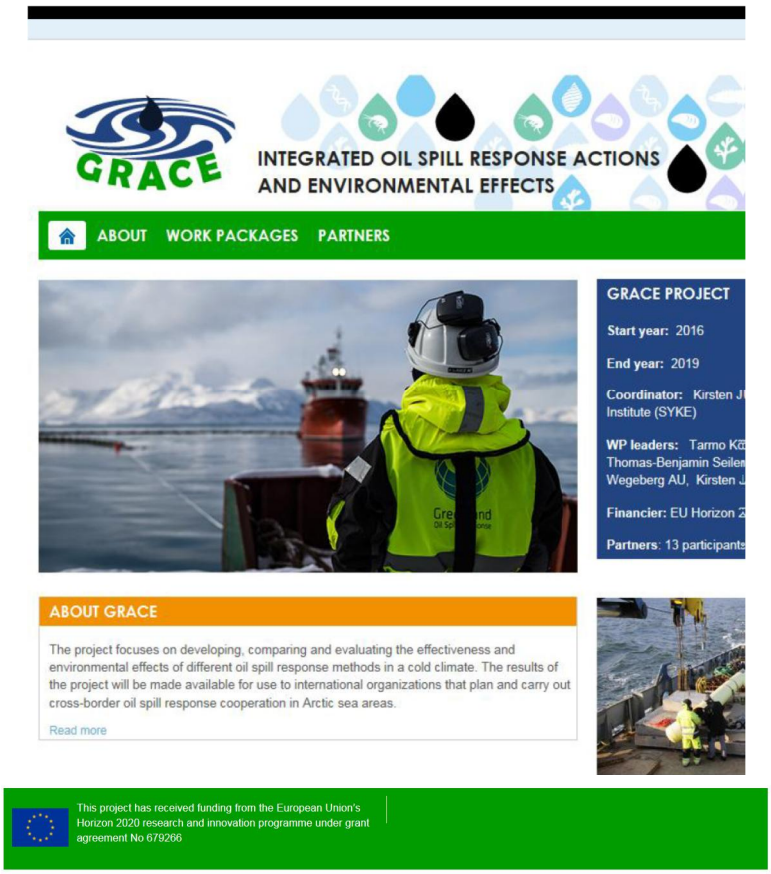
GRACE grant no 679266

Project web pages

Deliverable 6.1/WP6

http://www.grace-oil-project.eu



Prepared under contract from the European Commission
Contract n° 679266
Research and Innovation Action
Innovation and Networks Executive Agency
Horizon 2020 BG-2014-2015/BG2015-2

Project acronym:	GRACE
Project full title:	Integrated oil spill response actions and environmental effects
Start of the project:	01 March 2016
Duration:	42 months
Project coordinator:	Finnish Environment Institute (SYKE)
Project website	http://www.syke.fi/projects/grace

Deliverable title:	Project web pages
Deliverable n°:	D6.1
Nature of the deliverable:	Websites, patents filling, etc.
Dissemination level:	Public

WP responsible:	WP6
Lead beneficiary:	SYKE

Due date of deliverable:	Month n° 1 (short version)
Actual submission date:	Month n° 3 (extended version)
Revised submission date:	Month n° 10 (revised version, new address and layout)

Deliverable status:

Version	Status	Date	Author	Approved by
1.0	Short version	23 March 2016	Kirsten Jørgensen, SYKE Aira Saloniemi, SYKE	Whole consortium 30 March 2016
2.0	Extended version	23 May 2016	Kirsten Jørgensen, SYKE Aira Saloniemi, SYKE	Steering group 19 May 2016
3.0	New web site address	11 August 2016	Kirsten Jørgensen, SYKE Aino Ahvo, SYKE	Co-ordinator
4.0	New layout of webpages on own web site address	14 November 2016	Kirsten Jørgensen, SYKE Vilma Hakala, SYKE Erika Varkonyi, SYKE Katri Haatainen, SYKE	Steering group 23 September 2016 Whole consortium 5 December 2016

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Executive Summary

Official web pages of the EU H2020 project - Integrated oil spill response and environmental effects- GRACE were first published on the project web pages of the coordinator SYKEs web site with the address http://www.syke.fi/projects/grace . The first short version was published on March 23, 2016, and the extended version with work package description was published on 23.5.2016.

A new web site address http://www.grace-oil-project.eu was obtained in August 2016, and a completely new graphical layout was published in November 2016. The text content is the same as earlier versions, but the graphical layout has been changed and a new front page with less information was created with links to news.

The site contains an “about” page with general information on the project. The duration, aims, objectives, concept and approach, expected impact, links to press releases, deliverables, publications and contact information is provided.

Work packages titles are provided in the “Work packages” page and subpages with one page per work package are included. The structure of these pages is a short general description, planned steps and work package leader contact information.

Work package titles:
WP1 Oil spill detection, monitoring, fate and distribution
WP2 Oil biodegradation and bioremediation
WP3 Oil impacts on biota using biomarkers and ecological risks assessment
WP4 Combat of oil spill in coastal arctic water - effectiveness and environmental effects
WP5 Strategic Net Environmental Benefit Analysis
WP6 Management, Dissemination, and Communication

A separate “partners” page lists the partners of the consortium and their contact information, and the names of the advisory board.

The web pages will be updated regularly with news from all the WPs and serve as an overview of all the WPs to the readers.

GRACE

INTEGRATED OIL SPILL RESPONSE ACTIONS AND ENVIRONMENTAL EFFECTS

GRACE PROJECT

Start year: 2016

End year: 2019

Coordinator: Kirsten Jørgensen, Finnish Environment Institute (SYKE)

WP leaders: Tarmo Kõuts TUT, Jaak Truu UTARTU, Thomas-Benjamin Seiler RWTH, Kim Gustavson AU, Susse Wegeberg AU, Kirsten Jørgensen, SYKE

Financier: EU Horizon 2020 grant No 679266

Partners: 13 participants Read more

ABOUT GRACE

The project focuses on developing, comparing and evaluating the effectiveness and environmental effects of different oil spill response methods in a cold climate. The results of the project will be made available for use to international organizations that plan and carry out cross-border oil spill response cooperation in Arctic sea areas.

Read more

Smart Buoy brings real time measurement to oil spill response

More news

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About Integrated oil spill response actions and environmental effects (GRACE project)

Combating oil spill in arctic conditions. © SYKE

Aims

The project focuses on developing, comparing and evaluating the effectiveness and environmental effects of different oil spill response methods in a cold climate. In addition, to this we develope a system for the real-time observation of underwater oil spills and a strategic tool for choosing oil spill response methods.

The results of the project will be made available for use to international organizations that plan and carry out cross-border oil spill response cooperation in Arctic sea areas. The full name of the project is "Integrated oil spill response actions and environmental effects – GRACE".

Objectives

The overall objectives of the project are to:

- explore the true environmental impacts and benefits of a suite of marine oil spill response technologies in the cold climate and ice-infested areas in the northern Atlantic Ocean and the Baltic Sea. The response methods considered include mechanical collection in water and below ice, in situ burning, use of chemical dispersants, natural biodegradation and combinations of these;
- assess in particular the impacts on fish, invertebrates (e.g., mussels, crustaceans) and macro algae of naturally and chemically dispersed oil, in situ burning residues and non-collected oil using highly sensitive biomarker methods, and to develop specific methods for the rapid detection of the effects of oil pollution on biota;
- improve the observation, monitoring and predictions of oil movements in the sea using novel on-line sensors on vessels, fixed platforms incl. gliders and smart buoys together with realtime data transfer into operational systems of oil spill situational awareness;
- develop a Strategic Net Environmental Benefit Analysis tool for oil spill response strategy and decision making in cold climate and ice-infested areas.

Concept and approach

The project includes a genuine trans-disciplinary consortium with experts from Europe and Canada in the fields of oil monitoring and on-line observations, oil spill response authority, bioanalytics and environmental impact assessment, monitoring and assessment of the fate of oil pollutants, experimental studies, biotechnology related to oil degradation, and oil spill response technology development.

Expected impacts

- Mitigate negative impacts of oil pollution and response activities on the marine environment, coastal economies and communities
- Better decision support tools for oil spill response strategy in different conditions.
- Improve the integration between the scientific community and relevant government agencies charged with dealing with pollution, including cross-border and trans-boundary co-operation
- Better business potential for companies producing oil response equipment and monitoring services
- Increased public acceptance of off shore activities through a thorough environmental assessment of the environmental impacts of different response methods.

More information

- Project co-ordinator, Leading Research Scientist **Kirsten Jørgensen**, Finnish Environment Institute SYKE, firstname.surname@ymparisto.fi

Published 2016-11-08 at 12:42, updated 2016-12-28 at 15:16

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INTEGRATED OIL SPILL RESPONSE ACTIONS AND ENVIRONMENTAL EFFECTS

Oil spill detection, monitoring, fate and distribution
Oil biodegradation and bioremediation
Oil impacts on biota using biomarkers and ecological risks assessment
Combat of oil spill in coastal arctic water - effectiveness and environmental effects
Strategic Net Environmental Benefit Analysis
Management, dissemination and communication

Home > Work packages

Work packages of the Integrated oil spill response actions and environmental effects (GRACE project)

The GRACE Project consists of 6 work packages:

1. Oil spill detection, monitoring, fate and distribution (WP1 of the GRACE project)
2. Oil biodegradation and bioremediation (WP2 of the GRACE project)
3. Oil impacts on biota using biomerkests and ecologiacl risk assessment (WP3 of the GRACE project)
4. Combat of oil spill coastal artic water - effectiveness and environmental effects (WP4 of the GRACE project)
5. Strategic Net Environmental Benefit Analysis (WP5 of the GRACE project)
6. Management, Dissemination and Communication (WP6 of the GRACE project)

Published 2016-11-07 at 13:50, updated 2016-11-15 at 13:56

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Oil spill detection, monitoring, fate and distribution

Oil biodegradation and bioremediation

Oil impacts on biota using biomarkers and ecological risks assessment

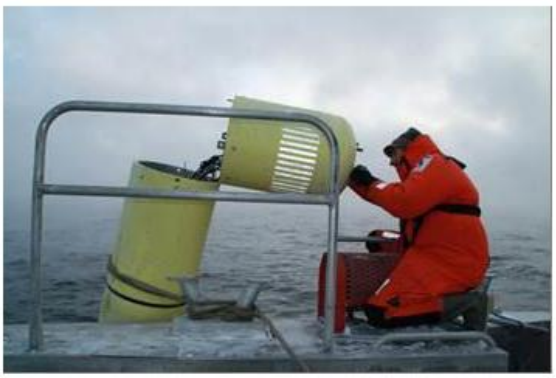
Combat of oil spill in coastal arctic water - effectiveness and environmental effects

Strategic Net Environmental Benefit Analysis

Management, dissemination and communication

Home > Work packages > Oil spill detection, monitoring, fate and distribution

Oil spill detection, monitoring, fate and distribution - WP 1 of the GRACE project



Installing a smartbuoy. © Meritaito

Objective: Evaluation of existing oil spill detection and monitoring systems, integration with decision support tools to improve situational awareness of oil spill response actions. New oil detection and monitoring sensors on different platforms, such as sensor systems on board ships of opportunity, UAVs (underwater autonomous vehicle), AUVs (unmanned aerial vehicle), gliders, smart buoys, drifters, marine radars, and other technologies, partly available already today, but not implemented for in-situ oil spill detection to make oil spill detection more accurate and cost-effective. These new sensor technologies and platforms will be tested and their capabilities to improve operational picture of oil spill response, both in open water and ice covered sea, will be performed and systems prototyped.

Planned steps:

1. Evaluate the technological capabilities of oil detection sensors and systems, currently available on market, identification of gaps and user needs to be filled for better in situ situational awareness of oil spill detection, monitoring and post accident fate of oil products.
2. Field tests and validation of novel oil detection sensor technologies and observation platforms, evaluation the practicality measures of these to be used in future systems.
3. Operational Integration of in situ data into oil spill decision support and risk analysis tools in accident phase as well post accident monitoring the fate of oil.
4. Integration and synergy of multisource data and information from in situ operational observation systems and models.

Work package leader:

Senior scientist, Dr. Tarmo Kõuts,
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Published 2016-10-21 at 14:45, updated 2016-09-13 at 13:20

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 679266

Oil spill detection, monitoring, fate and distribution

Oil biodegradation and bioremediation

Oil impacts on biota using biomarkers and ecological risks assessment

Combat of oil spill in coastal arctic water - effectiveness and environmental effects

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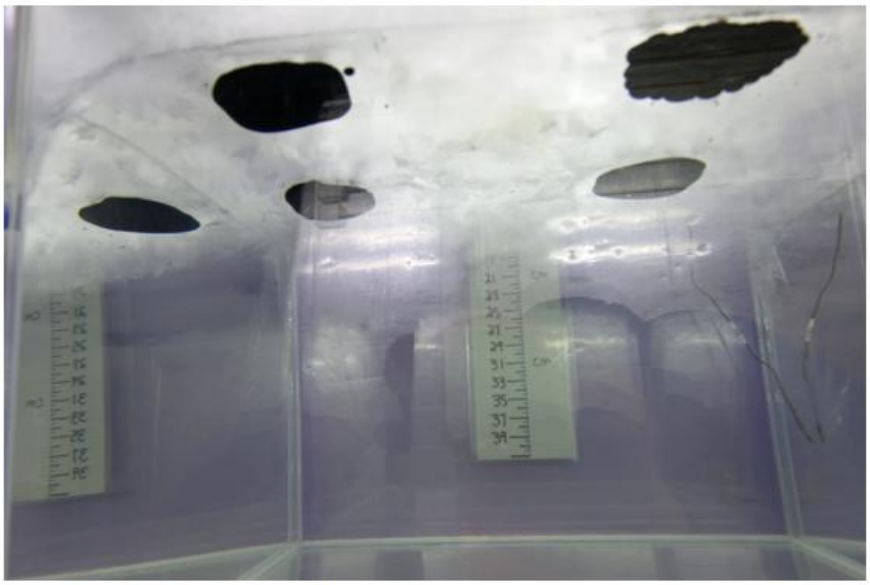
Oil biodegradation and bioremediation - WP 2 of the GRACE project



Oil under ice in a tank. © Nga Phuong Dang

Objective: Assessment of natural degradation rates of different oil fractions in seawater and sediments, and taking into account environmental parameters, dispersants application and electro-kinetic treatment. The aim is to determine key bacterial species and metabolic pathways responsible for the degradation of different oil fractions in different compartments (aerobic and anaerobic water and sediments) of the Baltic Sea and the Northern Atlantic. Response of Arctic shoreline and seawater microbial communities to oil pollution and the application of different oil remediation strategies including in situ burning of oil in ice and near shore burning will be assessed.

Planned steps:

1. Oil biodegradation in seawater and impact of dispersants on oil biodegradation characteristics
2. Oil biodegradation is sea water-ice interface
3. Remediation of oil contaminated sediments using electrokinetic treatment
4. Effect-based assessment of biodegradation and remediation success
5. Omics data integration and meta-analysis

Work package leader:

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Published 2016-10-21 at 14:45, updated 2016-10-20 at 9:30

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Oil spill detection, monitoring, fate and distribution

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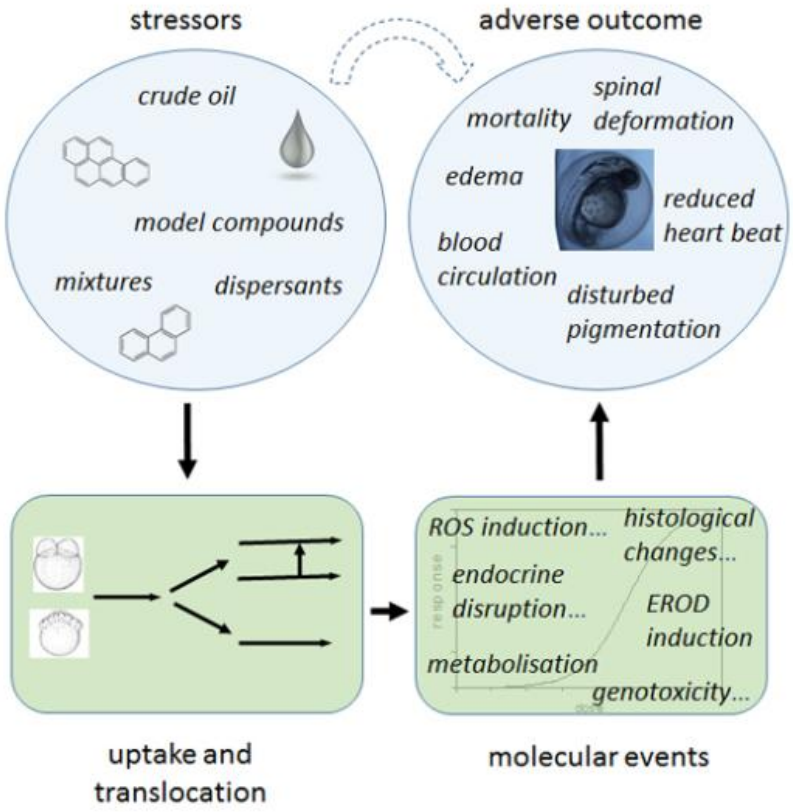
Oil impacts on biota using biomarkers and ecological risks assessment - WP 3 of the GRACE project



Picture of the adverse impacts of oil in a zebrafish. © Thomas-Benjamin Seiler

Objective: The objective of WP3 is to improve the knowledge on the biological impacts of oil spills and the different oil spill response methods in the northern Atlantic and the Baltic Sea, characterized by extreme environmental conditions. This is achieved by examining the adverse outcome links in ecologically relevant target species at a regional scale and the zebrafish as a well investigated vertebrate model. We define these links as causative relations of molecular events with adverse outcomes on organ or organism level, which are in contrast to AOPs species and/or contamination specific and do not cover the complete pathway from the molecular event to the adverse outcome, but rather just link the initial event to the observable effect. However, where possible we will further aim at developing complete adverse outcome pathways for understanding the entire process of toxicity by oil constituents in local species of the study areas. This approach will result in monitoring and environmental hazard and risk assessment strategies covering a wide range of bioeffect-based tools useful for oil spill and oil spill response impacts in these particular regions.

Planned steps

1. Gaining of science-based knowledge on the effects of oil contamination on biota in the Baltic Sea and the northern Atlantic as a pre-requisite for effective oil spill response;
2. Deriving a set of effect-based tools for easy and cost-effective monitoring and for rapid remediation assessment;
3. Establishing species-specific adverse outcome links for a set of ecologically relevant species from the study regions (bivalves, fish, crustaceans) and for laboratory models (zebrafish) for assessing the relevant effects of oil contamination and impacts of response actions in cold water with a reference to temperate areas; and
4. Providing biomarker data on effects on key invertebrate species in the coastal zone.

Work package leader:

Assistant professor, Dr. Thomas-Benjamin Seiler
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Published 2016-10-21 at 14:35, updated 2016-12-28 at 14:55

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Combat of oil spill in coastal arctic water - effectiveness and environmental effects

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Combat of oil spill in coastal arctic water - effectiveness and environmental effects - WP 4 of the GRACE project

Combating oil spill in Greenland © Lonnie B. Wilms

The main objective of WP4 is to improve the knowledge base for combating oil spills in icy and cold waters. It is assessed that the results from the research experiments will provide valuable information for decision makers regarding oil spill response options to include in the Net Environmental Benefit Analysis (NEBA) for oil spill response strategy and capacity building in the Arctic and Baltic Sea

Planned steps:

1. Improvement of the knowledge base for combating oil spills in ice infested waters.
2. Design and test of mechanical unit for removal of oil under sea ice.
3. Increase knowledge on environmental fate and effects of stranded oil and shoreline cleaning by use of in situ burning and shoreline clean-up chemical agents in arctic regimes.

Work package leader:

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Published 2016-10-21 at 14:56, updated 2016-10-20 at 9:31

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Oil spill detection, monitoring, fate and distribution

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Oil impacts on biota using biomarkers and ecological risks assessment

Combat of oil spill in coastal arctic water - effectiveness and environmental effects

Strategic Net Environmental Benefit Analysis

Management, dissemination and communication

Home > Work packages > Strategic Net Environmental Benefit Analysis

Strategic Net Environmental Benefit Analysis - WP 5 of the GRACE project

Polar bear on an oily ice in Greenland. © Janne Fritt-Rasmussen

Objectives: A Strategic Net Environmental Benefit Analysis tool will be developed for decision-making on inclusion of in situ burning, chemical dispersants and bioremediation, in national oil spill response strategies and contingency planning as well as which restrictions to consider for the use of those techniques in closed basins with extreme cold temperatures. The outcome supports the development of potential national guidelines and approval procedures for oil spill response and cross-border and trans-boundary co-operation and agreements

Planned steps:

1. Development of matrices for knowledge / data collection to serve as input to the strategic analysis.
    - Gathering of data on biodiversity and oil ecotoxicology and national frames for oil spill sensitivity, including results from WP1-4.
    - Modelling of relevant oil spill scenarios (Disko Bay, northern part of Baltic Sea)
2. Application of logistic tools and operational selection guidance.
    - Operational requirements. Risk assessment model
3. Development and launching of the Strategic Net Environmental Benefit Analysis tool.
    - Fuzzy logic model.
    - Workshop.
    - Strategic Net environmental Benefit Analysis Ph.D. course development.

Work package leader:

Senior Advisor, Dr. Susse Wegeberg
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GRACE

INTEGRATED OIL SPILL RESPONSE ACTIONS AND ENVIRONMENTAL EFFECTS

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Management, dissemination and communication - WP 6 of the GRACE project

A view of the Canadian coastal sea ice. © Kirsten Jørgensen

Objectives

- to manage the project work efficiently in order to produce a smooth reporting to EC- to coordinate the activities between the work packages in order to get the maximum new collaboration

- to ensure that data, methodology, innovations produced in the project will become available to the scientific community and to emerging markets.

- to communicate the results of the project to the stakeholders in Arctic oil response actions, the scientific community and to emerging markets.

Planned steps:

1. Management
    - Project initiation.
    - Project operational management – Steering group consisting of the workpackage leaders and the coordinator. Other management bodies are the General Assembly, Innovation Management Board and Advisory Board.
    - Project administration.
    - Project finalizing.
2. Dissemination
    - A dissemination and exploitation plan will be prepared.
    - A data management plan will be prepared.
    - Coordination of a business plan for the companies involved in GRACE.
3. Project web pages
    - A project brochure will be printed at the beginning of the project.
    - Info to international, transnational and transboundary working groups.
    - Presentations at scientific meetings of joint project results.

Work package leader:

Leading Research Scientist, Dr. Kirsten Jørgensen
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Published 2016-10-21 at 14:56, updated 2016-10-20 at 9:38

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GRACE

INTEGRATED OIL SPILL RESPONSE ACTIONS AND ENVIRONMENTAL EFFECTS

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- University of Tartu, Estonia, Jaak Truu (firstname.surname@ut.ee)
- Tallinn University of Technology, Estonia, Tarmo Kõuts (firstname.surname@msi.ttu.ee)
- RWTH Aachen University, Germany, Thomas-Benjamin Seiler (surname@bio5.rwth-aachen.de)
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Greenland Oil Spill Response SSPA UNIVERSITY OF MANITOBA LAMOR

SeaHow by MeriTaito

The project acknowledges the funding received from the EU Horizon 2020 programme
Nr 679266

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