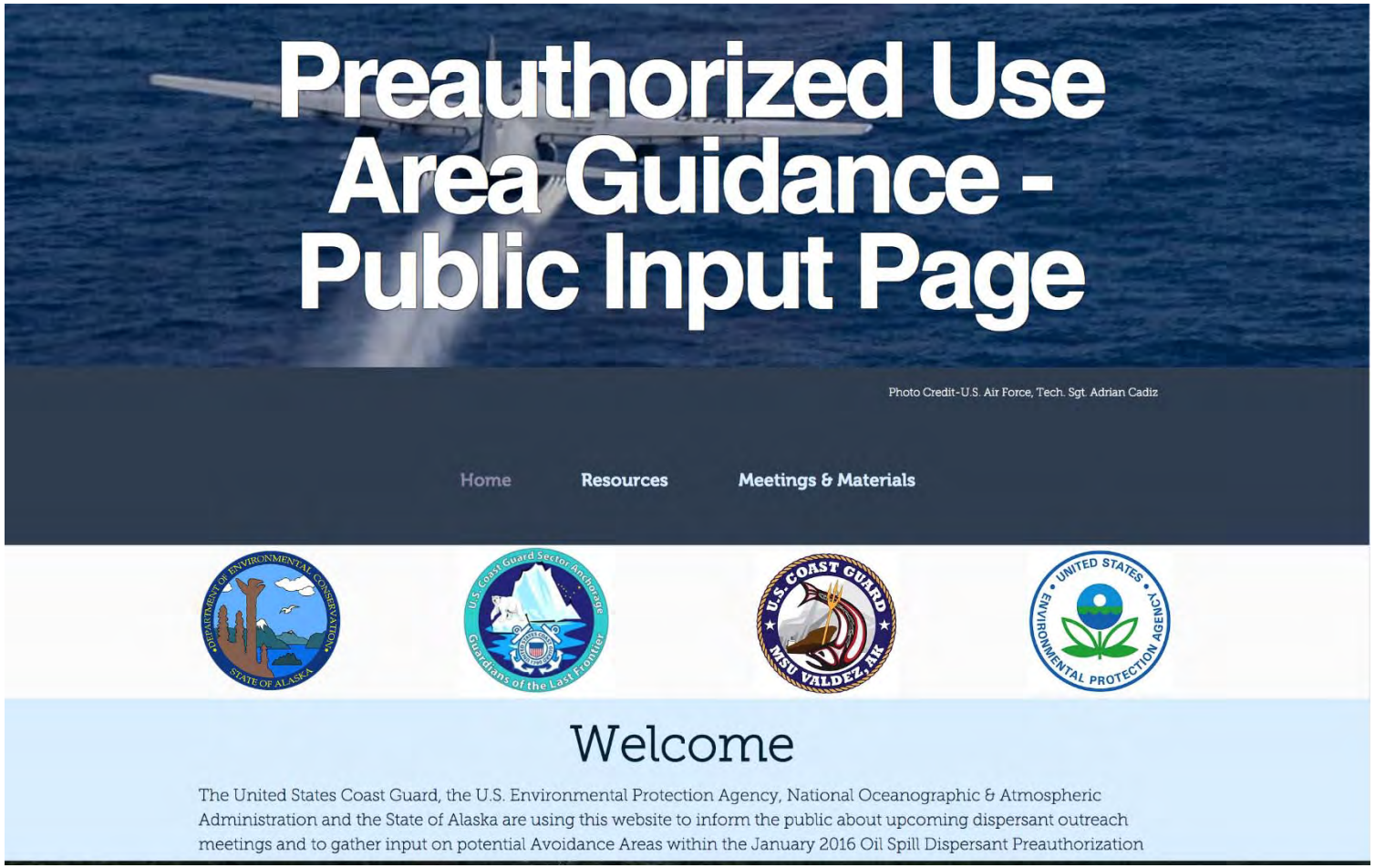
Stakeholders and Native tribes are being asked to weigh in on updates to Alaska's plan for dealing with oil spills, especially identifying locations where the use of oil dispersants should be avoided.

Representatives from state and federal agencies came to Kenai on Thursday to gather input on and learn about the Alaska Federal/State Preparedness Plan for Response to Oil and Hazardous Substance Discharges/Releases, otherwise know as the Unified Plan. The Unified Plan's guidelines on the use of oil dispersant were updated in January.

Dispersants, which are a mixture of solvents, surfactants and addivites, break up oil slick into smaller droplets and promote oil biodegration into the water. They are used to reduce oil exposure to those working to clean up an oil spill and reduce the threat to wildlife near or on the shoreline when they are applied to the spill further out in the water, said Catherine Berg, a presenter from the National Oceanic and Atmospheric Association.

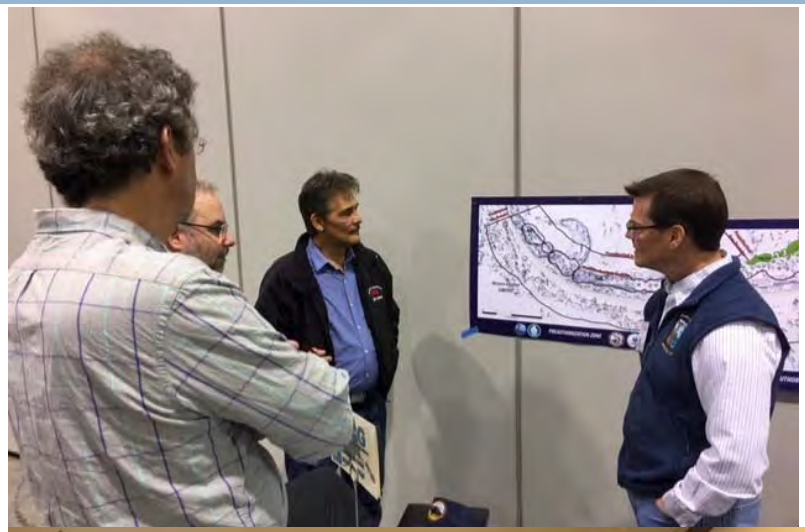
Thursday's meeting focused on the Alaska preauthorization zone for dispersants, which includes Cook Inlet. Preauthorization areas allow the federal on-scene coordinators handling oil spills to make a decision about using dispersants with pre-approval from agencies like the Environmental Protection Agency, Department of

Project Website



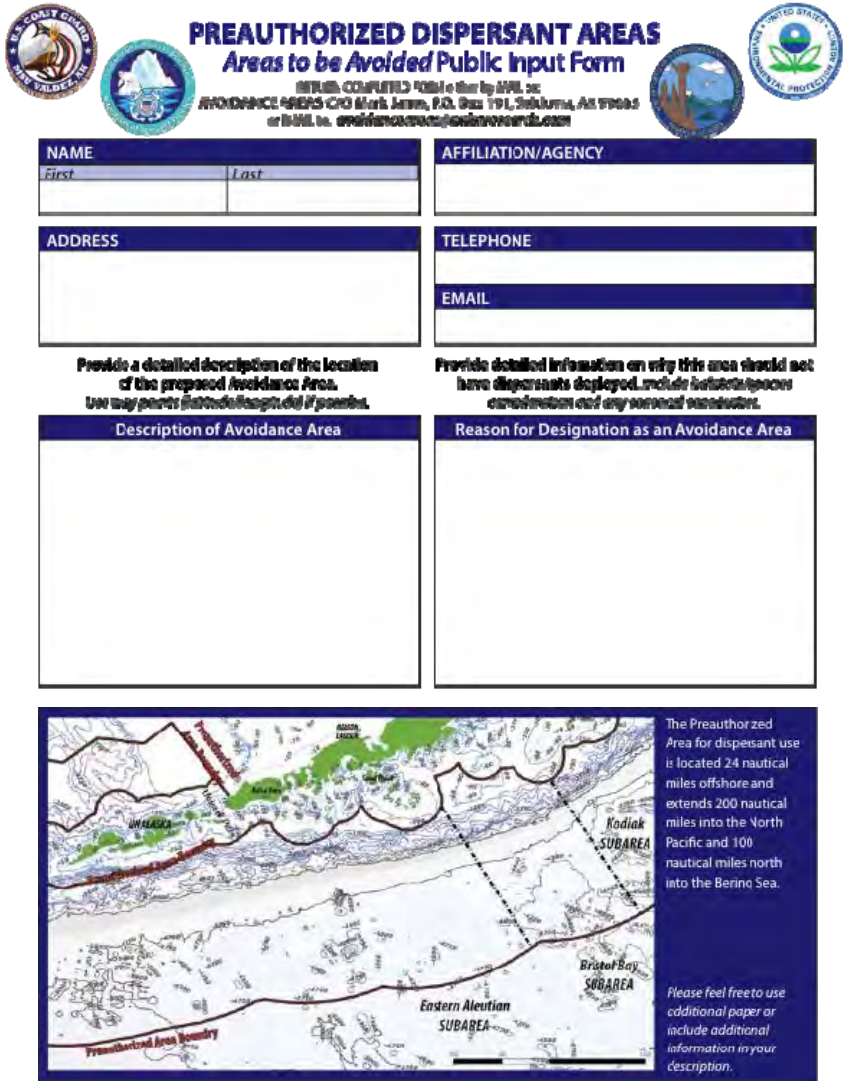
http://nukadraft.wixsite.com/avoidanceareas

Public Meetings



BIA Providers Conference

Public Input Forms



PREAUTHORIZED DISPERSANT AREAS
***Areas to be Avoided* Public Input Form**

NAME
First | Last

AFFILIATION/AGENCY

ADDRESS

TELEPHONE

EMAIL

Provide a detailed description of the location of the proposed Avoidance Area.
Use map points (latitude/longitude) if possible.

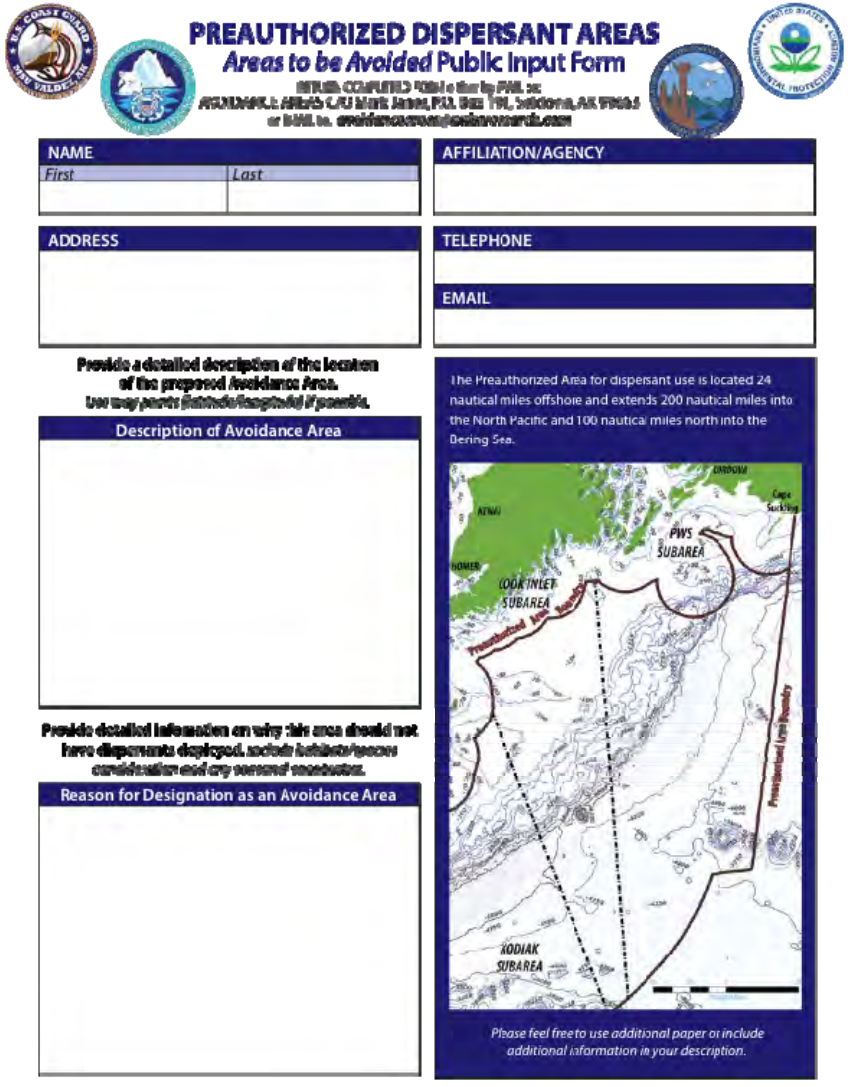
Description of Avoidance Area

Provide detailed information on why this area should not have dispersants deployed. Include fisheries/species consideration and any personal observation.

Reason for Designation as an Avoidance Area

The Preauthorized Area for dispersant use is located 24 nautical miles offshore and extends 200 nautical miles into the North Pacific and 100 nautical miles north into the Bering Sea.

Please feel free to use additional paper or include additional information in your description.



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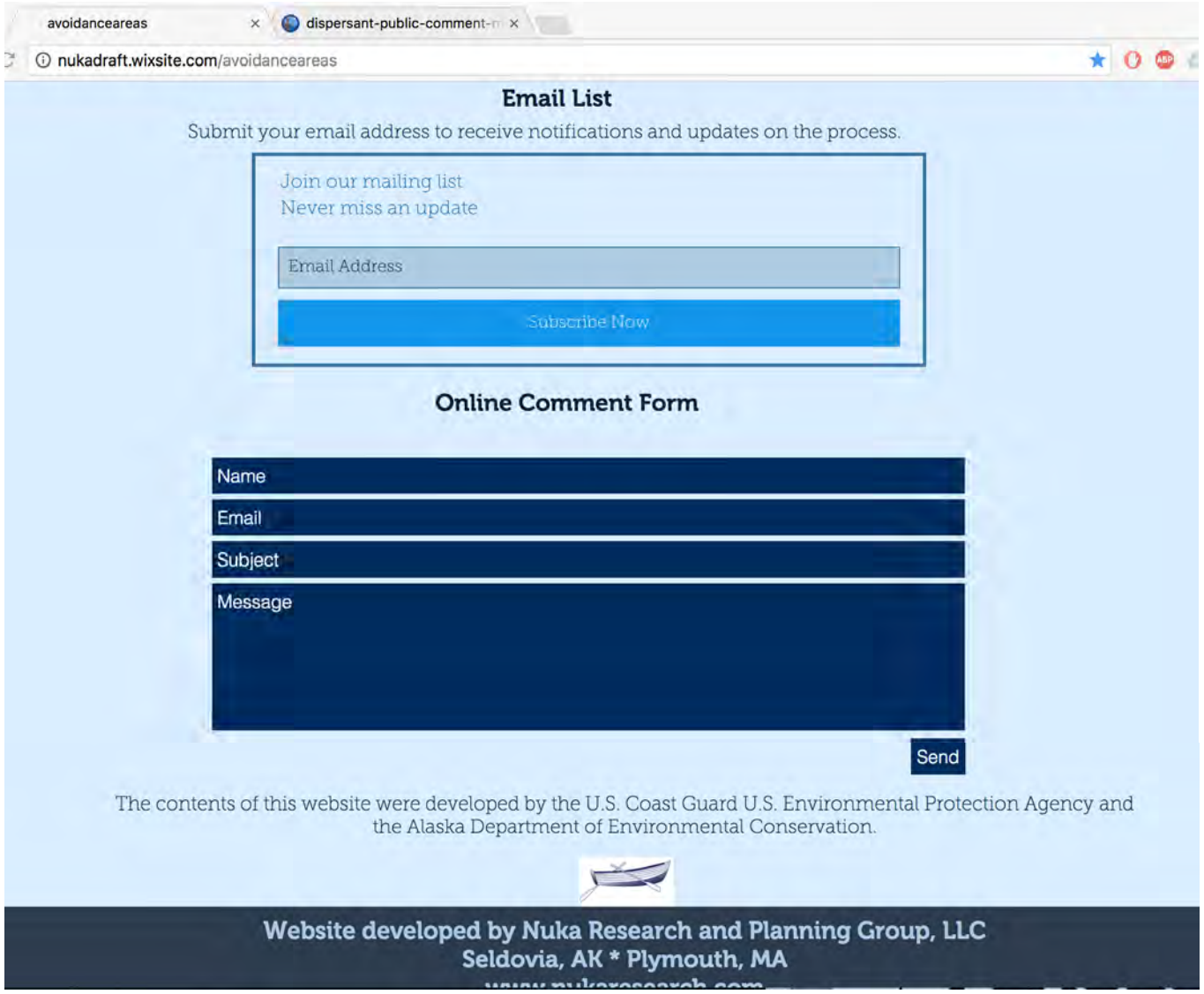
Please feel free to use additional paper or include additional information in your description.

Other public comments



Timeline

- Public comments and input due Jan. 9
- Nuka report due Jan.31
- Technical committee proposal due Nov. 30
- Avoidance Area approval due Jan. 27, 2018

Questions…?

http://alaskarrt.org

Science & Technology Committee

Report for the ARRT Meeting

18 JAN 2017

Rick Bernhardt, ADEC
Marcia Combs, EPA
Matt Odum, USCG
Lori Verbrugge, USFWS
Catherine Berg, NOAA (Chair)

Topics

- Status of “State of the Science for Dispersant Use in Arctic Waters”
- Dispersant Use Avoidance Areas Technical Committee
- Update on USCG R&D 2017 work in the Arctic

Status of "State of the Science for Dispersant Use in Arctic Waters"

- Efficacy & Effectiveness
  - Complete.
- Degradation & Fate
  - Final sign-off stage.
- Physical Transport & Chemical Behavior
  - One more meeting to make edits and then sign off.
- Eco-toxicity & Sublethal Impacts
  - Final first draft is in panel sign-off stage; public input for month of February.
- Public Health & Food Security
  - First draft is near completion; public input in March

Dispersant Use Avoidance Areas Technical Committee

Task: *Based on review of public comment, expert input, and existing scientific information, identify proposed Avoidance Areas and provide those recommendations to the OSC's.*

- First meeting December 13th
  - Organizational
- Meeting January 10th: Expert input (first of many)
  - USFWS, Kimberly Klein – Short-tailed Albatross
  - NMFS, Seanbob Kelly – EFH & HAPC
- Next meeting February 1
  - Initial review of public comments.

USCG R&D in the Arctic 2017

17 July – 11 Aug aboard USCGC Healy.
North of Kotzebue (Ice condition dependant)

Testing of –

- Unmanned Aircraft Systems
- Automated Underwater Vehicles
- Communications Equipment
- Ice Capable Skimmers
  - Lamor Bucket 150
  - Framo Polaris

❖*All plans are tentative and subject to change*

ESA Work Group

Report to the ARRT

18-JAN-2017

Topics

- Questionnaire to the OSCs
- Emergency Section 7 Consultation
  - Initiate Form
  - Case Closeout Form
- ESA Section 7 Consultation Training

ESA Survey to OSCs

The U.S. Fish and Wildlife Service (FWS) and National Marine Fisheries Service (NMFS) issued Biological Opinions (BiOp) on the Alaska Unified Plan on February 27, 2015, and May 15, 2015, respectively. These BiOps contain certain mandates and recommendations for the federal action agencies—USCG and EPA—involved in oil pollution preparedness, planning, and response. Among those requirements is ***annual reporting back to the Services on measures and means we've taken toward achieving those mandates and recommendations****. CCGD17(dx) will compile/submit the annual report to the Services for USCG equities, but needs COTP/FOSC level input.*

- USFWS Conservation Recommendations
- NMFS Reasonable & Prudent Measures and Terms & Conditions

Request dated 16-Nov-2016

Emergency Section 7 Consultation Forms

- Alaska Region Spill Response Emergency Endangered Species Act Consultation Initiation
  - Recently revised to reflect the Biological Opinions
- Emergency Post-Response Consultation Close-Out
  - Still under development

Alaska Region Spill Response Emergency Endangered Species Act Consultation Initiation

- Instructions
- Transmittal
- Incident Information
- List of Response Actions
- Pre-Identified GRS, POR, and PS Sites
- Protected Species Checklist
- Mitigation Measures, Reasonable & Prudent Measures, Terms & Conditions
- Recommendations

Emergency Post-Response Consultation Close-Out

- Transmittal
- Charts, maps, photos
- Incident Summary
- Response Actions
- Response Timeline
- Mitigation Measures
- Conclusion (determination)
- Lessons Learned

ESA Section 7 Consultation Training

- The Endangered Species Act (ESA) and Federal responsibilities under Section 7 of the Act
- Listed Species in Alaska
  - NMFS
  - FWS
- Unified Plan Programmatic Consultation
- The Memorandum of Agreement (MOA) between the USCG and EPA and the US Fish and Wildlife Service and NOAA's National Marine Fisheries Service
- Emergency Consultation during response

Potential food safety and security issues during emergency responses in Alaska:

Work Group: Doug Helton, DOC/NOAA
Philip Johnson, DOI
Gary Sonnenberg, USDA/USFS
Joe Sarcone, DHHS/ATSDR
Rick Bernhardt, ADEC

Introduction:

Questions about the safety and availability of subsistence, commercial and recreational food sources are likely to arise after any significant spill in Alaska. Real, potential, and perceived contamination of food sources can have substantial impacts on commercial and recreational fishing and subsistence use of these resources. In Alaska, affected resources may include fish, shellfish, marine mammals, land mammals, birds, eggs, and plants. Impacts to subsistence uses are not limited to food consumption, as hunting, gathering, processing and sharing of wild resources are also the cultural and economic foundation of many Alaska communities. Other uses of these wild resources may also include making of arts and crafts and medicines[1].

In addition, closing fisheries as a result of an oil spill can result in wide-spread public concerns, seafood market disruptions, and economic impacts. Furthermore, use of certain response alternatives such as dispersants may raise additional questions and concerns.

On-Scene Coordinators (OSCs) have authority to protect human health, natural resources and the environment from spills of oil and hazardous substances. Broadly speaking, that authority extends to protecting human health by reducing the risk of eating tainted or contaminated food. However, there are often additional considerations, such as maintaining a high level of public confidence that no contaminated seafood is reaching the table or marketplace. OSCs are acutely aware that the public's view of Alaskan seafoods may be affected during an oil spill and they recognize the harm that a tarnished reputation would have on the economic viability and livelihood of large and small communities.

Despite the importance of these issues, the Alaska Regional Response Team (ARRT) currently lacks guidance for OSCs regarding food safety during pollution responses. In late 2014, the ARRT assembled a small working group of RRT members to evaluate and outline topics and issues to be included in a future policy document. Such a document would be developed by the Alaska RRT and its partners to provide guidance for USCG and EPA On-Scene Coordinators and the member agencies of the Alaska RRT.

[1] Subsistence is defined by federal law as "the customary and traditional uses by rural Alaska residents of wild, renewable resources for direct personal or family consumption as food, shelter, fuel, clothing, tools or transportation; for the making and selling of handicraft articles out of nonedible by-products of fish and wildlife resources taken for personal or family consumption; and for the customary trade, barter or sharing for personal or family consumption."

Proposed Policy Elements:
The team recommends the following topics be considered as part of an AKRRT food safety plan and potential guidance document:

- Investigation and summary of the current status of food safety guidelines following oil spills in Alaska, including existing authorities available to FOSCs.
- Review of other RRT's policies and guidance on food safety, guidance issued by other countries, and the published literature.
- Identification of experts, both in Alaska and elsewhere that could contribute to development of future guidelines.
- Agency-by-agency summary of relevant authorities, laws, regulations, jurisdictions and assets to support food monitoring, including inland and terrestrial spills.
- Consideration of the AKRRT dispersant policy and its implications for food safety, real or perceived;
- Development of a flowchart/decision tree for FOSCs illustrating timelines and the sequence of events during a spill response with respect to food safety monitoring;
- Summary of funding issues and existing authorities/gaps related to food safety management, testing, sampling, and other necessary monitoring.
- Consideration of both short-term and long-term food safety issues. Who is responsible for any long-term subsistence food monitoring? RP and/or NRDA roles?
- Safety and wholesomeness of oiled and rehabilitated wildlife
- Legacy aspects of food safety (cultural losses, traditional knowledge, etc.)
- Discussion of different audiences and concerns (processors, buyers, native Alaskans, rural Alaskans, fishermen, consumers, aquaculture growers, sport recreational guides, general tourism, etc.)
- Hazmat incidents and food safety issues (is this a phase 2 issue?)

Potential outline of a Food Security and Safety document and/or potential factsheets:

Executive Summary

- Summary of potential oil spill impacts on food resources (animals and plants)
- Summary of potential oil spill impacts on fishing, aquaculture, and seafood processing activities
- Summary of potential oil spill impacts on cultural and subsistence activities
- Reducing potential impacts from the response itself
- Costs, compensation and NRDA

Introduction and Scope of issue

- Importance of commercial seafood harvests, subsistence, personal use and recreational harvests, and aquaculture in Alaska
    - Marine, anadromous, and freshwater fish
    - Shellfish
    - Marine mammals
    - Terrestrial animals
    - Birds and eggs
    - Marine, intertidal and terrestrial plants
    - Potential agricultural impacts from terrestrial accidents or contaminated groundwater

Summary Guidance for FOSC's, focusing on unique Alaska issues. Examples include:

- Magnitude/importance of the commercial catch
- Economic importance of the sport-fishing industry
- The very high consumption rates wild foods by Alaska residents (particularly Alaska natives)

Unique aspects of subsistence harvest of wild foods which include:

- Food availability in rural Alaska and cost and dietary implications of alternatives (like store-bought foods)
- Cultural issues including process of harvesting and preparing traditional foods, sharing of the harvest, ceremonial uses
- Nutritional benefits of wild foods.
- Medicinal uses of wild foods
- Impacts to customary trade (including barter and exchange)
- Use of harvested resources for traditional arts/crafts

Definitions and terminology (complete list to be complied after document is written)

- Tainting
- Exposure
- Uptake
- Depuration

- Body Burden
- Bioaccumulation
- Bioconcentration
- Contamination
- Adulteration
- Food Security
- Subsistence Use

Experience from previous spills in Alaska and elsewhere

- EVOS, Prince William Sound
- Selendang Ayu, Unalaska
- Kuroshima, Unalaska
- Glacier Bay, Cook Inlet
- North Cape, Rhode Island
- New Carissa, Oregon
- Deepwater Horizon, Gulf of Mexico
- Land spill example?
- Lessons-learned and issues from concerns over chronic contamination of food resources (landfills, hazmat sites, abandoned mines, FUDS, etc,)

Oil and Food Safety Science

- Oil types and risk of contamination
- Contamination pathways (e.g., baitfish or foodweb contamination)
- Vulnerability of varying species
- Depuration of contamination
- Other

Response Countermeasures and Food Safety

- Dispersants
- Shoreline cleaners
- In-situ burning
- Herding agents
- Bioremediation products
- Other

Key agencies, jurisdictions and authorities with respect to food safety

- Federal
- State
- Tribal
- Native Corporation?
- International
- Agency points of contact and potential experts
- Notification procedures

Response actions and alternatives

- When should harvests be restricted or closed?
- Who has the authority to restrict or close?
- Procedures for closing and reopening fisheries
- Subsistence use on federal conservation unit lands.
- Alternatives to formal closings.
    - advisories, inspections, gear restrictions, vessel routing
- Action levels

Public outreach and communications.

- Perception of harm, market concerns and economic and social consequences
- Public health concerns
- Market concerns.
- Risk communication and messaging to the public
- Subsistence harvest communications

Overview of sampling and analytical methods

- Sample collection and handling
- Summary of field and laboratory protocols to test and monitor food safety.
- Sensory procedures for closing and opening fisheries or issuing advisories
- Data interpretation and health risk calculations

Harvest issues

- Gear and harvest method issues (e.g., water intakes for crab live wells)
- Processing issues
- Oiled nets and equipment
- Disposal of potentially tainted or contaminated catch/harvests
- Lightering/dumping of catch (oiled or not) during salvage operations
- Consumption of oiled and released wildlife

Funding and compensation

- Funding food safety during response
- Role of NPFC
- NRDA and third party claims for losses

Key literature

APC Update

ARRT January 2017

LCDR Mark R. Neeland

History

- 2014/2015 – D17 began development of policy on APCs
- August 2015 –USCG Headquarters (CG-MER) assumed responsibility for development of national policy
- May 2016 – "Draft" national APC published for public comment
- September 2016 – Comment period closed
- November/December 2016 – Industry requested to reopen draft policy for additional comments/public input

Current Situation

- January 10, 2017 – Draft national policy reopened for comment:
  - www.regulations.gov
  - Docket Number USCG-2016-0437

- April 10, 2017 – Comment period closes

- January – April 2017 – Public outreach and engagement with local communities across Western Alaska COTP Zone

Path Forward

- Receive additional comments and consider amendments to national policy
- Publish national APC policy
- Develop and publish D17 APC guidance to address Alaska specific concerns

Questions???

EPA REGION 10 PREVENTION/PREPAREDNESS/ RESPONSE

Alaska Regional Response Team

Fairbanks Meeting

January 18, 2017

Calvin Terada,
Emergency Response Unit Manager

Nick Knowles
Alaska Emergency Response Planner

EXERCISES

TAPS INTERNAL TTX

EXXONMOBIL POINT THOMPSON IMT/ISB

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
EPA
REGION 10
EMERGENCY RESPONSE TEAM

EPA TAPS Internal Table-top Exercise

Objectives

To identify logistical gaps and challenges that EPA is likely to encounter, given a large scale spill event resulting from the Trans Alaska Pipeline.

Scenario

A catastrophic release occurs in June, near the Yukon River Crossing.

Deliverable

The final After Action Report may be viewed on the ARRT website, on the "Area Exercises" page.

ExxonMobil
Point Thompson
Incident Management Team Exercise

The chosen scenario involved a release of natural gas condensate, which is the resource extracted from the Point Thompson Prospect.

The scenario was scripted so as to create optimal conditions for the use of in-situ burning as a response tool.

In coordination with the ARRT, the Incident Management Team drafted an ISB plan, and all required appurtenant plans.

Training

EPA Region X
Emergency Response
Health & Safety Training

Topics Covered Included:

RAD Response Jurisdiction and Tactics

Available RAD Response Support Assets

Insuring Worker Safety While Conducting RAD Response Activities


Questions?
UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
EPA
REGION 10
EMERGENCY RESPONSE TEAM

Alaska Regional Response Team

January 2017 Meeting

CAPT Shannan Greene
U.S. Coast Guard
Captain of the Port, Southeast Alaska

U.S. COAST GUARD

Pollution Incident Numbers

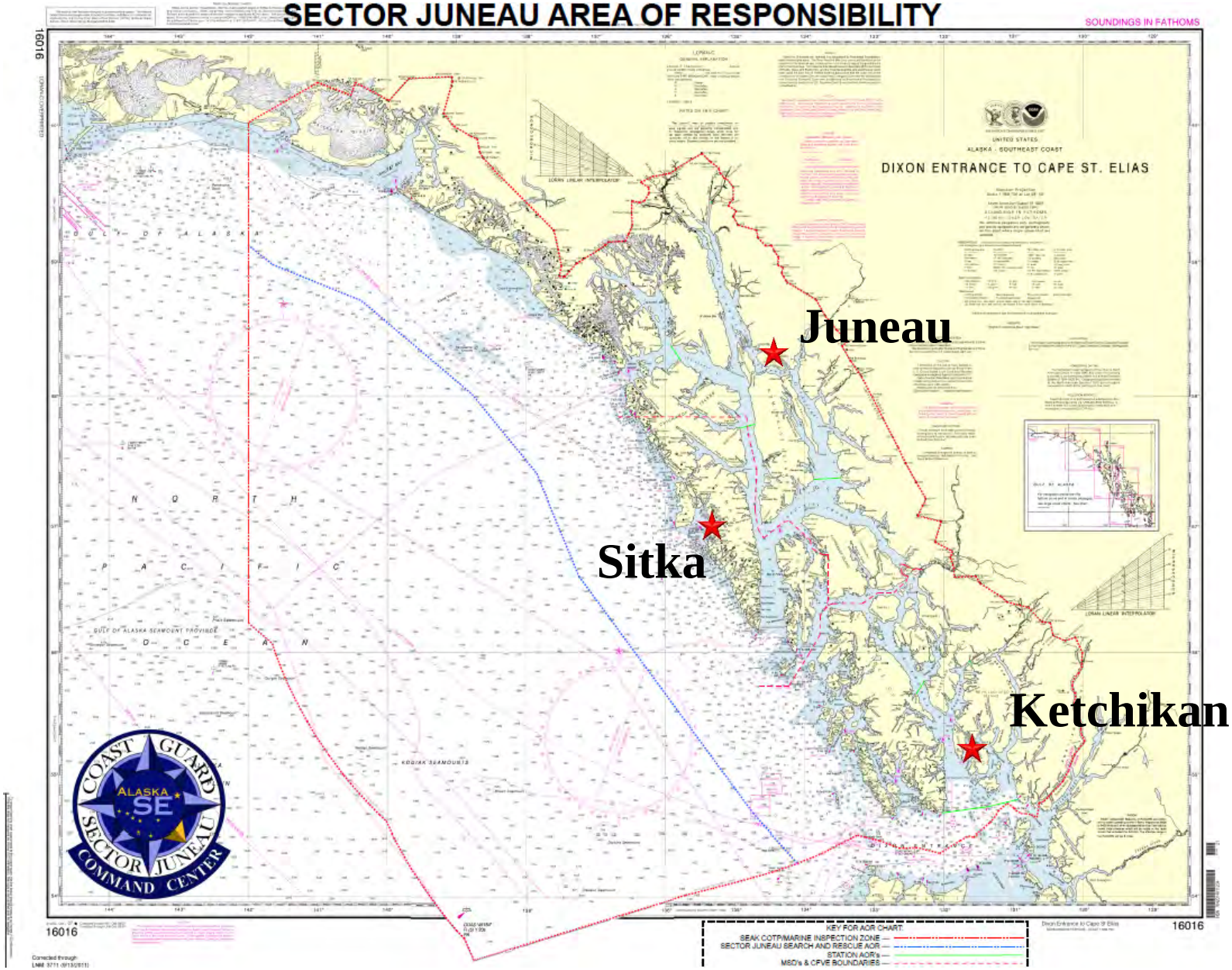
October 1 – December 31

AOR	INCIDENTS	YTD	OSLTF ACCESSED	POTENTIAL GALLONS	ACTUAL GALLONS
Juneau	9	9	0	350	232
Ketchikan	13	13	1	1,132	96
Sitka	13	13	2	1,597	42
Total:	35	35	3	3,079	370

U.S. COAST GUARD

* figures are approximate

SECTOR JUNEAU AREA OF RESPONSIBILITY

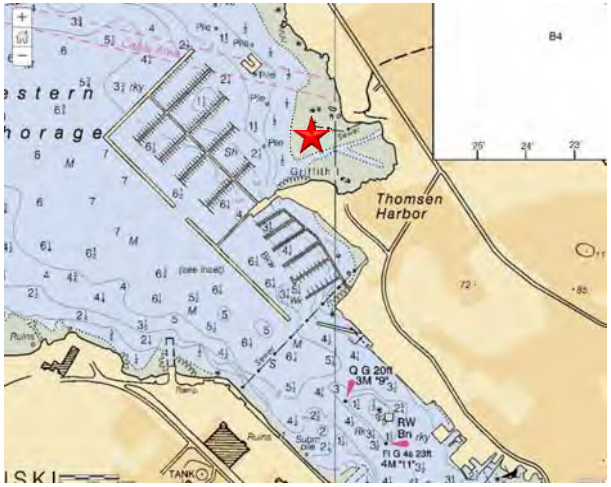


U.S. COAST GUARD

* figures are approximate

F/V JEWEL- 31DEC16

Thomsen Harbor, Sitka



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F/V JEWEL- 31DEC16

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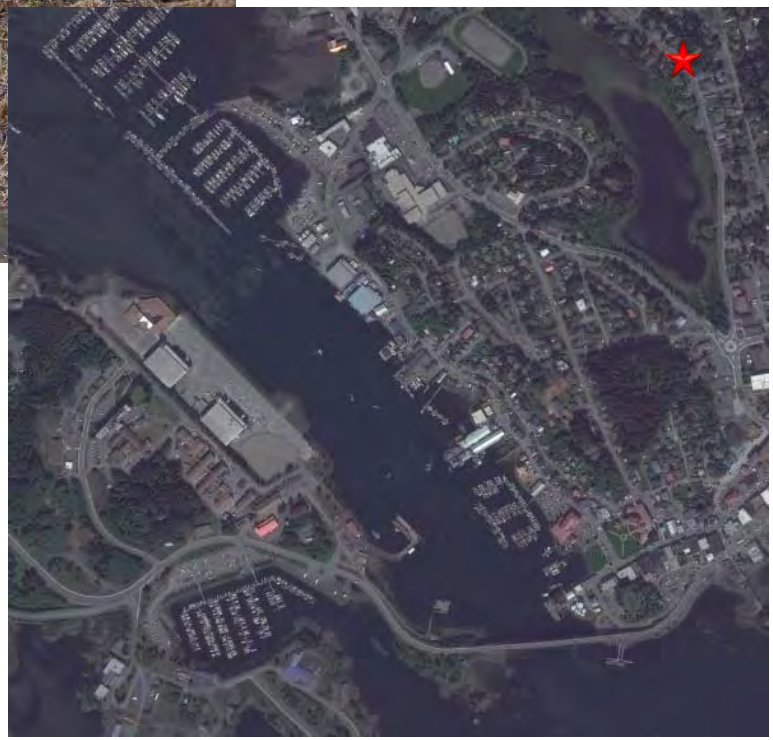
MYSTERY SHEEN – 29DEC16

U.S. COAST GUARD

MYSTERY SHEEN – 29DEC16



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Environmental / Tribal Engagement

- Spring 2017: Douglas Indian Association NOAA Marine Debris Removal
- May 2017: Metlakatla Indian Community/USCG meeting
- MSD Sitka monthly engagements to build Sitka Tribe of Alaska response capability

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Future Events

1. Sector Juneau is collaborating with NMFS to define Section 7 consultation procedures:
   - Incident thresholds triggering consultations
   - Consultation close-out & documentation procedures
   - Consultation training & exercise needs for CG units in SEAK

2. Prep
   - 2017 Tabletop Exercise 25 Oct 2017

3. Subarea committee meeting
   - Sitka, May 2017
   - Scheduled in concert with ARRT meeting

4. D17 DRAT to facilitate boom deployment training, HAZWOPER, and GRS updates/validation.
   - Spring 2017

Questions & Comments

FOSC Prince William Sound
January 18, 2017

CDR J. T. Lally
CG Marine Safety Unit Valdez

U.S. COAST GUARD

FOSC Prince William Sound
September 2016 – January 2017 Incident Summary

- Total Incidents: 05 incidents
- Amount Discharged: 06 gallons
- Total Potential: 350 gallons
- OSLTF Supported: 00 incidents
- CERCLA Supported: 00 incidents

U.S. COAST GUARD

Historical Oil Spill Averages For May - Oct

Time Period	Actual (gallons)	Potential (gallons)	Federalized Cases	Total Number of cases
Oct12-Feb13	58	965	0	11
Oct13-Feb14	5.5	1,792	0	7
Oct14-Feb15	22.5	200	0	10
Oct15-Feb16	166	350	0	5
Oct16-Feb17	6	350	0	5

U.S. COAST GUARD

Significant Prince William Sound Responses

1. Potassium Amyl Xanthate (PAX) Container Radiation Detection (09 January) – Low level of gamma and neutron radiation detected from two containers at the VCT during routine random container inspection. Rad level II activated, detected low levels of gamma and neutron above background and yielded P40 and possible Ir 192. CST deployed to confirm radiation source as natural and that neutron emission was below their limit of detection and not of concern. Results from CST sent to DOE for final analysis and results relayed to USCG on January 11th with the "all-clear" given and the hold on the cargo released.

U.S. COAST GUARD

Significant Prince William Sound Responses Cont.

2. M/V Iron Throne (01 November) - 32’ Pleasure craft sank off of Naked Island with 05 POB who swam to shore. Estimated 100 gallons of gasoline onboard. No cleanup feasible.

2. M/V Lady Luck (13 November) - 41’ inspected passenger vessel struck a rock IVO Montague Island and intentionally beached the vessel. Estimated 150 gallons of diesel onboard. R&R Diving assessed temp repairs completed by crew and escorted vessel back to Valdez. No pollution resulted from grounding.

U.S. COAST GUARD

Prince William Sound Exercises

- Oct 4, 2016 – Klutina River Exercise
  - One day exercise simulating a pipeline failure under the Klutina River.
  - Test and improve the techniques for fast water oil spill response in Alaska. Utilized a harbor buster setup in the Copper River.
  - The EPA was the FOSC with USCG support at the Incident Command Post in Fairbanks and in the field at Copper Center, AK.

- Oct 18-20, 2016 –Tesoro Shippers Exercise
  - Excellent participation and coordination between Alyeska/SERVS, Tesoro, US Coast Guard, ADEC and all other participating Regulatory Agencies/Response Community members.
  - The Scenario Involved a 1250 bbl discharge from a manifold failure on a ship loading at the VMT berth. The oil immediately reached water and due to inclement weather, migrated outside of containment boom.
  - Tesoro After Action Report (AAR) in progress and CG AAR complete.

U.S. COAST GUARD

Prince William Sound Exercises

- October 26, 2016 –Petro Star Refinery Worst Case Discharge Tabletop Exercise
  - One day exercise focused on initial response actions, mitigation of flammable vapors, and waste management.
  - Scenario included failure of the largest crude oil tank on the facility and a breach of secondary containment.
  - USCG and ADEC participated as observers at the Incident Command Post stood up in Valdez.

Prince William Sound Subarea Committee

- Next Meeting: March/April (TBD), 2017 in Valdez
  - The September meeting will be held in Cordova in conjunction with ARRT meeting.

- Future projects
  - Support PWS response community training and exercises.
  - Adjudicate comments and establish dispersant avoidance areas in PWS COTP Zone.
  - Perform administrative updates to the Prince William Sound Sub-Area Plan.

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Future Training & Exercises

- Valdez Community Response Training/Exercise : Valdez - March 22-23, 2017
- Valdez Marine Terminal Exercise: Valdez – May 11, 2017
- Conoco Phillips/Polar Tankers Shipper Exercise: Valdez – October 2-6, 2017

QUESTIONS?

U.S. COAST GUARD

Alternate FOSC Western Alaska
January 2017

Stacey Mersel, Commander
USCG Sector Anchorage

U.S. COAST GUARD

Pollution Incidents
September 2016 – Present

AOR	INCIDENTS	POTENTIAL (Gallons*)	SPILLED (Gallons*)	OSLTF ACCESSED
SECTOR Anchorage	18	131,794	191	0
MSD Homer	3	20,035	165	0
MSD Kodiak	16	59	10	0
MSD Dutch Harbor	7	8,522	2,869	0
Total:	**44**	**160,410**	**3,235**	**0**

* figures are approximate

U.S. COAST GUARD

TYONEK PLATFORM

(November, 2016)

U.S. COAST GUARD

S/V LIEVELING
(November 2016)

U.S. COAST GUARD

M/V EXITO
(December 2016)

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Outreach/Drills

- Drift River Facility/CISPRI Site Visit: 19 - 21 September
- ExxonMobil 2016 Point Thomson Exercise: 13 - 14 October
- Glacier Oil and Gas Osprey Platform TTX: 15 November
- ADEC/USCG/EPA Outreach Trip to Kotzebue: 28 - 30 November
- Natural Resource Damage Assessment Workshop: 6 December

Future Exercises / Drills

- USCG Outreach Trips to Utqiagvik - Spring 2017
- Navy SUPSALV Oil and Ice Training – 13 - 17 February
- Blue Crest Energy Exercise – 22 March
- EPA/ADEC/USCG Tribal Response Training, Dillingham - Summer 2017

U.S. COAST GUARD

Planning Activities/ Initiatives

Subarea Committee Update:

- Cook Inlet – Revision 2 signed 13 January
- Northwest Arctic – Resources and Sensitive Areas

Area Planning reorganization

Dispersant Pre-Authorization Area Avoidance Area Development:

- Nuka Research report due 31 January 2017
- Technical Committee proposal due 30 November 2017
- Dispersant Avoidance Areas plan due 27 January 2018

Initiatives

- ESA Section 7 Consultation Process
  - Sector Anchorage with NOAA and NMFS developed draft forms to streamline the initiation and close out of the ESA Section 7 Consultation for use Alaska-wide.

Questions & Comments

U.S. COAST GUARD

ADEC RRT Update January 2017

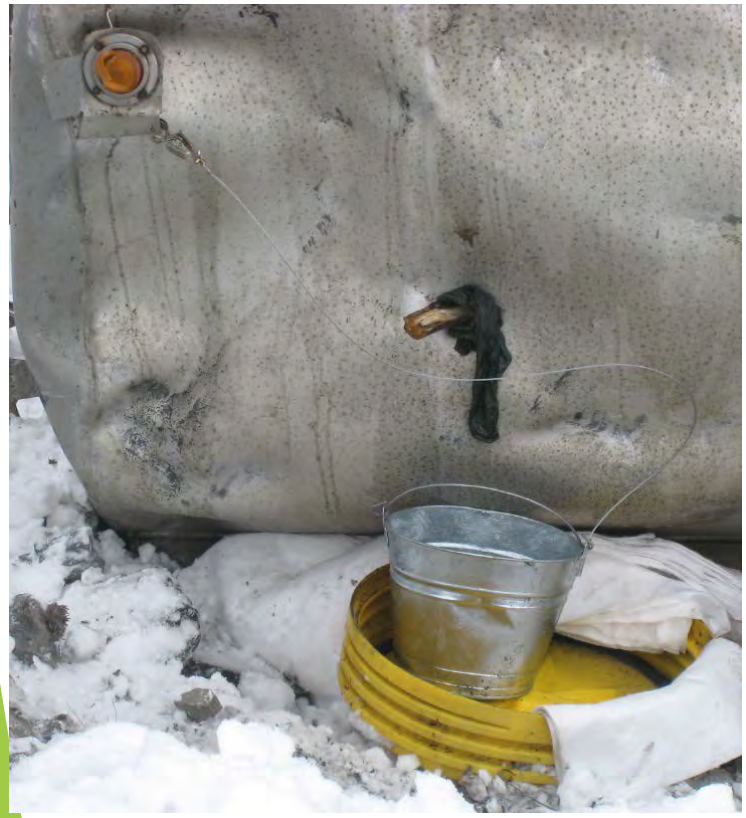
SOSC Briefing

Cook Inlet/Kodiak Unit
Tyonek Platform Leg Diesel Spill

Cook Inlet/Kodiak Unit
Tesoro KPL Facility Crude Oil/Water Spill

Aleutians West Unit
MV Exito Sinking

Prince William Sound Unit
Mile 42 Richardson Hwy Truck Rollover



Southeast Region
Barge *Consuelo* and scrap transformers

Northern Region
Mile 164.4 Richardson Hwy Truck Rollover

Class 2 Facilities Regulations

- Proposed Registration of Class 2 Facilities
  - AST used to store bulk quantities of noncrude oil
  - Storage capacity ≥1,000 and <420,000 gallons
  - Include individual AST with storage capacity ≥ 500 gallons
- Regulation package comment period closes 1/19/2017

Response Exercise Improvements Project Update and Next Steps

- Spring 2016 – ADEC released a draft whitepaper on response exercise improvements and solicited comment.
- Fall/Winter 2016 – Embarked on a stakeholder outreach effort to further collaborate with the response community.
  - Internet based survey conducted – Nov 2 - 22.
  - Web-based visioning sessions held – Dec 8 & 13.

Response Exercise Improvements Project Next Steps

- Visioning Session Method and Results.
  - Conducted via an internet-based collaboration tool (MeetingSphere).
  - Over 2000 comments received on approximately 25 questions.
- Survey and Visioning Session Reports will be available at: http://dec.alaska.gov/spar/PPR/drills.htm
- Now working internally to develop a program framework and scope.
- Public Workshop – April 2017

Deployable Assets Available Through DHS&EM

Bryan Fisher
Chief of Operations, DHS&EM
January 18, 2017

Aspen 1800 Portable Water Purification Unit

Water Purification

- Treats non-saline water sources including ponds, lakes and rivers - delivering potable water
- Purifies up to 1800 Gallons a day
- 75 gallons per hour
- 1.25 gallons per minute
- 2 stage filtration with UV lamp system
- Self-priming at up to 12’ draw
- 22 to 45 psi treated water discharge pressure
- Treats 7,500 gallons prior to filter replacement

Requirements

- Transported in 2 – 4’ X 4’ X 14” pelican style cases
  - 1 case for purification unit (68 lbs.)
  - 1 case for extended us filter supplies (50 lbs.)
- 110 volt power source with 12 volt air transportable batteries

Available to Support Water Supply Needs on Remote Incidents

ASPEN 2000 DM
REVERSE OSMOSIS PORTABLE WATER PURIFICATION UNIT

WATER PURIFICATIONS

- Treats non-saline to heavy sea (salt) water sources, including ponds, lakes, rivers, saltwater - delivering potable water
- Purifies up to 2000 gallons a day / 80 gallons an hour in brackish water to 1000 gallons per day / 40 gallons an hour in heavy salt water
- 3 stage filtration with reverse osmosis and UV lamp system
- Working pressure up to 1000 psi for heavy salt water conditions
- Self-priming at up to 15' lift
- 22 to 55 psi treated water discharge pressure

REQUIREMENTS

- Transported in 2 – 44" X 17" X 29" pelican style cases
  - 1 case for purification unit (420 lbs.)
  - 1 case for extend use filter supplies (100 lbs.)
- 110 volt power source with 12 volt air transportable battery.

AVAILABLE TO SUPPORT WATER SUPPLY NEEDS ON REMOTE INCIDENTS

Aspen 5500 M Portable Water Purification Unit

Water Purification

- Treats non-saline water sources, including ponds, lakes and rivers - delivering potable water
- Purifies up to 5500 gallons a day
- 170 gallons per hour
- 2 stage filtration with UV lamp system
- Self-priming at up to 12’ draw
- 22 to 55 psi treated water discharge pressure
- Treats 50,000 gallons prior to filter replacement

Requirements

- Transported in 2 – 44” X 17” X 29” pelican style cases
  - 1 case for purification unit (200 lbs.)
  - 1 case for extend use filter supplies (100 lbs.)
- 110 volt power source with 12 volt air transportable battery.

Available to Support Water Supply Needs on Remote Incidents

Emergency Power Units

Generator Capabilities

- These generators range in size from:
  - 2 each – 25-KW, 50-KW, and 75-KW.
  - 2 each – 100-KW, 125-KW, and 175-KW.
  - One 2-MW (on trailer).

Available to Support Communications on Remote Incidents

Portable Backpack Satellite Communications Kit

Communications

- Motorola XTS 2500 ALMR portable radios (2)
- Iridium Satellite phone (1)
- Dell Mini Notebook Computer (1)
- Broadband Global Area Network (BGAN) terminal satellite antenna (1)

Power

- Solar power panel (1)
- Solar battery voltage regulator (1)

Available to Support Communications on Remote Incidents

Mobile Emergency Operations Center (MEOC)

Command Center Capabilities

- 10 workstations with laptops computers
- High Speed satellite system; supports video conferencing, VOIP phones, Wi-Fi internet.
- Self-erecting/self-orienting satellite system.
- 16 Voice Over Internet Protocol (VOIP) telephones via satellite.
- Receive and record analog and digital broadcast television.
- External tower mounted high resolution color video camera with full remote control optical and digital zoom
- Multiple video screens and external video capability.

Vehicle

- 45 foot length / 41,000 lbs. loaded
- Two 12.5 KW Generators – 3 day on board fuel supply (diesel)
- Lights, siren, public address, external lighting

Dispatch Center Capabilities

- Four computer aided dispatch positions utilizing Telex C-Soft software with full patch capability
- Dispatch headsets, boom microphones and foot switches
- Panel Mounted Radios:
  - ALMR (4)
  - Conventional VHF (2)
  - High and Low UHF
  - 700/800 MHz (AWARN)
  - Marine
  - VHF AM aircraft
  - ARES capable amateur
  - Citizens Band
- Deployable ALMR portable radio cache
- 24 inch map plotter
- Printer/fax/copier, Fax/copier.
- Refrigerator, microwave , coffee pot

Available to Support Unified Command Operations on Alaska's Road System

RapidComm Portable Communications Trailer

Satellite Communications

- Satellite system; supports VOIP phones, Wi-Fi internet.
- Self-erecting/self-orienting satellite system.
- Onboard laptop computer

Trailer

- Transportable by, Vehicle, ATV, Smaller fixed wind aircraft, Helicopter Sling-loaded
- Weight: 1,800 lbs
- Length: 196”L X 72” W X 105” H (with antenna mounted) 156”X72”X90” (without)
- Generators (2) capable of fully powering RapidCom - Dual Fuel (gasoline/propane)
- Weatherization for operation from -30 F to +90 F.

Radio System

- Panel Mounted Radios:
  - ALMR (2)
  - Conventional VHF
  - High and Low UHF
  - 700/800 MHz (AWARN)
  - Marine
  - VHF AM aircraft
  - Citizens Band
- Radio Interoperability Patching System (ACU 1000)
- Deployable Portable Radio Cache
  - 6 ALMR Astro XTS 2500 Radios
  - 6 Radio Gang Charger
  - 18 Portable Radio Batteries

Available to Support Multi-Channel Communications on Remote Incidents

Response Support Trailer

Response Support Capabilities

- Designed to support the MEOC during deployments, however, may be deployed independently.
  - 30' travel trailer "toy hauler design."
  - Accommodations for up to five persons.
  - Has full kitchen and toilet.
  - Washer and dryer.
  - Generator with 30 gallon gasoline fuel tank.

Available to Support Large Population Water Supply Needs on Alaska's Road System

Towed Large Population Water Purification Trailer

Water Purification Capabilities

- Gallons per day treatment capacity:
  - Freshwater – 30,000
  - Brackish – 22,500
  - Seawater – 15,000
- Source Pretreatment:
  - Source strainer
  - Chlorine injection
  - Nexsand Multimedia Tanks (3)
  - Centaur Carbon Media Tanks (2)
  - 25/1 Gradient filters (3)
  - Anti-scalant injection
  - Bio-inhibitor injection
- Reverse Osmosis Unit:
  - 8” x 40” seawater membranes (6) in a 3 vessel array.
- Post Treatment:
  - 250 gallon pressurized holding tank

Water Distribution

- Fill table for containers with disinfection prior to filing
- Automatic water bagging machine
- Hose connection to external containers
- Ozone sanitization of utensils and equipment

Water Source Connection

- Connection to pre-pressurized source
- Submersible raft mounted drafting pump with 65’ lift capacity

System

- Fully automated including testing.
- 2 high pressure pumps capable of 30,000 gallons per day.

Trailer

- 23 foot length, 8 foot wide, 8 foot high
- Fully enclosed, weatherproof box, 2 side doors, leveling legs.
- 14,000 lbs. dry

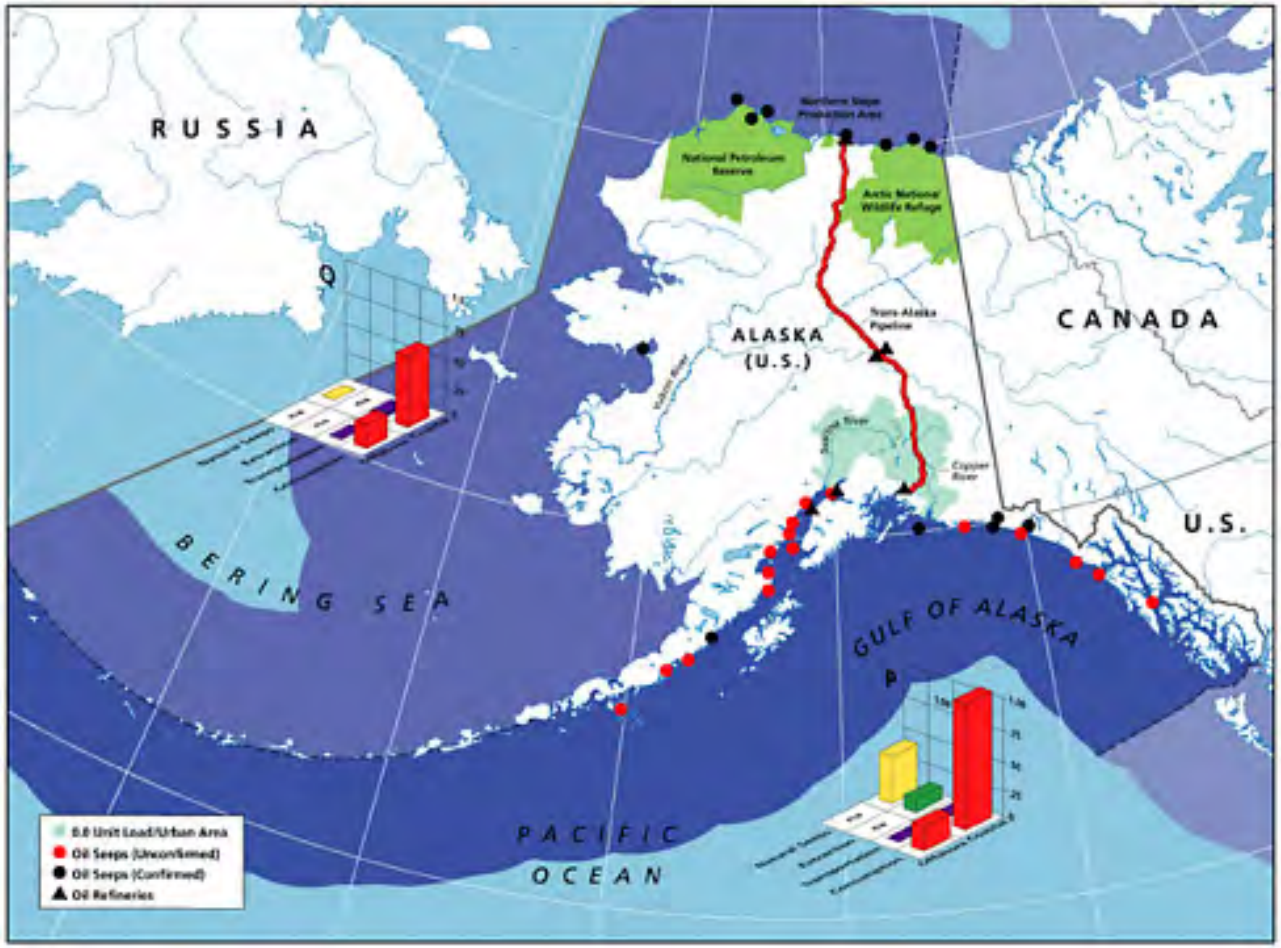
Available to Support Large Population Water Supply Needs on Alaska’s Road System

Biodegradation of Oil and Corexit 9500A by Arctic Marine Microorganisms

Kelly M. McFarlin,[1] Matthew Perkins[2], Jennifer Field[2] and Mary Beth Leigh[1]

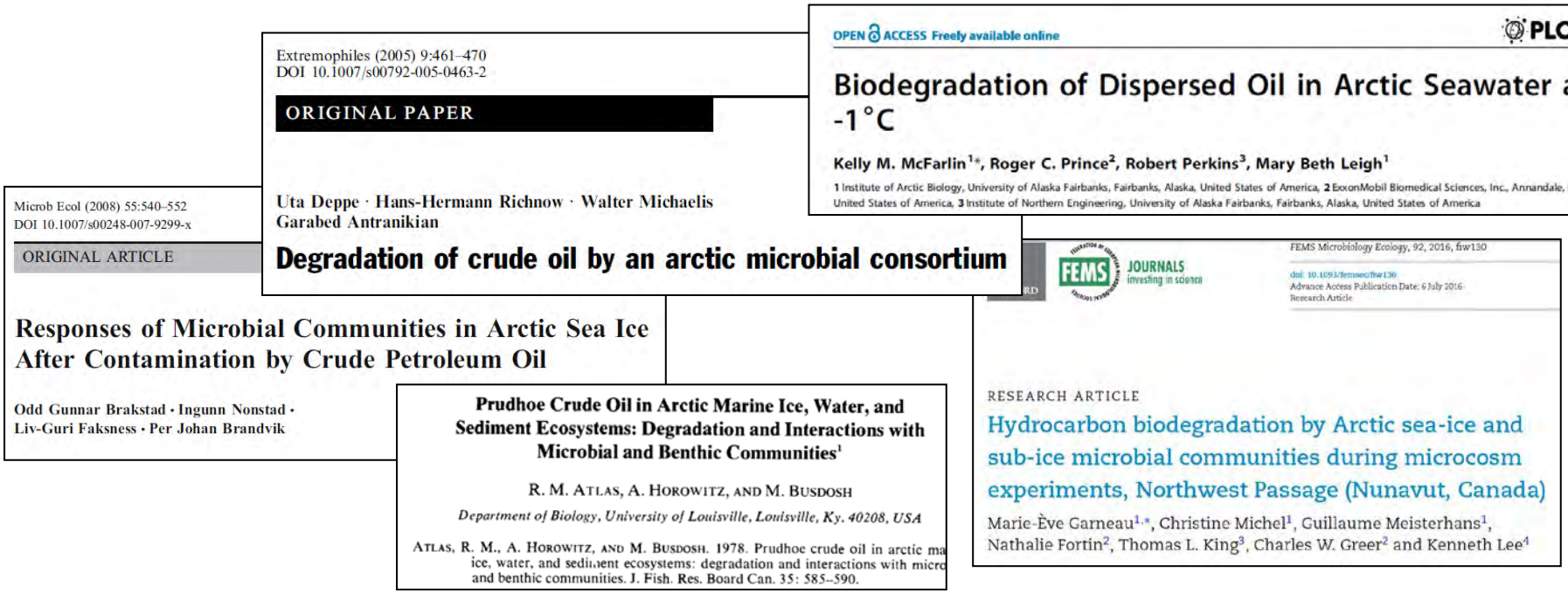
[1] Institute of Arctic Biology, University of Alaska Fairbanks
[2] Oregon State University, Corvallis, OR

Oil Seeps in Alaska



NRC, 2003

Oil Biodegradation Studies Using Arctic Seawater and Sea Ice



Extremophiles (2005) 9:461–470
DOI 10.1007/s00792-005-0463-2

ORIGINAL PAPER

Uta Deppe · Hans-Hermann Richnow · Walter Michaelis
Garabed Antranikian

Degradation of crude oil by an arctic microbial consortium

OPEN ACCESS Freely available online

PLOS ONE

Biodegradation of Dispersed Oil in Arctic Seawater at -1 °C

Kelly M. McFarlin[1]*, Roger C. Prince[2], Robert Perkins[3], Mary Beth Leigh[1]

1 Institute of Arctic Biology, University of Alaska Fairbanks, Fairbanks, Alaska, United States of America, 2 ExxonMobil Biomedical Sciences, Inc., Annandale, New Jersey, United States of America, 3 Institute of Northern Engineering, University of Alaska Fairbanks, Fairbanks, Alaska, United States of America

Microb Ecol (2008) 55:540–552
DOI 10.1007/s00248-007-9299-x

ORIGINAL ARTICLE

Responses of Microbial Communities in Arctic Sea Ice After Contamination by Crude Petroleum Oil

Odd Gunnar Brakstad · Ingunn Nonstad · Liv-Guri Faksness · Per Johan Brandvik

Prudhoe Crude Oil in Arctic Marine Ice, Water, and Sediment Ecosystems: Degradation and Interactions with Microbial and Benthic Communities[1]

R. M. Atlas, A. Horowitz, and M. Busdosh

Department of Biology, University of Louisville, Louisville, Ky. 40208, USA

Atlas, R. M., A. Horowitz, and M. Busdosh. 1978. Prudhoe crude oil in arctic ma ice, water, and sediment ecosystems: degradation and interactions with micro and benthic communities. J. Fish. Res. Board Can. 35: 585–590.

FEMS JOURNALS investing in science

FEMS Microbiology Ecology, 92, 2016, fiw130

Advance Access Publication Date: 6 July 2016
Research Article

RESEARCH ARTICLE

Hydrocarbon biodegradation by Arctic sea-ice and sub-ice microbial communities during microcosm experiments, Northwest Passage (Nunavut, Canada)

Marie-Ève Garneau[1,*], Christine Michel[1], Guillaume Meisterhans[1], Nathalie Fortin[2], Thomas L. King[3], Charles W. Greer[2] and Kenneth Lee[4]

Data gaps remain regarding the taxonomic identity of Arctic oil-degraders and rates of oil biodegradation in seawater

- What has been reported for seawater relies primarily on culture-based methods that may create results unrepresentative of the sampled environment

Chemical Dispersants (Corexit 9500A)

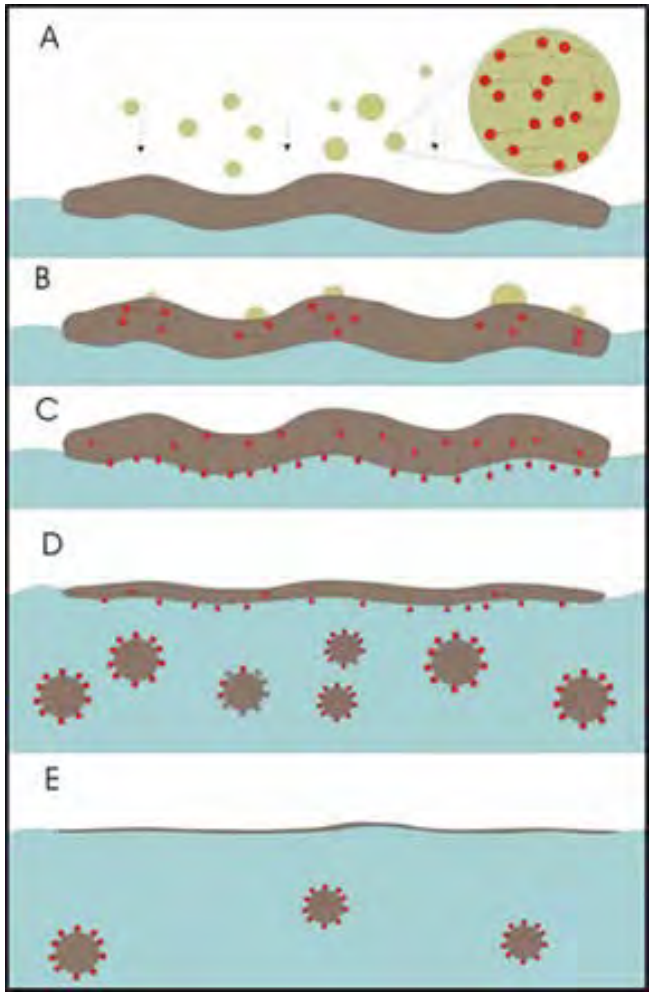


Image courtesy of ITOPF

- Dispersants increase bioavailability of oil by increasing surface area. (Beal and Betts, 2000; Rosenberg, 1993)
- Smaller oil droplets biodegrade faster than larger droplets. (10 µM vs. 30 µM, Brakstad et al., 2015)
- Dispersed oil biodegrades faster than a surface oil slick. (Prince & Butler, 2014)
  - Adds more chemicals to the environment

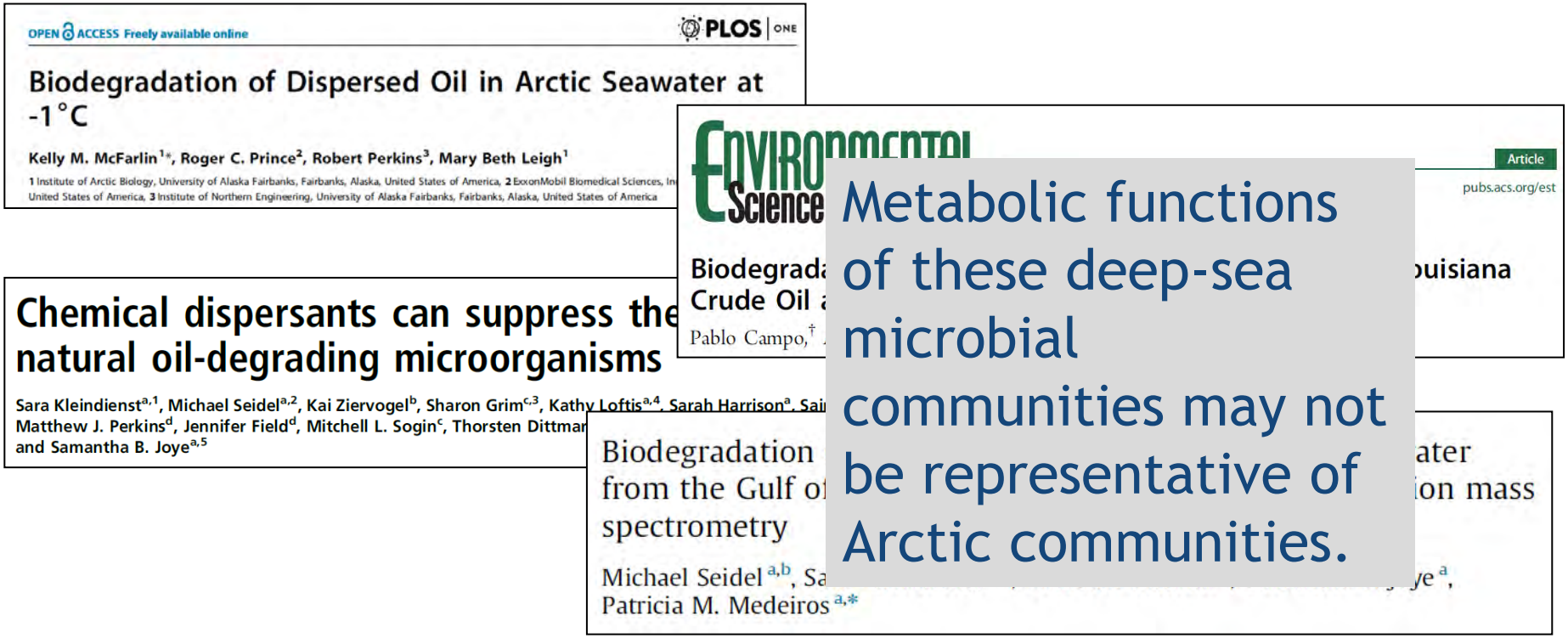
Chemical dispersants can suppress the activity of natural oil-degrading microorganisms

Sara Kleindienst[a,1], Michael Seidel[a,2], Kai Ziervogel[b], Sharon Grim[c,3], Kathy Loftis[a,4], Sarah Harrison[a], Sairah Y. Malkin[a], Matthew J. Perkins[d], Jennifer Field[d], Mitchell L. Sogin[c], Thorsten Dittmar[e,f], Uta Passow[g], Patricia M. Medeiros[a], and Samantha B. Joye[a,5]

[a]Department of Marine Sciences, University of Georgia, Athens, GA 30602; [b]Department of Marine Sciences, University of North Carolina, Chapel Hill, NC 27599; [c]Josephine Bay Paul Center, Marine Biological Laboratory, Woods Hole, MA 02543; [d]Department of Environmental and Molecular Toxicology

Corexit Biodegradation Studies

Currently no published reports exist for the primary biodegradation of Corexit in Arctic seawater.



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Biodegradation of Dispersed Oil in Arctic Seawater at -1 °C

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United States of America, 3 Institute of Northern Engineering, University of Alaska Fairbanks, Fairbanks, Alaska, United States of America

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Environmental Science

Article

pubs.acs.org/est

Biodegrada
Crude Oil a

Pablo Campo,[†]

uisiana

Biodegradation
from the Gulf of
spectrometry

ater
ion mass

Michael Seidel[a,b], Sa
Patricia M. Medeiros[a,*]

ye[a],

Metabolic functions of these deep-sea microbial communities may not be representative of Arctic communities.

The <u>rates</u> at which Corexit and oil biodegrade in Arctic environments are still unknown (NRC, 2014).

Corexit Biodegradation Studies

It is likely that microorganisms are capable of biodegrading both oil and dispersant components

During the Deepwater Horizon oil spill

- Known oil-degrading taxa (e.g. *Colwellia*) were enriched by chemically dispersed oil in a deep-water plume (Redmond and Valentine, 2012; Dubinsky et al., 2013)

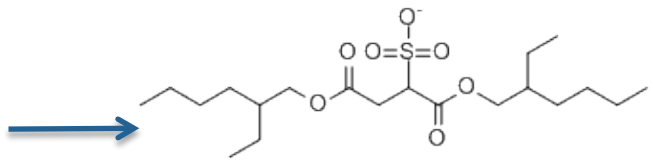
In Gulf of Mexico seawater incubations

- Similar species (e.g. *Colwellia*) also increased in abundance in response to:
  - Corexit-only (Kleindienst et al., 2015)
  - Chemically dispersed oil (Baelum et al., 2012; Chakraborty et al., 2012)

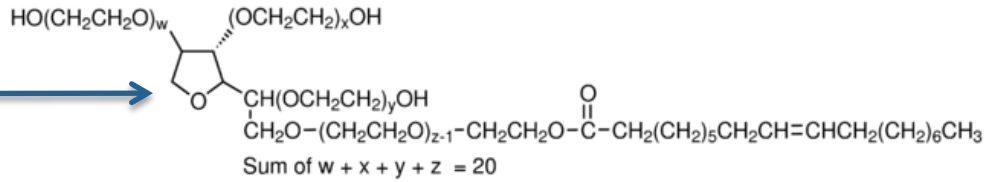
What's in Corexit 9500A?

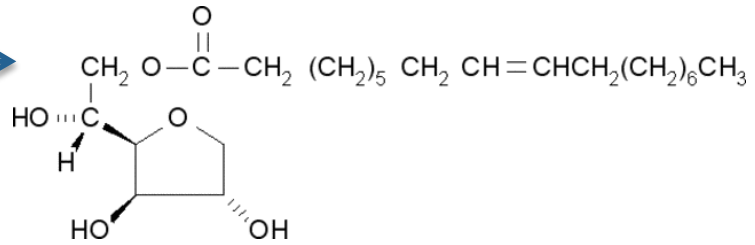
Surfactant components

- Anionic surfactant
  - 18% (w/w) dioctylsulfosuccinate (DOSS)



- Non-ionic surfactants
  - 18 % (w/w) Tween 80
  - 4.6% (w/w) Tween 85
  - 4.4% (w/w) Span 80





Other components

- Dipropylene glycol butyl ether
- 2-butoxy-ethanol
- **Petroleum distillates**
- And others

Place et al., 2016, Parker 2014, U.S. EPA

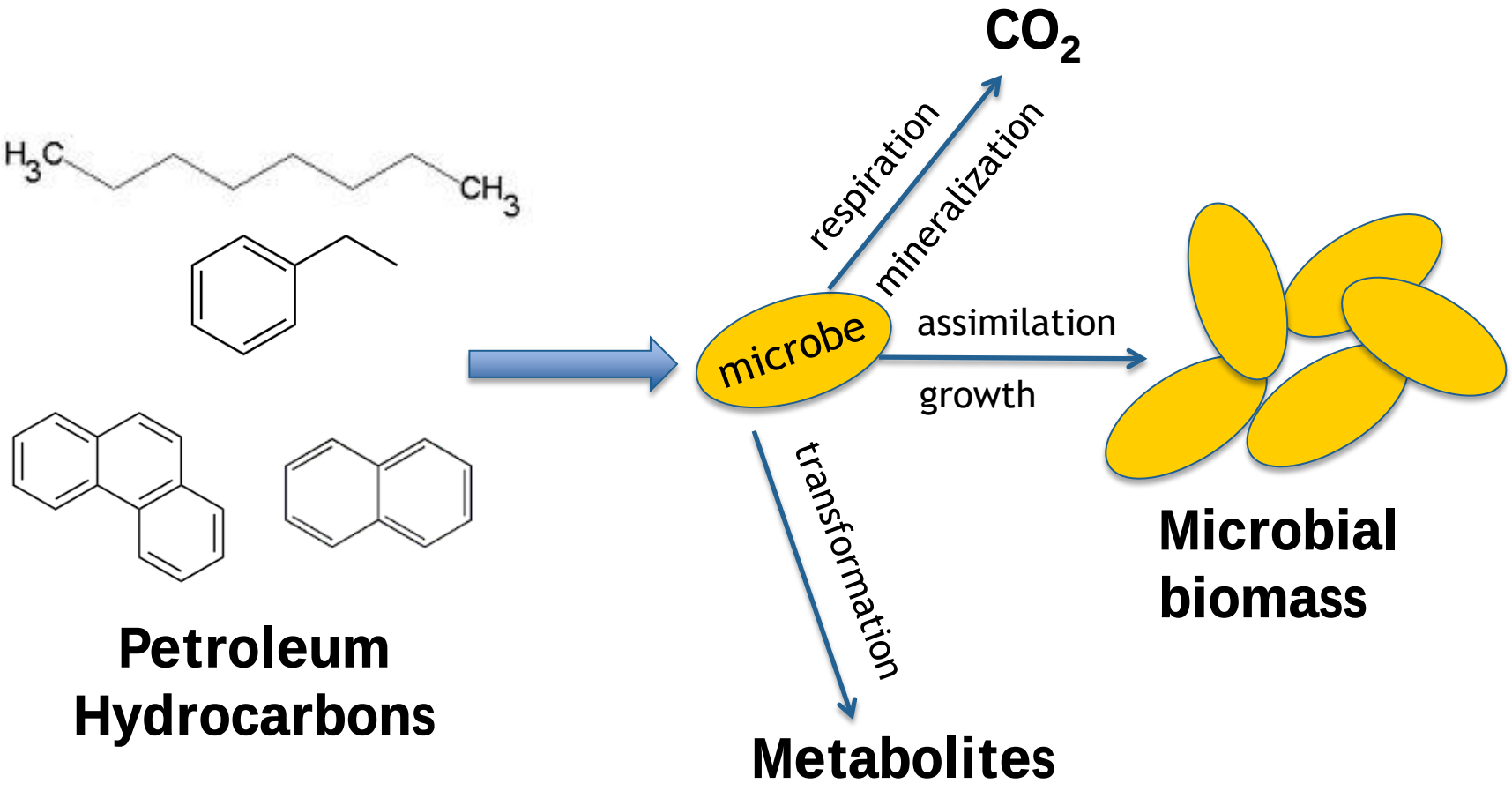
Corexit Contains Hydrocarbons

Hydrocarbons are present in

- the solvent fraction of Corexit
  - made of petroleum distillates
    - include alkanes (C_9 - C_{16}) and paraffins (MSDS)
- the side chains of DOSS (Seidel et al., 2016)

Bacteria may use similar genetic pathways when biodegrading oil and Corexit compounds.

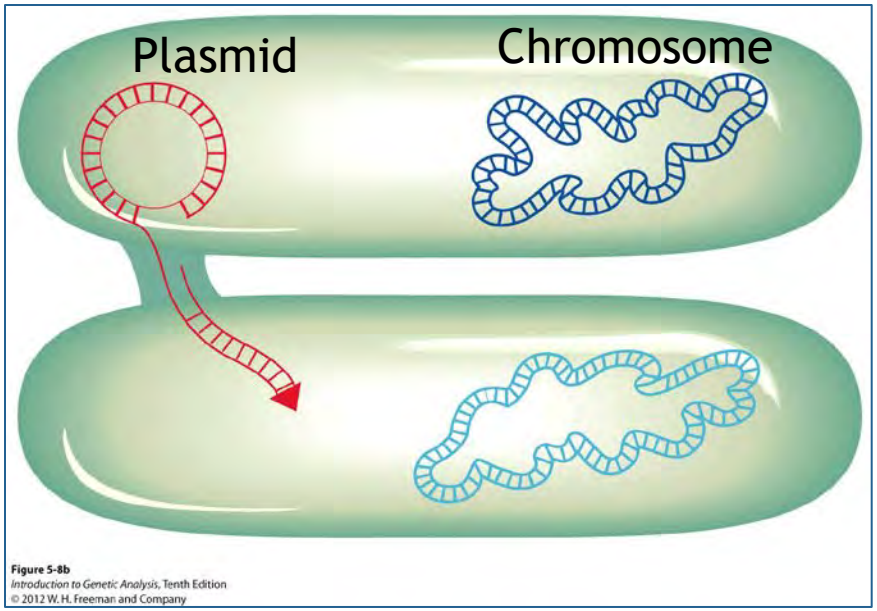
Biotransformation of Oil

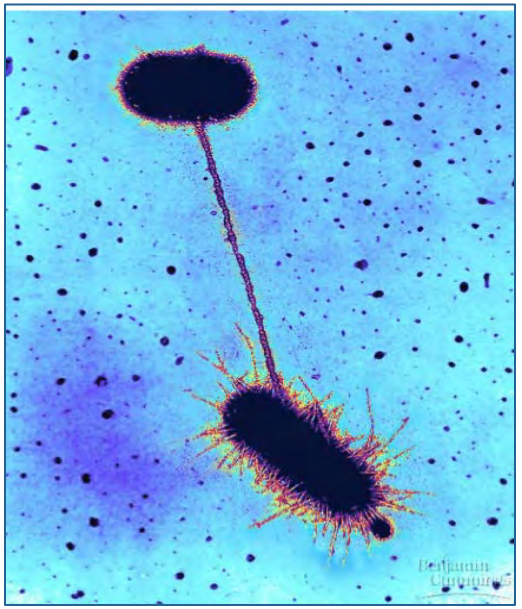


The microorganisms that increase in abundance in an oiled environment are most likely the oil-degraders.

Biodegradation Genes are Passed Between Bacterial Cells

The presence or absence of specific degraders should not be used a proxy for biodegradation efficiency or inhibition.





©2010 W.H. Freeman and Company

It is highly likely that genes involved in the biodegradation of Corexit are also passed from cell to cell.

Rates of Biodegradation

- Biodegradation rates are thought to be slower in Arctic than temperate regions
- Some microorganisms are adapted to low temperatures (Feller, 2003)
  - Similar oil biodegradation rates in cold and temperate environments have been reported (Braddock and McCarthy, 1996; Margesin and Schinner, 1997; Gibb et al., 2001)

Rates of Biodegradation

Oil properties at low temperature more likely limit oil biodegradation than metabolism (Bagi et al., 2013; Deppe et al., 2005)

- Temperature increases evaporation and diffusion (Honrath & Mihelcic, 1999)
  - Which can result in more oil lost in temperate vs. Arctic environments (Prince et al., 2012 vs. McFarlin et al., 2014)

Biodegradation of Oil & Corexit 9500A in Arctic seawater (Chukchi Sea, Alaska)

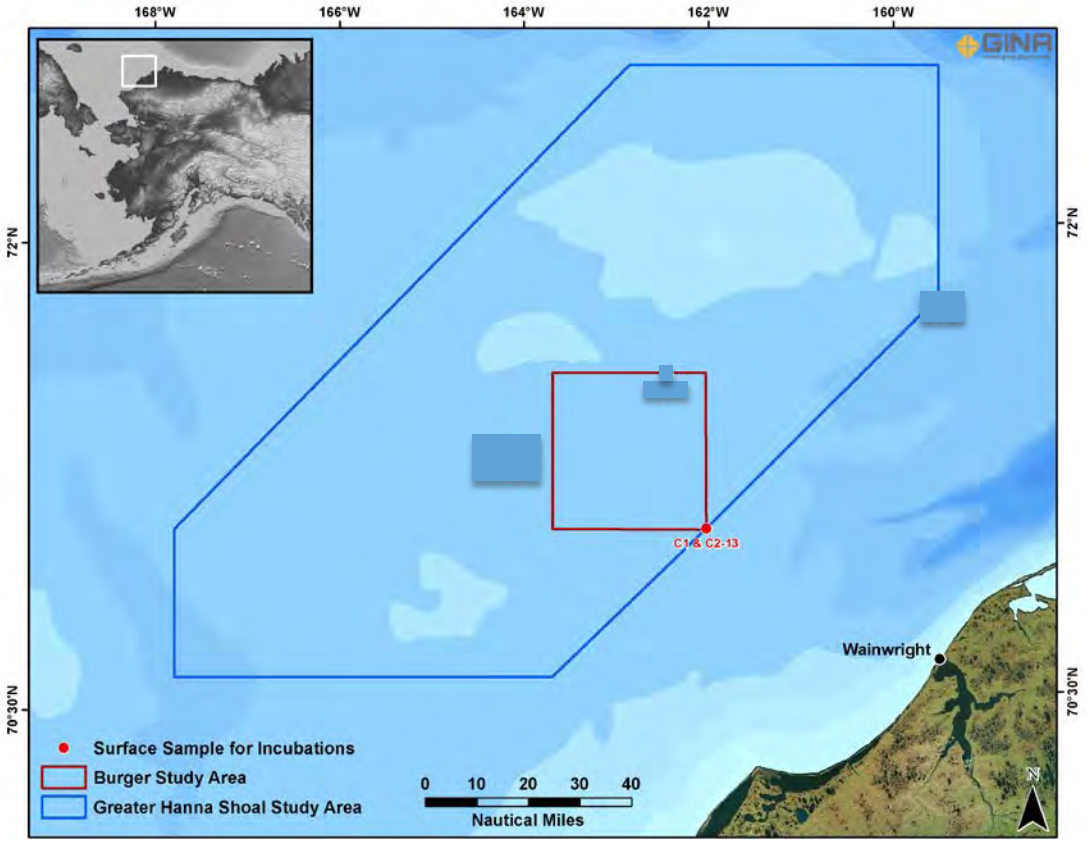
Objectives

- Quantify the chemical loss of ANS crude oil and surfactant components of Corexit 9500A
  - Calculate biodegradation rates (assist fate models)
- Identify bacteria and genes that may be involved in oil and Corexit biodegradation
  - Determine similarities between Arctic and Gulf of Mexico microbial communities

Surface Seawater Collection Incubation Studies

Two water collections

- September 2013
  October 2013
- ~ 90 km from shore
- Open water season



Water collected by Chukchi Sea Environmental Studies Program

Biodegradation Incubations Chemical Loss

Seawater Incubations (2°C)

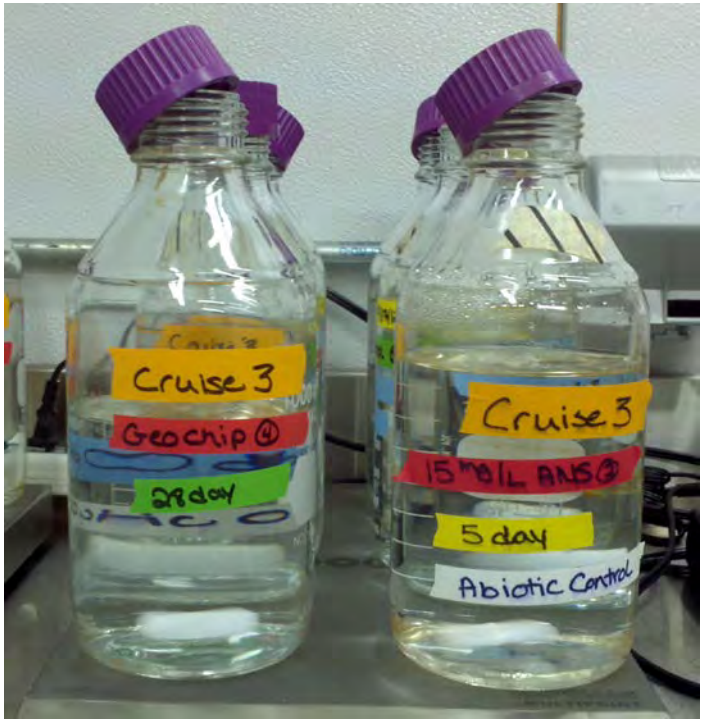
1. Seawater (800 mL)
2. Nutrient Medium (16 mg/L)
3. ANS Crude Oil (15 mg/L)

   OR

   Corexit 9500A (15 mg/L)

Time points: 5, 10, & 28 days

- Open to the atmosphere
- Constantly stirred



Oil Analysis Methods

Primary Biodegradation

- Total measurable hydrocarbons (C_8-C_{40}) were extracted and analyzed with GC-MS.
- Values were normalized to 17α(H),21ß(H)-hopane as a conserved internal marker within the oil.
- Biodegradation was determined as % loss from time zero incubations.
- Abiotic losses were determined in sterile controls and subtracted

% Biodegradation of Oil

Table 1. Mean Percent Loss of Oil at 2°C. Letters correspond to significant differences among time points ($p < 0.05$; MRPP; $n = 3$). Error bars represent standard deviation.

Corexit Analysis Methods

Incubations contained Corexit-Only

- Surfactant compounds were extracted and analyzed with LC-MS/MS.
  - DOSS
  - Non-ionic surfactants
- Biodegradation was determined as % loss from time zero incubations.

Biodegradation of Corexit 9500A

Figure 1. Mean concentration of DOSS at 2°C. Incubations contained Arctic seawater (800 mL), Corexit (15 mg/L), and nutrients (16 mg/L; Bushnell Haas) (*n* = 3).

Non-ionic Surfactants Below Detection Limits at Day 28

Table 2. Mean concentration of non-ionic surfactant components of Corexit at 2°C. Incubations contained Arctic seawater (800 mL), Corexit (15 mg/L), and nutrients (16 mg/L Bushnell Haas). Letters correspond to significant differences among time points ($p < 0.05$; MRPP; $n = 3$).

Sterile control

detection limits: 5.5 µg/L, 15 µg/L, and 6.5 µg/L, respectively

Microbial Community Response to Oil and Corexit 9500A

Microbial Community Analysis

Objective

- Determine which microbes and genes increased in abundance in response to
  - Oil (15 mg/L)
  - Corexit 9500A (15 mg/L)

  *Indicates likely degraders

Methods

- Sequencing 16S rRNA genes (V6), Illumina MiSeq

  Determines presence and relative abundance of bacteria
- GeoChip Microarray 5.0

  Determines presence and abundance of oil-degrading genes

Microbial Community Structure

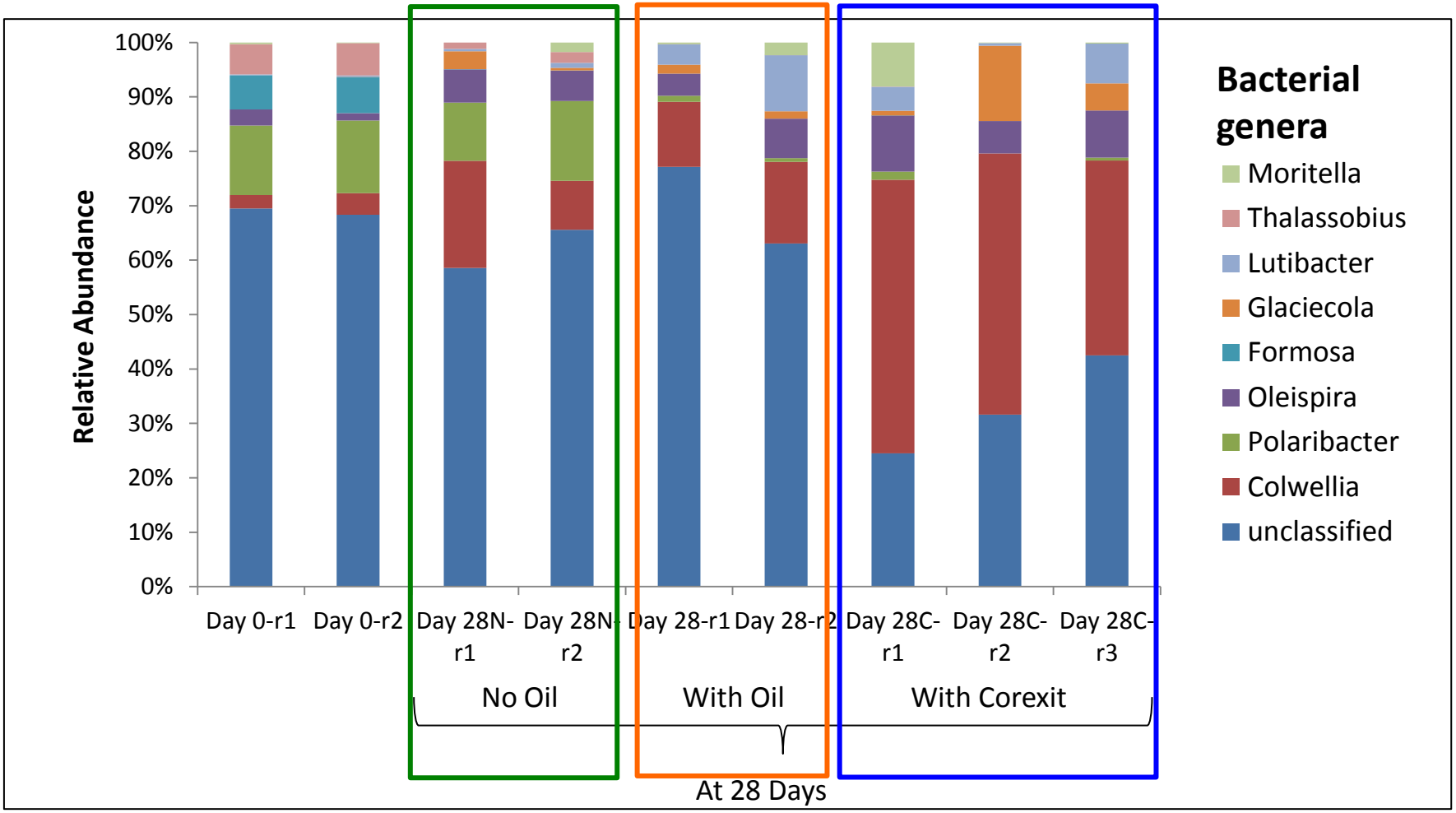


Figure 2. Relative Abundance of Most Abundant Genera at 2°C. Day 0 and day 28 time points are shown for incubations containing no added carbon, oil (15 mg/L), and Corexit (15 mg/L).

Response of Colwelliaceae Family to Oil or Corexit

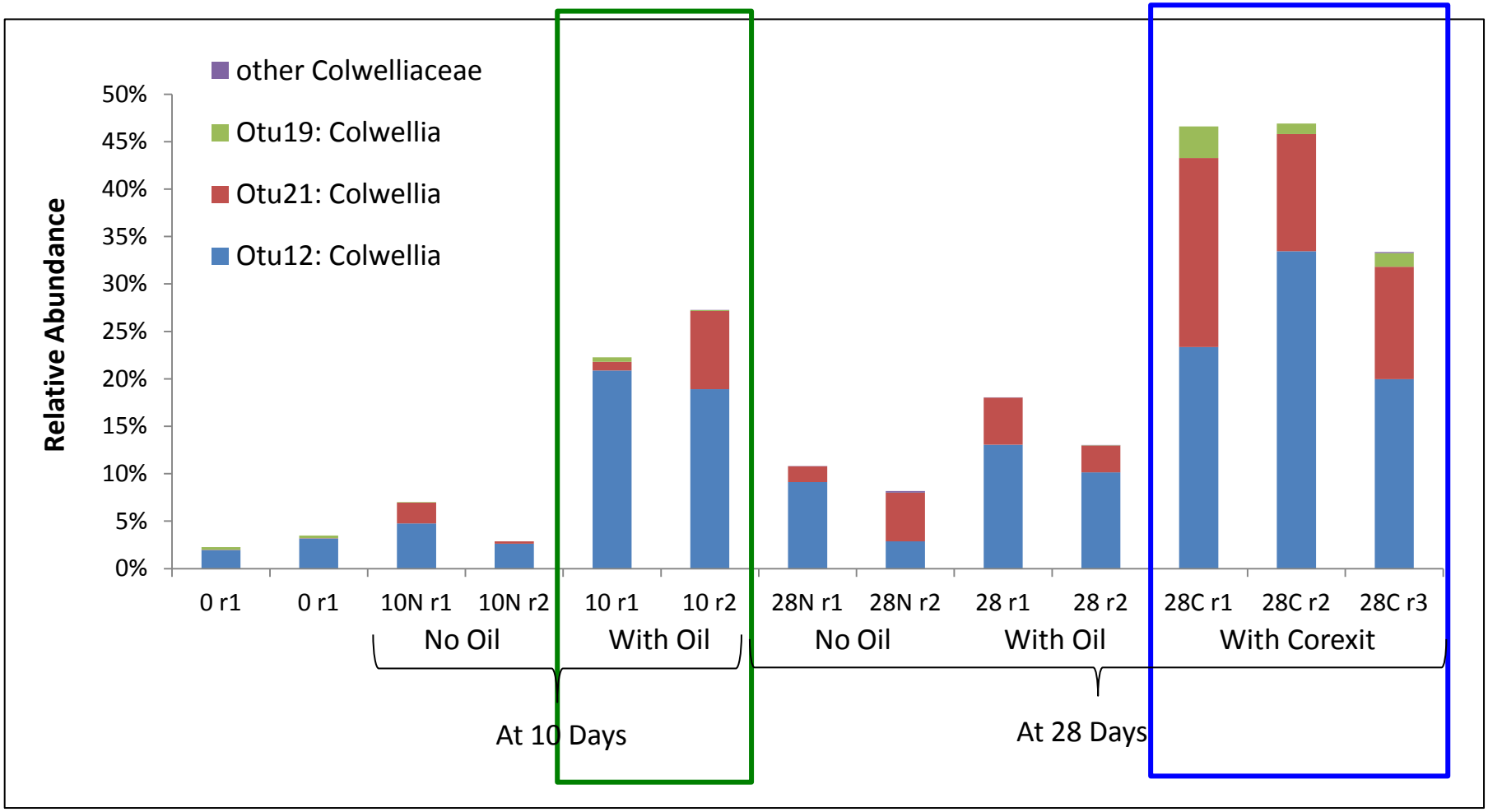


Figure 3. Relative abundance of sequences classified in the Colwelliaceae family. Day 0, 10, and 28 time points are shown for seawater incubations containing no added carbon (N), oil (15 mg/L), or Corexit (C; 15 mg/L) at 2°C.

Response of Rhodobacteraceae Family to Oil or Corexit

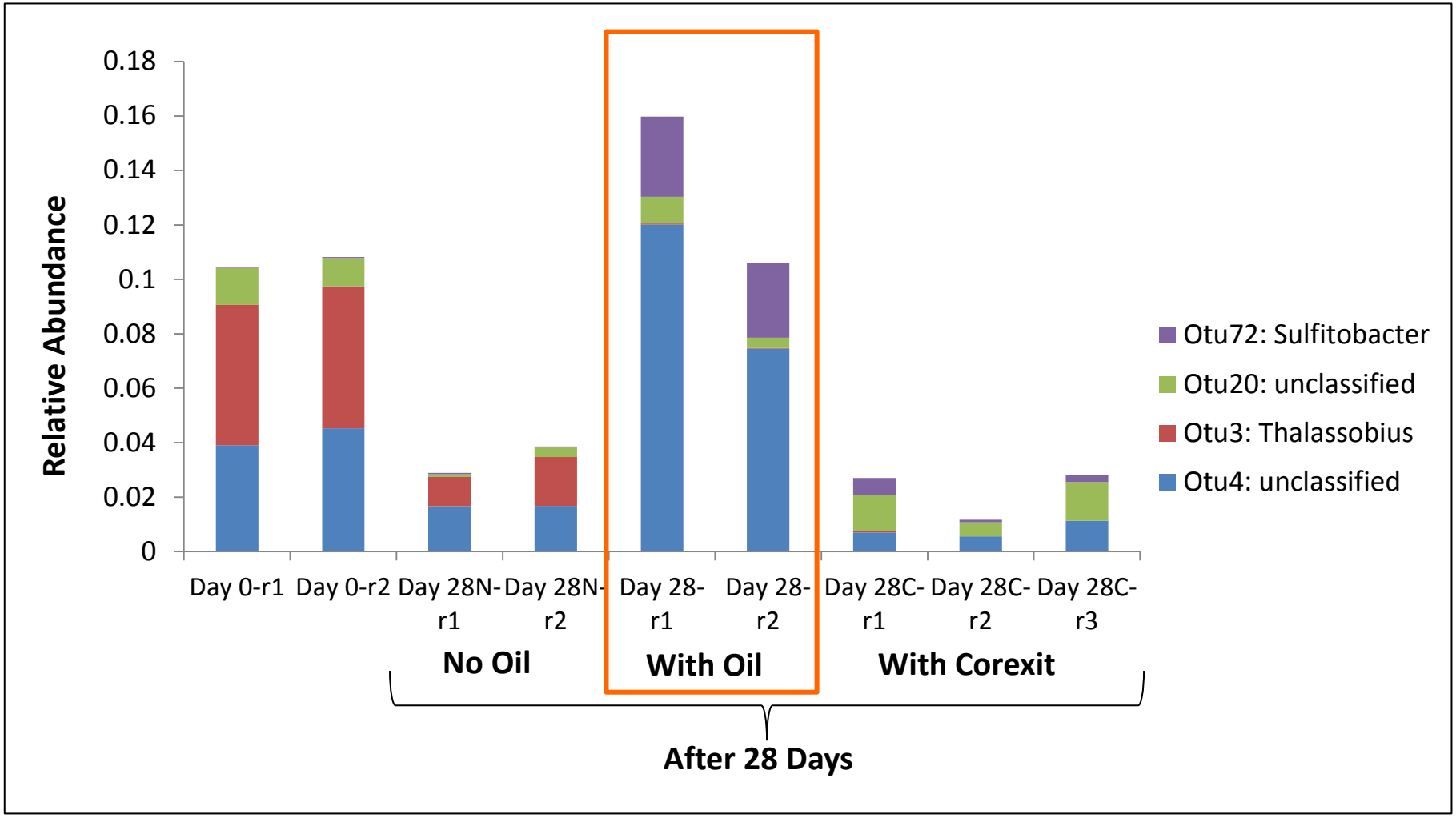


Figure 4. Relative abundance of sequences classified in the Rhodobacteraceae family

Day 0 and 28 time points are shown for incubations with no added carbon (N), oil (15 mg/L), or Corexit (C; 15 mg/L) at 2°C.

Alkane monooxygenase (*alkB*) genes increased in abundance in response to oil and Corexit 9500A

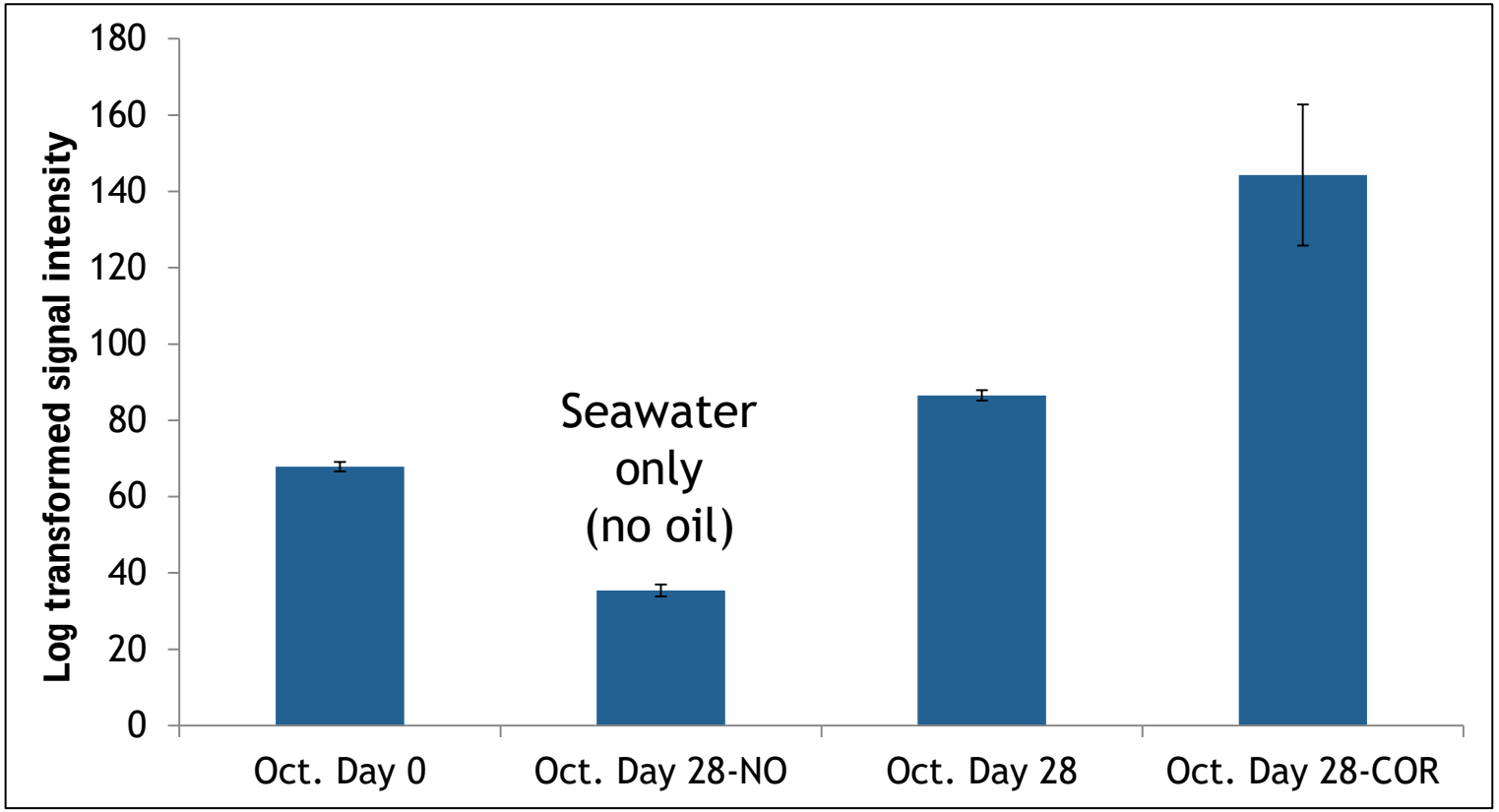


Figure 5. Relative Abundance of *alkB* Genes. Day 0 and day 28 time points are shown for October 2013 incubations containing no oil (NO), with oil (15 ppm) and with Corexit 9500A (COR; 15 ppm) at 2°C.

Arctic Oil biodegradation in Surface Seawater
What we know

- Similar *extents* of biodegradation of whole ANS crude oil (2.5-15 mg/L) can occur in near-shore (McFarlin et al., 2014) and offshore (this study) Arctic seawater (-1°C to 2°C).
  - 30-36% of unweathered ANS crude oil biodegraded within 28 days
- The *extent* of oil biodegradation in Arctic seawater (2°C) is **lower** than temperate seawater (8°C; Prince et al., 2013) within 28 days
  - 36% (Arctic) vs. 69% (Temperate)
- *Rates* of oil biodegradation in Arctic seawater are comparable to rates in temperate seawater
  - 0.011 gC/m^3*d (18°C, temperate seawater, Atlas & Bartha, 1973)
  - 0.008 gC/m^3*d (1°C, sub-Arctic, Laake et al., 1984)

Corexit Biodegradation in Arctic Seawater

- Arctic bacteria biodegraded a substantial amount of DOSS within 28 days at 2°C.
  - This is in contrast to DOSS biodegradation extents reported with deep-seawater from Gulf of Mexico
    - Kleindienst et al. (2015) reported an 8% loss of DOSS over 28 days (8°C).
- Non-ionic surfactants (Span 80, Tween 80, and Tween 85) were ~100% biodegraded (*i.e. below detection limits*) in Arctic seawater within 28 days at 2°C.
  - This is in agreement with Kleindienst et al. (2015)

Corexit Biodegradation in Arctic Seawater

- Corexit did not inhibit known oil-degrading taxa in Arctic seawater
- Taxa known to include oil-degrading bacteria (i.e. *Colwellia*) and functional genes known for oil-biodegradation (i.e. *alkB*) increased in response to **both** oil and Corexit
  - suggests that some oil-degrading bacteria may have the potential to biodegrade components in Corexit

Conclusions

- Taxa known to include oil-degrading microorganisms are located throughout the Arctic water column (McFarlin et al., submitted) and within Arctic sea ice (Garneau et al., 2016).
- Oil degrading genes are also located throughout the Arctic water column (McFarlin et al., submitted)
  - gene presence doesn't equate to expression
- These results support prior research indicating that substantial oil and Corexit biodegradation can occur in the marine environment without adding large amounts of nutrients or solutions containing oil-degrading microorganisms.

Special thanks to the CSESP crew, especially Jen Questel and Pallavi Hariharan for collecting offshore seawater samples in the Chukchi Sea.

Questions?

Bureau of Safety and Environmental Enforcement

Arctic Response Equipment Data Base Progress Update

Steve Pearson
Alaska RRT
Fairbanks, AK
18 January 2017

"To promote safety, protect the environment and conserve resources offshore through vigorous regulatory oversight and enforcement."

Project Objective

Develop a stand-alone, spatially searchable database using off-the-shelf software and populate it with Arctic specific oil spill response equipment, vessels, and resources.

Desired Outcomes

- Develop a tool that could support and enhance:
  - Contingency planning,
  - Environmental risk assessments,
  - Response exercises,
  - Resource allocation analysis, and
  - International requests for assistance.

Workgroup

	Canada	Lynn Denis
	Denmark	Nils Westergaard
	Finland	Heli Haapasaari
	Greenland	Nils Westergaard
	Iceland	Olafur A. Jonsson
	Norway	Ole-Kristian Bjerkemo
	Sweden	Bernt Stedt
	United States	Steve Pearson (Project Lead)

Scope of Work

- Research public documents/sources to identify oil spill response equipment
- Develop and administer a survey instrument
- Identify off-the-shelf database software
- Create/refine system
- Populate database
- Beta-test database
- Develop reports
- Develop user manual

Equipment Categories* for Tier 3 Spills

- Aircraft
- Vessels (skimming)
- Vessels (non-skimming)
- Temporary storage
- Boom
- *In situ* burning
- Pumps
- Dispersant
- Subsea response

*Database used IMO's **Draft Guidelines on International Offers of Assistance in Response to a Marine Oil Pollution Incident** to establish lexicon of terms used and categories of equipment listed.

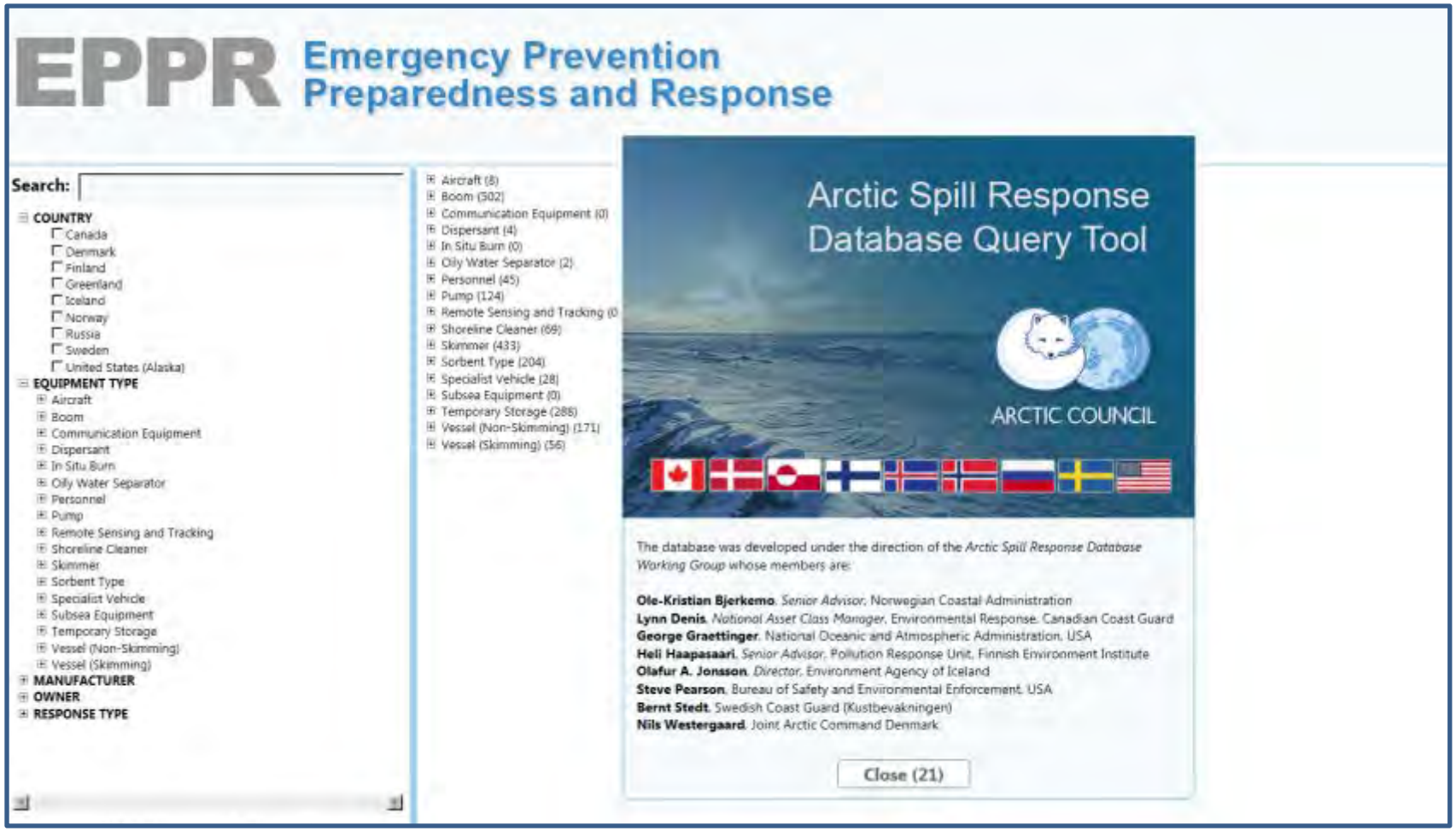
Project Timeline

DEC 2014	• EPPR approved project
MAR - SEP 2015	• Form Workgroup/Award Contract
OCT - DEC 2015	• Equipment Surveys
JUL 2016	• Prototype Database
SEP 2016	• Final database
DEC 2016	• EPPR approved database
May 2017	• Present database to Arctic Council Ministerial

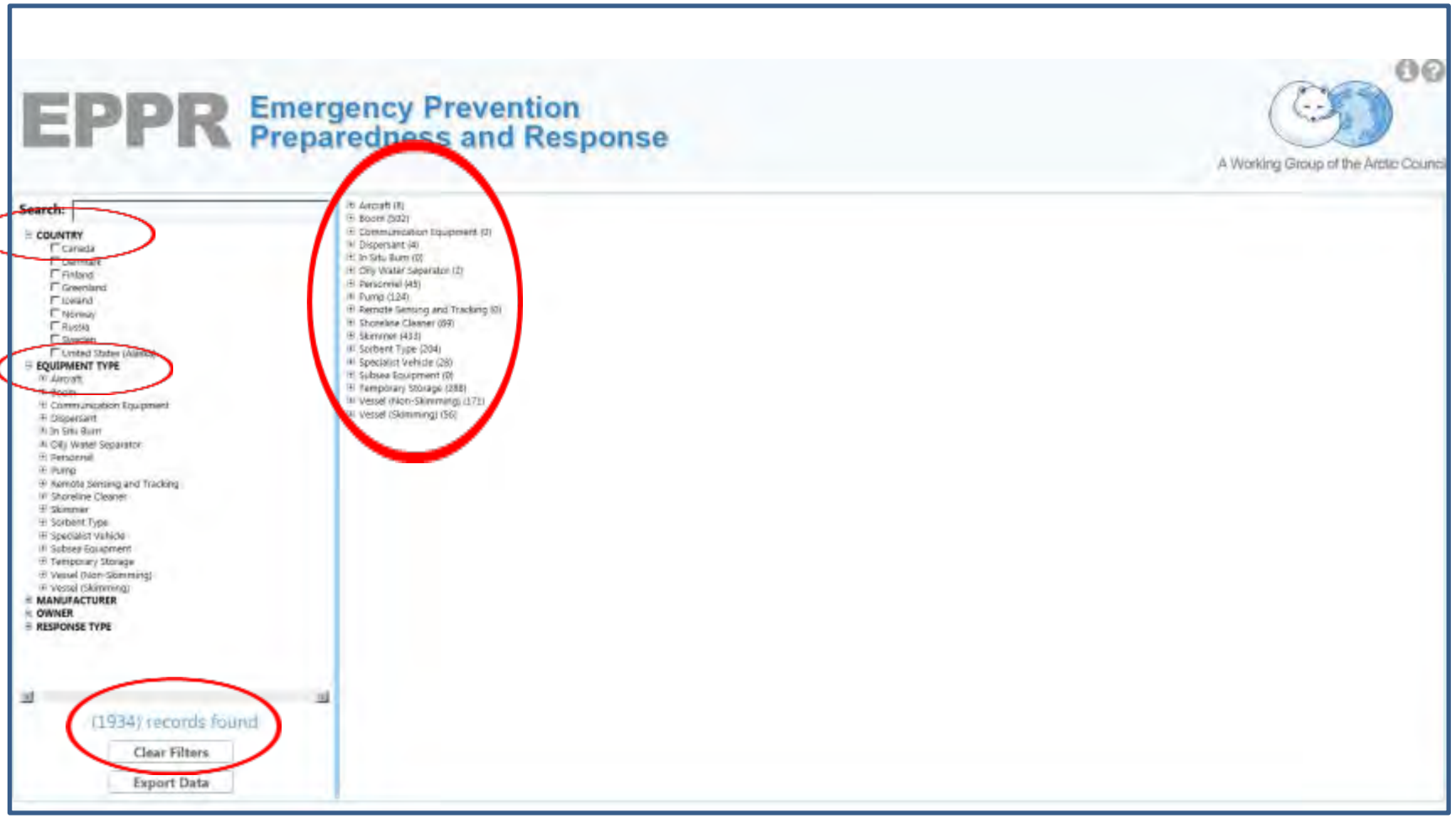
Project Deliverables and User Demo

- Arctic Response Equipment Database
- Query Tool and User Guide
- Integrate into a Common Operating Picture (Arctic ERMA)

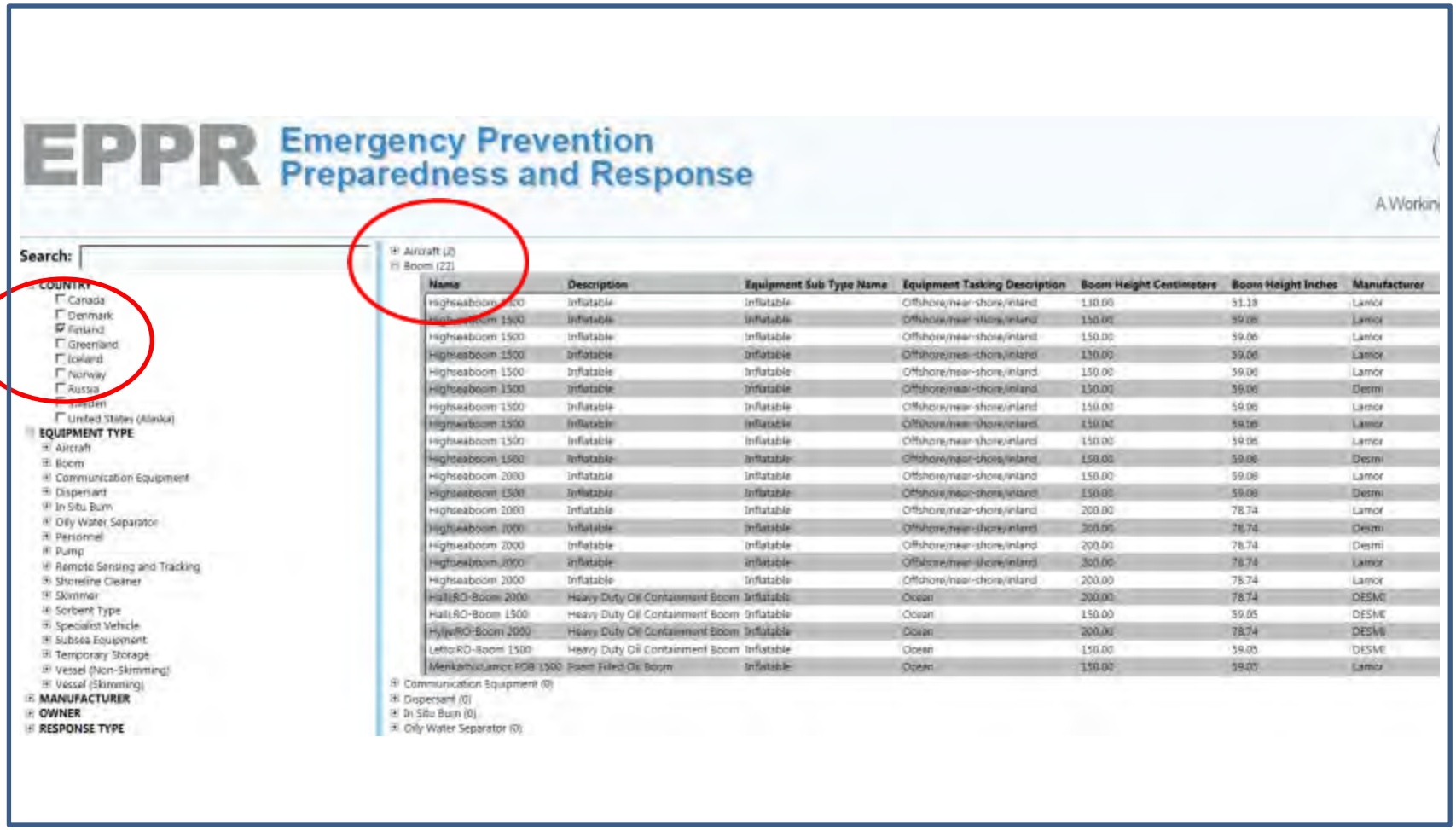
Database - Welcome Screen



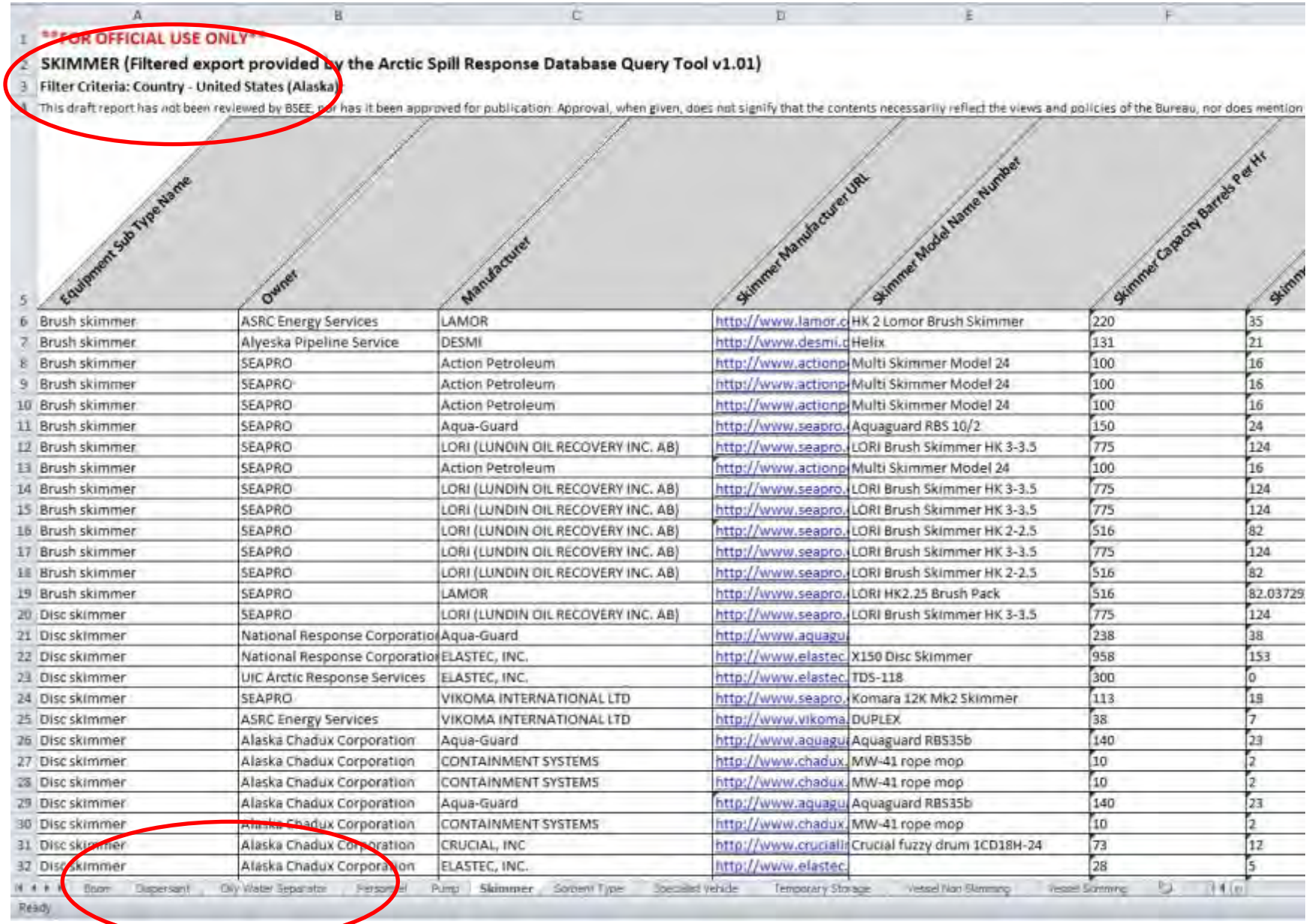
Database - Main Screen



Query – Finland/Boom



Query – Download



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SKIMMER (Filtered export provided by the Arctic Spill Response Database Query Tool v1.01)

Filter Criteria: Country - United States (Alaska)

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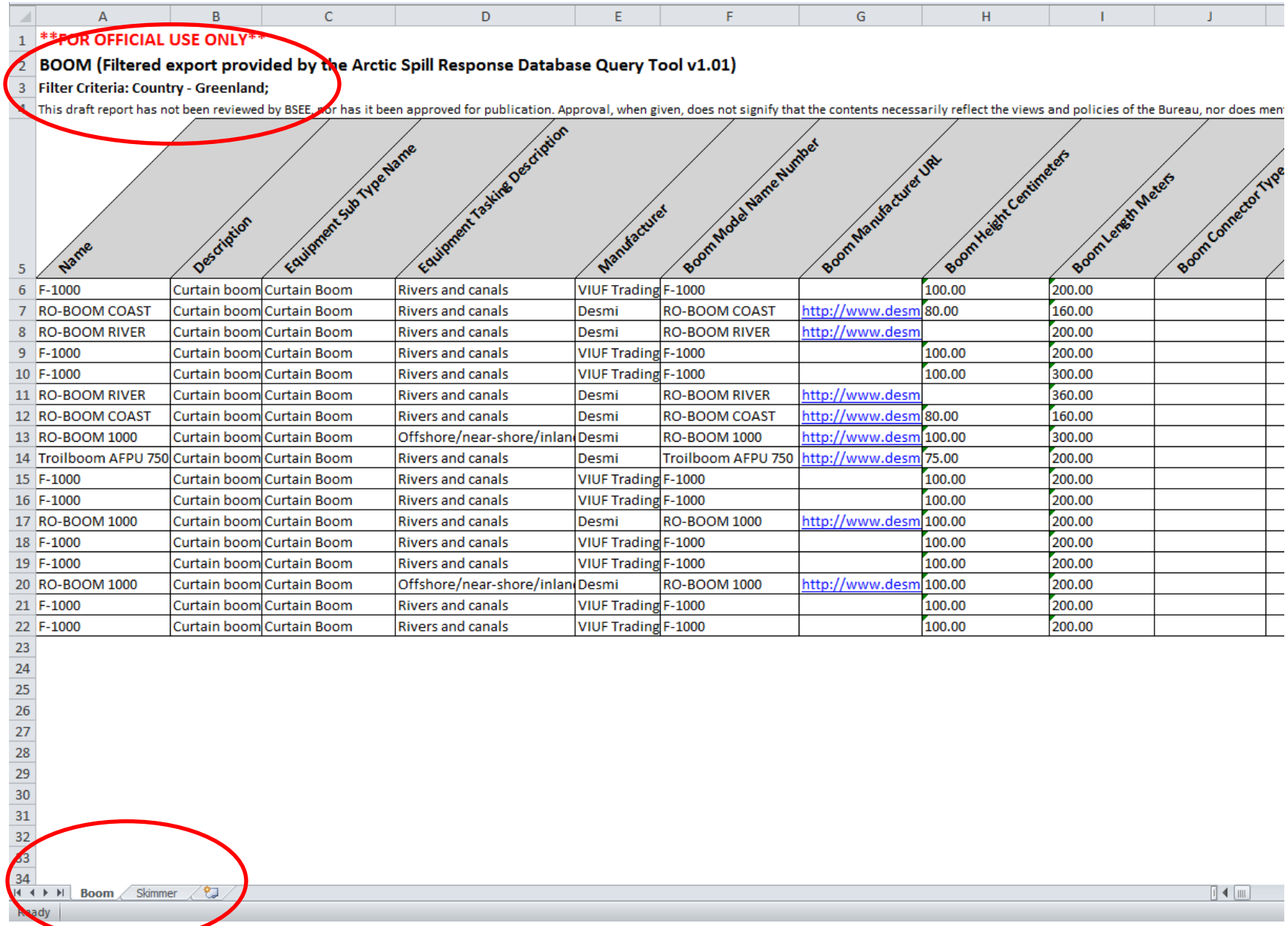
Equipment Sub Type Name	Owner	Manufacturer	Skimmer Manufacturer URL	Skimmer Model Name Number	Skimmer Capacity Barrels Per Hr	Skimm
Brush skimmer	ASRC Energy Services	LAMOR	http://www.lamor.c	HK 2 Lomor Brush Skimmer	220	35
Brush skimmer	Alyeska Pipeline Service	DESMI	http://www.desmi.c	Helix	131	21
Brush skimmer	SEAPRO	Action Petroleum	http://www.actionp	Multi Skimmer Model 24	100	16
Brush skimmer	SEAPRO	Action Petroleum	http://www.actionp	Multi Skimmer Model 24	100	16
Brush skimmer	SEAPRO	Action Petroleum	http://www.actionp	Multi Skimmer Model 24	100	16
Brush skimmer	SEAPRO	Aqua-Guard	http://www.seapro.	Aquaguard RBS 10/2	150	24
Brush skimmer	SEAPRO	LORI (LUNDIN OIL RECOVERY INC. AB)	http://www.seapro.	LORI Brush Skimmer HK 3-3.5	775	124
Brush skimmer	SEAPRO	Action Petroleum	http://www.actionp	Multi Skimmer Model 24	100	16
Brush skimmer	SEAPRO	LORI (LUNDIN OIL RECOVERY INC. AB)	http://www.seapro.	LORI Brush Skimmer HK 3-3.5	775	124
Brush skimmer	SEAPRO	LORI (LUNDIN OIL RECOVERY INC. AB)	http://www.seapro.	LORI Brush Skimmer HK 3-3.5	775	124
Brush skimmer	SEAPRO	LORI (LUNDIN OIL RECOVERY INC. AB)	http://www.seapro.	LORI Brush Skimmer HK 2-2.5	516	82
Brush skimmer	SEAPRO	LORI (LUNDIN OIL RECOVERY INC. AB)	http://www.seapro.	LORI Brush Skimmer HK 3-3.5	775	124
Brush skimmer	SEAPRO	LORI (LUNDIN OIL RECOVERY INC. AB)	http://www.seapro.	LORI Brush Skimmer HK 2-2.5	516	82
Brush skimmer	SEAPRO	LAMOR	http://www.seapro.	LORI HK2.25 Brush Pack	516	82.03729
Disc skimmer	SEAPRO	LORI (LUNDIN OIL RECOVERY INC. AB)	http://www.seapro.	LORI Brush Skimmer HK 3-3.5	775	124
Disc skimmer	National Response Corporatio	Aqua-Guard	http://www.aquagu		238	38
Disc skimmer	National Response Corporatio	ELASTEC, INC.	http://www.elastec	X150 Disc Skimmer	958	153
Disc skimmer	UIC Arctic Response Services	ELASTEC, INC.	http://www.elastec	TDS-118	300	0
Disc skimmer	SEAPRO	VIKOMA INTERNATIONAL LTD	http://www.seapro.	Komara 12K Mk2 Skimmer	113	18
Disc skimmer	ASRC Energy Services	VIKOMA INTERNATIONAL LTD	http://www.vikoma.	DUPLEX	38	7
Disc skimmer	Alaska Chadux Corporation	Aqua-Guard	http://www.aquagu	Aquaguard RBS35b	140	23
Disc skimmer	Alaska Chadux Corporation	CONTAINMENT SYSTEMS	http://www.chadux.	MW-41 rope mop	10	2
Disc skimmer	Alaska Chadux Corporation	CONTAINMENT SYSTEMS	http://www.chadux.	MW-41 rope mop	10	2
Disc skimmer	Alaska Chadux Corporation	Aqua-Guard	http://www.aquagu	Aquaguard RBS35b	140	23
Disc skimmer	Alaska Chadux Corporation	CONTAINMENT SYSTEMS	http://www.chadux.	MW-41 rope mop	10	2
Disc skimmer	Alaska Chadux Corporation	CRUCIAL, INC	http://www.crucialI	Crucial fuzzy drum 1CD18H-24	73	12
Disc skimmer	Alaska Chadux Corporation	ELASTEC, INC.	http://www.elastec		28	5

Boom | Dispersant | Oily Water Separator | Personnel | Pump | Skimmer | Sorbent Type | Specialty Vehicle | Temporary Storage | Vessel Non Skimming | Vessel Skimming

Ready

Query – Download



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BOOM (Filtered export provided by the Arctic Spill Response Database Query Tool v1.01)

Filter Criteria: Country - Greenland;

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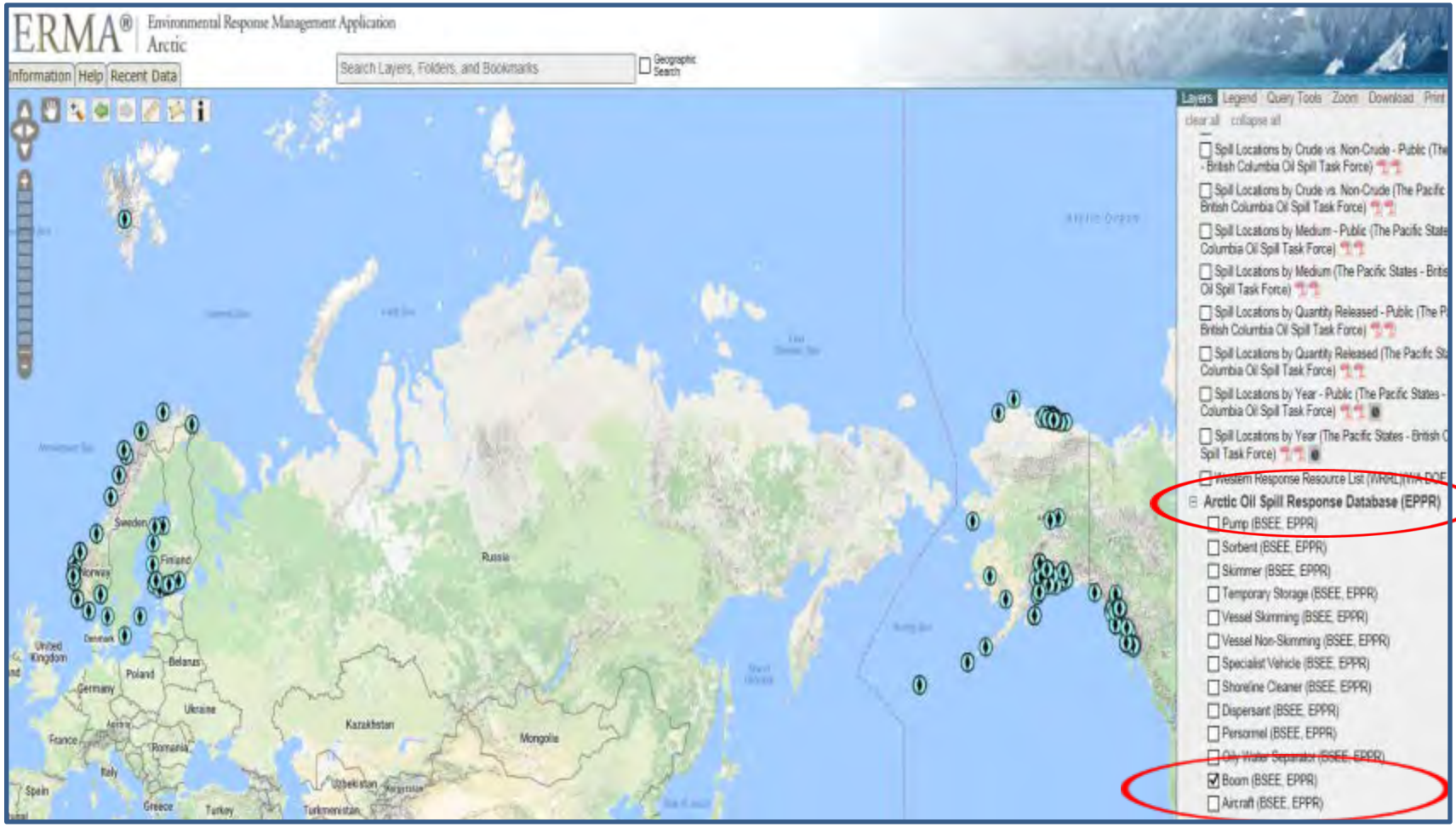
Name	Description	Equipment Sub Type Name	Equipment Tasking Description	Manufacturer	Boom Model Name Number	Boom Manufacturer URL	Boom Height Centimeters	Boom Length Meters	Boom Connector Type
F-1000	Curtain boom	Curtain Boom	Rivers and canals	VIUF Trading	F-1000		100.00	200.00	
RO-BOOM COAST	Curtain boom	Curtain Boom	Rivers and canals	Desmi	RO-BOOM COAST	http://www.desm	80.00	160.00	
RO-BOOM RIVER	Curtain boom	Curtain Boom	Rivers and canals	Desmi	RO-BOOM RIVER	http://www.desm		200.00	
F-1000	Curtain boom	Curtain Boom	Rivers and canals	VIUF Trading	F-1000		100.00	200.00	
F-1000	Curtain boom	Curtain Boom	Rivers and canals	VIUF Trading	F-1000		100.00	300.00	
RO-BOOM RIVER	Curtain boom	Curtain Boom	Rivers and canals	Desmi	RO-BOOM RIVER	http://www.desm		360.00	
RO-BOOM COAST	Curtain boom	Curtain Boom	Rivers and canals	Desmi	RO-BOOM COAST	http://www.desm	80.00	160.00	
RO-BOOM 1000	Curtain boom	Curtain Boom	Offshore/near-shore/inlan	Desmi	RO-BOOM 1000	http://www.desm	100.00	300.00	
Troilboom AFPU 750	Curtain boom	Curtain Boom	Rivers and canals	Desmi	Troilboom AFPU 750	http://www.desm	75.00	200.00	
F-1000	Curtain boom	Curtain Boom	Rivers and canals	VIUF Trading	F-1000		100.00	200.00	
F-1000	Curtain boom	Curtain Boom	Rivers and canals	VIUF Trading	F-1000		100.00	200.00	
RO-BOOM 1000	Curtain boom	Curtain Boom	Rivers and canals	Desmi	RO-BOOM 1000	http://www.desm	100.00	200.00	
F-1000	Curtain boom	Curtain Boom	Rivers and canals	VIUF Trading	F-1000		100.00	200.00	
F-1000	Curtain boom	Curtain Boom	Rivers and canals	VIUF Trading	F-1000		100.00	200.00	
RO-BOOM 1000	Curtain boom	Curtain Boom	Offshore/near-shore/inlan	Desmi	RO-BOOM 1000	http://www.desm	100.00	200.00	
F-1000	Curtain boom	Curtain Boom	Rivers and canals	VIUF Trading	F-1000		100.00	200.00	
F-1000	Curtain boom	Curtain Boom	Rivers and canals	VIUF Trading	F-1000		100.00	200.00	

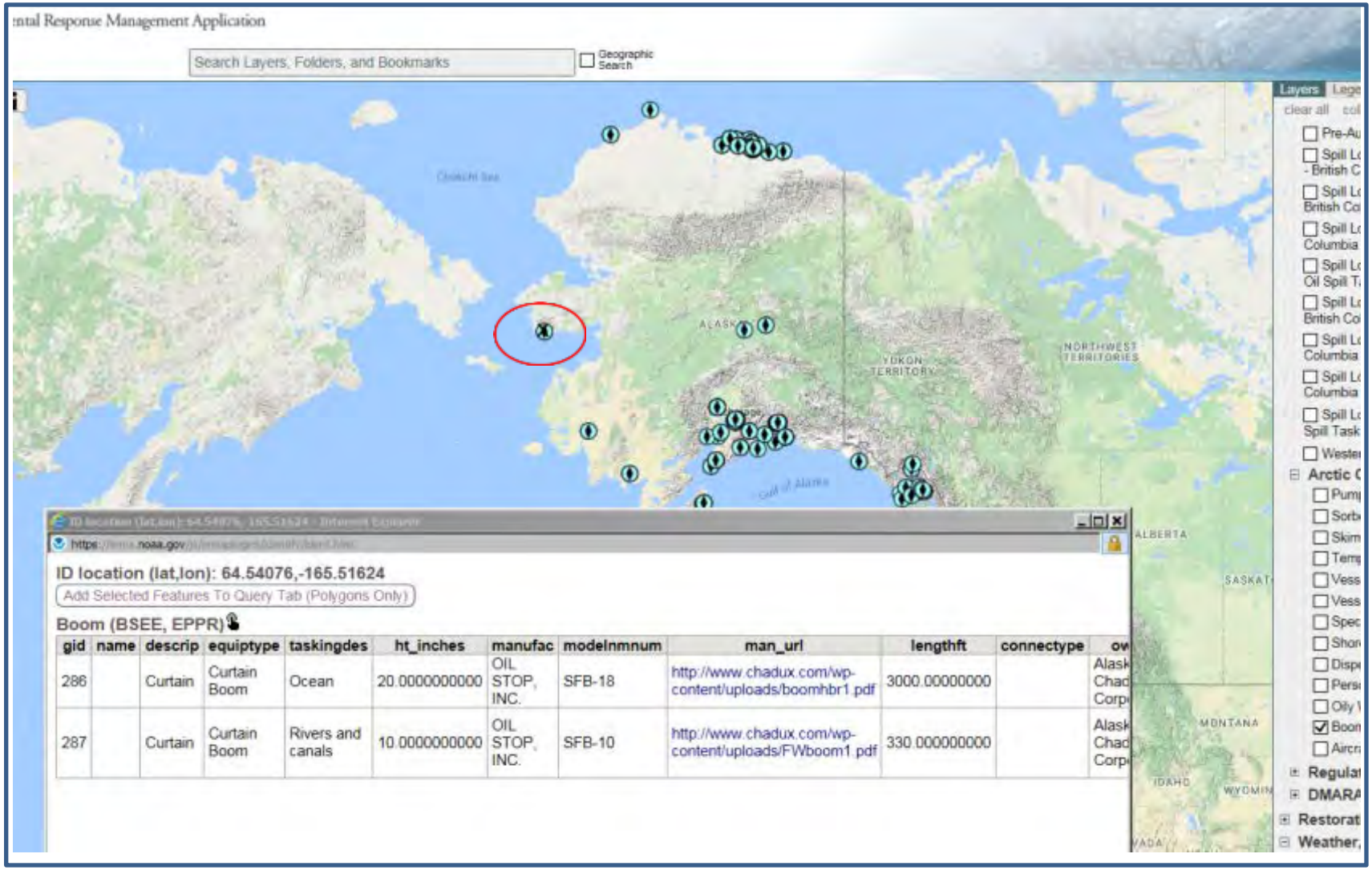
Boom | Skimmer

Ready

Arctic ERMA – GIS integration



Arctic ERMA – GIS integration



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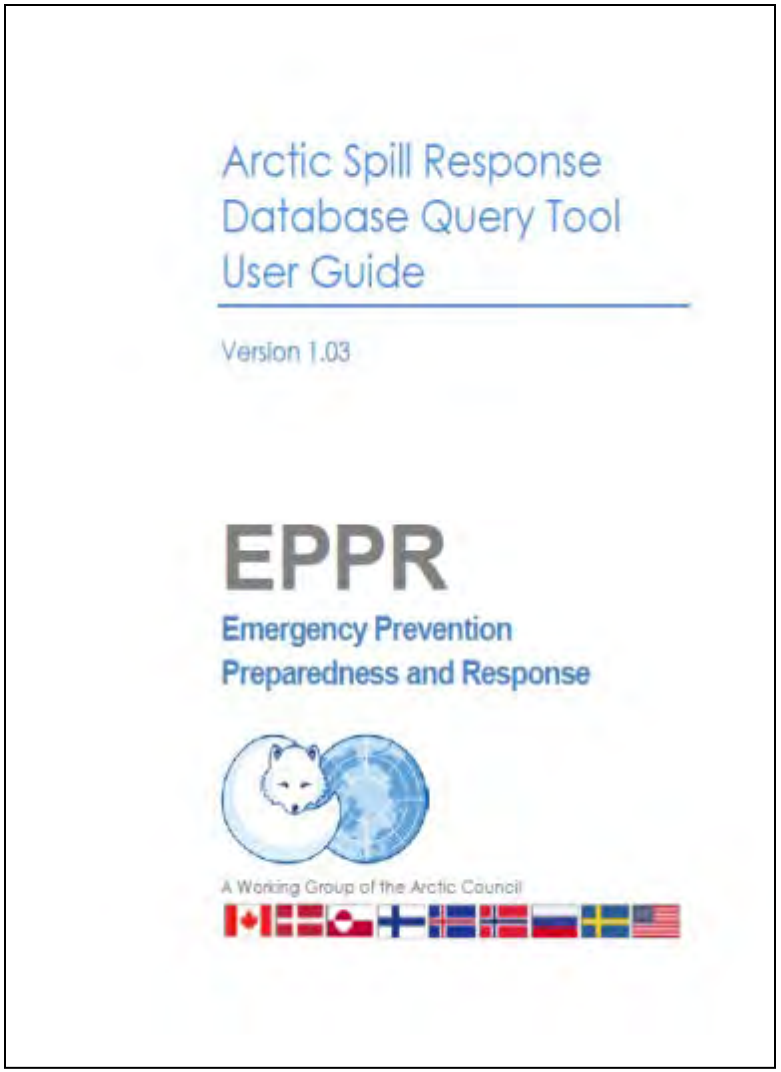
287		Curtain	Curtain Boom	Rivers and canals	10.0000000000	OIL STOP, INC.	SFB-10	http://www.chadux.com/wp-content/uploads/FWboom1.pdf	330.000000000		Alask Chad Corp

User Guide


Arctic Spill Response
Database Query Tool
User Guide
Version 1.03
EPPR
Emergency Prevention
Preparedness and Response
A Working Group of the Arctic Council

Phase 1 - Pending

- Submittal for Ministerial meeting
- Posting system to EPPR web site for public consumption

Phase 2 - Proposed

- 6-month utility assessment
- Continue to update inventories
- Consider value of and interest in real-time system

BSEE Website: www.bsee.gov

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