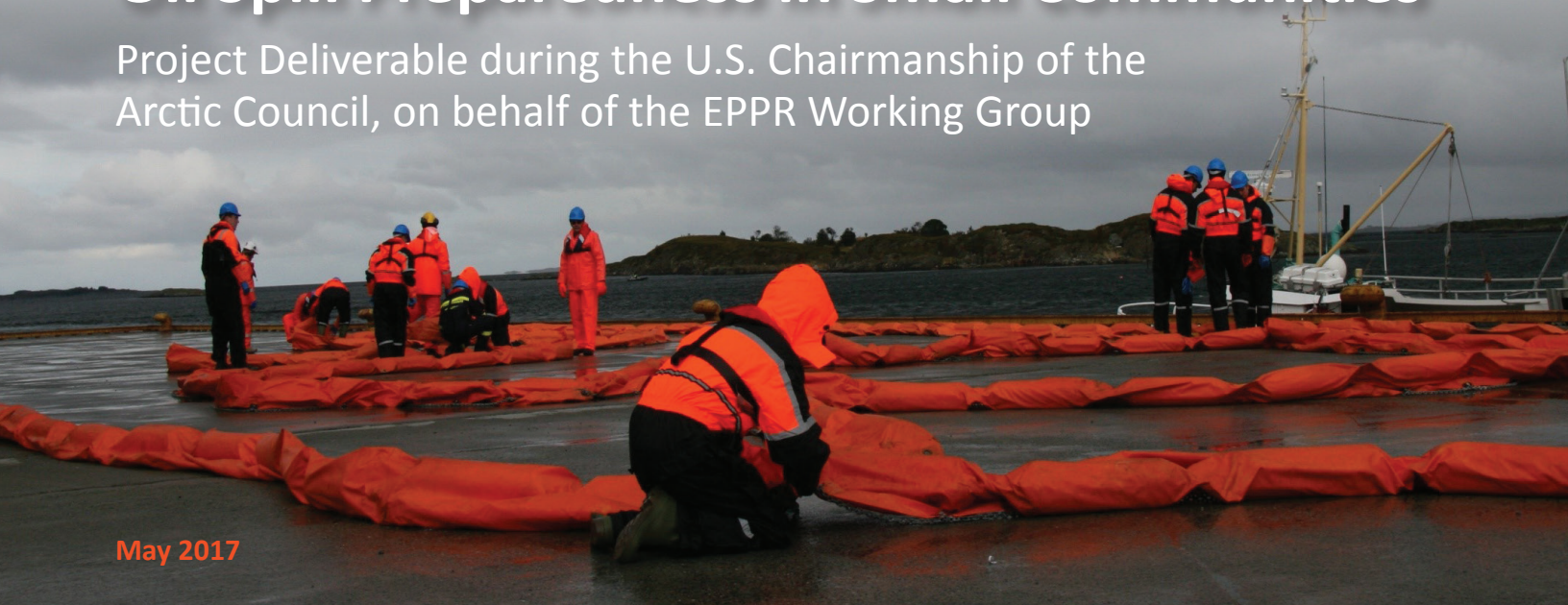


# Oil Spill Preparedness in Small Communities

Project Deliverable during the U.S. Chairmanship of the Arctic Council, on behalf of the EPPR Working Group



May 2017

The project “Oil Spill Preparedness in Small Communities” was approved by the Emergency Prevention, Preparedness and Response (EPPR) Working Group of the Arctic Council in June 2015. The project co-leads Norway, U.S., Canada and Aleut International Association developed a community self-assessment tool that will help EPPR better understand community preparedness and risk exposure.

Community leaders and local emergency response officials were asked to complete the questionnaire. Based on the self-assessment, community preparedness dashboards are displayed via a web-based, interactive map. Also available on the publicly-accessible website is a resource guide with state-specific tools and support. The outcomes from the project are:

- Greater awareness of risk and preparedness at a local level, and access to best practices
- The ability for national governments to address misperception or lack of awareness
- The identification of gaps in preparedness relative to risk

The survey is distributed:

- 350 communities ranging from 150 to 15,000 people and/or significantly distant (120 miles) from response centers
- Local government and/or emergency response officials
- Across all eight Arctic States, within the geographic boundaries as defined by each
- Facilitated by Permanent Participants as appropriate or possible, as well as all States
- 88 question survey to assess planning, training, impact, risk, equipment

Survey attributes

- Questions relate to prevention, preparedness and response
- Independent of national response systems and assets, though capturing their intersection with communities – access, training, awareness
- Independent of private or nongovernmental response systems and assets, though capturing their intersection with communities – access, training awareness
- Focus on community-owned or operated assets, as well as planning, training and systems of response
- Include community-based industry assets, as features of the community (local fuel distribution or marine service companies)
- Capture community perspectives and understandings of risk (scale and potential of large, medium and small scale incidents) and impact (distance to and prioritization of culturally or environmentally sensitive areas)
- The survey asks questions that are directly relevant to communities and within a community’s area of responsibility or jurisdiction.
- The results capture the community’s sense of preparedness, which can be measured against the same assessment by national response organizations and agencies

## Survey Framework

### Risk Awareness

- Potential for and scale of significant spill (destinational or trans-Arctic shipping; offshore or onshore development)
- Potential for and scale of medium size spill (local fuel distribution, including barge operations and bulk tank farms)
- Potential for and scale of small spill (local private sector, government or independent fuel tanks)

### Preparedness

- Community planning efforts
- Awareness of and participation in regional or national plan
- Access to National or sub-national Government Resources and assets
- Funding mechanism
- Community-driven training
- Local emergency responders and systems

### Impact

- Prioritization of impact- people, environment, assets, reputation
- Distance to and importance of culturally sensitive areas
- Distance to and importance of environmentally sensitive areas
- Distance to and importance of economic assets

### Deliverable <http://ppr.arcticinfrastructure.org>

The deliverables for this project include the data visualization tool, or map; the database of survey responses; and the resource guide to share with small communities.

## Database

The database, which includes all the data from the self-assessment tool, will provide:

- Web-based data management where users can view information for each community response, including the location on a map, pictures, graphs, charts.
- Ability to export or transfer the data to Access or to another database
- Ability to query data: how many, minimum, maximum, average, etc.
- Ability to perform spatial analysis of the data, or with other datasets hosted by Arctic Portal (AMATII, AREA, etc)
- Embedded response matrix to the database. When information is updated online or with a new Excel import, the index of preparedness is updated on-the-fly to the map or to any material that is distributed (shapefile, csv, excel)
- Ability to map the database to any other data model and enable to comply with international standards.



Purple Dots indicate completed surveys. Blue Dots are additional communities from which surveys are expected.

## Arctic Oil Spill Response and Recovery Library

Sample list from more extensive library found online at [ppr.arcticinfrastructure.org](http://ppr.arcticinfrastructure.org).

### Multilateral:

- [EPPR Completed Work documents](#).
- [Agreement on Cooperation on Marine Oil Pollution Preparedness and Response in the Arctic](#). Arctic Council. 2013.
- [EPPR RP3 Report – Recommended Practices for Arctic Oil Spill Prevention](#). Arctic Council EPPR. 2012.
- [Guidelines and Strategies for Oily Waste Management in the Arctic Regions](#). By Polaris Applied Sciences, Inc. for Joint Secretariat Inuvialuit Renewable Resources Committees. Arctic Council EPPR. 2009.
- [Environmental Response Management Application \(ERMA\)](#), NOAA.

### USA:

- [Responding to Oil Spills in the US Arctic Marine Environment](#). National Academies Press. 2014.
- [Advancing Oil Spill Response in Ice-Covered Waters](#). March 2004. Prepared for Prince William Sound Oil Spill Recovery Institute Cordova, Alaska and United States Arctic Research Commission Arlington, Virginia and Anchorage, Alaska. DF Dickins Associates Ltd (2004).
- [Alaska Clean Seas Technical Manual – Volume 1 – Tactics Descriptions](#). 2015. Alaska Clean Seas.
- [Alaska Oil Spill Curriculum \(Grades 7 -12\)](#).
- [Tundra Treatment Guidelines](#). State of Alaska.
- [National Preparedness for Response Exercise Program \(PREP\) Guidelines](#). Environmental Protection Agency (EPA). 2016.
- [United States Geological Survey Oil Spill Response documents](#).
- [Bering Strait Response Teaching Tool](#). Defenders of Wildlife. 2016.

### Canada:

- [Training Manual - Spill Response in the Beaufort](#). Aurora College. Aboriginal Affairs & Northern Development Canada. 2014.
- [Guidelines for Reporting Incidents Involving Dangerous Goods, Harmful Substances and / or Marine Pollutants](#), TP9834. 2009. Canadian Coast Guard.
- [The Arctic SCAT Manual - A Field Guide to the Documentation of Oiled Shorelines in Arctic Regions](#). 2004. Environment Canada.
- [Oil Spill Preparedness and Response documents](#). Beaufort Regional Environmental Assessment (BREA). Aboriginal Affairs and Northern Development Canada. 2013.

### Norway:

- [Protection against acute pollution](#). Kystverket.
- [Operasjonsmanual for fartøy i kystnær oljevernberedskap](#). Kystverket.
- [Brosjyre om oljevernutstyr – metoder og bruk](#). Kystverket. 2016.
- [Veileder for utarbeidelse av tiltakskort ved akutt forurensning i miljøfølsomme områder](#).
- [Joint industry program on oil spill contingency for Arctic and ice-covered waters](#). 2010. Sørstrøm, S.E. et al. Sintef, Norway.
- [Health, Safety and Environment handbook](#) (Kystverket and NOFO – 2008 and later updated).
- [“Beach Cleaning after acute oil pollution”](#) (Kystverket – 2012).

### Finland:

- [Öljyntorjuntaopas](#). 2013. WWF Finland.
- [Öljyyntyneiden eläinten hoito -opas](#). 2013. WWF Finland.
- [Öljyonnettomuuden jälkeen - WWF:n opas öljyyntyneiden rantojen puhdistukseen](#). WWF Finland.

### Russia:

- [Modeling of potential oil spill behavior when operating Prirazlomnaya OIFP](#). Assessment of possible oil spill emergency response. 2012. Research report. – Moscow, RGC Risk Informatics. 86 pp. In Russian and English.
- [Environmental Aspects of Arctic LNG Projects Development](#). 2016. Ametistova L.E., Knizhnikov A. Yu. WWF Moscow. 44 pages.
- [Summary of Oil Spills Prevention and Response Plan for Prigorodnoye Asset Onshore Operations](#). Sakhalin Energy. 2011.
- [Oil Spill Response Plan \(Russia\)](#). Global Marine Environment Protection (GMEP) Initiative. 2013.

### Greenland/Denmark:

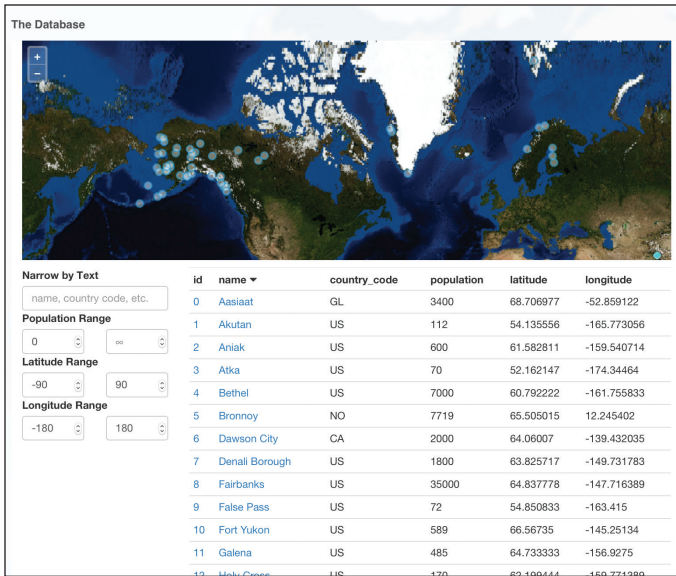
- [Greenland Oil Spill Response](#) company.
- Government of Greenland’s manual for handling and prevention of oil spill.
- Government of Greenland’s Oil Spill Contingency Plan
- Joint Arctic Command Oil Spill Contingency Plan.
- Greenland Oil Spill Response (GOSR), provides resources to its members to prepare for and respond to oil spills offshore Greenland. [www.gosr.gl](http://www.gosr.gl).
- Environmental performance evaluation for oil companies. 2017. Technical Report from DCE – Danish Centre for Environment and Energy No. 94.
- Guidelines for applications, execution and reporting of offshore hydrocarbon exploration activities (excluding drilling) in Greenland. 2016. Government of Greenland.
- Store Hellefiskebanke, Greenland. Environmental assessment of oil spills and the potential for combating oil spills. 2017. Technical Report from DCE – Danish Centre for Environment and Energy, no. 216.
- Review on Burn Residues from in Situ Burning of Oil Spills in Relation to Arctic Waters. 2015. Fritt-Rasmussen, J; Wegeberg, S; Gustavson, K. Water, Air and Soil Pollution, 226, 10.
- Effects of oil and oil burn residues on seabird feathers. 2016. Fritt-Rasmussen, J; Linnebjerg, J; Sørensen, M; Brogaard, N; Rigét, F; Kristensen, P; Joonas, G; Boertmann, D; Wegeberg, S; Gustavson, K. Marine Pollution Bulletin, 109, 1.

### Iceland:

- [Spill Notification Point and Country Contacts, Iceland](#). The International Tankers Owners Pollution Federation Limited (ITOPF).
- [Guidelines for Transfer of Refined Oil and Oil Products in Arctic Waters](#). 2014. Arctic Council - Protection of Arctic Marine Environment (PAME).

### Sweden:

- [Oil spill preparedness in Sweden: prevention, planning, and response for large accidents](#) (Ph.D). 2016. Pålsson, J. World Maritime University.
- [Räddningstjänstplan - Operativ manual](#). 2015. Kustbevakningen.



The database of survey responses is interactive and searchable.



Here is an example of the mapping and dashboard.

### Analysis of Data

The survey responses have each been given a value. Each category of question (Local Plans, Training and Updates, Risk, Effect, and Resources) were calculated by counting up the values that are populated for that category of questions for example. That value was then divided by the number of questions answered per category.

Based on these values and the associated scoring, a dashboard was developed and populated with the overall value for each category. These are color-coded in the scrollover of the community in the online map.

#### Planning, Training and Resources

- Green = High Score
- Yellow = Moderate Score
- Red = Low Score

#### Risks and Impact:

- Red = High Score
- Yellow = Moderate Score
- Green = Low Score

The categories were divided into "Risk" and "Preparedness" groups, which are fairly equal in numbers.

- Preparedness group = Plans, Training, Resources account for 43 questions
- Risk group = Risk and Effects account for 46 questions.

An overall score for each community is determined by dividing preparedness by risk, it gives a score for "Preparedness Index." Overall, roughly 25% of small communities are prepared relative to risk; 50% of small communities are moderately prepared relative to risk; and 25% are less than adequately prepared relative to risk.

### Review of Analytics Based on Community Responses to Preparedness Survey

#### Population

- 16 communities under 500
- 27 between 500 and 10,000

#### Responses

- 4/60 – Canada
- 3/94 – Greenland
- 3/18 – Finland
- 4/15 – Norway
- 34/100 – United States

#### Preparedness - overall

- 12
- 27
- 11

#### Planning

- 13
- 26
- 9

#### Training

- 11
- 37

#### Risks

- 1
- 37
- 10

#### Impacts

- 10
- 36
- 2

#### Resources

- 11
- 33
- 4