The tweets by chair and the presenters of the APP4SEA final conference, held on 16th of April 2020 - search #APP4SEA2020 to find the whole thread in Twitter

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APP4SEA_NPA
@APP4SEA_NPA

Testing, testing. Check, check... Can you hear me all the way there in the back? #APP4SEA2020

♡ 13 8:58 AM - Apr 16, 2020

See APP4SEA_NPA's other Tweets

APP4SEA_NPA @APP4SEA_NPA · Apr 16, 2020

1/4 Welcome to the #APP4SEA2020 #TwitterConference, which is organized by @APP4SEA_NPA. Our topic is Challenges of Arctic Oil Spill Response, which we will be looking at from different angles. We have an excellent group of experts, who have promised to take us to high north

APP4SEA_NPA
@APP4SEA_NPA

2/4 This conference serves also as the final conference of @APP4SEA_NPA that is funded by @NPA2014_2020. The aim of the project is to increase the preparedness of environmental authorities and the awareness of general public about oil spill response #APP4SEA2020

♡ 4 8:59 AM - Apr 16, 2020

See APP4SEA_NPA's other Tweets

APP4SEA_NPA @APP4SEA_NPA · Apr 16, 2020

Replying to @APP4SEA_NPA

3/4 Many of the presentations are based on work that has been done in the project, but we have strengthened our ranks with experts from other organisations. Big thanks to you! The main outcome of the project is a smart map, which will be presented in the last session #APP4SEA2020

APP4SEA_NPA
@APP4SEA_NPA

4/4 But let's follow the programme and start with Session 1 - What happens in the Arctic? Increasing risks and preparedness to meet these challenges #APP4SEA2020

2 9:01 AM - Apr 16, 2020

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@APP4SEA_NPA

First up is @HjaltiHreinsson – a project manager from the @PAMESecretariat. Hjalti has a background in media studies and Polar Law from @Haskolinn_Ak. He will be tweeting about the increase of ship traffic in the Arctic which PAME recently produced a short report on #APP4SEA2020

4 9:03 AM - Apr 16, 2020

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@APP4SEA_NPA

Keynote: Recent trends in Arctic shipping – Hjalti Hreinsson, The Protection of the Arctic Marine Environment Working Group (PAME) of Arctic Council @PAMESecretariat #APP4SEA2020

♡ 1 9:04 AM - Apr 16, 2020

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PAME @PAMESecretariat · Apr 16, 2020

1/10 Hi all! We are honoured to start this conference with info from one of PAME's biggest projects, a database on Arctic shipping activities - ASTD (astd.is). It is very comprehensive and finally gives us access to reliable up-to-date shipping data. #APP4SEA2020

PAME
@PAMESecretariat

2/10 Access to ASTD data is for Arctic States, the Arctic Council and other professionals. Many have gotten access to the data. And for this special online event, we are proud to share a brand new video about the ASTD project! Link here: youtu.be/OgaEaMfyXaM #APP4SEA2020

YouTube @YouTube

♡ 10 9:05 AM - Apr 16, 2020

See PAME's other Tweets

PAME @PAMESecretariat · Apr 16, 2020

Replying to @PAMESecretariat

3/10 PAME recently published the first Arctic Shipping Status Report (ASSR #1) - a new PAME initiative. It will produce many short factual reports using ASTD data. The first one was on recent trends (2013-2019) in Arctic shipping, the next one will focus on HFO. #APP4SEA2020

PAME

@PAMESecretariat

4/10 When looking at shipping statistics, many factors are important. One is geographic scope. What is the Arctic? There are many definitions, and ASTD can look at any area, but these statistics are for the IMO Polar Code area. This is the area as defined by the IMO: #APP4SEA2020

3 9:06 AM - Apr 16, 2020

See PAME's other Tweets

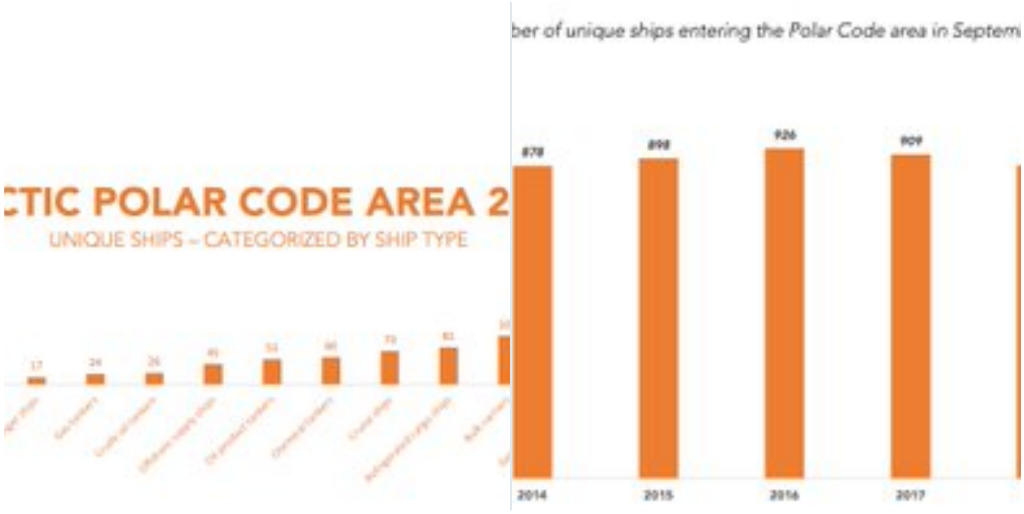
PAME @PAMESecretariat · Apr 16, 2020

Replying to @PAMESecretariat

5/10 Another very important parameter is what should we measure? Here we look at unique ships (number of ships entering the area in a specific timeframe) and distance sailed (aggregated distance in nautical miles in a specific timeframe). There are others of course! #APP4SEA2020

PAME
@PAMESecretariat

6/10 We chose to look at both whole years from 2013-2019 and the month of September to compare. The increase between 2013 and 2019 is 25%. In terms of what ship types are entering the Arctic, a vast majority are fishing vessels, see graphics: #APP4SEA2020



♡ 4 9:09 AM - Apr 16, 2020

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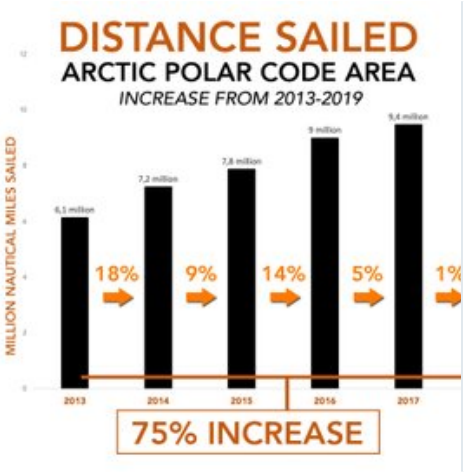
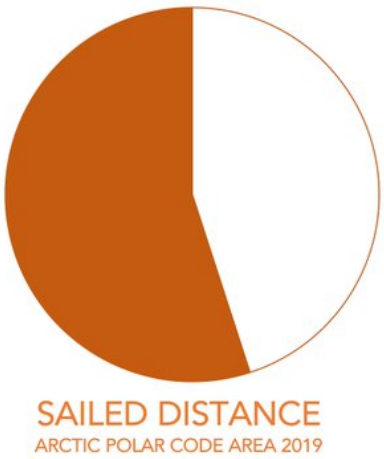
PAME @PAMESecretariat · Apr 16, 2020

Replying to @PAMESecretariat

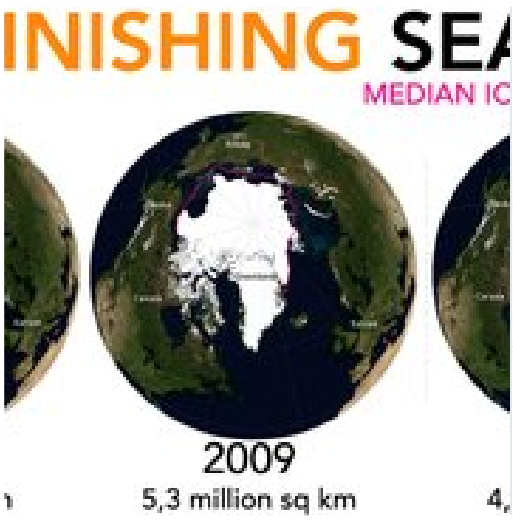
7/10 The increase in the total distance sailed is even greater, a total of 75% from 2013-2019. This is a significant increase between the years. These two graphs show the increase, and the second one highlights again how dominant fishing vessels are in the #Arctic #APP4SEA2020

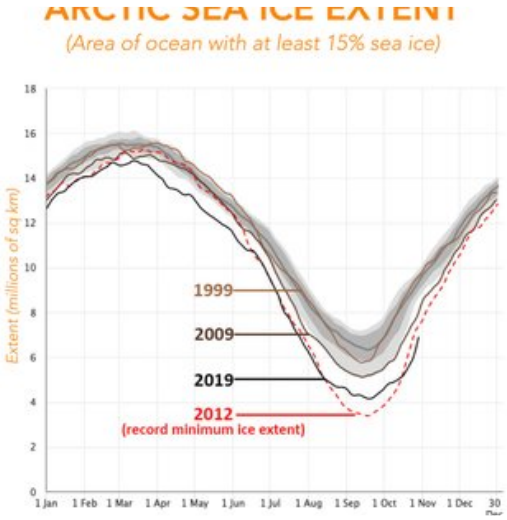




PAME
@PAMESecretariat

8/10 Why is the logical next question! There is no simple answer to this. The increase is a combination of many factors. Deminishing sea ice as the @NSIDC has shown could play a part, as well as increased Arctic #tourism and of course natural resource extraction. #APP4SEA2020





♡ 3 9:11 AM - Apr 16, 2020

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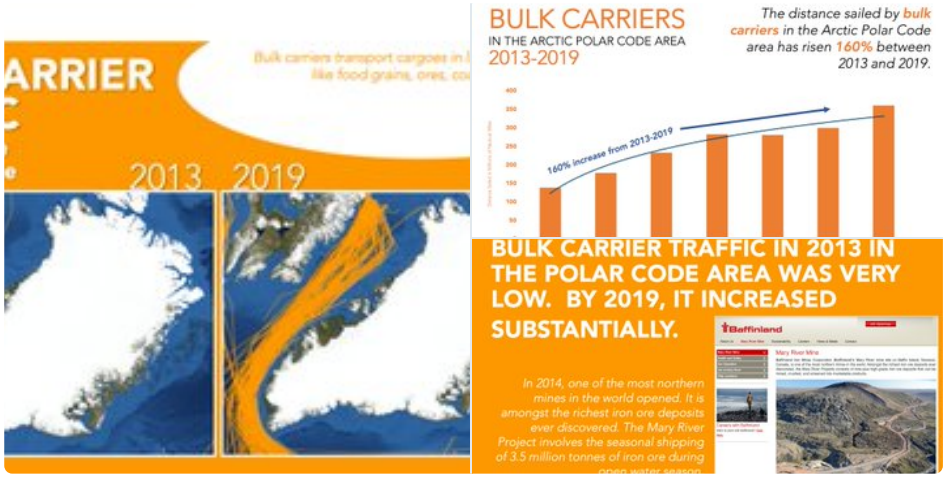
PAME @PAMESecretariat · Apr 16, 2020

Replying to @PAMESecretariat

9/10 For example, the increase of the distance sailed by bulk carriers from 2013 to 2019 was 160% due to a single mine opening up in #Baffinland, Canada. The mine contributes greatly to the numbers and the overall statistics. Does not always take much! See graphics: #APP4SEA2020



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@PAMESecretariat

10/10 We look forward to dig into these statistics and produce more short reports in the near future. I am happy to answer any questions you have! You can also look at the PAME website (pame.is) or the ASTD site (astd.is). Thank you! #APP4SEA2020

10 9:13 AM - Apr 16, 2020

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APP4SEA_NPA
@APP4SEA_NPA

From shipping we will move on to how to deal with potential oil spills. Kirsten S. Jørgensen from @SYKEInt is the coordinator of the H2020 project GRACE "Intergrated oil spill response actions and environmental effects" and she is an expert on oil biodegradation #APP4SEA2020

3 9:13 AM - Apr 16, 2020

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APP4SEA_NPA
@APP4SEA_NPA

Arctic oil spill response methods and technologies – Kirsten S. Jørgensen, Finnish Environment Institute @KirstenJorgens #APP4SEA2020

2 9:14 AM - Apr 16, 2020

See APP4SEA_NPA's other Tweets

Kirsten Jørgensen @KirstenJorgens · Apr 16, 2020

1/10 Due to #climatechange shipping routes are opening up in the Arctic. The risk for accidents and oil spills increases. Furthermore, offshore oil and gas exploration in the Arctic causes a risk for accidents. #arcticshipping #APP4SEA2020

Kirsten Jørgensen
@KirstenJorgens

2/10 Mechanical oil spill collection is the most commonly used method used for combatting oil spills. The method uses oil skimmers with rotating brushes, @LamorCorp also developed some for use in ice. In remote areas in the Arctic availability may be restricted. #APP4SEA2020

12 9:15 AM - Apr 16, 2020

See Kirsten Jørgensen's other Tweets

Kirsten Jørgensen @KirstenJorgens · Apr 16, 2020

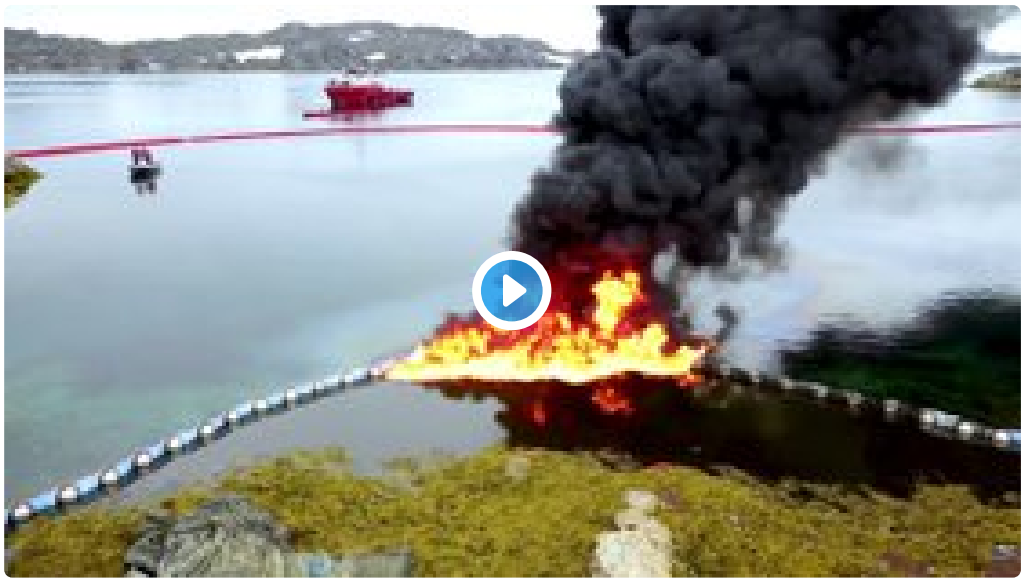
Replying to @KirstenJorgens

3/10 In situ burning of oil on the sea surface may be a good and sometimes the only option in remote areas. Before burning the oil must be boomed using pyrobooms. Ignition is done from a dinghy or from helicopter. #APP4SEA2020 #GraceOilProject grace.oil-project.eu

Kirsten Jørgensen
@KirstenJorgens

4/10 Burning residues after in situ burning were found to have temporary impacts on the biota in a controlled field experiment in Greenland carried out by the #H2020 #GraceOilProject. See video . youtube.com/watch?v=51ieM7...
#APP4SEA2020

YouTube @YouTube



♡ 9 9:15 AM - Apr 16, 2020

See Kirsten Jørgensen's other Tweets

Kirsten Jørgensen @KirstenJorgens · Apr 16, 2020

Replying to @KirstenJorgens

5/10 Chemical dispersants break up the oil film and dissolve the oil into the water column. Special equipment is needed for spreading of dispersants from vessels or aircrafts. Dispersants were used in the #DeepwaterHorizon accident and it reduced stranding of oil. #APP4SEA2020

Kirsten Jørgensen
@KirstenJorgens

6/10 The dispersed oil is not collected, it remains in the sea. Dispersed oil causes toxic effects on biota in the water column. @RWTH, @NTNU and @pie_upvehu and @SYKEint studied this in the #GraceOilProject. More research is needed in cold conditions. #APP4SEA2020

♡ 13 9:15 AM - Apr 16, 2020

See Kirsten Jørgensen's other Tweets

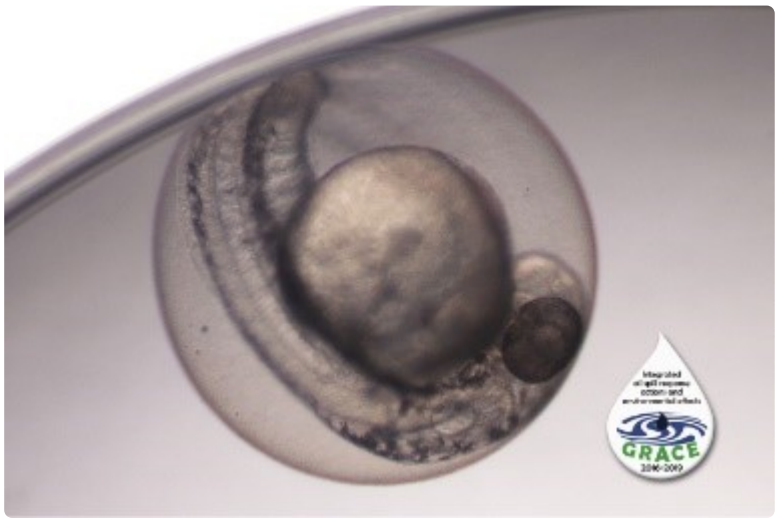
Kirsten Jørgensen @KirstenJorgens · Apr 16, 2020

Replying to @KirstenJorgens

7/10 Oil that is not collected or burned slowly starts to degrade biologically in the marine environment. In Arctic conditions the degradation is slow. The lighter fraction of oil will degrade faster. Non-removed oil and dispersed oil may end up in the sea bottom. #APP4SEA2020

Kirsten Jørgensen
@KirstenJorgens

8/10 Oil spill response is done to avoid smothering of birds and mammals, but also to diminish direct toxic effects of oil on biota in the seawater and bottom. New results by @RWTH show that crude oil affects the eye development in fish grace.oil-project.eu #APP4SEA2020



9 9:15 AM - Apr 16, 2020

See Kirsten Jørgensen's other Tweets

Kirsten Jørgensen @KirstenJorgens · Apr 16, 2020

Replying to @KirstenJorgens

9/10 A novel Environment & Oil Spill Response (EOS) analytical tool for environmental assessment to support oil spill response design was developed in the #GraceOilProject by @AarhusUni and is available at bios.au.dk/index.php?id=1... #APP4SEA2020

Kirsten Jørgensen
@KirstenJorgens

10/10 In order to deal with oil spills in the Arctic we need all methods available. It would be irresponsible not to be prepared. @EPPR_Arctic #APP4SEA2020

16 9:15 AM - Apr 16, 2020

See Kirsten Jørgensen's other Tweets

APP4SEA_NPA
@APP4SEA_NPA

Next presentation takes a bit different angle to oil spill response #APP4SEA2020

2 9:26 AM - Apr 16, 2020

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@APP4SEA_NPA

The Gulf of Finland as a waterway. #SIMREC aims at mitigating the risks oil spills pose on the environment of the GoF by fostering co-operation between 🇫🇮 and 🇷🇺, jointly developing a new generation of training simulations @MerikotkaCentre bit.ly/2RzT51Y #APP4SEA2020

9 9:28 AM - Apr 16, 2020

See APP4SEA_NPA's other Tweets

APP4SEA_NPA
@APP4SEA_NPA

Simulators for improving cross-border oil spill response in extreme conditions – Tarja Javanainen, Kotka Maritime Research Centre, SIMREC project @TarjaJavanainen #APP4SEA2020

3 9:29 AM - Apr 16, 2020

See APP4SEA_NPA's other Tweets

Tarja Javanainen
@TarjaJavanainen

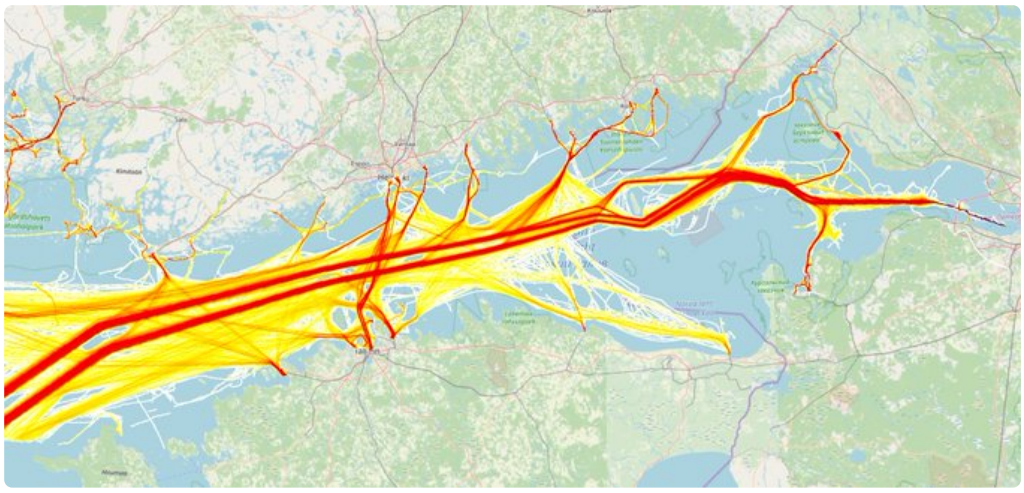
1/10 By combining the know-how and expertise of authorities as well as research institutions of both countries, the #SIMREC objective is to develop tailored training programs and optimize the preparedness of response teams. @sefinruscbc #APP4SEA

♡ 9 9:31 AM - Apr 16, 2020

See Tarja Javanainen's other Tweets

Tarja Javanainen
@TarjaJavanainen

2/10 How likely does oil tanker related accidents happen among busy marine traffics in #GoF and how much oil is likely to spill out? bit.ly/39RZ2xA en.smtu.ru @AaltoUniversity #APP4SEA2020

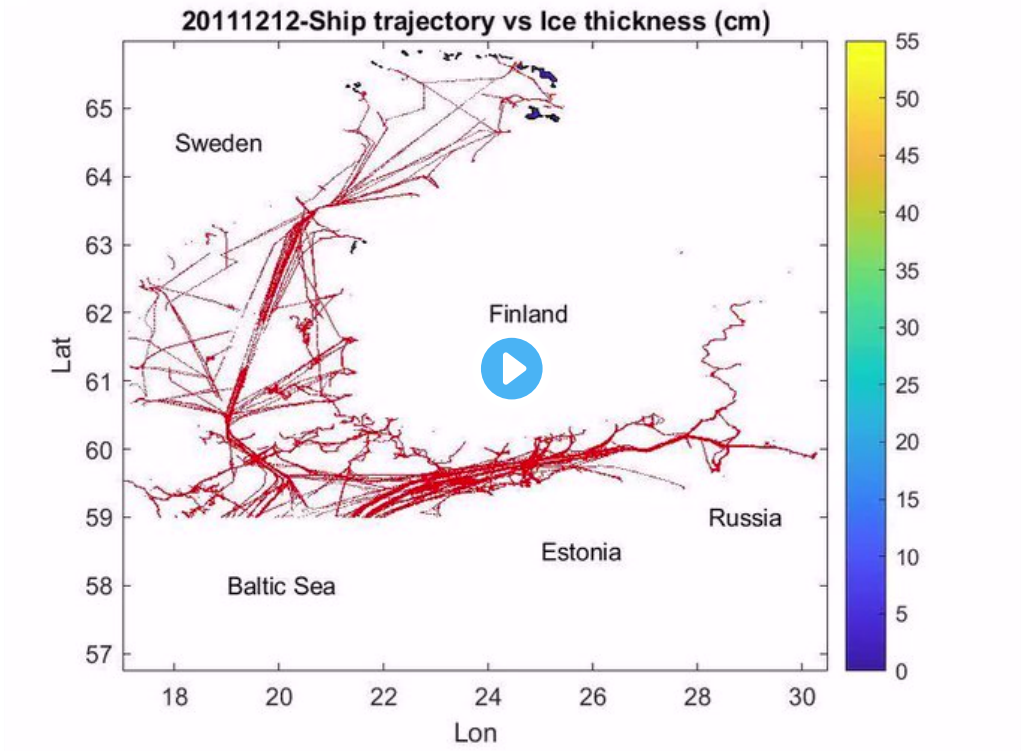


♡ 10 9:32 AM - Apr 16, 2020

See Tarja Javanainen's other Tweets

Tarja Javanainen
@TarjaJavanainen

3/10 Analyzing the ship traffic data and making spatial traffic map to generate potential accident and oil spill scenarios for the simulator, with special attention on extreme conditions. #APP4SEA2020



♡ 22 9:33 AM - Apr 16, 2020

See Tarja Javanainen's other Tweets

Tarja Javanainen
@TarjaJavanainen

4/10 How to connect maritime simulators in FIN and RUS? Technical connection of simulators requires detailed specifications and every detail and approach has to be commonly agreed. We use a common-log as a working document between centers in Kotka & St. Petersburg. #APP4SEA2020

WP2: TECHNICAL DEVELOPMENT FOR CONNECTIVITY OF MARITIME SIMULATORS
PLAN: VPN connection between simulator centers.

Example of one page in the common-log

Specification	Xamk	Makarov	Requirement
Ownership and control of NTPro simulators			Full ownership and control is recommended for both centers
Connectable NTPro simulators			Specify amount and type of simulators (BR, WS, VTS)
NTPro software update service (Transerv)			Software update service is required for both centers
NTPro version			Identical versions are required for both centers
TrnNetwork version			Identical versions are required for both centers
NTPro Oil Spill Functionality Module			Module has to be installed in both centers
NTPro Ice Functionality Module			Module has to be installed in both centers
NTPro exercise area(s)			Identical exercise area(s) has to be installed in both centers
NTPro ship models as ownships			Identical ship models as ownships have to be installed in both centers
Ownership and control of Internet connection			Full ownership and control is recommended for both centers
Possibility to upgrade Internet connection			Internet connection has to be upgradable if connection speed is insufficient
Fast Internet connection			Internet connection has to be at least 100–1000/100–1000M in both centers
VPN router and connection configuration			VPN routers have to be purchased and connection configured in both centers
Videoconferencing equipment and connection			Videoconferencing equipment and connection configured in both centers
Estimated probability for establishing VPN connection			Probability has to be 75–100 % for both centers

Fig. 1: *Common-log*. Used by Finnish and Russian partners for identifying and specifying detailed technical requirements for connectivity of simulator centers

Tarja Javanainen
@TarjaJavanainen

5/10 How to find the right target group for cross-border training? We need to know exactly who will be operating in a real maritime emergency occurring near the national sea border using hypothetical cases as reference. bit.ly/3a8XKyx gumrf.ru/en/ #APP4SEA2020

Fig. 2: *Reference case 0*. Used for establishing Oil-spill Response agents in Russian and Finnish side to identify appropriate target groups for joint cross-border training.

♡ 10 9:35 AM - Apr 16, 2020

See Tarja Javanainen's other Tweets

Tarja Javanainen
@TarjaJavanainen

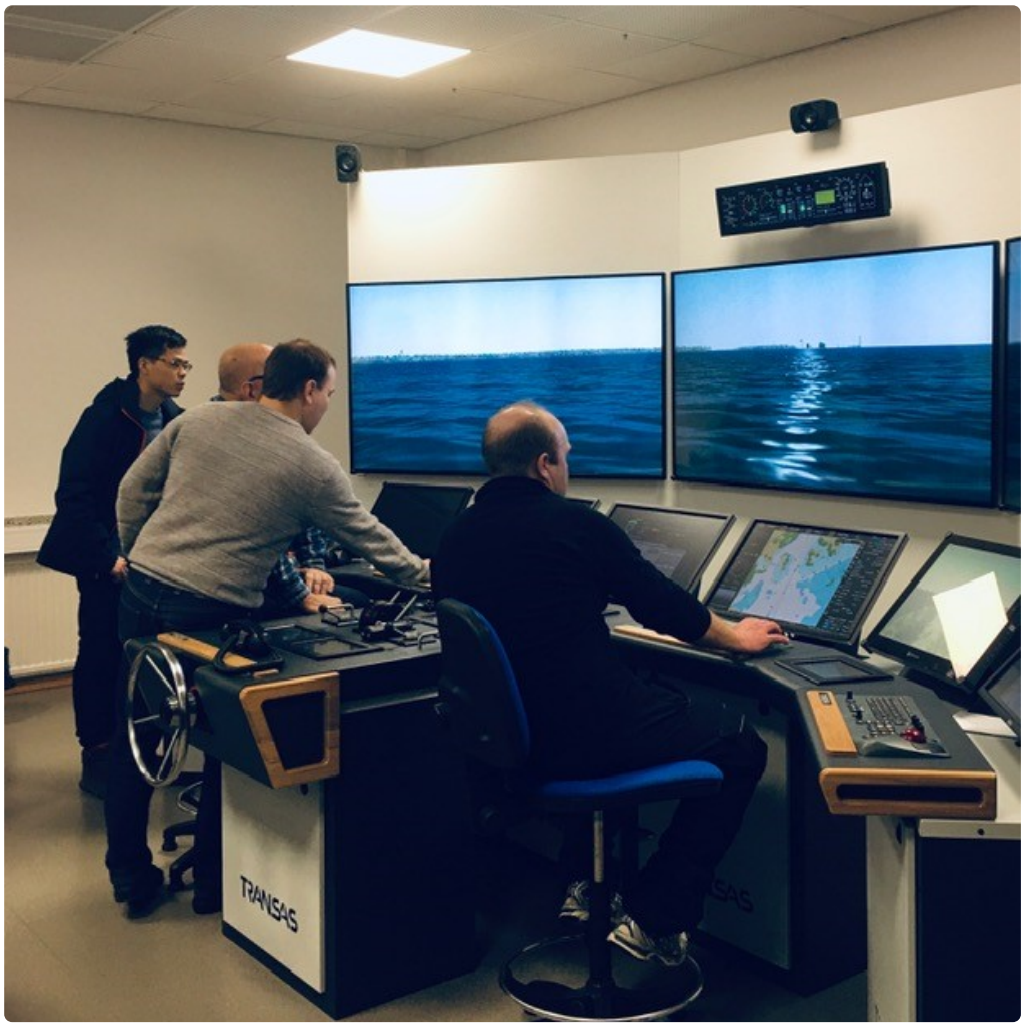
6/10 What does mean "extreme condition" on the maritime simulator? The extreme conditions are combination of waves, currents, wind and ice conditions impacting of the oil slick, but it is limited by capabilities of existing simulators. #APP4SEA2020

♡ 8 9:36 AM - Apr 16, 2020

See Tarja Javanainen's other Tweets

Tarja Javanainen
@TarjaJavanainen

7/10 Although #ice and #oilspill functionalities of maritime simulator are not able to interact to each other. We believe that simulator's capabilities is allowed to simulate a few elements of the ice surface, such as ice floes and ice edge @xamkfi @ekamiFI #APP4SEA2020

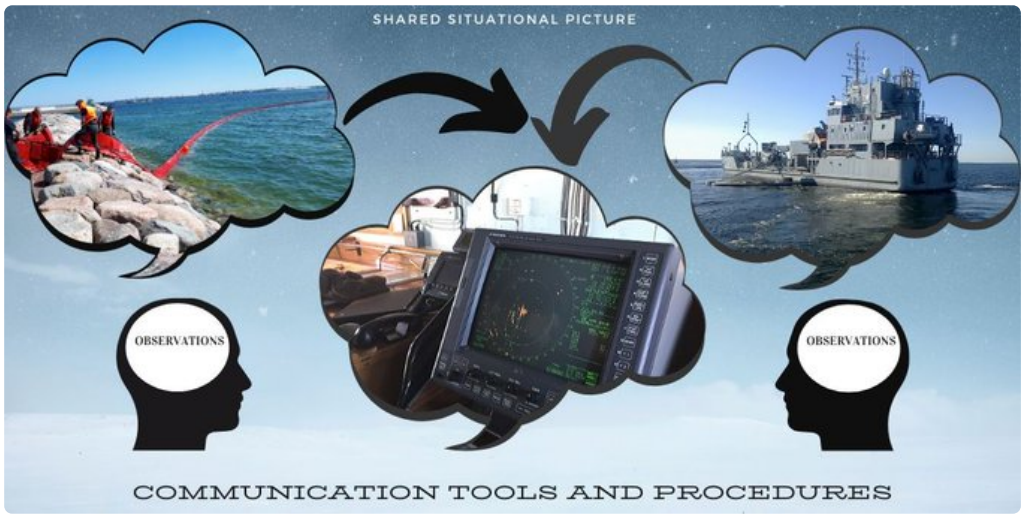


♡ 11 9:37 AM - Apr 16, 2020

See Tarja Javanainen's other Tweets

Tarja Javanainen
@TarjaJavanainen

8/10 What are the keys for an authentic, shared situational picture? Documentation and analysis of the rescue personnels' action and thinking during exercises help identify what kind of tools could support the formation of the joint situational awareness @FEMgroup_UH #APP4SEA2020



♡ 12 9:38 AM - Apr 16, 2020

See Tarja Javanainen's other Tweets

Tarja Javanainen
@TarjaJavanainen

9/10 Part of the #SIMREC focus areas is to analyze the current preparedness level of participating authorities and the estimate how to change procedures to define better response in a changing environment. @SYKEinfo #APP4SEA2020

♡ 6 9:39 AM - Apr 16, 2020

See Tarja Javanainen's other Tweets

Tarja Javanainen
@TarjaJavanainen

10/10 A fundamental pillar of a successful oil-spill response operation is well-considered, responsible and efficient decision-making. Follow #SIMREC-project in bit.ly/34lGDIE #APP4SEA2020

13 9:40 AM - Apr 16, 2020

See Tarja Javanainen's other Tweets

APP4SEA_NPA
@APP4SEA_NPA

The next presenter on the stage is Jorma Rytkönen from Finnish Environment Institute, who is a seasoned oil spill responder. @SYKEint was the competent national authority for oil spill response in 🇫🇮 until @Rajavartijat took over this responsibility in 1.1.2019. #APP4SEA2020

6 9:42 AM - Apr 16, 2020

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@APP4SEA_NPA

Recommendations and some shortcomings found for oil spill response methods (OSR) methods for the NPA region – Jorma Rytkönen @JormaRytkonen, Kirsten S. Jørgensen & Ossi Tonteri, Finnish Environment Institute @SYKEint #APP4SEA2020

3 9:43 AM - Apr 16, 2020

See APP4SEA_NPA's other Tweets

jorma rytkonen
@JormaRytkonen

1/10 There are a lot of international expectations to enhance #arcticshipping in the Arctic. All these expectations, however, also pose an increased risk of an oil spill for the environment. #APP4SEA2020 gives a short overview over the latest findings and recommendations.

♡ 16 9:45 AM - Apr 16, 2020

See jorma rytkonen's other Tweets

jorma rytkonen
@JormaRytkonen

2/10 Currently there exists good guidelines and recommendations. However, long distances, harsh & vulnerable Arctic environment and remoteness create special demands to cope with the oil spills. #APP4SEA2020 @EPPR-Arctic @IMOHQ

jorma rytkonen
@JormaRytkonen

3/10 Expectations for the increase of the maritime transport is directed both the cargo and passenger traffic. The exploration activities of natural resources also pose an important role here. #APP4SEA2020

10 9:47 AM - Apr 16, 2020

See jorma rytkonen's other Tweets

jorma rytkonen
@JormaRytkonen

4/10 It is not only the demanding and changing environmental conditions which will define the suitable oil spill countermeasures required. The tool box of the responders must be large enough to meet all conditions. #APP4SEA2020

6 9:48 AM - Apr 16, 2020

See jorma rytkonen's other Tweets

jorma rytkonen
@JormaRytkonen

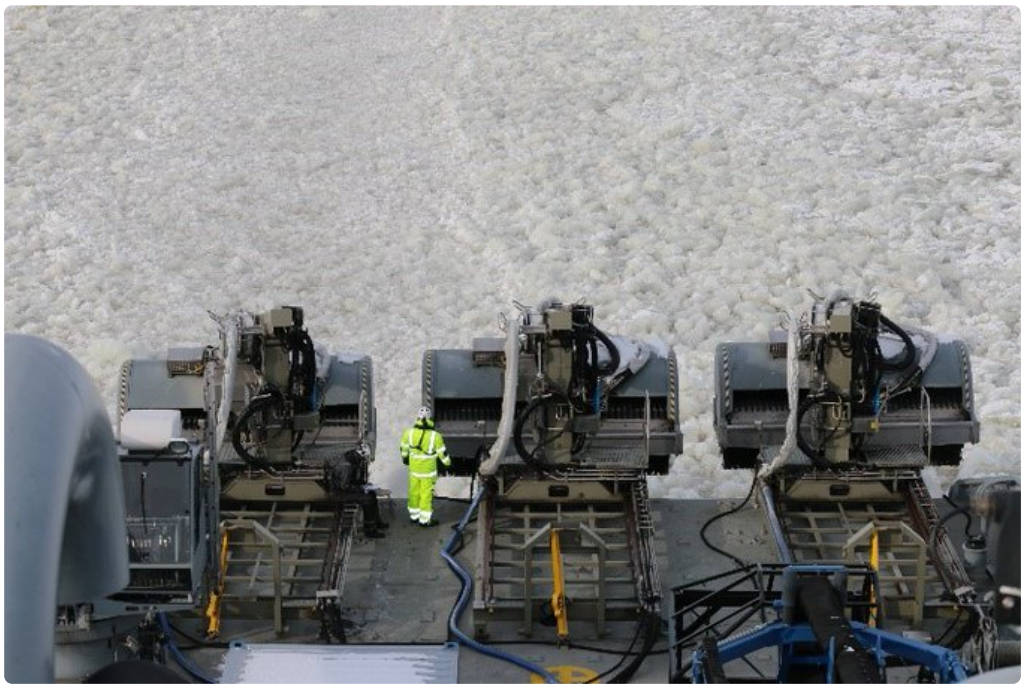
5/10 One of the new findings for the possible enhancement of the safety and security in the Arctic is the better usage of the risk assessment procedures. Modern surveillance tools and early warning tools may give more time to design appropriate countermeasures. #APP4SEA2020

♡ 9 9:49 AM - Apr 16, 2020

See jorma rytkonen's other Tweets

jorma rytkonen
@JormaRytkonen

6/10 Response strategies in the Arctic include some of the basic countermeasures used elsewhere in the world. The usage of these proven technologies, however, have all their limitations in demanding and harsh environment. #APP4SEA2020, #Arctic oil spill response



8 9:50 AM - Apr 16, 2020

See jorma rytkonen's other Tweets

jorma rytkonen
@JormaRytkonen

7/10 Mechanical recovery is one of the most successful means in open water conditions. A combination of different countermeasures is the key for the successful oil combating. #APP4SEA2020

♡ 8 9:51 AM - Apr 16, 2020

See jorma rytkonen's other Tweets

jorma rytkonen
@JormaRytkonen

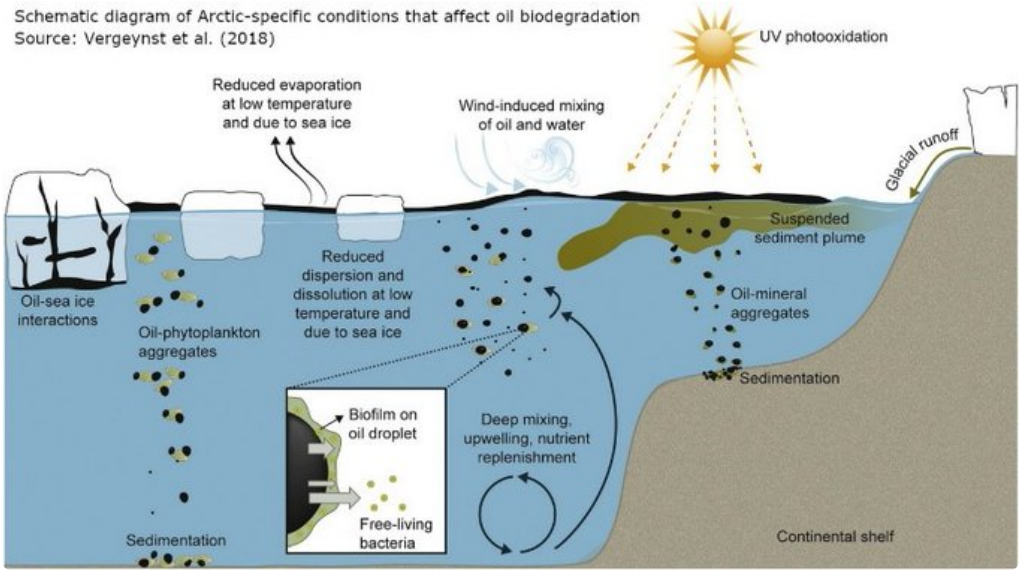
8/10 In situ burning and the use of dispersants are response tools studied a lot in the recent years. They both have their own windows of opportunity. However, ecological consequences of dispersants in the Arctic need more international research. #APP4SEA2020 #GraceOilProject

♡ 8 9:53 AM - Apr 16, 2020

See jorma rytkonen's other Tweets

jorma rytkonen
@JormaRytkonen

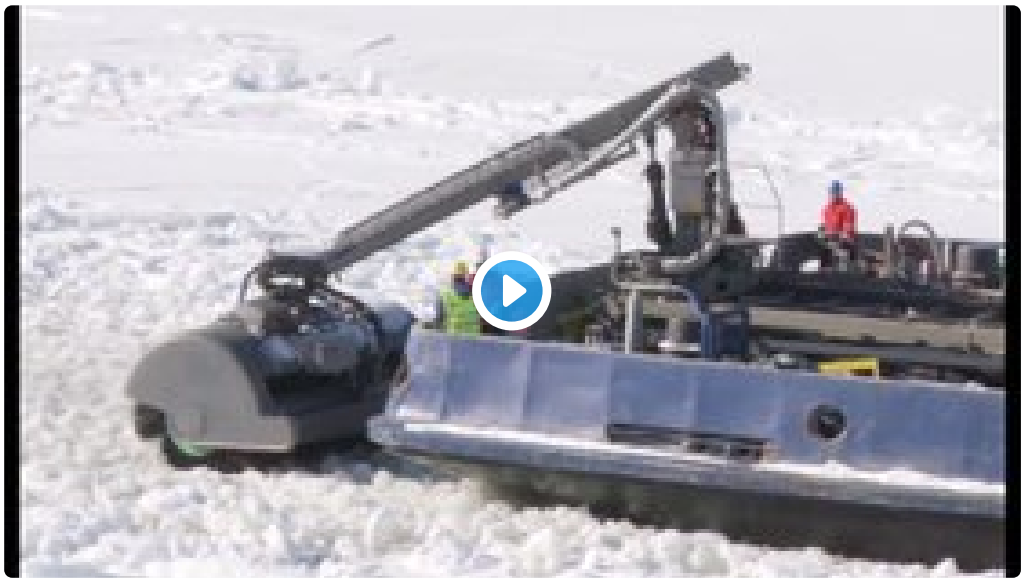
9/10 Biodegradation after oil spill can be slow and depends on oil type and environmental conditions, especially oxygen, temperature and nutrients. It is also affected by the number and type of oil-degrading microorganisms present in the local ecosystem.
#APP4SEA2020



jorma rytkonen
@JormaRytkonen

10/10 This short presentation has given only a short overview to you on some of the best practices or recommendations made for the Arctic oil spill countermeasures.
#APP4SEA2020youtube.com/watch?v=URfCDO...

YouTube @YouTube



♡ 14 9:55 AM - Apr 16, 2020

See jorma rytkonen's other Tweets

APP4SEA_NPA
@APP4SEA_NPA

A big round of 👏 to all of our presenters in session #1! Thank you @PAMESecretariat, @TarjaJavanainen, @KirstenJorgens and @JormaRytkonen for your excellent presentations! And everyone managed to stay within the tweet limits given to them, well done! #APP4SEA2020

♡ 5 9:57 AM - Apr 16, 2020

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APP4SEA_NPA
@APP4SEA_NPA

Time to move to Session 2 - “Blowin’ in the wind?” – OSR in Arctic and icy conditions. Northern weather and climatic conditions pose significant challenges to successful oil spill response operations #APP4SEA2020

♡ 4 9:57 AM - Apr 16, 2020

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APP4SEA_NPA
@APP4SEA_NPA

Captain on the bridge! Control of the #APP4SEA2020 is passed on to Jens Peter Holst-Andersen. He used to command Royal Danish Navy ships, but he is now steering the Emergency Prevention, Preparedness and Response (EPPR) @EPPR_Arctic Working Group of @ArctiCouncil #APP4SEA2020

♡ 9 9:58 AM - Apr 16, 2020

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APP4SEA_NPA
@APP4SEA_NPA

Keynote: Viability of the OSR Methods in the Arctic Marine Environment – Peter Holst-Andersen, Emergency Prevention, Preparedness and Response (EPPR) Working Group of Arctic Council @EPPR_Artic #APP4SEA2020

♡ 1 9:59 AM - Apr 16, 2020

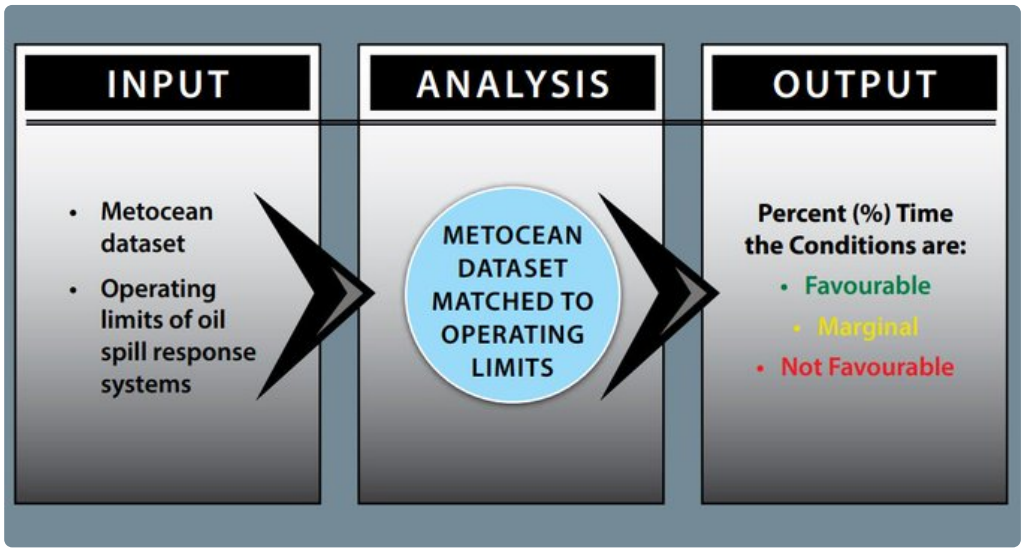
See APP4SEA_NPA's other Tweets

EPPR @EPPR_Arctic · Apr 16, 2020

Hi! Circumpolar Oil Spill Response Viability Analysis COSRVA is EPPR project to better understand the ability of existing oil spill response systems to operate in the Arctic marine environment.1st phase was Technical Report,2nd data update and a GIS online tool. 1/10 #APP4SEA2020

EPPR
@EPPR_Arctic

Metocean conditions can affect different aspects of OSR: spill response equipment, operational platforms and safety of responders&crew. The scope of COSRVA has 3 elements: geographic area, metocean dataset and studied response systems. 2/10 #APP4SEA2020 bit.ly/COSRVA



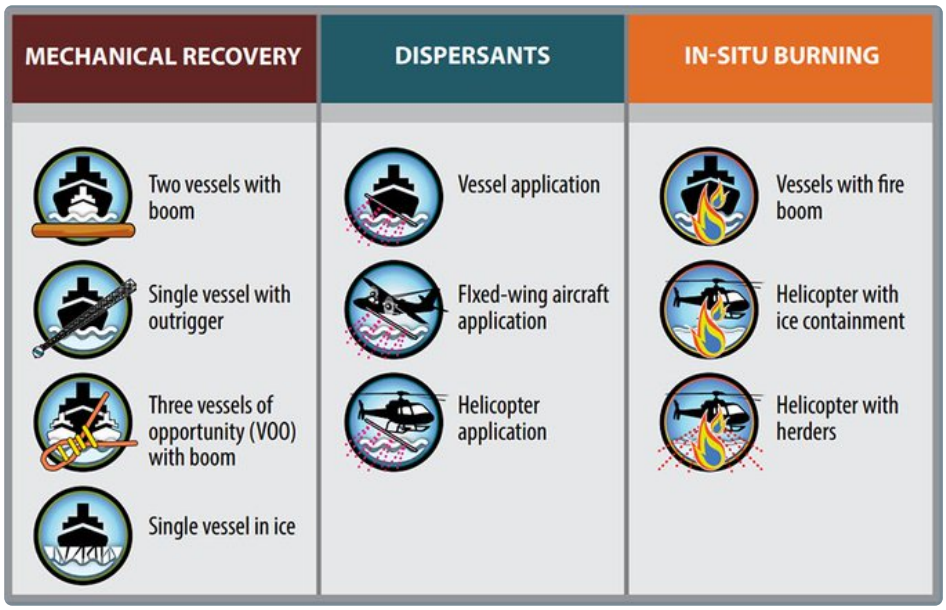
5 10:01 AM - Apr 16, 2020

See EPPR's other Tweets

EPPR @EPPR_Arctic · Apr 16, 2020

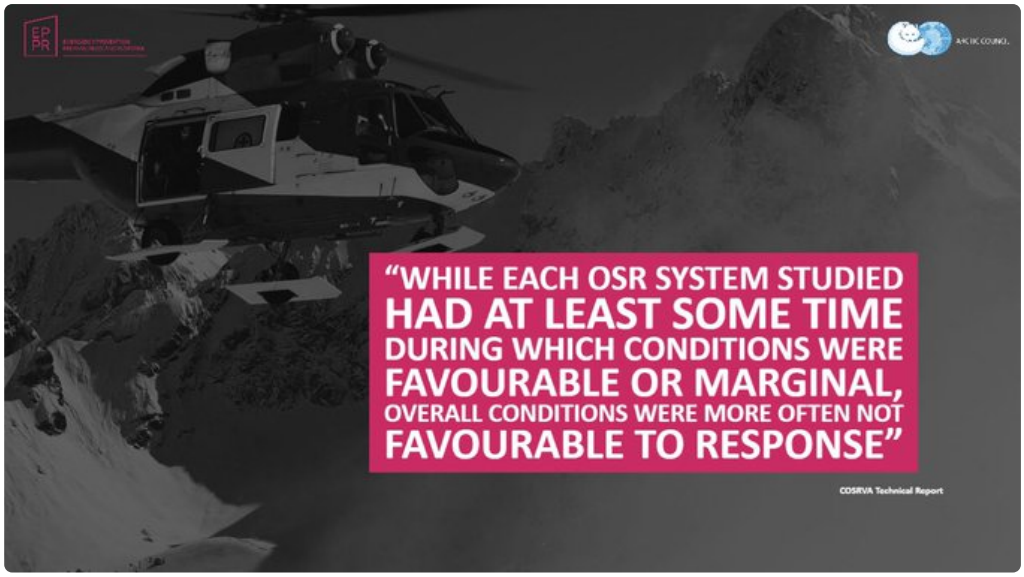
Replying to @EPPR_Arctic

COSRVA considers the combined effects of wind, waves, air temperature, wind chill, sea ice, superstructure icing, horizontal visibility, and daylight&darkness on ten different marine oil spill response systems in mechanical recovery, dispersants&in-situ burning. 3/10 #APP4SEA2020



EPPR
@EPPR_Arctic

Metocean dataset conditions prepared for COSRVA were found to be not favourable for more than 50% of the time for all response systems studied when averaged across study area & whole year. However, the results varied widely by system, season and location. 4/10 #APP4SEA2020



♡ 6 10:06 AM - Apr 16, 2020

See EPPR's other Tweets

EPPR @EPPR_Arctic · Apr 16, 2020

Replying to @EPPR_Arctic

Season: Response viability is better during ice-free months and better in the fall than spring. Generally, in winter the conditions are not favourable to response. Location: viability varies with location and is likely better closer to the shore during summer. 5/10 #APP4SEA2020

EPPR
@EPPR_Arctic

Metocean conditions: waves, sea ice & visibility are the most likely ones to limit the deployment of response systems. Response systems vary in the extent to which the combined metocean parameters may result in favourable, marginal, or not favourable conditions. 6/10 #APP4SEA2020

♡ 6 10:09 AM - Apr 16, 2020

See EPPR's other Tweets

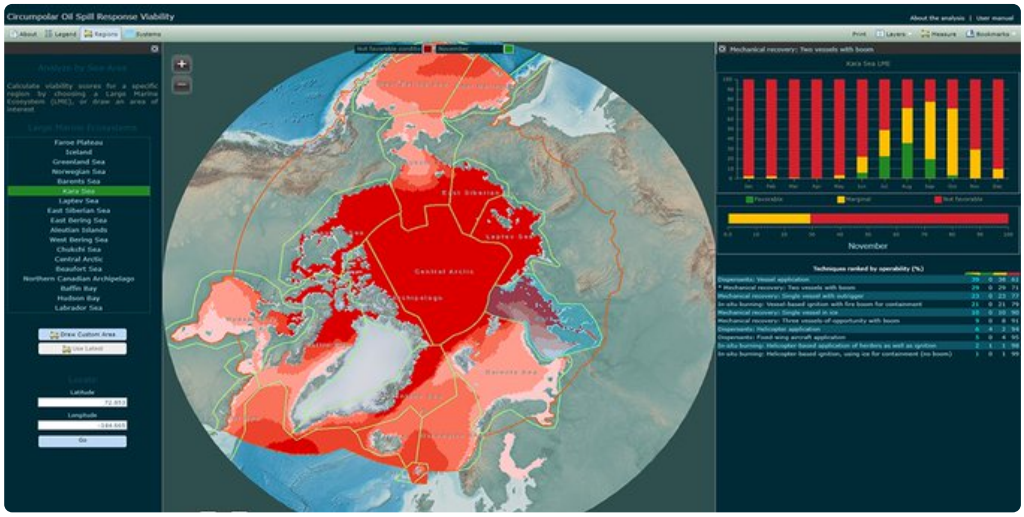
EPPR @EPPR_Arctic · Apr 16, 2020

Replying to @EPPR_Arctic

Strenghtening future analyses and OSRplanning by documenting better the limits for different OSRsystems through larger scale testing or exercises would be beneficial and the best method to quantify response limits. GIS-tool is extending the use of collected data.7/10 #APP4SEA2020

EPPR
@EPPR_Arctic

Phase 2 built on the COSRVA report by developing an easy-to-use web-based mapping tool. Analysis results are implemented in the tool that allows the user to choose eg. area, OSR system and month, and returns automatic comparing of system types & other factors. 8/10 #APP4SEA2020



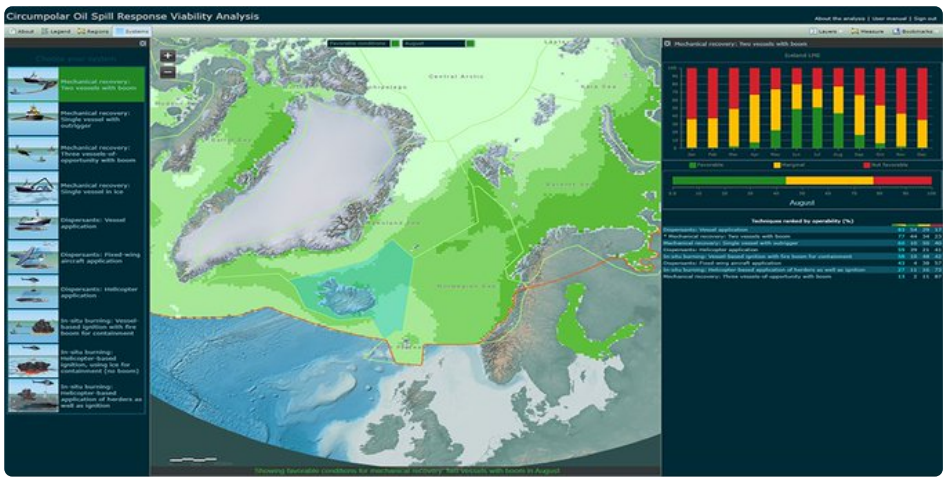
6 10:12 AM - Apr 16, 2020

See EPPR's other Tweets

EPPR @EPPR_Arctic · Apr 16, 2020

Replying to @EPPR_Arctic

EPPR is organizing a webinar together with @Kystverket & @DNVGL on COSRVA mapping tool for OSR planners and experts at the end of April. If you're interested in the tool, please contact EPPR Secretariat for more info. Find the tool: maps.dnvgl.com/cosrva/ 9/10 #APP4SEA2020



EPPR

@EPPR_Arctic

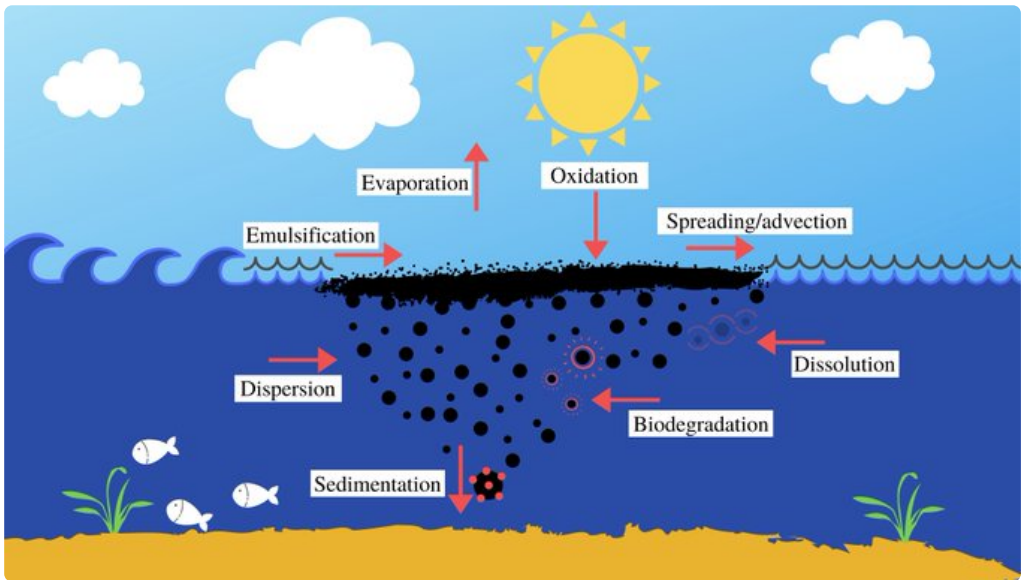
COSRVA applies an uniform approach for holistic understanding of the potential impact of Arctic conditions on response and enables planners&responders to further assess response options for increasing response viability in their locations of interest. Thank you!10/10 #APP4SEA2020

7 10:14 AM - Apr 16, 2020

See EPPR's other Tweets

APP4SEA_NPA
@APP4SEA_NPA

When oil is spilled into sea, some of it evaporates, some submerges, but a lot of it stays on the surface. But where does that end up? Senior scientist Lars R Hole (@gullarz) from @Meteorologisk has worked with oil spill modelling for 10+ years and knows the answer #APP4SEA2020



♡ 7 10:14 AM - Apr 16, 2020

See APP4SEA_NPA's other Tweets

APP4SEA_NPA
@APP4SEA_NPA

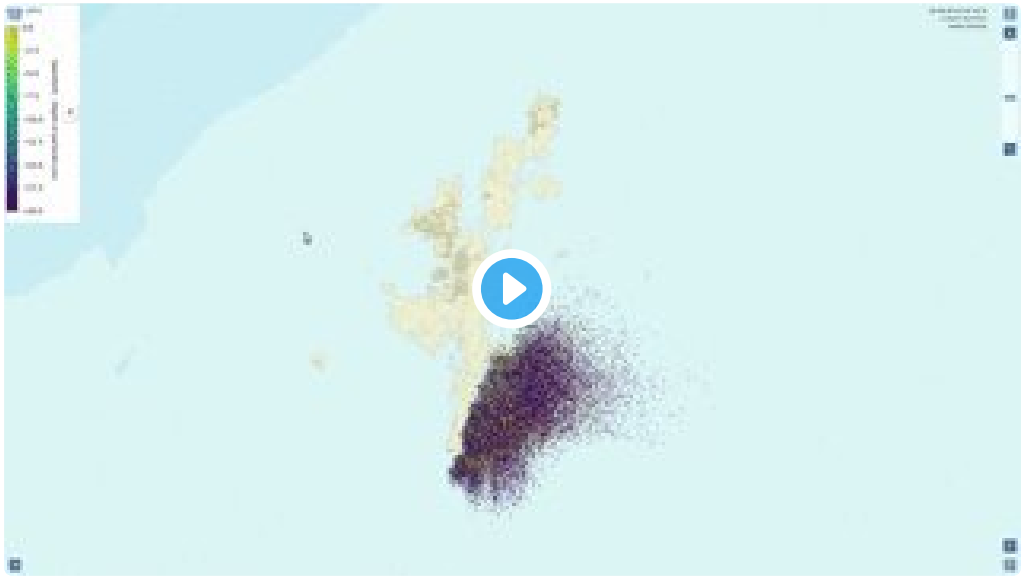
Drift models – oceanographic and weather data & oil spill models – Lars R. Hole, Norwegian Meteorological Institute @gullarz #APP4SEA2020

♡ 6 10:15 AM - Apr 16, 2020

See APP4SEA_NPA's other Tweets

Lars R. Hole
@gullarz

1/8 How scientists predict the trajectory of #oilspills? We can simulate an oil spill with virtual particles driven by weather and ocean forecasts using computers. We also predict the state of the oil hours ahead. Here a simulation of the 1993 #Braer #oilspill. #APP4SEA2020

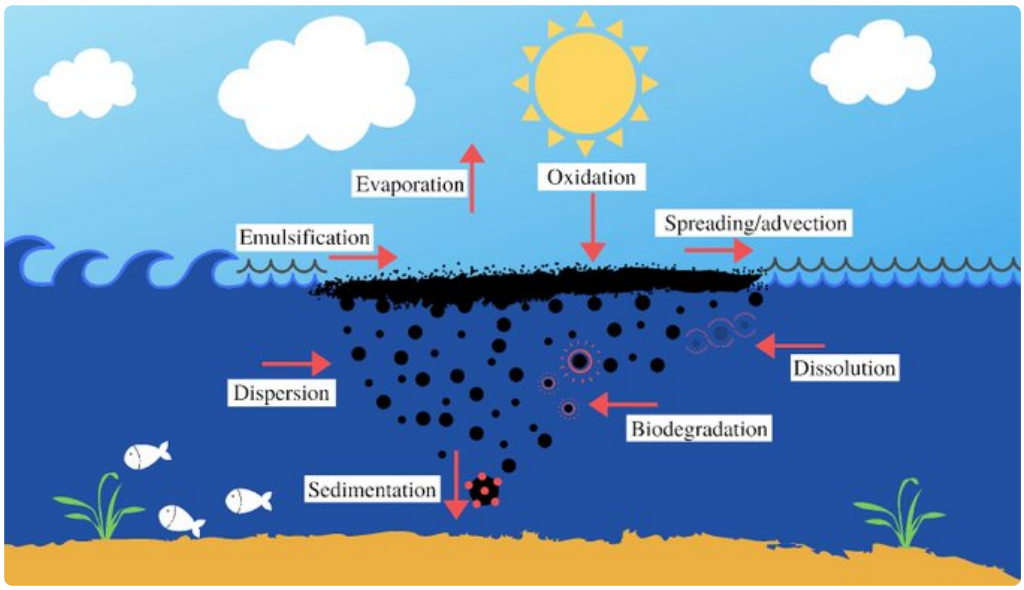


♡ 10 10:15 AM - Apr 16, 2020

See Lars R. Hole's other Tweets

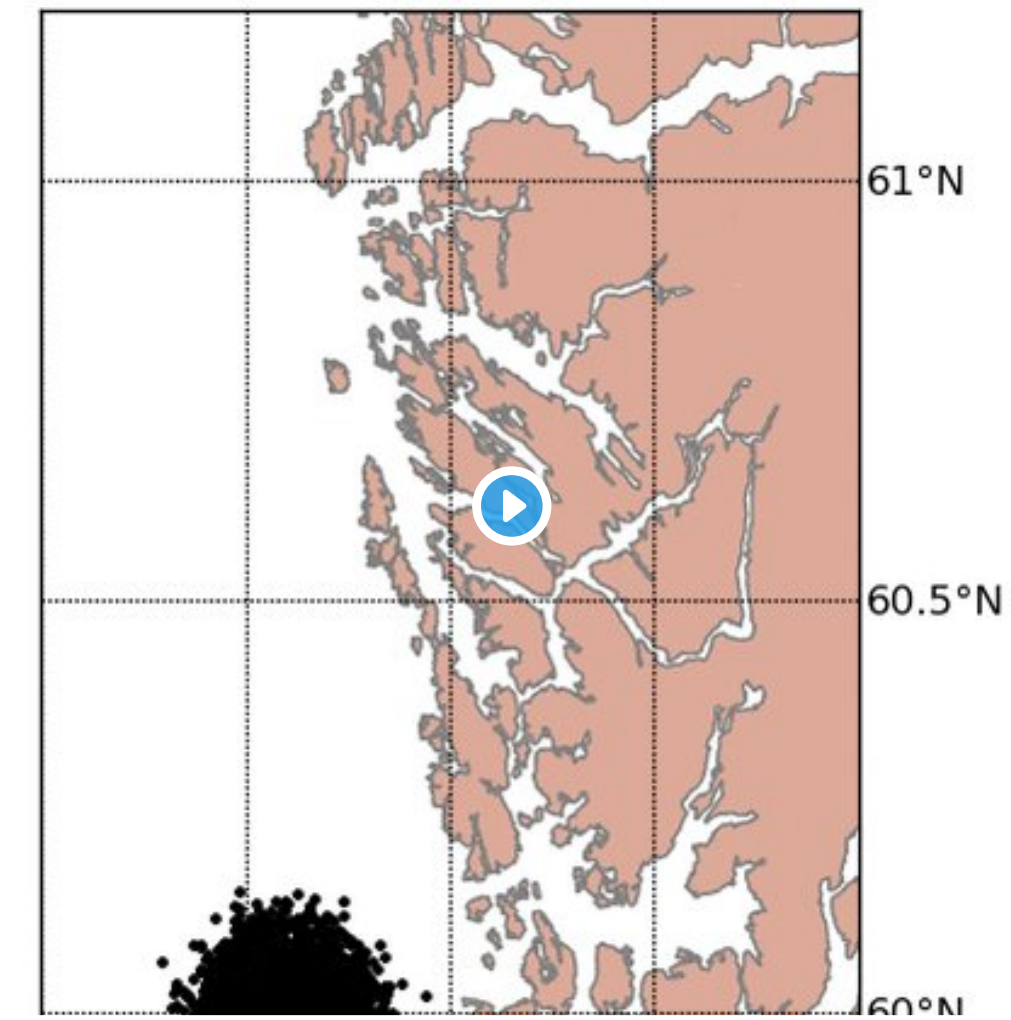
Lars R. Hole
@gullarz

2/8 Oil at sea surface drift with around 3% of the wind speed. So, 10 m/s wind give 30 cm/s oil drift. This can be in a different direction than the surface current. Wave action is important for vertical mixing, dispersion into droplets and horizontal transport. #APP4SEA2020



Lars R. Hole
@gullarz

3/8 We used an open source tool developed by @Meteorologisk, #OpenDrift, to produce the animations presented in APP4SEA. Each particle has position, mass, viscosity etc. that are modified throughout the simulation due to transport and weathering processes. #APP4SEA2020

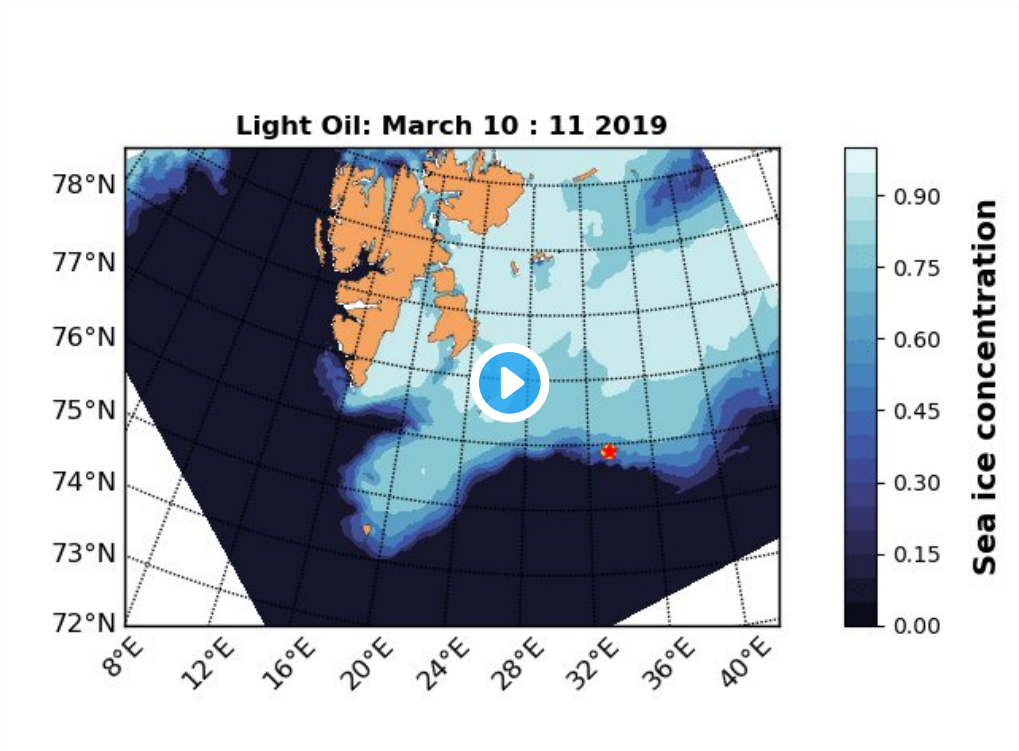


♡ 10 10:17 AM - Apr 16, 2020

See Lars R. Hole's other Tweets

Lars R. Hole
@gullarz

4/8 Oil might be confined within the #seaice as it drifts further away from the spill region. This is an example prepared by master student @vicemagui of @UiB and @UiBMatNat for a hypothetical oil spill in the #Barents Sea, near #Norway #Russia borderline. #APP4SEA2020

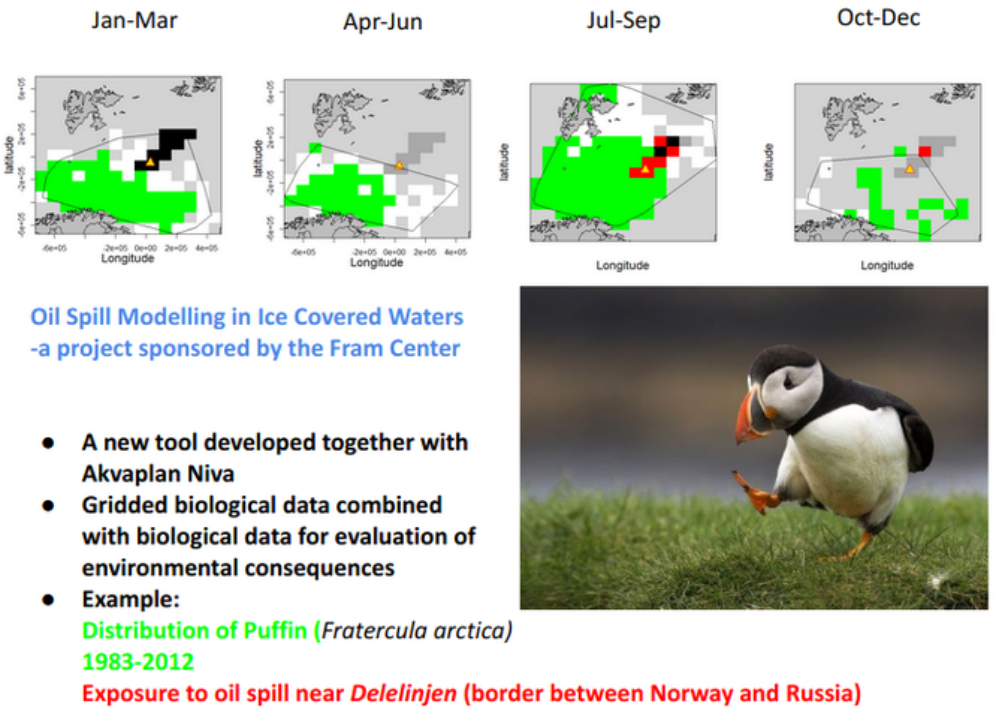


7 10:18 AM - Apr 16, 2020

See Lars R. Hole's other Tweets

Lars R. Hole
@gullarz

5/8 Together with colleagues of @AkvaplanNiva and from @MMBI #Murmansk, we have developed tools for predicting biological consequences of oil spills in the #Arctic, sponsored by the @FramCentre in #Tromso. #MIKON #OSMICO #APP4SEA2020 @Miljodir



9 10:19 AM - Apr 16, 2020

See Lars R. Hole's other Tweets

Lars R. Hole
@gullarz

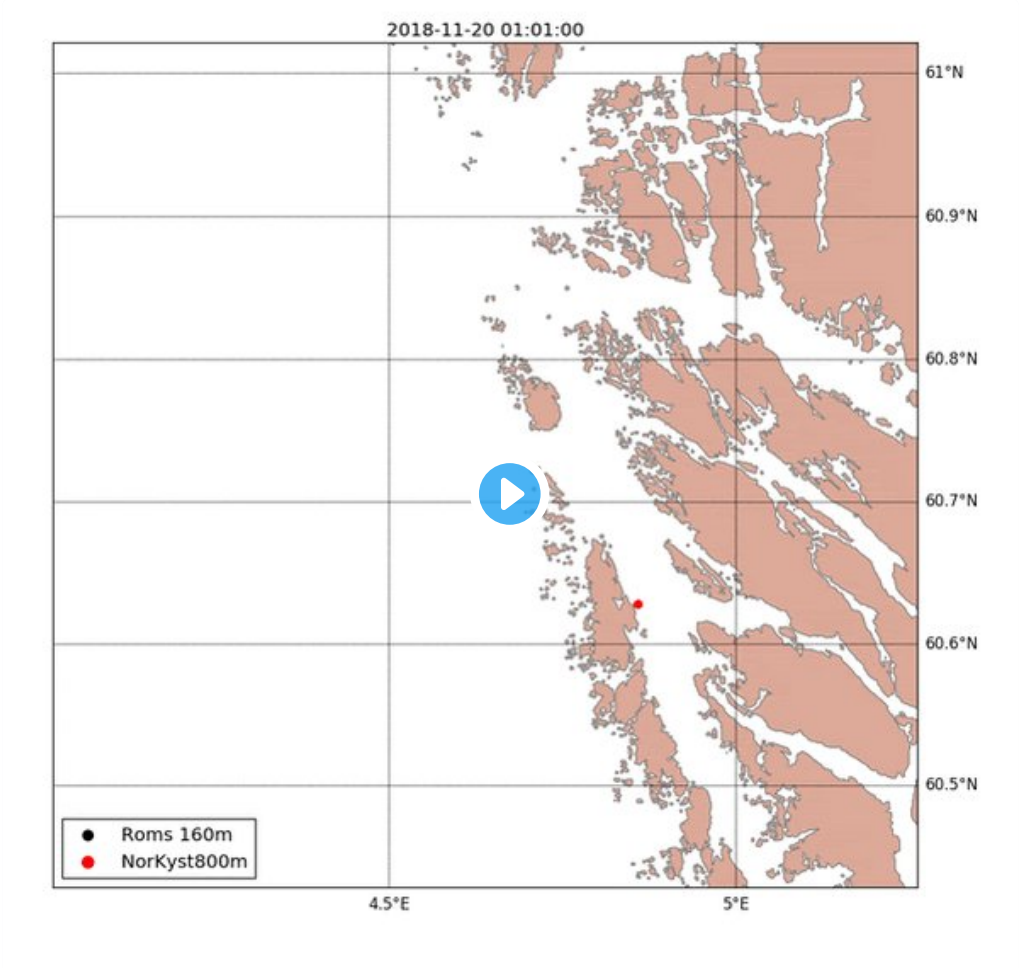
6/8 Within the #seaice, oil is not weathered as in the open environment and might preserve its toxic characteristics. Moreover, due to usually harsh conditions observed in high latitudes, OSR might also be impacted hence slowing down mitigation responses. #APP4SEA2020

5 10:20 AM - Apr 16, 2020

See Lars R. Hole's other Tweets

Lars R. Hole
@gullarz

7/8 #Oil spill simulations depend on the quality of the #metocean forcing data. Here are two #OpenDift simulations of spill from 2018 KNM #HelgeIngstad accident, forced by high resolution #ROMS ocean models run at @Meteorologisk and @Havforskningen. #APP4SEA2020 @Kystverket

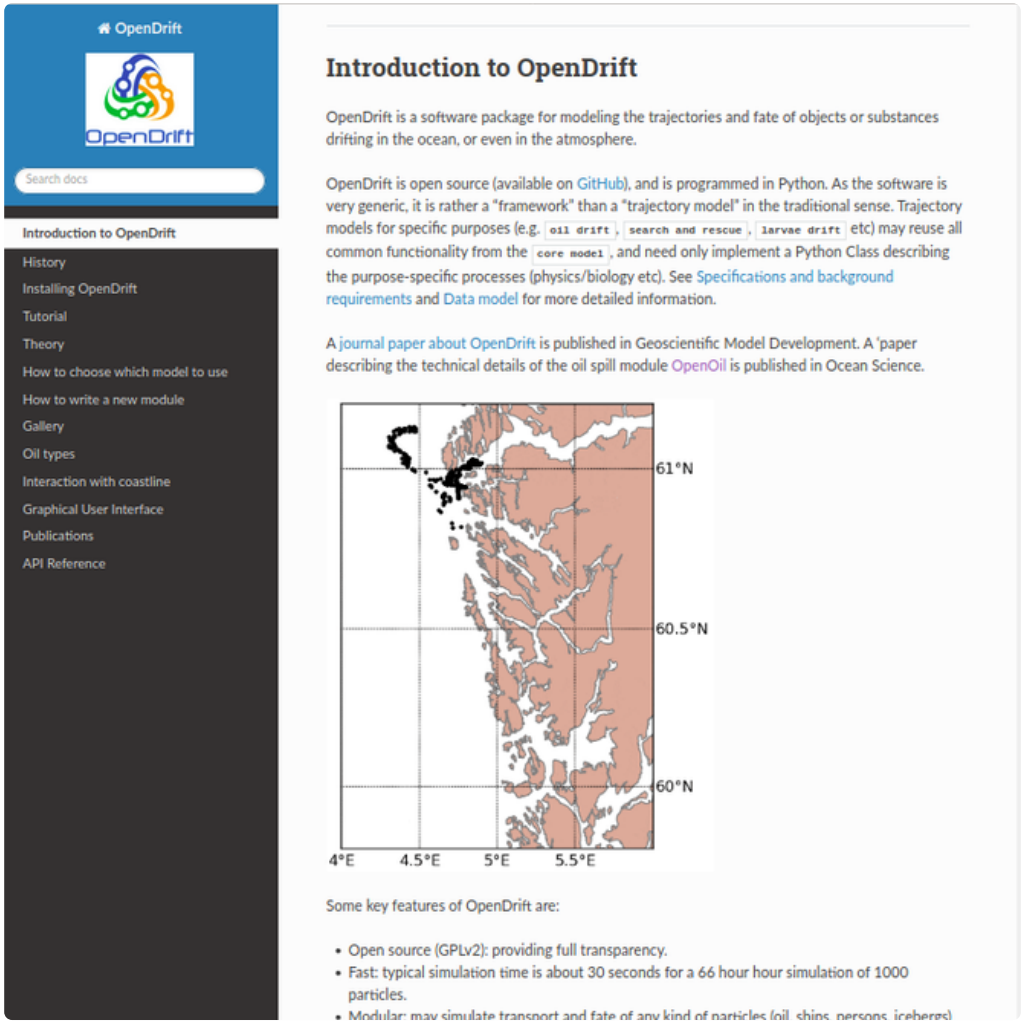


♡ 10 10:20 AM - Apr 16, 2020

See Lars R. Hole's other Tweets

Lars R. Hole
@gullarz

8/8 You can download #OpenDrift and carry out your own simulations here: opendrift.github.io . #APP4SEA2020



♡ 12 10:21 AM - Apr 16, 2020

See Lars R. Hole's other Tweets

APP4SEA_NPA
@APP4SEA_NPA

Then we pass 📣 to Trond Hjort-Larsen @thlkyv from Norwegian Coastal Authority NCA @Kystverket. Trond has been working for NCA since 2005 and has been involved in real oil spill response actions in icy conditions. Let's hear what happened in #Svalbard in December 2018 #APP4SEA2020

♡ 3 10:28 AM - Apr 16, 2020

See APP4SEA_NPA's other Tweets

APP4SEA_NPA
@APP4SEA_NPA

Case Northguider – OSR in practice in the high north – Trond Hjort-Larsen, Norwegian Coastal Authority @thlkyv #APP4SEA2020

3 10:28 AM - Apr 16, 2020

See APP4SEA_NPA's other Tweets

Trond Hjort-Larsen @thlkyv · Apr 16, 2020

1/10 FV Northguider (NG) ran aground in Hinlopen strait while trawling for shrimps on December 28, 2018. Almost as remote as you can get it. 200 nm away from Longyearbyen (LYR). Hardly any communication possibilities in the area. #APP4SEA2020

Trond Hjort-Larsen
@thlkyv

2/10 Engine room soon over flooded. All engines stop, electricity and lights goes out. Everything is dark. 20 below zero, hard NW gale. Crew (14 pax) miraculously saved by helicopter from the Governor of Svalbard. Ship abandoned on 80 degrees north. #APP4SEA2020

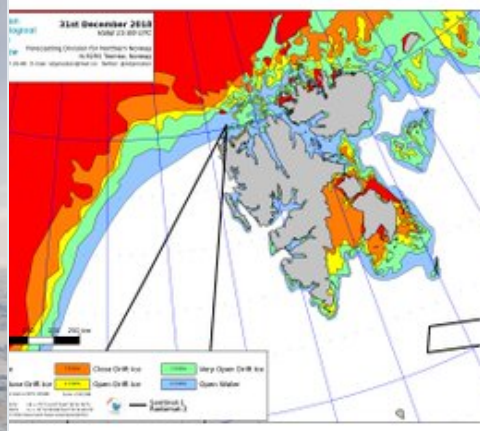
8 10:30 AM - Apr 16, 2020

See Trond Hjort-Larsen's other Tweets

Trond Hjort-Larsen @thlkyv · Apr 16, 2020

Replying to @thlkyv

3/10 The ice edge is close and moving closer. Historically reaching its maximum in March. Time is critical! @Kystverket (NCA) calls for aid from @Kystvakten and their icebreaker CGV Svalbard. But this ship has only a limited amount of oil spill resources aboard. #APP4SEA2020



Trond Hjort-Larsen
@thlkyv

4/10 Can NG be saved? If not, what can we do? Is it safe to enter the ship? Are there any leakage of oil? We rally up in LYR, and set course for Hinlopen. @Kystvakten together with NCA, Ardent, the Governor and the ship owner arrives 3/1-2019 at 0300 hrs. #APP4SEA2020

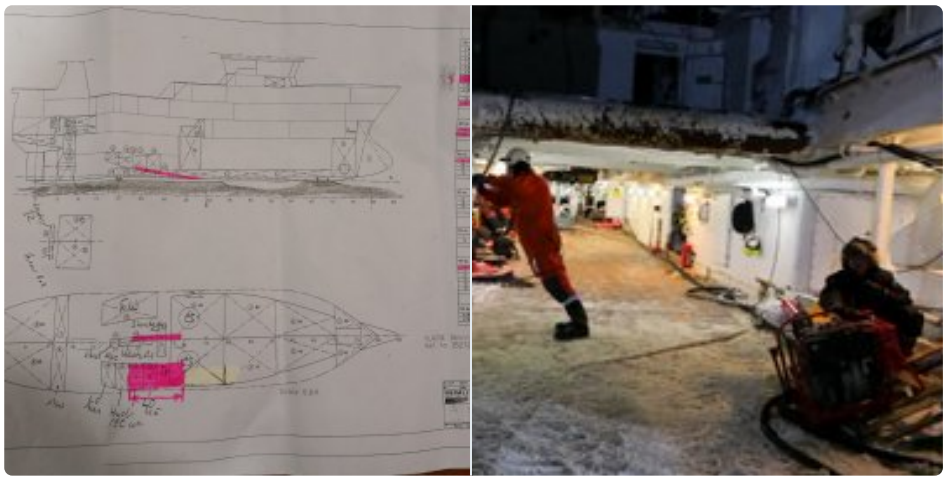
6 10:32 AM - Apr 16, 2020

See Trond Hjort-Larsen's other Tweets

Trond Hjort-Larsen @thlkyv · Apr 16, 2020

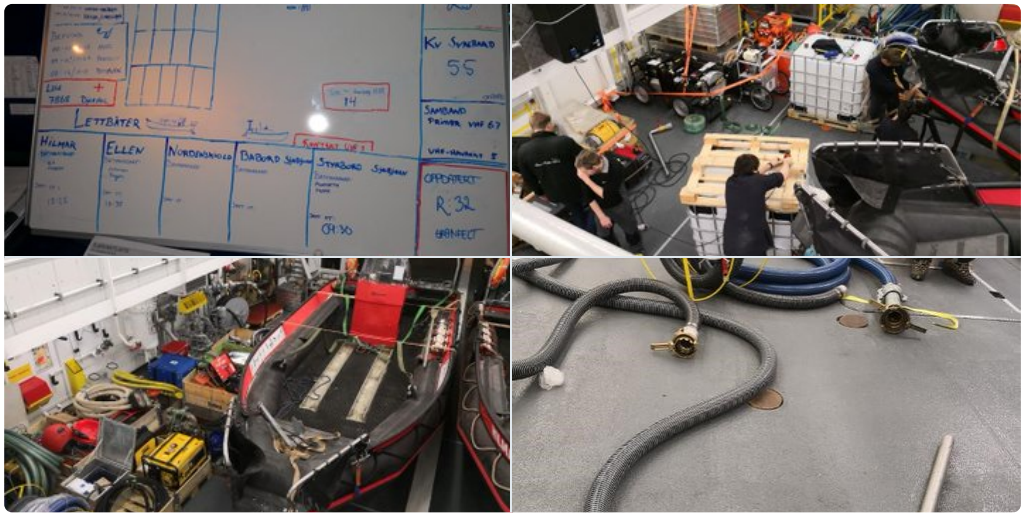
Replying to @thlkyv

5/10 NG too damaged to be towed, her tanks need to be offloaded. Ship owner's responsibility. But now? Here? Ice-breaking capacities crucial. Time is running. CG Svalbard does not have OR-tanks. Decides to use regular fuel tanks. Planning and improvisation starts!
#APP4SEA2020



Trond Hjort-Larsen
@thlkyv

6/10 Water too shallow to get close to NG. Drifting ice in sea and ice-edge closing in. Dark 24/7. Polar bears. Strong currents. Weather unpredictable. Cold (-12 to -18). A simple plan that gives possibility to call of the ops within 30 min. Everyone contributes!
#APP4SEA2020



7 10:34 AM - Apr 16, 2020

See Trond Hjort-Larsen's other Tweets

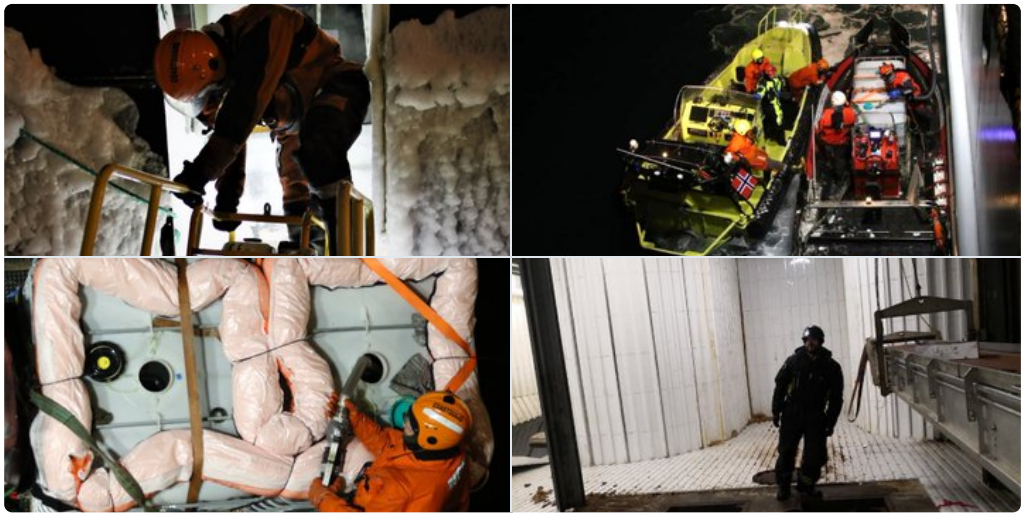
Trond Hjort-Larsen @thlkyv · Apr 16, 2020

Replying to @thlkyv

7/10 3x Polarcirkelboats. Plenty of IBC's. Lightweight pumps, power packs (PP), lights, generators, heating device aboard NG. Pumps and PP aboard CG Svalbard. 4 hrs. rotation for people in small boats. Winterized PPE. Parallel ops to empty the ship of all movables. #APP4SEA2020

Trond Hjort-Larsen
@thlkyv

8/10 Back on site 8/1. Wind 40 kn. Have to wait. Starting next morning. Bringing all equipment aboard. Emptying the forepeak and side tanks, good progress. A heavy storm comes in. Gusts 70 kn. Waiting 24 hrs. Starts up again. Continuing to empty tanks successively. #APP4SEA2020



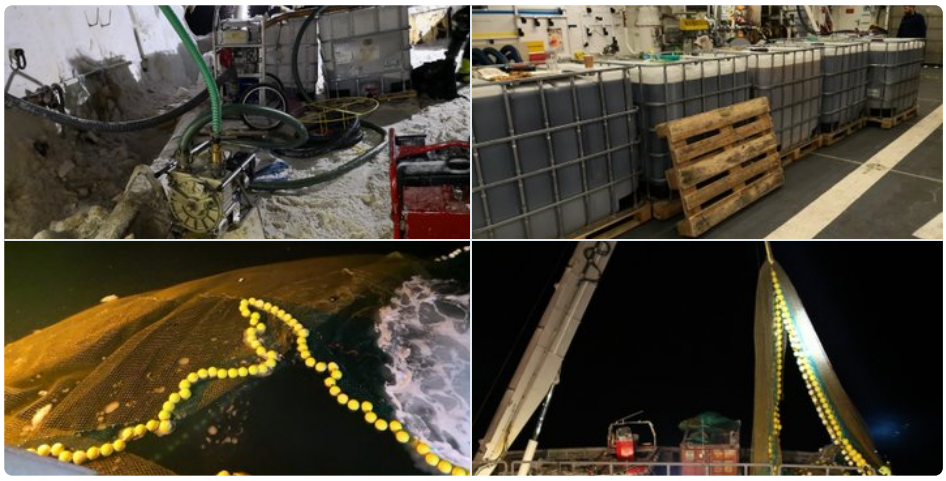
♡ 7 10:36 AM - Apr 16, 2020

See Trond Hjort-Larsen's other Tweets

Trond Hjort-Larsen @thlkyv · Apr 16, 2020

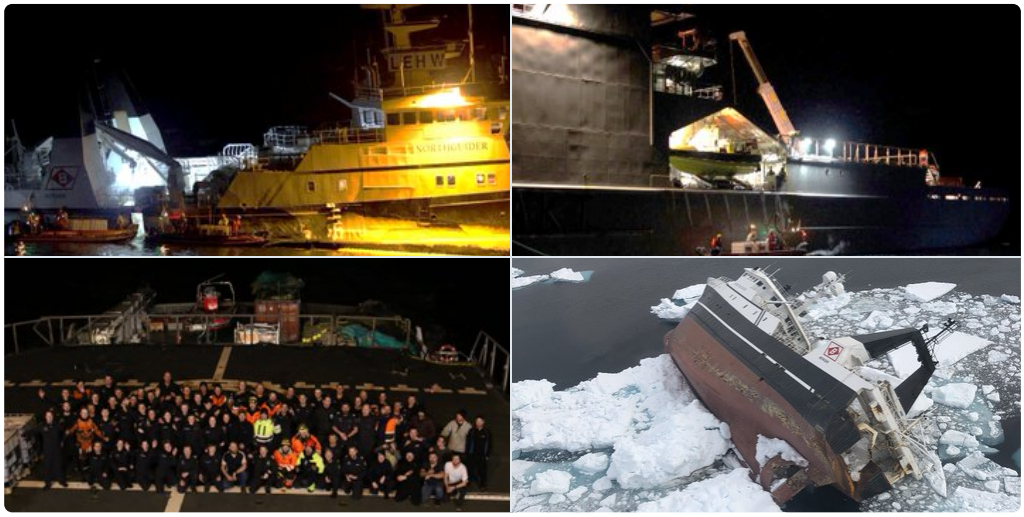
Replying to @thlkyv

9/10 Lube and hydraulic tanks emptied with peristaltic pump trough vents. Diesel freezes in filters, adds jet fuel. Cargo hoses too stiff, preheated by diesel heater. bit.ly/NGpandg
Offloads 332 m3 MGO and 17 m3 other oil in 51 hours + movables + trawl #APP4SEA2020



Trond Hjort-Larsen
@thlkyv

10/10 Ms Fortuna was with us regarding to weather, ice, temperature. No H&S incidents. Outstanding contribution from everyone involved (55 + 23 external = 78), esp. the CG Svalbard with its crew. NG still lies in Hinlopen. Hopefully removed in the autumn this year. #APP4SEA2020



♡ 11 10:38 AM - Apr 16, 2020

See Trond Hjort-Larsen's other Tweets

APP4SEA_NPA
@APP4SEA_NPA

A change of scenery may be appropriate after those icy images from Svalbard. But you don't have to head that high in the North to find #SeaIce – let's head to the #BalticSea #APP4SEA2020

1 10:43 AM - Apr 16, 2020

See APP4SEA_NPA's other Tweets

APP4SEA_NPA
@APP4SEA_NPA

Ice service monitors #SeaIce in the #Baltic using satellite images and ground base observations. Ice info is delivered to icebreaking management. On daily basis in winter Niko Tollman is making ice charts. Tweets will include videos and audio (not required) #APP4SEA2020

3 10:44 AM - Apr 16, 2020

See APP4SEA_NPA's other Tweets

APP4SEA_NPA
@APP4SEA_NPA

Ice coverage and winter navigation in the Baltic Sea - challenges for maritime operations – Niko Tollman, Finnish Meteorological Institute, Ice Service @fi_iceservice in cooperation with @fmi_marine and @meteorologit #APP4SEA2020

♡ 4 10:44 AM - Apr 16, 2020

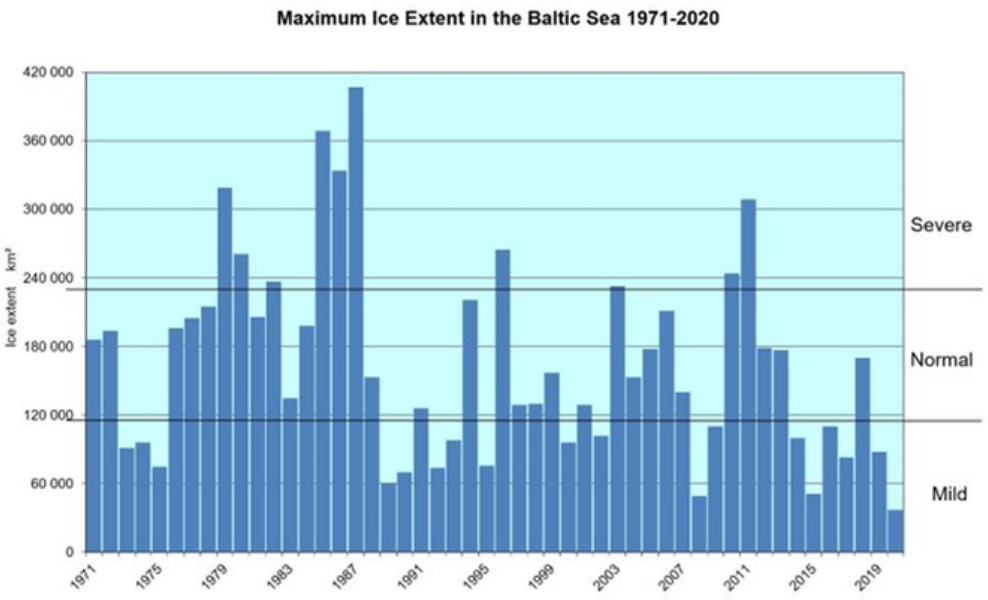
See APP4SEA_NPA's other Tweets

Jäämiehet @fi_iceservice · Apr 16, 2020

1/8 Hello all! FMI's #safetyweather center with weather and marine forecasters has 24/7 capability to make oil spill forecasts and provide weather and sea information for oil spill response operations. In winter #seaice is present more or less.#SeaTrackWeb #APP4SEA2020

Jäämiehet
@fi_iceservice

2/8 Ice extent in Baltic Sea 1971-2020. Inter annual variation is large, but in overall severe winters has become more rare. Last 30 years are milder than any other 30 years periods since 1720. #APP4SEA2020



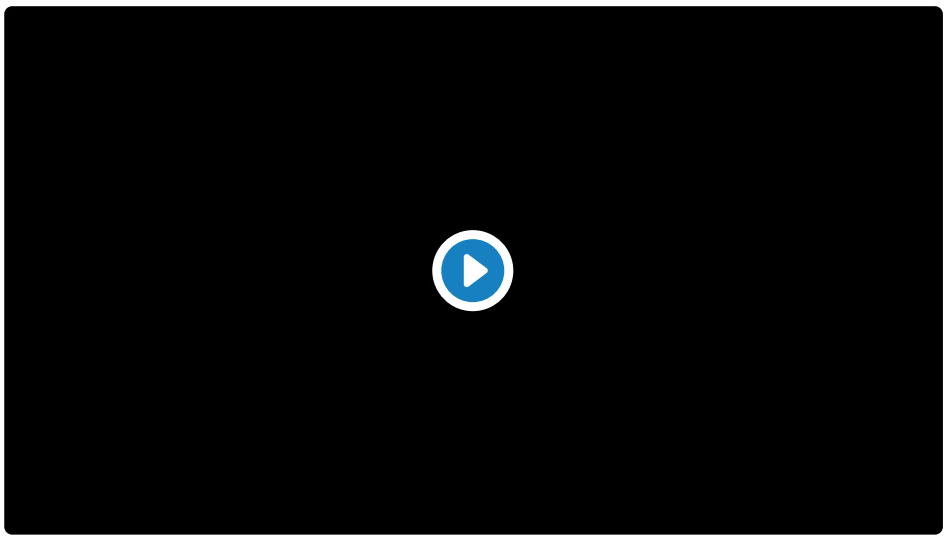
♡ 9 10:47 AM - Apr 16, 2020

See Jäämiehet's other Tweets

Jäämiehet @fi_iceservice · Apr 16, 2020

Replying to @fi_iceservice

3/8 The ice season in the Baltic begins in November and #icebreaking is needed from December. Ice extent maximum is in February and the ice melts during May. Please watch the animation. #APP4SEA2020



Jäämiehet
@fi_iceservice

4/8 In the future, winters with less ice (like 2017) will become more common. This wouldn't necessarily make #icebreakers less needed. In a ridged, compressive ice pack and through brash ice barriers, all vessels need assistance.#Winter2017 #9ports9icebreakers #APP4SEA2020

7 10:49 AM - Apr 16, 2020

See Jäämiehet's other Tweets

Jäämiehet @fi_iceservice · Apr 16, 2020

Replying to @fi_iceservice

5/8 Lesson from the #Baltic applied to the #Arctic:
Thinner and less compact ice makes it more sensitive to weather and oceanic forcing,
leading to faster drift and heavier deformation.#APP4SEA2020

Jäämiehet
@fi_iceservice

6/8 By the end of this century there will be ice only in the northernmost part of Baltic Sea if #CO2 concentration in atmosphere reaches 900 ppm. 900 is same like travelling back to the Cretaceous period. #climatescenario #RCP85 #APP4SEA2020

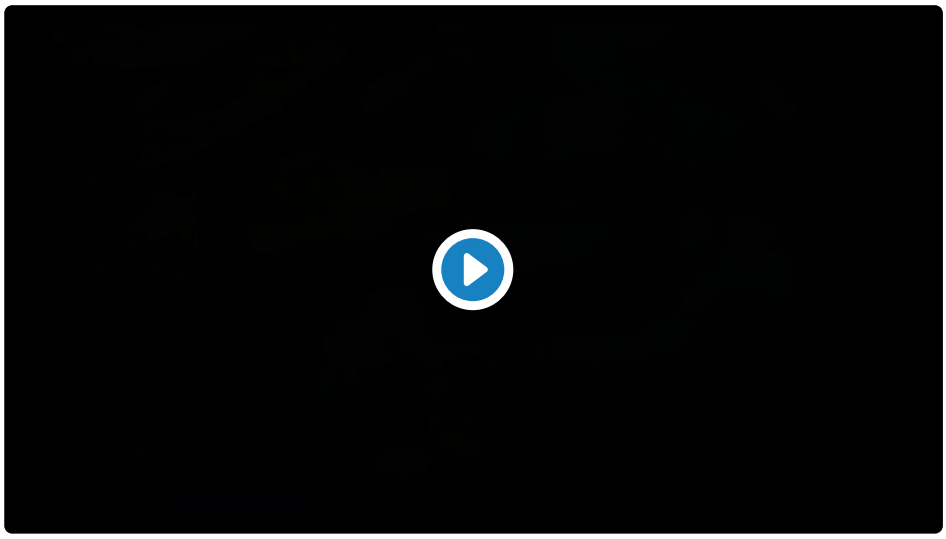
♡ 7 10:51 AM - Apr 16, 2020

See Jäämiehet's other Tweets

Jäämiehet @fi_iceservice · Apr 16, 2020

Replying to @fi_iceservice

7/8 Please watch the video Cold Facts About Ice.
In cooperation with @fmi_marine and @meteorologit#APP4SEA2020



Jäämiehet
@fi_iceservice

8/8 This is end of FMI's presentation. Great to see all of you here! Thank you for your attention and be safe out there!

Finnish Ice Service
Finnish Meteorological Institute
In cooperation with @fmi_marine and
@meteorologit#APP4SEA2020

♡ 12 10:55 AM - Apr 16, 2020

See Jäämiehet's other Tweets

APP4SEA_NPA
@APP4SEA_NPA

Now we take a 30 min break and continue our programme at 14.30 (UTC+3). I hope that you have enjoyed what you have seen, 👏 to @EPPR_Artic @gullarz @thlkyv @fi_iceservice! Grab a bite or a drink, but don't go too far, we have interesting presentations coming up soon #APP4SEA2020

♡ 7 10:59 AM - Apr 16, 2020

See APP4SEA_NPA's other Tweets

APP4SEA_NPA
@APP4SEA_NPA

Welcome back from the break, we will now continue with session #3 If the risks materialise – ecological impacts of potential oil spills in the Arctic. #APP4SEA2020

♡ 2 11:28 AM - Apr 16, 2020

See APP4SEA_NPA's other Tweets

APP4SEA_NPA
@APP4SEA_NPA

Keynote is delivered by @DusikJan, #Sustainability Lead from @WWF_Arctic & Mark Brooks @EarthgaugeCA, Specialist on Arctic oil & gas from @WWFCanada. Sustainability must be prioritized over exploitation in the Arctic because the implications are global. #APP4SEA2020

♡ 5 11:28 AM - Apr 16, 2020

See APP4SEA_NPA's other Tweets

APP4SEA_NPA
@APP4SEA_NPA

Keynote: Oil spills in the Arctic – what's at stake – Jan Dusik & Mark Brooks, WWF Arctic & WWF Canada @WWF_Arctic #APP4SEA2020

♡ 3 11:29 AM - Apr 16, 2020

See APP4SEA_NPA's other Tweets

WWF Arctic Programme @WWF_Arctic · Apr 16, 2020

1/10 We are very pleased to be giving the keynote for @APP4SEA_NPA TW conference on the Challenges of #Arctic oil spill response #APP4SEA2020 👏

Oil spills from blowouts, pipeline leaks or ship 🚢 accidents pose a tremendous risk to Arctic ecosystems.
arcticwwf.org/newsroom/news/...

Protecting the Arctic ecosystem as new ocean, blue economy...
Sustainability is the key to getting it right from the beginning.
arcticwwf.org

WWF Arctic Programme
@WWF_Arctic

2/10 Offshore oil & gas development 🛢 in the #Arctic presents many risks and is incompatible with the #ParisAgreement; even 1.5C global 🌡 means massive impacts in the Arctic.

There's an urgent need to transition towards 100% #renewables. #APP4SEA2020 arcticwwf.org/newsroom/the-c...

Making the move to green energy in Nunavut
A co-op aims to change energy use in a northern community.
arcticwwf.org

♡ 6 11:31 AM - Apr 16, 2020

See WWF Arctic Programme's other Tweets

WWF Arctic Programme @WWF_Arctic · Apr 16, 2020

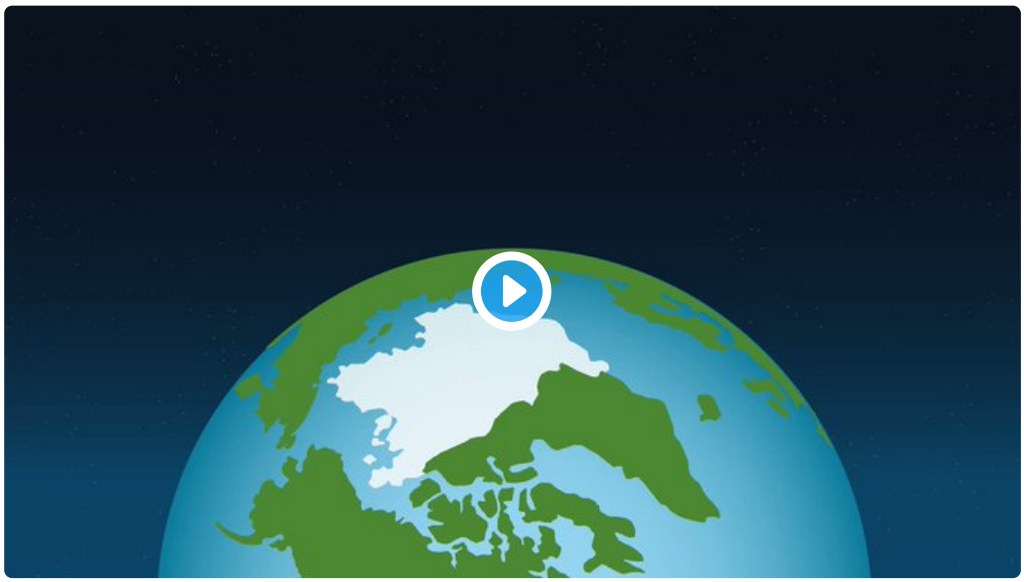
Replying to @WWF_Arctic

3/10 The #Arctic is a special place with unique ecological and cultural values, and we put them at risk by expanding industrialization 🏭 We need a #NewDealForNature.

But governments continue to permit new oil & gas development in this fragile #ecosystem. #APP4SEA2020

WWF Arctic Programme
@WWF_Arctic

4/10Drilling for oil in the #Arctic is dangerous. We don't have ability to clean up major spills in this sensitive ecosystem. Arctic spills can contaminate local environments for decades and wipe out populations of some species, impacting communities & #foodsecurity #APP4SEA2020



♡ 13 11:33 AM - Apr 16, 2020

See WWF Arctic Programme's other Tweets

WWF Arctic Programme @WWF_Arctic · Apr 16, 2020

Replying to @WWF_Arctic

5/10 #Arctic #whales 🐋 face many threats, including oil spills that can impact their food sources and ability to feed. Noise 🔊 from industrial development makes it hard for them to locate food, communicate with each other and avoid danger. #APP4SEA2020 arcticwwf.org/newsroom/the-c...

Drowning in noise

The Arctic is undergoing dramatic and radical changes, most obviously in the loss of sea ice and the associated rise in

arcticwwf.org

WWF Arctic Programme
@WWF_Arctic

6/10 Drilling for oil 🛢 in the #Arctic adds additional stress and threatens critical habitats, like denning areas for #PolarBears. Pregnant female polar #bears dig dens in the snow to rest and give birth to cubs, usually in December. #APP4SEA2020

♡ 7 11:35 AM - Apr 16, 2020

See WWF Arctic Programme's other Tweets

WWF Arctic Programme @WWF_Arctic · Apr 16, 2020

Replying to @WWF_Arctic

7/10 For example, Canada's #Arctic coastline is immense, yet the Canadian Coast Guard has no vessels permanently in the region, insufficient icebreaker capability and limited equipment. Sea ice 🧊 and extreme weather severely restrict the effectiveness of response. #APP4SEA2020

WWF Arctic Programme
@WWF_Arctic

8/10 Canada's coastal #Arctic communities are tiny with few, poorly trained first responders. Resolute Bay in #Nunavut, where @WWFCanada works, is typical: response equipment is insufficient, not maintained, access is uncertain, and communications are unreliable. #APP4SEA2020

♡ 7 11:38 AM - Apr 16, 2020

See WWF Arctic Programme's other Tweets

WWF Arctic Programme @WWF_Arctic · Apr 16, 2020

Replying to @WWF_Arctic

9/10Public polling in 2019 revealed that 65% of Canadians 🇨🇦 living in the North support the ban on oil&gas activities in Canada's #Arctic #oceans, citing concerns for oil spills 🛢 and #ClimateChange as the primary reasons #APP4SEA2020 bit.ly/34DPvcv @EarthgaugeCA

WWF Arctic Programme
@WWF_Arctic

10/10"We stand at crossroads b/t old & new economy: oil&gas market volatility, banks moving away from #fossilfuels and tipping points for #nature & #climate - all signal a need to move away from drilling in the #Arctic"@DusikJan #Sustainability Lead WWF Arctic Prgm #APP4SEA2020

♡ 12 11:43 AM - Apr 16, 2020

See WWF Arctic Programme's other Tweets ›

APP4SEA_NPA
@APP4SEA_NPA

Let’s travel back from #Canada to this side of the Atlantic and meet our most southernmost participant. Sea Alarm Foundation hails from Belgium, but the tweets travel via @APP4SEA_NPA #APP4SEA2020

2 11:43 AM - Apr 16, 2020

See APP4SEA_NPA's other Tweets

APP4SEA_NPA
@APP4SEA_NPA

Sea Alarm and Arctic Oiled Wildlife response: Strategies and Challenges – Hugo Nijkamp, Sea Alarm Foundation #APP4SEA2020

1 11:44 AM - Apr 16, 2020

See APP4SEA_NPA's other Tweets

APP4SEA_NPA @APP4SEA_NPA · Apr 16, 2020

1/10 Sea Alarm is an independent and impartial NGO with the goal of improving preparedness, response capabilities and cooperation with NGOs, governments, industry. sea-alarm.org #APP4SEA2020

APP4SEA_NPA
@APP4SEA_NPA

2/10 SAF coordinates and supports international emergency expertise networks including. EUROWA (European) and GOWRS (Global), working on global standards of good practice and with 24/7 response capabilities. #APP4SEA2020

♡ 2 11:46 AM - Apr 16, 2020

See APP4SEA_NPA's other Tweets

APP4SEA_NPA @APP4SEA_NPA · Apr 16, 2020

Replying to @APP4SEA_NPA

3/10 Since 1999, SAF has successfully integrated wildlife response into the policy of European Regional Agreements including @HELCOMInfo, #REMPEC, @BonnAgreement. Also participated as an observer with @IOPC Fund. #APP4SEA2020

APP4SEA_NPA
@APP4SEA_NPA

4/10 SAF works in partnership with Oil Spill Response Ltd (@oilspillexperts) providing 24/7 advice to oil companies and supporting them with country profiles, plans, trainings, exercises, guidelines, etc. to be better prepared in case of an oiled wildlife incident. #APP4SEA2020

Oil Spill Response

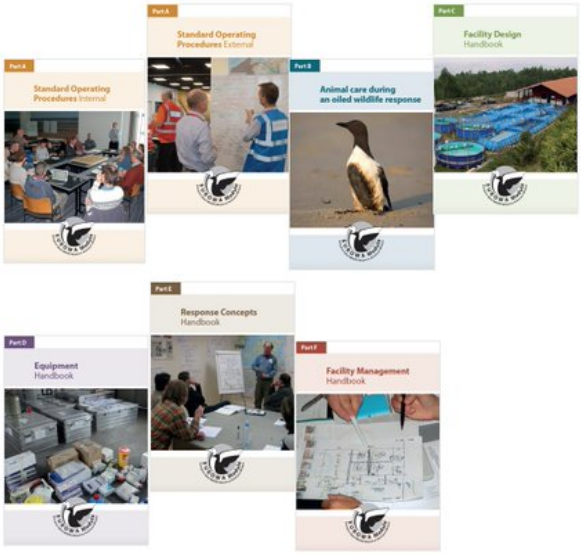
♡ 2 11:48 AM - Apr 16, 2020

See APP4SEA_NPA's other Tweets

APP4SEA_NPA @APP4SEA_NPA · Apr 16, 2020

Replying to @APP4SEA_NPA and 4 others

5/10 SAF initiated and coordinated the development of good practices for oiled wildlife response which have been published by @IPIECA (bit.ly/3dKR24P) and also supported in Europe the publication of a series of Handbooks used by the EUROWA Network. #APP4SEA2020



APP4SEA_NPA
@APP4SEA_NPA

6/10 SAF have been involved in several projects in the Arctic region with different stakeholders (preparedness, training, seminars) & published the paper 'Arctic oiled wildlife response: exploring potential & limitations'at the IOSC Conference bit.ly/2X2amEI #APP4SEA2020

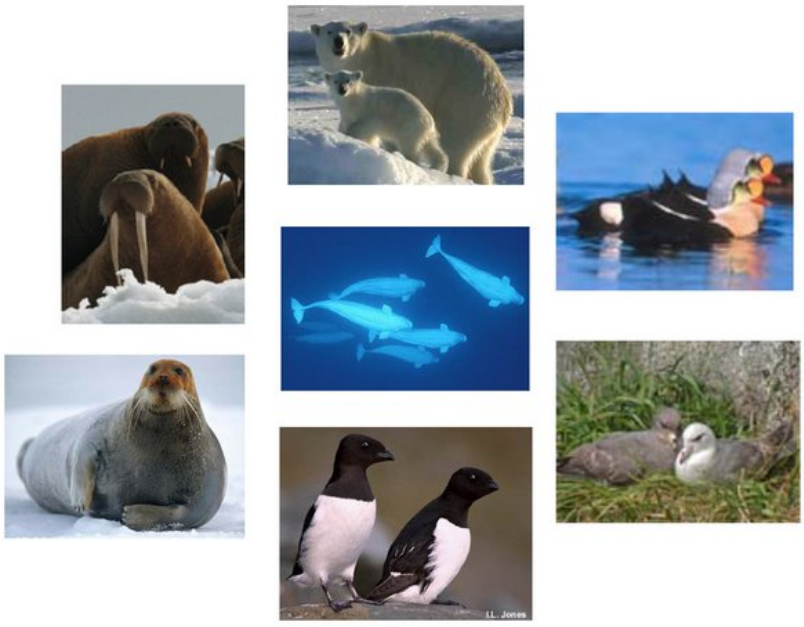
1 11:51 AM - Apr 16, 2020

See APP4SEA_NPA's other Tweets

APP4SEA_NPA @APP4SEA_NPA · Apr 16, 2020

Replying to @APP4SEA_NPA and 5 others

7/10 The Arctic is characterized by unique ecosystems and biodiversity, with large proportion of migratory species and very sensitive to oil pollution. Additionally it is a remote and extreme area for setting up a wildlife response. #APP4SEA2020



APP4SEA_NPA
@APP4SEA_NPA

8/10 Main limitations for oiled wildlife response are extreme cold for affected wildlife, extreme climatological and environmental conditions for responders, remoteness, short days, ice and snow conditions, dangerous predators and fast changing weather conditions. #APP4SEA2020

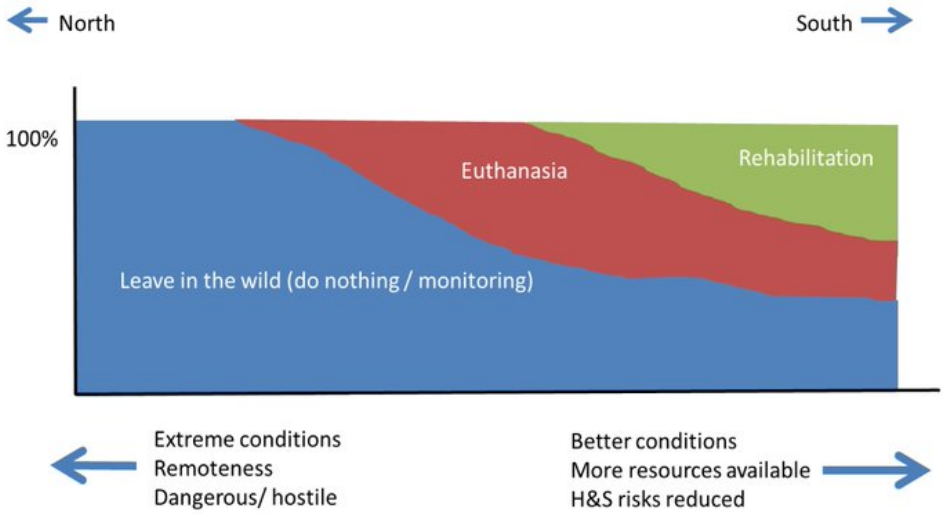
4 11:52 AM - Apr 16, 2020

See APP4SEA_NPA's other Tweets

APP4SEA_NPA @APP4SEA_NPA · Apr 16, 2020

Replying to @APP4SEA_NPA and 5 others

9/10 Wildlife response options 1)Prevent the effects of oil on wildlife: contain and recover, removing animals, hazing, prevent secondary pollution; 2)Mitigation: dealing with casualties through rehabilitation or euthanasia; 3)Active monitoring. #APP4SEA2020



APP4SEA_NPA
@APP4SEA_NPA

10/10 Investing in preparedness and integrated planning, specialised and trained strike teams, risk assessments for species and specialised arctic equipment stockpiles will reduce the impacts on Arctic wildlife during an oil spill incident. #APP4SEA2020

♡ 7 11:54 AM - Apr 16, 2020

See APP4SEA_NPA's other Tweets

APP4SEA_NPA
@APP4SEA_NPA

And we continue with seabirds. How do we know where seabirds are most susceptible to oil spills? Alex Bond (@TheLabAndField) from @ERI_UHI and @NHM_London walks us through “Methods for assessing seabirds’ vulnerability to oil at sea” #APP4SEA2020

♡ 7 11:58 AM - Apr 16, 2020

See APP4SEA_NPA's other Tweets

APP4SEA_NPA
@APP4SEA_NPA

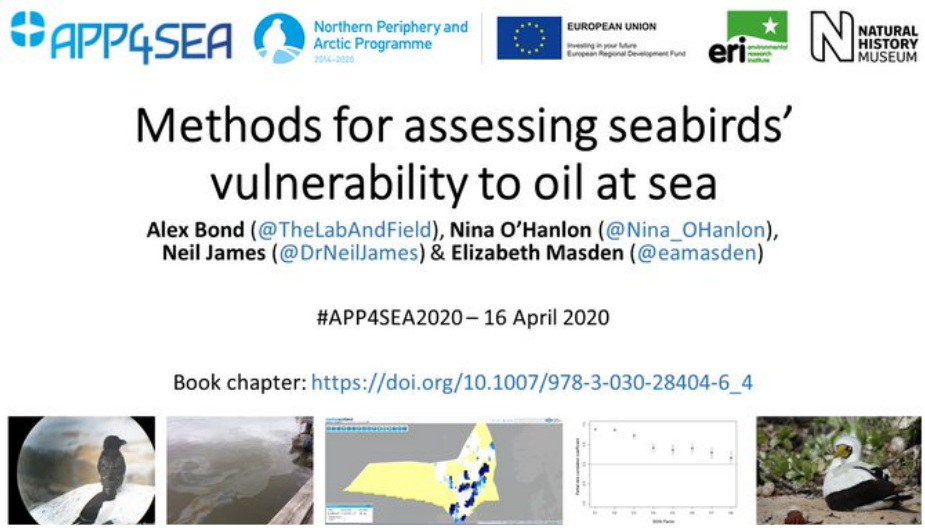
Methods for assessing seabirds’ vulnerability to oil at sea – Alex Bond, Natural History Museum & Environmental Research Institute, University of Highlands and Islands @TheLabAndField #APP4SEA2020

♡ 4 11:59 AM - Apr 16, 2020

See APP4SEA_NPA's other Tweets

Dr Alex Bond @TheLabAndField · Apr 16, 2020

Hi folks, it's time for my contribution to #APP4SEA2020, "Methods for assessing seabirds' vulnerability to oil at sea", a collaborative project between @NHM_London and @ERI_UHI funded by @APP4SEA_NPA 1/10 twitter.com/APP4SEA_NPA/st...



APP4SEA_NPA @APP4SEA_NPA

And we continue with seabirds. How do we know where seabirds are most susceptible to oil spills? Alex Bond (@TheLabAndField) from @ERI_UHI and @NHM_London walks us through "Methods for assessing seabirds' vulnerability to oil at sea" #APP4SEA2020

Dr Alex Bond
@TheLabAndField

Oil can coat seabirds' plumage which destroys its waterproof coating and insulation value, can causing death from hypothermia

and ingesting the oil itself when they try to clean. #APP4SEA2020 2/10

♡ 5 12:01 PM - Apr 16, 2020

See Dr Alex Bond 🏳️‍🌈🇨🇦's other Tweets

Dr Alex Bond @TheLabAndField · Apr 16, 2020

Replying to @TheLabAndField

It's tough to monitor the effects of oil spills on seabirds because most spills happen offshore, or in areas with little monitoring. Small chronic spills are often undetected, while large catastrophic spills receive attention #APP4SEA2020 3/10 (photo: OregonEA; CC-BY-NC)

Dr Alex Bond
@TheLabAndField

So how do we know which species or areas are most at-risk from spills? We can use ecological/behavioural traits and species' distributions to create a spatial risk map #APP4SEA2020 4/10

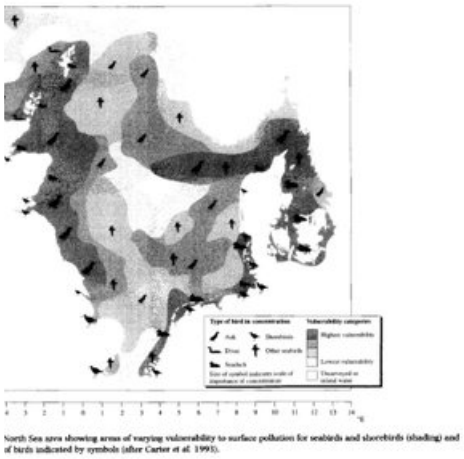
7 12:04 PM - Apr 16, 2020

See Dr Alex Bond's other Tweets

Dr Alex Bond @TheLabAndField · Apr 16, 2020

Replying to @TheLabAndField

The 1st to do this was Williams et al (1994) in @IBIS_journal (onlinelibrary.wiley.com/doi/abs/10.111...) who looked at 37 species in the North Sea, assigned a Oil Vulnerability Index (OVI) based on traits and weighted this with at-sea distribution data #APP4SEA2020 5/10



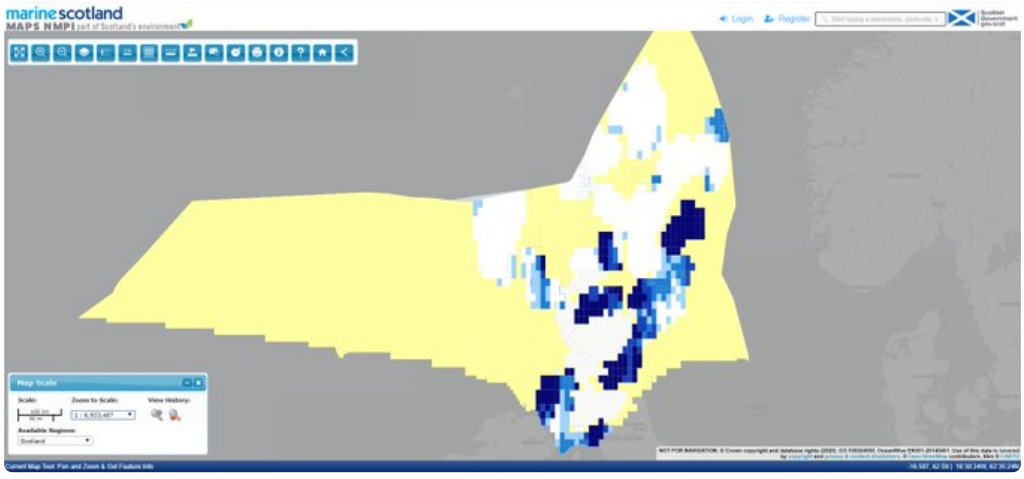
North Sea area showing areas of varying vulnerability to surface pollution for seabirds and shorebirds (shading) and of birds indicated by symbols (after Carter et al. 1993).

Table 5. *Oil vulnerability index (OVI) scores for seabird species regularly occurring in the North Sea*

Species	Factor a	b	c	d	OVI
Red-throated Diver *Gavia stellata*	5	5	4	5	
Black-throated Diver *Gavia arctica*	5	5	4	5	
Great Northern Diver *Gavia immer*	5	5	4	5	
Black Guillemot *Cepphus grylle*	5	5	4	5	
Red-necked Grebe *Podiceps grisegena*	4.5	5	2	5	
Great Skua *Catharacta skua*	3	5	4	5	
Shag *Phalacrocorax aristotelis*	4	4	3	5	
Arctic Skua *Stercorarius parasiticus*	2.5	5	4	5	
Little Gull *Larus minutus*	3	5	3	5	
Razorbill *Alca torda*	5	2	5	5	
Great Crested Grebe *Podiceps cristatus*	4	5	2	1	
Manx Shearwater *Puffinus puffinus*	3.5	3	5	5	
Gannet *Morus bassanus*	3	3	5	5	
Guillemot *Uria aalge*	5	1	5	5	
Little Auk *Alle alle*	5	1	5	5	
Velvet Scoter *Melanitta fusca*	4.5	3	1	5	
Red-breasted Merganser *Mergus serrator*	3.5	4	1	5	
Great Black-backed Gull *Larus marinus*	2.5	4	4	4	
Puffin *Fratercula arctica*	4.5	1	5	5	
Cormorant *Phalacrocorax carbo*	2.5	4	3	4	
Scaup *Aythya marila*	3	4	1	5	
Sandwich Tern *Sterna sandvicensis*	1.5	4	4	5	
Common Tern *Sterna hirundo*	1.5	4	4	5	
Sooty Shearwater *Puffinus griseus*	3.5	1	5	5	
Common Scoter *Melanitta nigra*	4.5	2	1	5	
Lesser Black-backed Gull *Larus fuscus*	3	3	4	3	
Little Tern *Sterna albifrons*	1	4	4	5	
Fulmar *Fulmarus glacialis*	1	1	5	5	
Storm Petrel *Hydrobates pelagicus*	1	3	5	5	
Long-tailed Duck *Clangula hyemalis*	4.5	1	1	5	
Kittiwake *Rissa tridactyla*	3	1	4	5	
Eider *Somateria mollissima*	4	1	1	5	
Goldeneye *Bucephala clangula*	1	3	1	3	
Arctic Tern *Sterna paradisaea*	1.5	2	4	5	
Herring Gull *Larus argentatus*	2	2	4	3	
Common Gull *Larus canus*	2	2	3	2	
Black-headed Gull *Larus ridibundus*	2	1	3	2	

Dr Alex Bond
@TheLabAndField

Recently, @JNCC_Ukseabirds improved on this to include netter seabirds-at-sea data (hub.jncc.gov.uk/assets/e97d9ba...) & improving the metric to include adjacent areas #APP4SEA2020 6/10



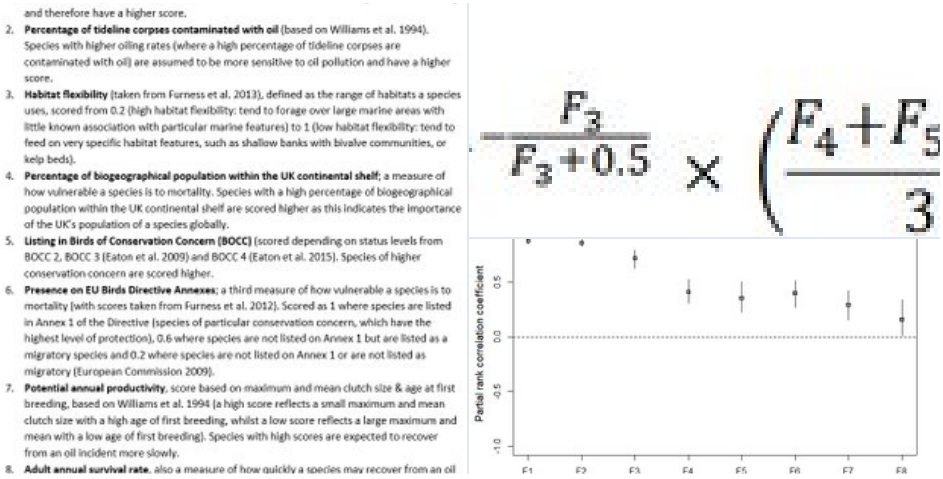
♡ 3 12:07 PM - Apr 16, 2020

See Dr Alex Bond's other Tweets

Dr Alex Bond @TheLabAndField · Apr 16, 2020

Replying to @TheLabAndField

Not all inputs are available for many species globally, so we (@Nina_OHanlon et al) wanted to see how the overall SOSI score varied based on inputs. Behavioural factors were the most influential (paper: doi.org/10.1007/978-3-...) #APP4SEA2020 7/10



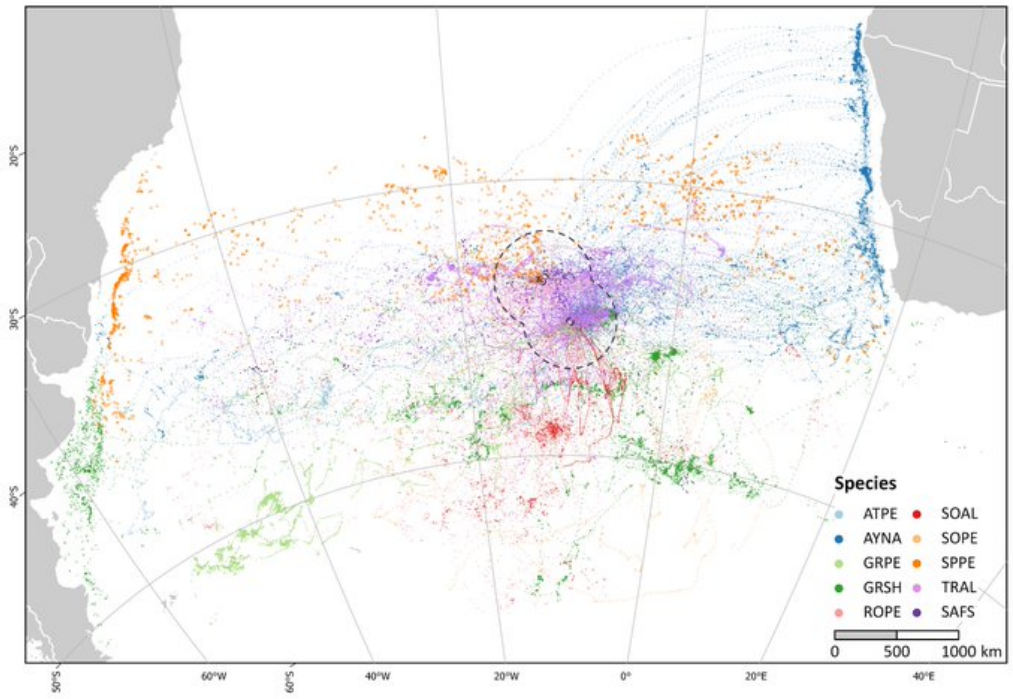
and therefore have a higher score.

2. **Percentage of tideline corpses contaminated with oil** (based on Williams et al. 1994). Species with higher oiling rates (where a high percentage of tideline corpses are contaminated with oil) are assumed to be more sensitive to oil pollution and have a higher score.
3. **Habitat flexibility** (taken from Furness et al. 2013), defined as the range of habitats a species uses, scored from 0.2 (high habitat flexibility: tend to forage over large marine areas with little known association with particular marine features) to 1 (low habitat flexibility: tend to feed on very specific habitat features, such as shallow banks with bivalve communities, or kelp beds).
4. **Percentage of biogeographical population within the UK continental shelf**; a measure of how vulnerable a species is to mortality. Species with a high percentage of biogeographical population within the UK continental shelf are scored higher as this indicates the importance of the UK's population of a species globally.
5. **Listing in Birds of Conservation Concern (BOCC)** (scored depending on status levels from BOCC 2, BOCC 3 (Eaton et al. 2009) and BOCC 4 (Eaton et al. 2015). Species of higher conservation concern are scored higher.
6. **Presence on EU Birds Directive Annexes**; a third measure of how vulnerable a species is to mortality (with scores taken from Furness et al. 2012). Scored as 1 where species are listed in Annex 1 of the Directive (species of particular conservation concern, which have the highest level of protection), 0.6 where species are not listed on Annex 1 but are listed as a migratory species and 0.2 where species are not listed on Annex 1 or are not listed as migratory (European Commission 2009).
7. **Potential annual productivity**, score based on maximum and mean clutch size & age at first breeding, based on Williams et al. 1994 (a high score reflects a small maximum and mean clutch size with a high age of first breeding, whilst a low score reflects a large maximum and mean with a low age of first breeding). Species with high scores are expected to recover from an oil incident more slowly.
8. **Adult annual survival rate**, also a measure of how quickly a species may recover from an oil

$$\frac{F_3}{F_3+0.5} \times \left(\frac{F_4+F_5}{3}\right.$$

Dr Alex Bond
@TheLabAndField

Some of these can be removed/substituted (tideline corpses, local conservation status) which would make the index more broadly applicable, especially when paired with the huge amounts of seabird tracking data now available #APP4SEA2020 8/10 (tracks from: lpublications.onlinelibrary.wiley.com/doi/abs/10.111...)



♡ 3 12:10 PM - Apr 16, 2020

See Dr Alex Bond's other Tweets

Dr Alex Bond @TheLabAndField · Apr 16, 2020

Replying to @TheLabAndField

Extending this approach globally would need more work, as seabirds' distribution at-sea is still poorly known, particularly in remote areas like the South Pacific where this Masked Booby breeds (Henderson Island, Pitcairn Island Group) #APP4SEA2020 9/10

Dr Alex Bond
@TheLabAndField

To sum up, ecological & behavioural traits can be helpful in determining species' vulnerability to oil spills, but spatial data on seabirds' distribution is still a big gap. Thanks for following; happy to answer any Qs! #APP4SEA2020 10/10

9 12:13 PM - Apr 16, 2020

See Dr Alex Bond's other Tweets

APP4SEA_NPA
@APP4SEA_NPA

Once we know which seabirds are most vulnerable to oil, we need to identity where the greatest risk to oil pollution is. @ERI_UHI's @Nina_OHanlon explains more about 'Assessing seabird hotspots and risk to oil pollution' #APP4SEA2020

2 12:14 PM - Apr 16, 2020

See APP4SEA_NPA's other Tweets

APP4SEA_NPA
@APP4SEA_NPA

Assessing seabird hotspots and risk to oil pollution – Nina O'Hanlon, Environmental Research Institute, University of Highlands and Islands @Nina_OHanlon #APP4SEA2020

2 12:14 PM - Apr 16, 2020

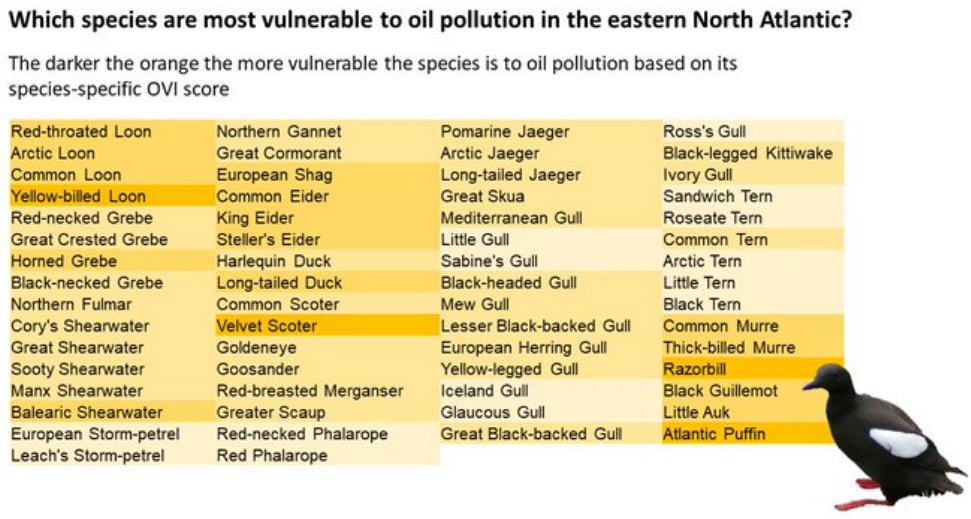
See APP4SEA_NPA's other Tweets

Nina O'Hanlon 🐧🏔️🦉🦢 @Nina_OHanlon · Apr 16, 2020

Following on from @TheLabAndField's presentation, I'm going to explore how we can assess seabird hotspots & risk to oil pollution using information from seabird Oil Vulnerability Index (OVI) assessments
1/10 #APP4SEA2020

Nina O'Hanlon 🐧🏔️🦉🦢
@Nina_OHanlon

Once we know which seabird species are most at risk to oil we can identify where these species are most vulnerable to oil pollution using data on seabird at-sea distributions & densities (under the caveats mentioned by @TheLabAndField|)
2/10 #APP4SEA2020



♡ 10 12:17 PM - Apr 16, 2020

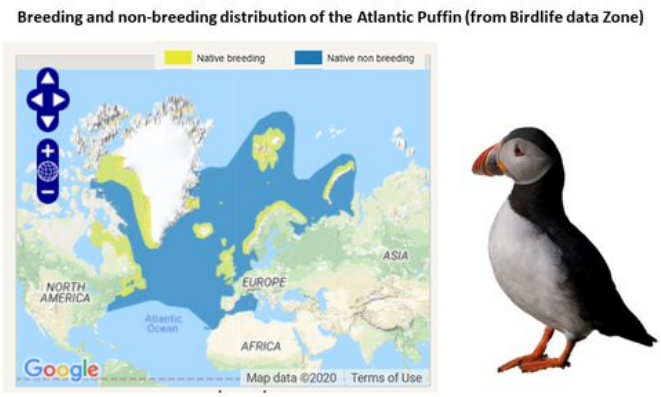
See Nina O'Hanlon 🐧🏔️🦉🦢's other Tweets

Nina O'Hanlon 🐧🌊🦉🦢 @Nina_OHanlon · Apr 16, 2020

Replying to @Nina_OHanlon

This is why we need good seabird at-sea data - to confidently identify the locations of seabird hotspots, at different times of the year - as seabird at-sea distributions & densities can be very different i.e. between the breeding & non-breeding season

3/10 #APP4SEA2020

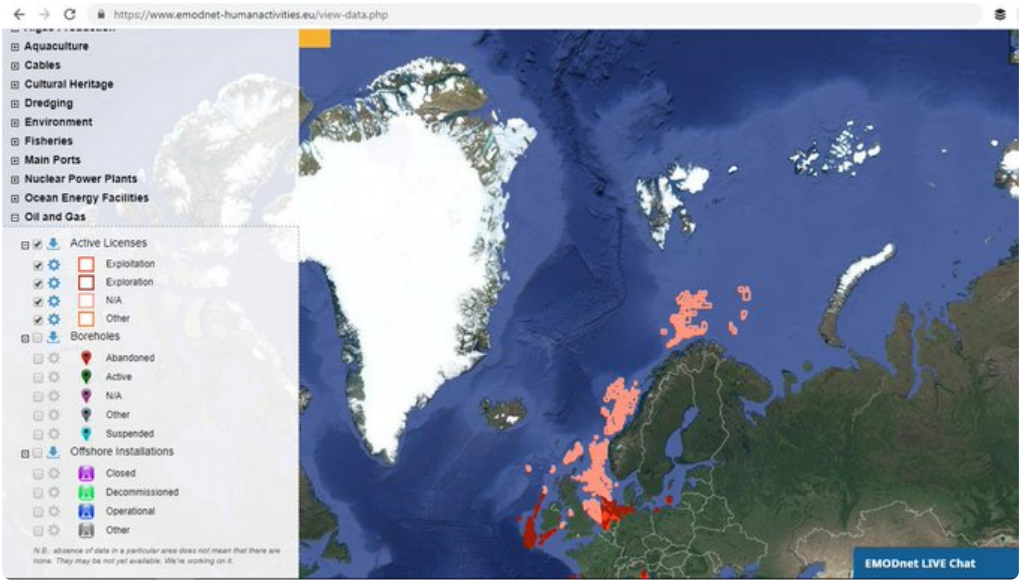


Nina O'Hanlon 🐧🌊🦉🦢

@Nina_OHanlon

Once we've identified hotspots where seabirds are vulnerable to oil pollution we can determine if these overlap with areas where oil pollution incidents may be more likely to occur. For example, with hydrocarbon extraction sites ➡️ emodnet-humanactivities.eu/view-data.php

4/10 #APP4SEA2020



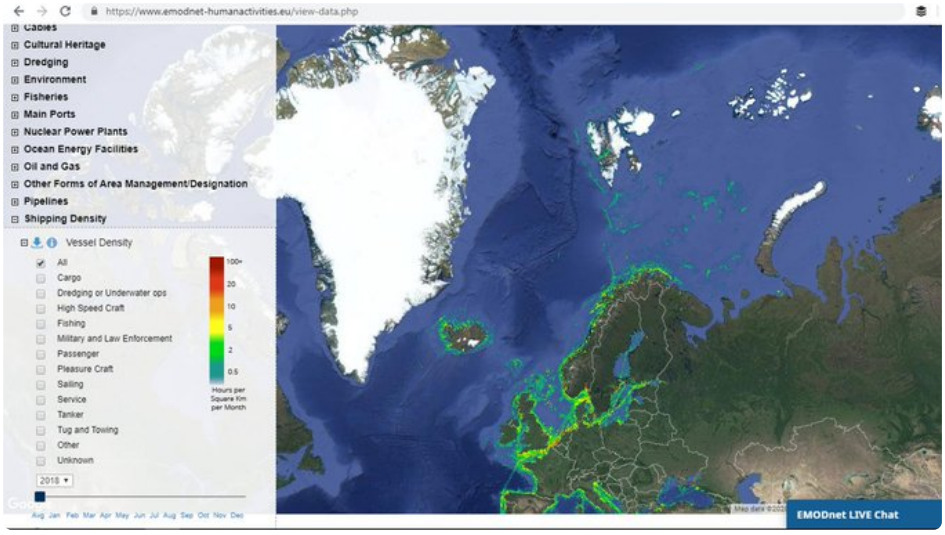
♡ 6 12:21 PM - Apr 16, 2020

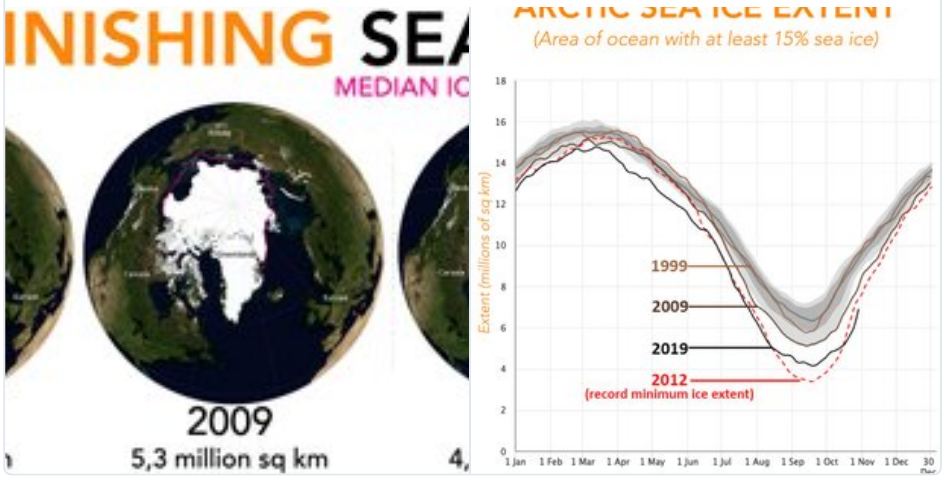
See Nina O'Hanlon 🐧🌊🦉🦢's other Tweets

Nina O'Hanlon 🐧🏔️🦉🦢 @Nina_OHanlon · Apr 16, 2020

Replying to @Nina_OHanlon

Or areas of high vessel density. Both of these activities are likely to increase in the future across the arctic & sub-arctic as highlighted by @PAMESecretariat ➡️
twitter.com/PAMESecretaria...
5/10 #APP4SEA2020



> **PAME** @PAMESecretariat
> Replying to @PAMESecretariat
>
> 8/10 Why is the logical next question! There is no simple answer to this. The increase is a combination of many factors. Deminishing sea ice as the @NSIDC has shown could play a part, as well as increased Arctic #tourism and of course natural resource extraction. #APP4SEA2020
>
> 
>

Nina O'Hanlon 🐧🏔️🦉🦢
@Nina_OHanlon

We can then identify where seabirds are most at risk to oil pollution incidents & highlight where actions & mitigation should be implemented to protect areas where seabirds (+ other marine wildlife & habitats) are vulnerable
6/10 #APP4SEA2020

♡ 2 12:25 PM - Apr 16, 2020

See Nina O'Hanlon 🐧🦅 🦉🦢's other Tweets

Nina O'Hanlon 🐧🦅🦉🦢 @Nina_OHanlon · Apr 16, 2020

Replying to @Nina_OHanlon

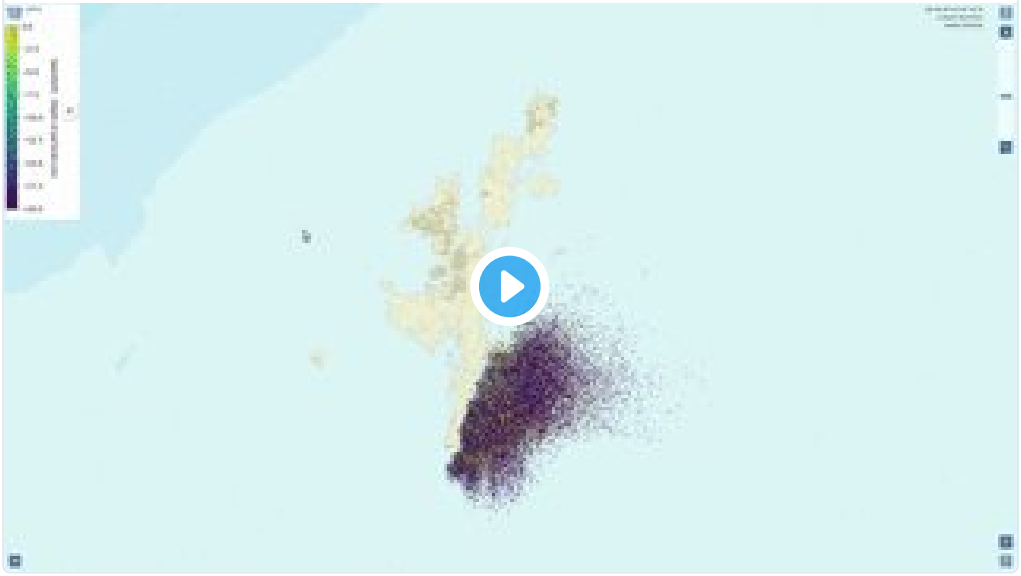
Such areas of risk have been identified for seabirds in other parts of the world such as in the Aleutian Archipelago ➡️
sciencedirect.com/science/articl...
And we are currently in the process of doing this for the @APP4SEA region - results to come soon!
7/10 #APP4SEA2020

A spatial–seasonal analysis of the oiling risk ...
Some of the largest seabird concentrations in the northern hemisphere are intersected by major shipping routes in the Aleutian
sciencedirect.com

Nina O'Hanlon 🐧🦅🦉🦢
@Nina_OHanlon

These seabird hotspot maps can also be used to estimate the impact an oil spill might have on seabirds at a given location & time, especially if used with oil spill simulations
➡️ twitter.com/gullarz/status...
8/10 #APP4SEA2020

Lars R. Hole @gullarz
1/8 How scientists predict the trajectory of #oilspills? We can simulate an oil spill with virtual particles driven by weather and ocean forecasts using computers. We also predict the state of the oil hours ahead. Here a simulation of the 1993 #Braer #oilspill. #APP4SEA2020



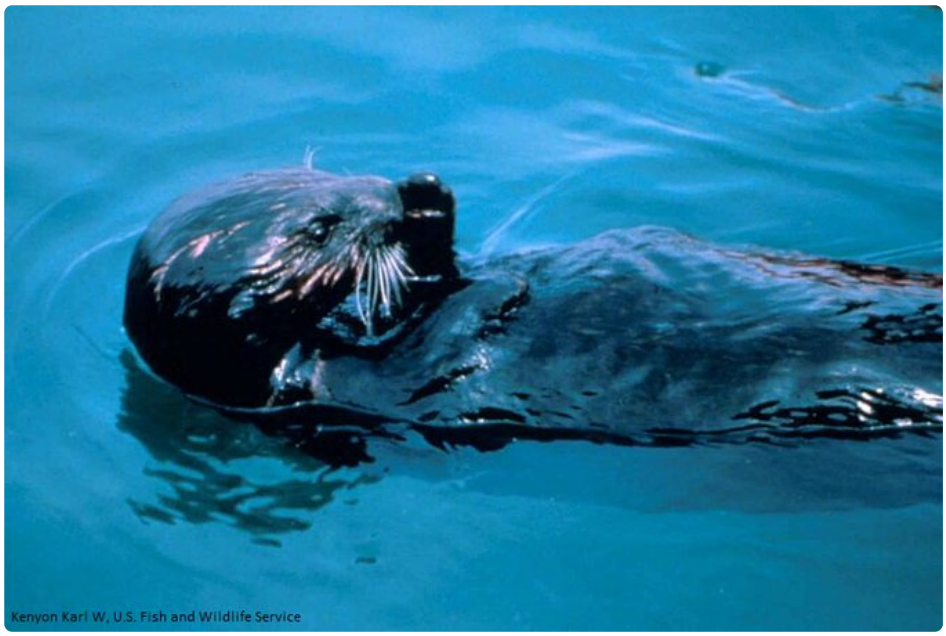
♡ 5 12:28 PM - Apr 16, 2020

See Nina O'Hanlon 🐧🦅🦉🦢's other Tweets

Nina O'Hanlon 🐧🌊🦉🦢 @Nina_OHanlon · Apr 16, 2020

Replying to @Nina_OHanlon

We've focused on seabirds here, however, OVI scores and spatial data can also be obtained for other vulnerable groups such as marine mammals to determine where they are most at risk to oil pollution, separately or in combination with seabirds
9/10 #APP4SEA2020



Nina O'Hanlon 🐧🌊🦉🦢
@Nina_OHanlon

In summary, in order to identify where seabirds are most at risk to oil pollution we need good quality seabird-at-sea data which we can map alongside spatial information on potential sources of oil pollution
10/10 #APP4SEA2020

♡ 6 12:29 PM - Apr 16, 2020

See Nina O'Hanlon 🐧🌊🦉🦢's other Tweets

APP4SEA_NPA
@APP4SEA_NPA

And👏 to session #3 speakers - @DusikJan @EarthgaugeCA @WWF_Arctic #SeaAlarmFoundation @TheLabAndField @Nina_OHanlon @ERI_UHI! Usually, at this point of the conference there is the awkward "let's all stand up and stretch ourselves" moment - but we will skip that #APP4SEA2020

♡ 9 12:30 PM - Apr 16, 2020

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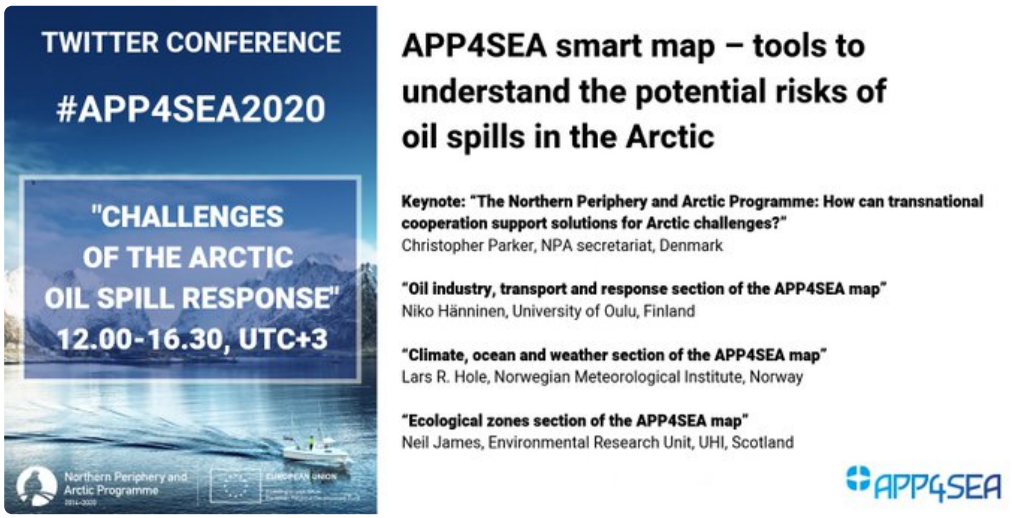
There is no group works planned either, we move straight to session #4 - APP4SEA smart map – tools to understand the potential risks of oil spills in the Arctic. Christopher Parker's keynote focuses on @NPA2014_2020, the funding instrument behind @APP4SEA_NPA #APP4SEA2020



♡ 2 12:31 PM - Apr 16, 2020

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Keynote: The Northern Periphery and Arctic Programme: How can transnational cooperation support solutions for Arctic challenges? – Christopher Parker @parkskov, NPA secretariat @NPA2014_2020 #APP4SEA2020

♡ 2 12:31 PM - Apr 16, 2020

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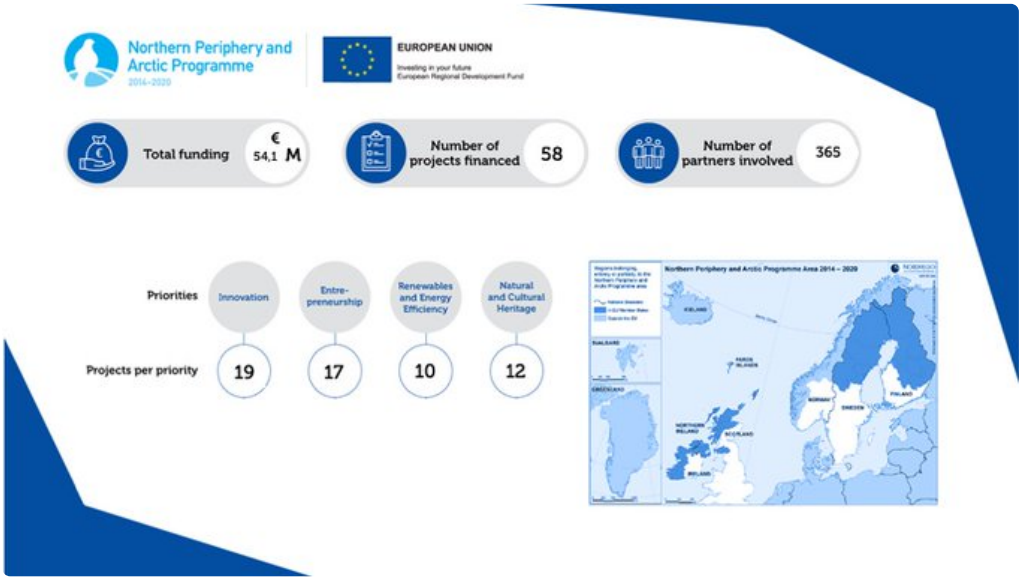
NPA 2014-2020 @NPA2014_2020 · Apr 16, 2020

1/10 Hello my name is Christopher Parker, Programme Manager and Desk Officer for the APP4SEA project. This is our 1st Twitter conference!
Thank you for the opportunity of presenting "How can Transnational cooperation support solutions for Arctic challenges?" #APP4SEA2020

NPA 2014-2020
@NPA2014_2020

2/10 The #Interreg NPA #programme is an #EU #transnational #cooperation which is part of the #Cohesion Policy funded by a #ERDF - #APP4SEA2020



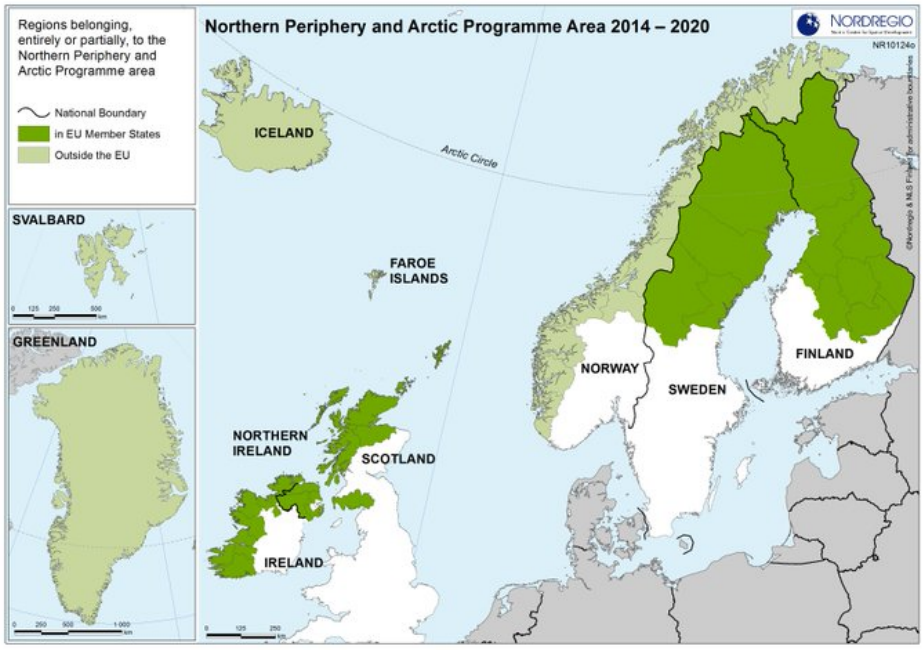
♡ 7 12:33 PM - Apr 16, 2020

See NPA 2014-2020's other Tweets

NPA 2014-2020 @NPA2014_2020 · Apr 16, 2020

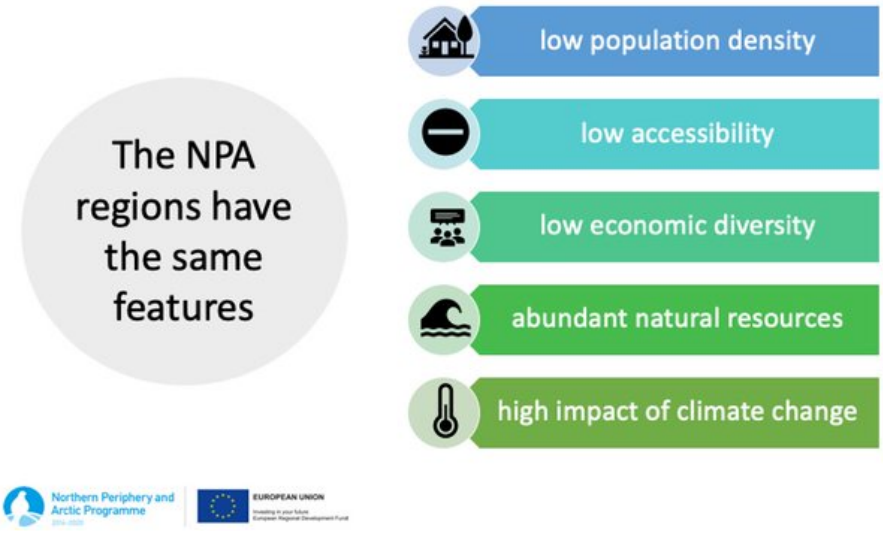
Replying to @NPA2014_2020

3/10. We have a vast geographical diversity, the programme area shares a number of joint challenges and opportunities realised and addressed by transnational cooperation. Common to the whole NPA area is the coastal seaboard #APP4SEA2020



NPA 2014-2020
@NPA2014_2020

4/10 As a large programme area, it shares a number of common features. Regions within the NPA area have more in common with each other than with their own metropolitan areas. #APP4SEA2020



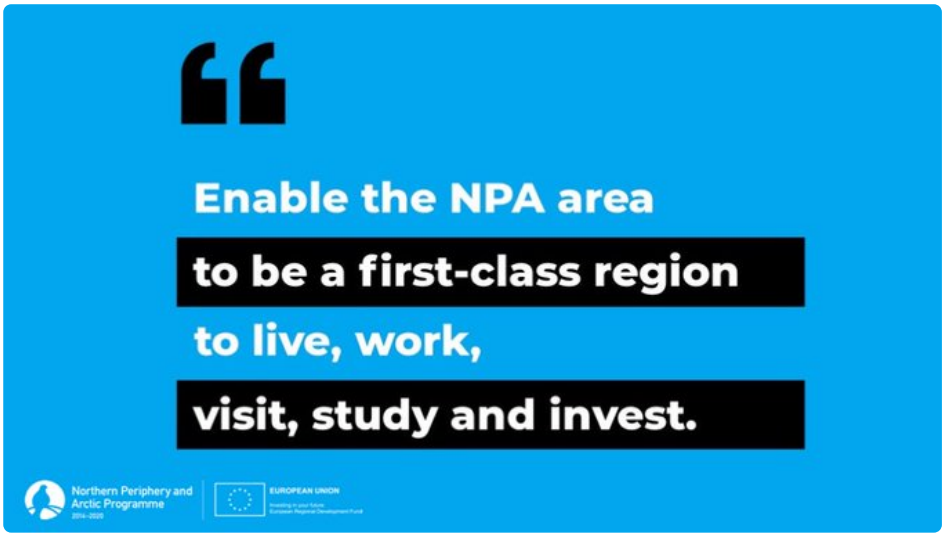
♡ 5 12:35 PM - Apr 16, 2020

See NPA 2014-2020's other Tweets

NPA 2014-2020 @NPA2014_2020 · Apr 16, 2020

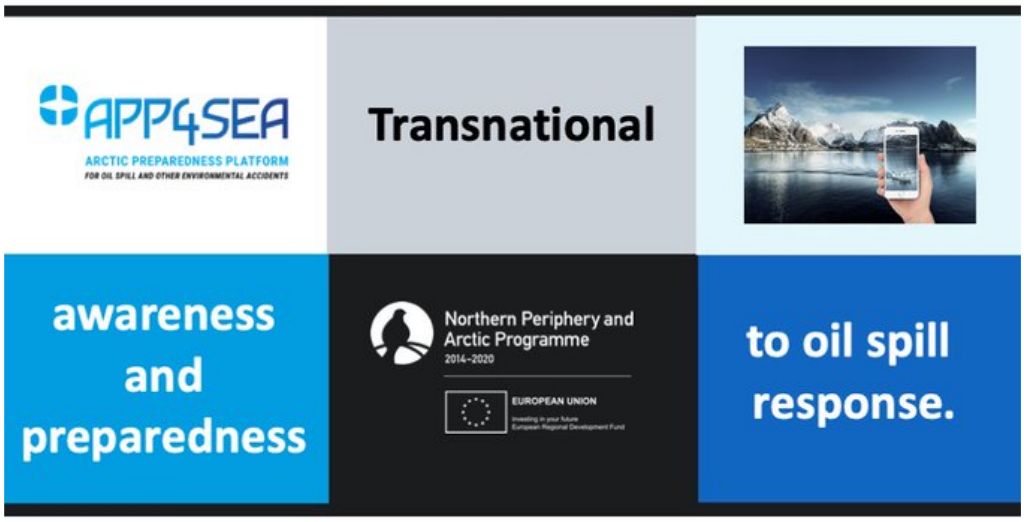
Replying to @NPA2014_2020

5/10. Our vision is to generate vibrant, competitive and sustainable communities, harness innovation, expand the capacity for entrepreneurship and seize the unique growth initiatives and opportunities of the Northern and Arctic regions #APP4SEA2020.



NPA 2014-2020
@NPA2014_2020

6/10. APP4SEA as a transnational project aimed to strengthen the preparedness of environmental bodies and awareness of the public in the coastal areas of the NPA region regarding oil spill response through the transfer of technological best practices to authorities #APP4SEA2020



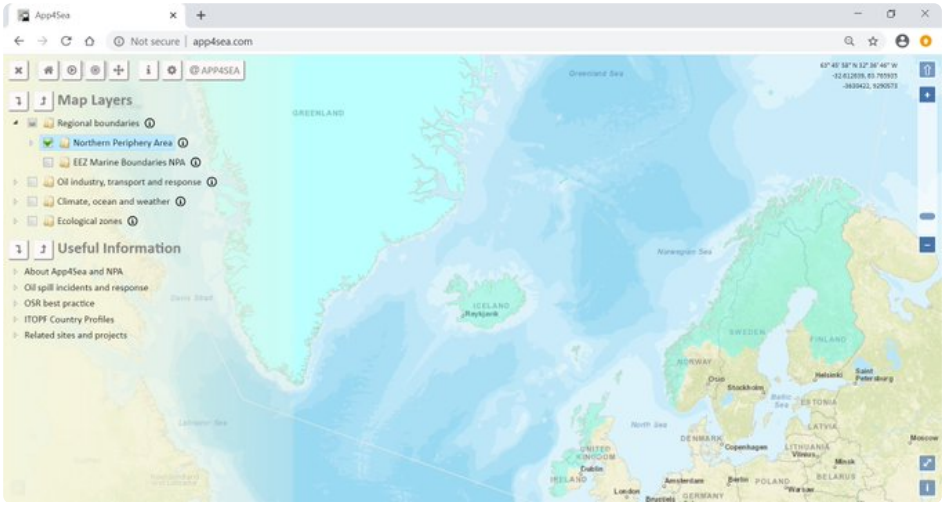
4 12:39 PM - Apr 16, 2020

See NPA 2014-2020's other Tweets

NPA 2014-2020 @NPA2014_2020 · Apr 16, 2020

Replying to @NPA2014_2020

7/10. Development of the on-line platform with a decision-making tool that provides authorities and communities, is an excellent example of transnational collaboration and a service which aims at an efficient response method to minimize ecological risks of oil spills #APP4SEA2020



NPA 2014-2020
@NPA2014_2020

8/10. Raising awareness through transnational cooperation regarding sustainability and protection of our coastal areas. NPA maritime stakeholders and the people of the NPA and Arctic communities are beneficiaries of APP4SEA as we face the challenge of climate change #APP4SEA2020

♡ 4 12:42 PM - Apr 16, 2020

See NPA 2014-2020's other Tweets

NPA 2014-2020 @NPA2014_2020 · Apr 16, 2020

Replying to @NPA2014_2020

9/10. The #ArcticCooperation coordinated by the NPA. Involved 5 programmes: Botnia-Atlantica, Interreg Nord, @Kolarctic CBC and @Karelia CBC with aim to work in such areas as programme management, coordinated communications and project development events #APP4SEA2020

NPA 2014-2020
@NPA2014_2020

10/10. NPA Programming task force is being established for 2021-2027 NPA. Future ERDF policy objectives and programming budgets have been proposed and expected to be decide in 2020. The Arctic cooperation will continue. Follow interreg-npa.eu for updates #APP4SEA2020

8 12:45 PM - Apr 16, 2020

See NPA 2014-2020's other Tweets

APP4SEA_NPA @APP4SEA_NPA · Apr 16, 2020

1/2Next we will focus on the smart map itself. The map is created as a tool for OSR authorities, which can help them in learning, planning and conducting OSR operations. The map contains information from many fields, all of which is vital for successful OSR actions #APP4SEA2020

APP4SEA_NPA
@APP4SEA_NPA

2/2 The map serves also the general public, informs them about the risks of oil spills, how well we are prepared for them, etc. Project manager of @APP4SEA_NPA, Niko Hänninen from @Uni_Oulu, will present the main features of the map and the contents of two sections. #APP4SEA2020

♡ 3 12:46 PM - Apr 16, 2020

See APP4SEA_NPA's other Tweets

APP4SEA_NPA
@APP4SEA_NPA

Regional boundaries and Oil industry, transport and response sections of the APP4SEA map – Niko Hänninen, University of Oulu @APP4SEA_NPA #APP4SEA2020

♡ 4 12:46 PM - Apr 16, 2020

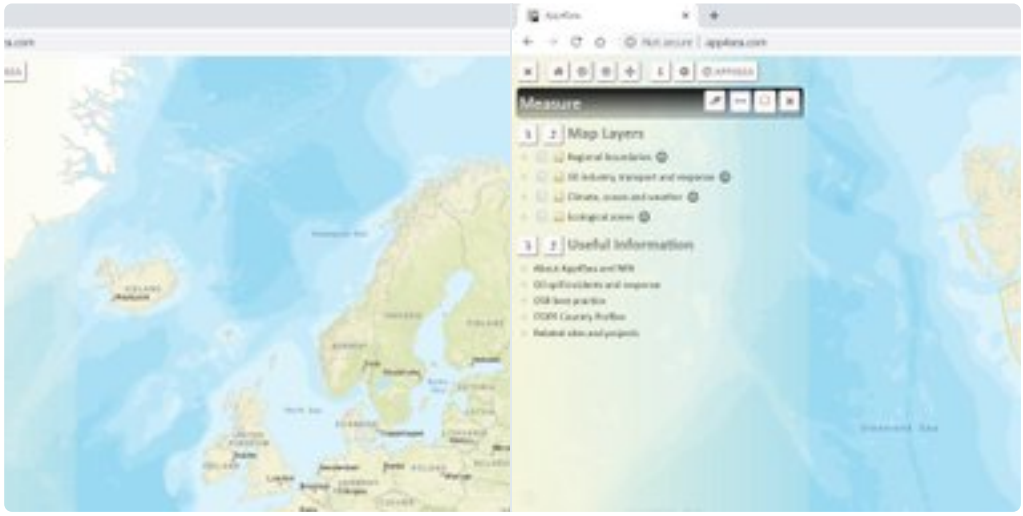
See APP4SEA_NPA's other Tweets

APP4SEA_NPA @APP4SEA_NPA · Apr 16, 2020

1/10 Let’s start from basics. @Uni_iceland has been the webmaster - other partners - @ERI_UHI, @SYKEInt, @Kystverket, @meteorologisk @Uni_Oulu - have provided the contents. Existing data has been used, but a lot has been made just for the map app4sea.com #APP4SEA2020

APP4SEA_NPA
@APP4SEA_NPA

2/10 Zoom in/out on the right. Menu in left top corner includes 3 sections: functionality buttons (e.g. ℹ️↔️↕️▶️🏠⚙️), Map Layers and Useful Information. ▶️ is used to play animations and combined ↔️↕️opens measure tools for measuring distances and areas #APP4SEA2020



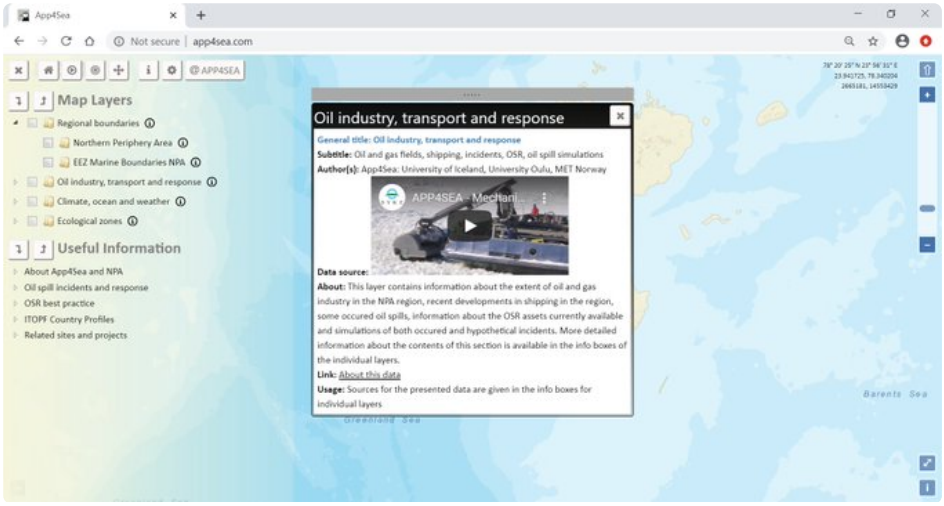
♡ 4 12:49 PM - Apr 16, 2020

See APP4SEA_NPA's other Tweets

APP4SEA_NPA @APP4SEA_NPA · Apr 16, 2020

Replying to @APP4SEA_NPA

3/10 Map layers are divided into 4 main headings. Next to them (and sub-headings) is ℹ. This opens an info box that explains what is presented here, source of data, etc. Below this is Useful Information section, that has reports, links to further information etc. #APP4SEA2020



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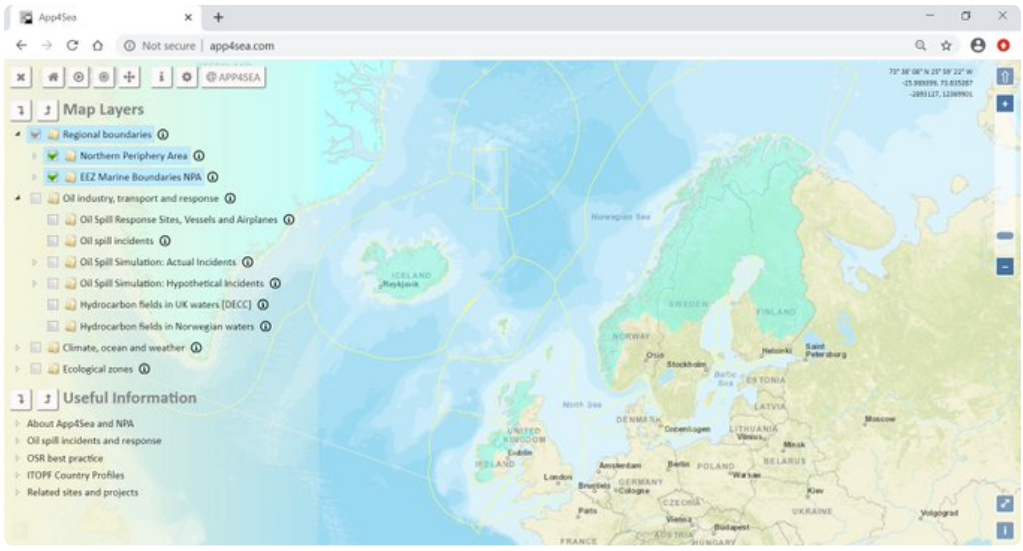
@APP4SEA_NPA

4/10 The first section of map layers includes two maps – NPA borders and EEZ Marine Boundaries of NPA. The second section - Oil industry, transport and response - is divided into several sub-headings and two of them – simulations – have further layers. #APP4SEA2020



♡ 7 12:51 PM - Apr 16, 2020

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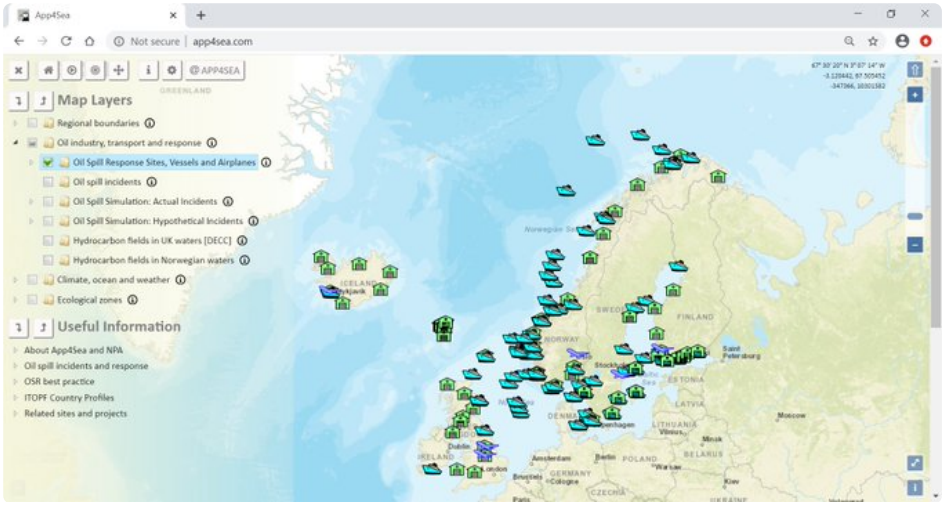
APP4SEA_NPA @APP4SEA_NPA · Apr 16, 2020

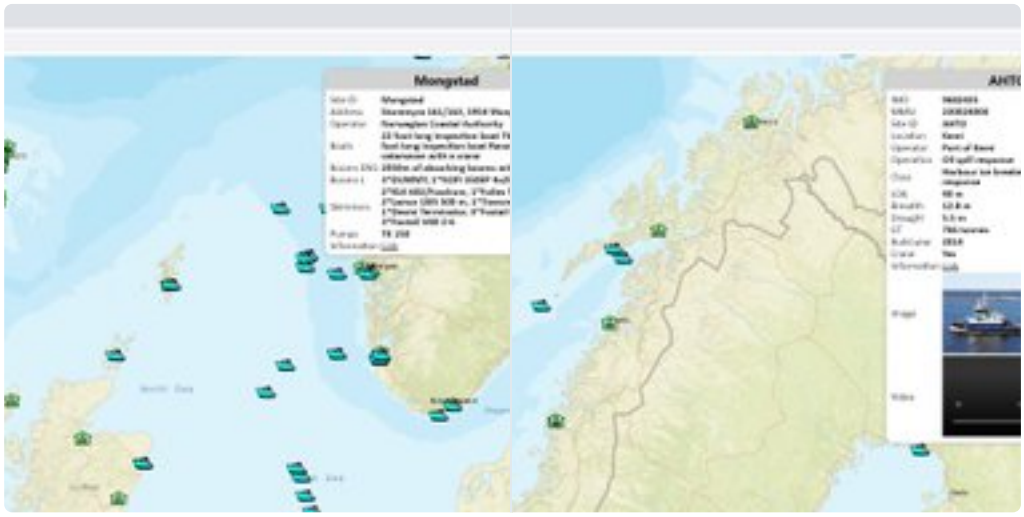
Replying to @APP4SEA_NPA

5/10 Oil industry, transport and response section's first layer is Oil Spill Response sites, Vessels, and Airplanes. This puts the #OSR assets of the #NPA countries on the map – the government owned and operated ones, but also privately-owned and operated assets #APP4SEA2020



APP4SEA_NPA
@APP4SEA_NPA

6/10 When you click an icon, an info box will open. It will tell general specifications of the ship/aircraft and what OSR equipment it carries. Regarding depots, their location is given as well as what is stored at the site, if this information is public. #APP4SEA2020



♡ 7 12:54 PM - Apr 16, 2020

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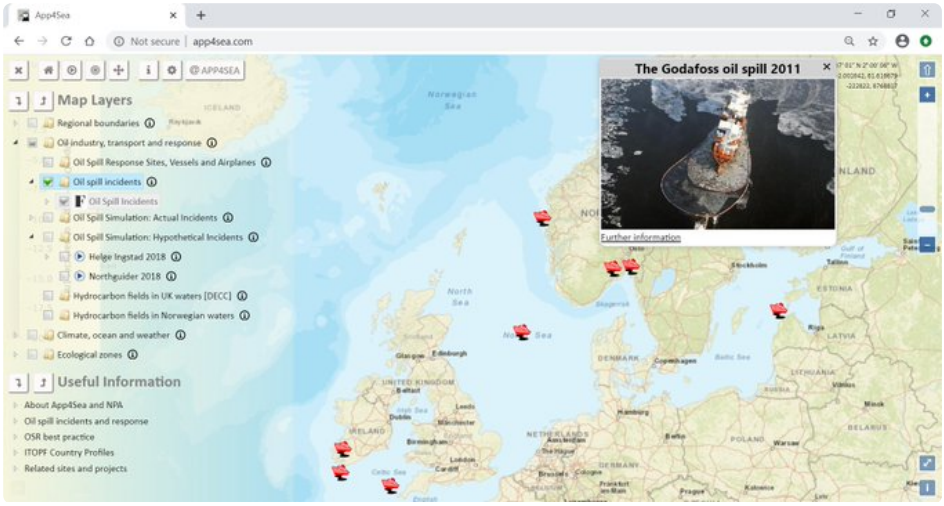
APP4SEA_NPA @APP4SEA_NPA · Apr 16, 2020

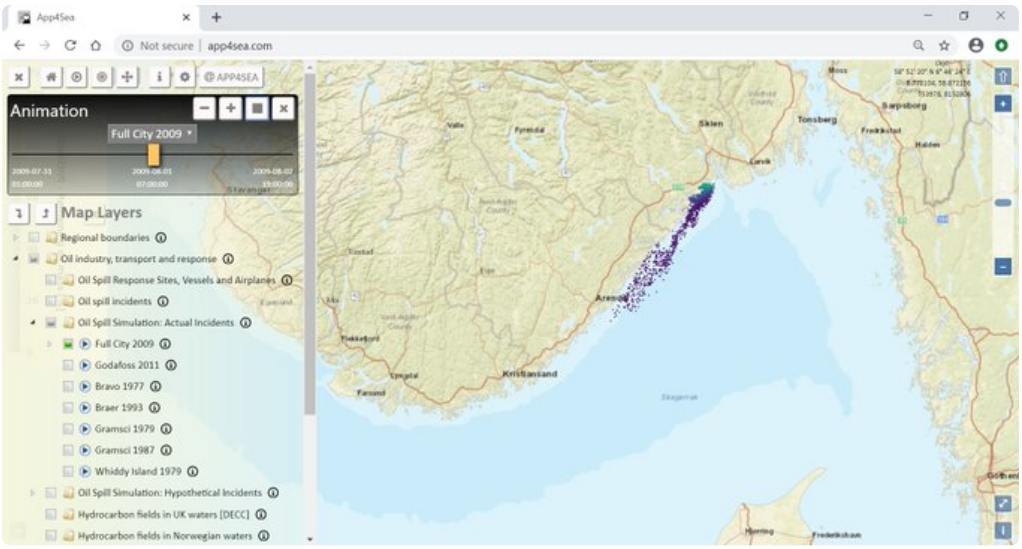
Replying to @APP4SEA_NPA

7/10 ”Oil spill incidents” -layer shows the locations of incurred major oil spills in and close to the NPA region. There is also links for further information – here is one example, the #Godafoss #oilspill that happened in outer Oslo Fjord on 17.2.2011 #APP4SEA2020



APP4SEA_NPA
@APP4SEA_NPA

8/10 Next section contains oil spill simulations that have been created by @Meteorologisk with OpenDrift simulation model. This screenshot shows spreading of Full City spill. Case is selected by ticking the box and animation is started from the top (▶️)#APP4SEA2020#APP4SEA2020



♡ 5 12:58 PM - Apr 16, 2020

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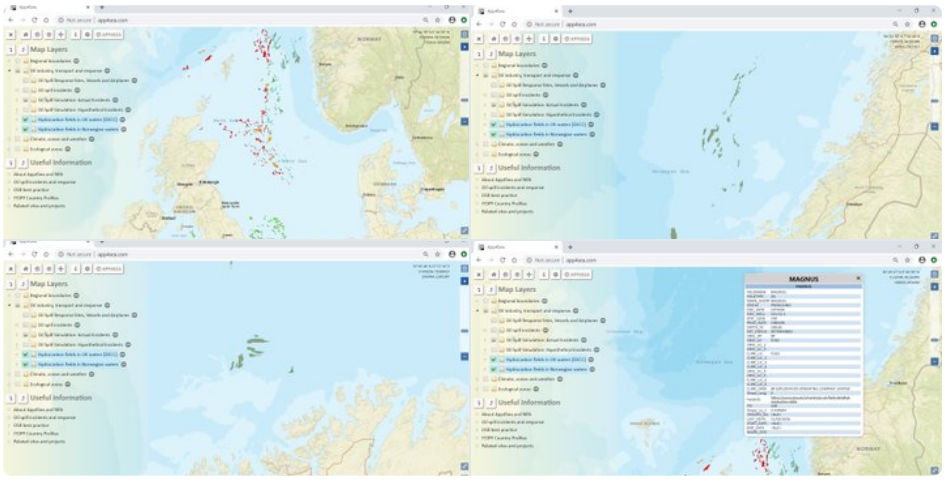
APP4SEA_NPA @APP4SEA_NPA · Apr 16, 2020

Replying to @APP4SEA_NPA

9/10 The last layers show the location of UK and Norwegian hydrocarbon fields in #NorthSea, #NorwegianSea and #BarentsSea. There is also some general information about the fields, see the screenshot about “Magnus”, which is located North East of #ShetlandIslands #APP4SEA2020



APP4SEA_NPA
@APP4SEA_NPA

10/10 There is one section, which is still under work. Using the Arctic Shipping Database that @PAMESecretariat has collected, a layer will be added to the map, which demonstrates the changes in #Arctic #Shipping. Feedback and comments are welcome #APP4SEA2020

♡ 5 1:00 PM - Apr 16, 2020

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@APP4SEA_NPA

The weatherman of the @APP4SEA_NPA, Lars R. Hole @gullarz from @Meteorologisk, returns to the stage and continues with the next map layer section #APP4SEA2020

♡ 1 1:01 PM - Apr 16, 2020

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@APP4SEA_NPA

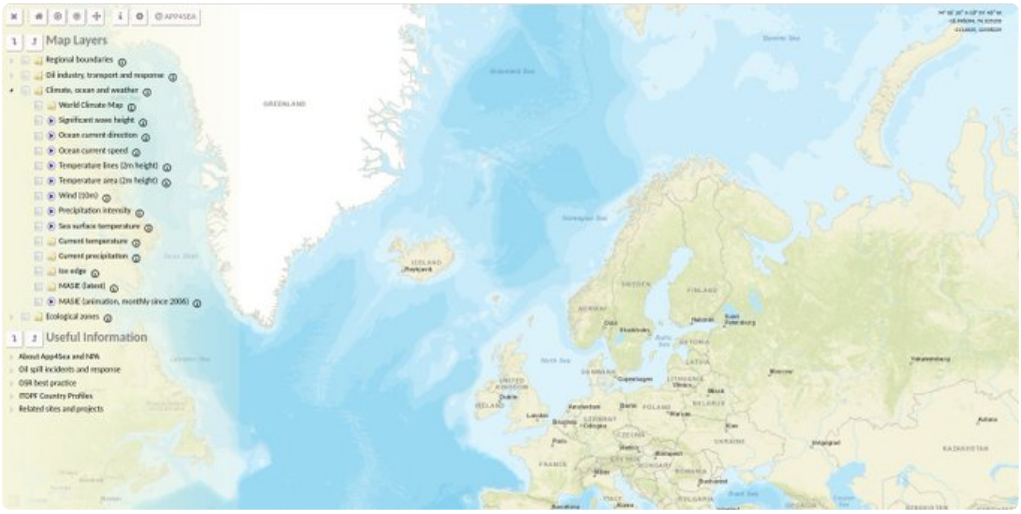
Climate, ocean and weather section of the APP4SEA map – Lars R. Hole, Norwegian Meteorological Institute @gullarz #APP4SEA2020

♡ 2 1:01 PM - Apr 16, 2020

See APP4SEA_NPA's other Tweets

Lars R. Hole
@gullarz

1/8 Climate, ocean and weather section contains 14 map layers. These layers include up-to date weather and oceanographic data – weather forecasts. There is also background data layers, which are not updated continuously unlike the forecasts layers
#APP4SEA2020

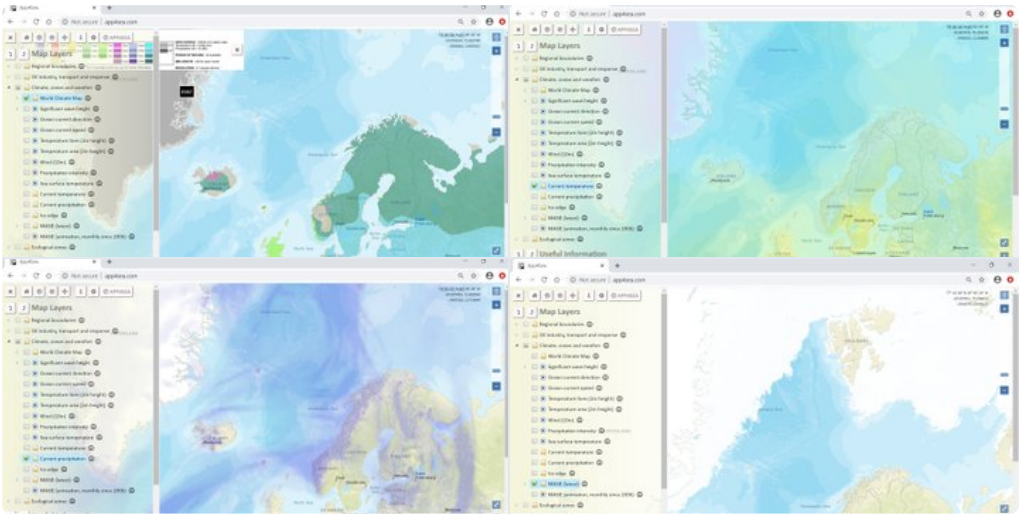


♡ 9 1:01 PM - Apr 16, 2020

See Lars R. Hole's other Tweets

Lars R. Hole
@gullarz

2/8 ℹ next to the heading tells more about the layer, the source of the data, what is displayed, etc. Few of the layers are static, including World Climate map, current temperature and precipitation, ice edge, and MASIE. #APP4SEA2020



♡ 6 1:02 PM - Apr 16, 2020

See Lars R. Hole's other Tweets

Lars R. Hole
@gullarz

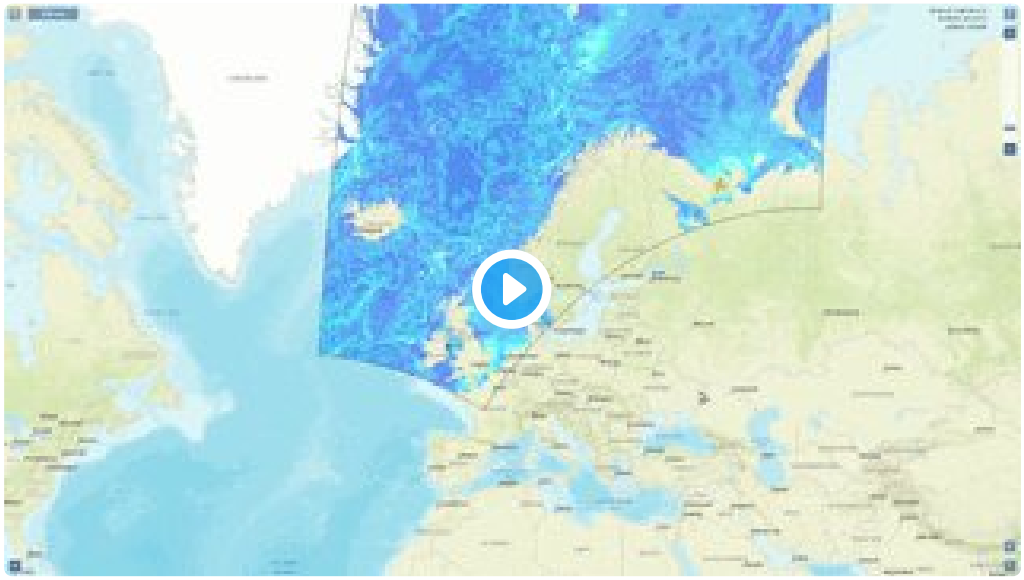
3/8
Most of the layers are animations. ▶️ next to the heading means that the layer is animation. These are mostly based on meteorological data produced by @Meterologisk. #APP4SEA2020

♡ 6 1:03 PM - Apr 16, 2020

See Lars R. Hole's other Tweets

Lars R. Hole
@gullarz

4/8 In order to view the animated layers properly, tick the box next to the layer and press ▶️ among the functionality buttons, which are above the map layers. This opens the control panel, which lets you to play, stop, slow down and speed up the animation.
#APP4SEA2020

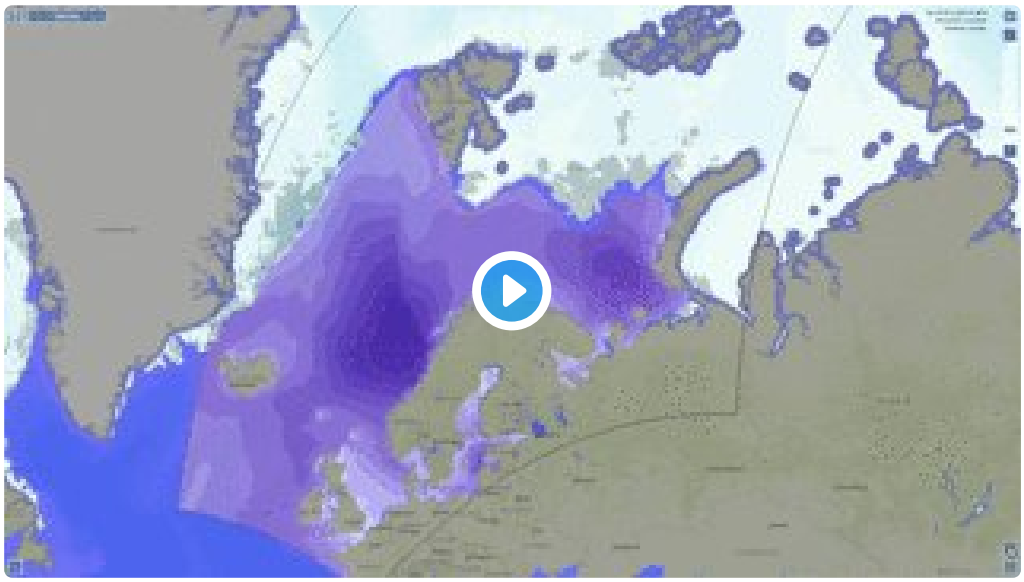


♡ 8 1:04 PM - Apr 16, 2020

See Lars R. Hole's other Tweets

Lars R. Hole
@gullarz

5/8 Weather and Climate layer shows regional forecasts provided by @Meteorologisk og @Meteorologene, covering most of the #NPA region. Here are a combination of wave height forecasts and @seaice satellite products from @istjenesten. Check also out cryo.met.no.



♡ 5 1:05 PM - Apr 16, 2020

See Lars R. Hole's other Tweets

Lars R. Hole
@gullarz

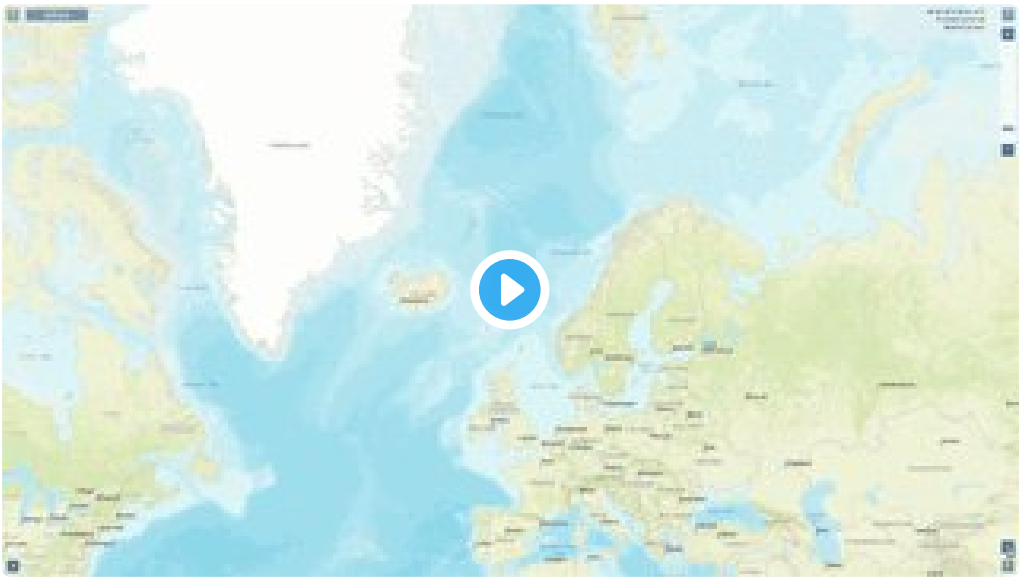
6/8 Temperature, wind and precipitation also affect oil spill response actions. They can impact humans, vessels and the OSR methods and technologies that can be employed. Several map layers address these issues#APP4SEA2020

♡ 6 1:05 PM - Apr 16, 2020

See Lars R. Hole's other Tweets

Lars R. Hole
@gullarz

7/8
Ice is a factor, that has to be taken into account in the Baltic Sea and in the high north during winter. The static Ice edge and MASIE layers illustrate the current sea ice situation, whereas MASIE animation shows the monthly changes since 2006
#APP4SEA2020



8 1:06 PM - Apr 16, 2020

See Lars R. Hole's other Tweets

Lars R. Hole
@gullarz

8/8 This section is nearly done, but a daylight layer will be added. Knowing when to wrap things up before the dark arrives is important for planning of OSR actions. Unless you are in Svalbard in December and have to rely on the light that you have brought with you! #APP4SEA2020

6 1:07 PM - Apr 16, 2020

See Lars R. Hole's other Tweets

APP4SEA_NPA
@APP4SEA_NPA

And now for a tour of the ecological aspects of the APP4SEA smart map we have Neil James, Research fellow at the Environmental Research Institute, University of the Highlands and Islands @DrNeilJames #APP4SEA2020

9 1:11 PM - Apr 16, 2020

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@APP4SEA_NPA

Ecological zones section of the APP4SEA map – Neil James, Environmental Research Unit, University of Highlands and Islands @DrNeilJames #APP4SEA2020

3 1:12 PM - Apr 16, 2020

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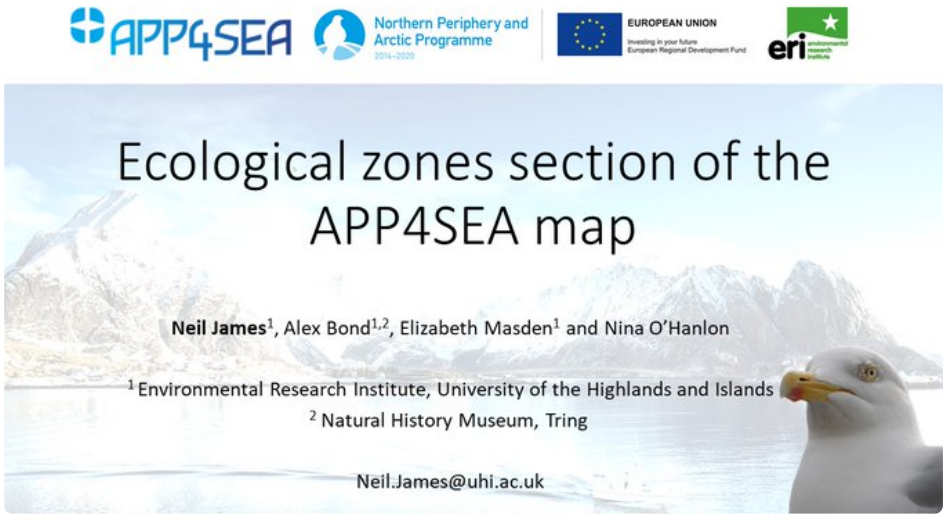
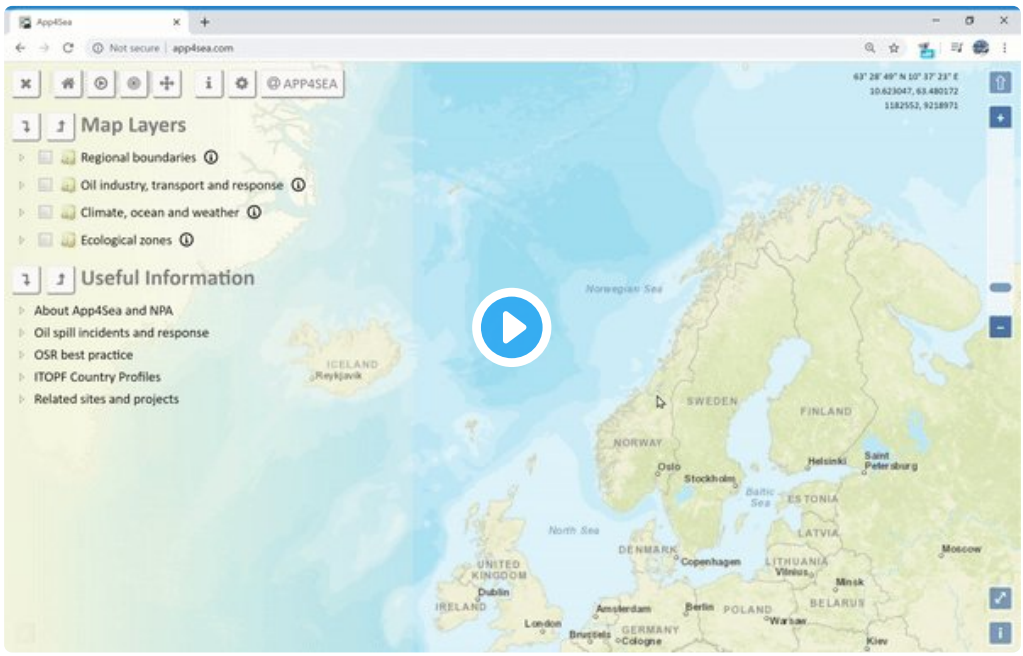
Dr Neil James @DrNeilJames · Apr 16, 2020

1/10 The APP4SEA smart map features three Ecological Zone map layers which can be toggled on and off. I will show you where they are and explain a little bit about them. #APP4SEA2020



Dr Neil James
@DrNeilJames

2/10
Under the Ecological Zones tab you can easily add the Large Marine Ecosystems of the Arctic Area as defined by PAME in 2013. For more information on the ecosystems see here:
bit.ly/3e6sSSs#APP4SEA2020



6 1:15 PM - Apr 16, 2020

See Dr Neil James's other Tweets

Dr Neil James @DrNeilJames · Apr 16, 2020

Replying to @DrNeilJames

3/10 Earlier in this session @TheLabAndField and @Nina_OHanlon presented the use of Oil Vulnerability Indexes and our work to expand this to the Northeastern Atlantc. Our work on the OVI is also embedded into the APP4SEA smart map. #APP4SEA2020

Dr Neil James
@DrNeilJames

4/10 Please note that the seabirds layers in the smart map are very broad and only for education purposes. However, results from our research using higher resolution data will be coming soon! #APP4SEA2020

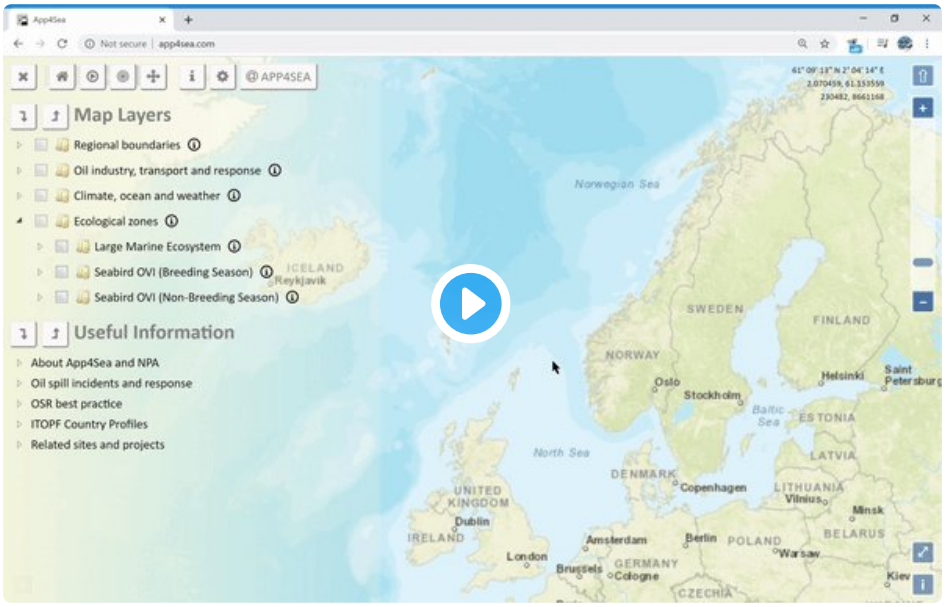
♡ 5 1:17 PM - Apr 16, 2020

See Dr Neil James's other Tweets

Dr Neil James @DrNeilJames · Apr 16, 2020

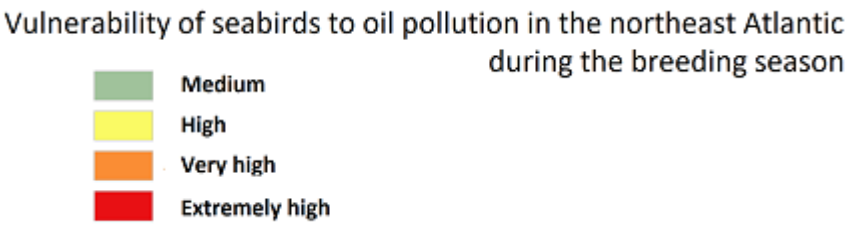
Replying to @DrNeilJames

5/10 One of the layers shows the overall summed Oil Vulnerability Index (OVI) for all seabirds species present during the breeding season #APP4SEA2020



Dr Neil James
@DrNeilJames

6/10 The seabirds layers divide the map into ICES statisital rectangles. The colours indicate the vulnerability of seabirds to oil pollution. Red = extremely high OVI and lower vulnerability, Green = Lower OVI & medium vulnerability. #APP4SEA2020



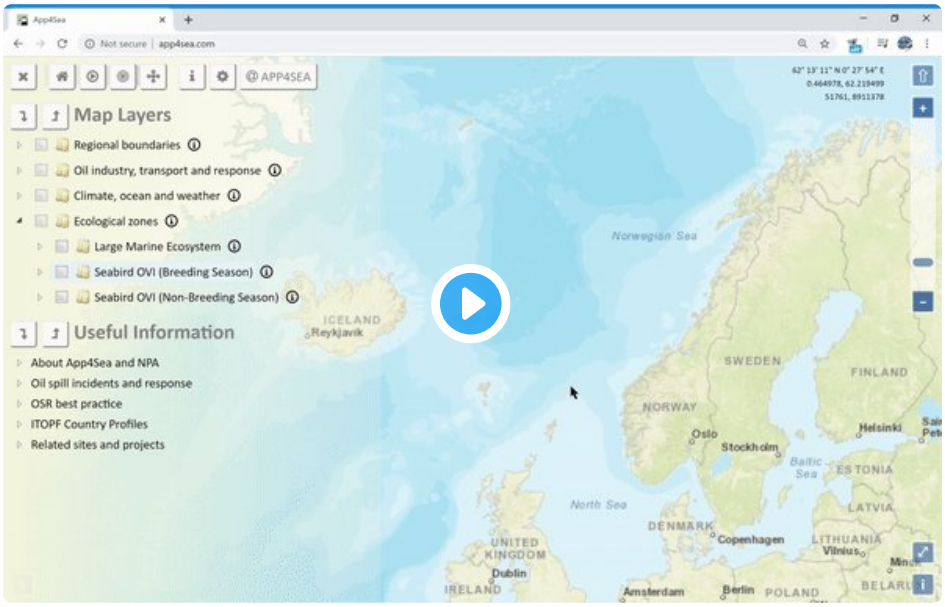
♡ 4 1:19 PM - Apr 16, 2020

See Dr Neil James's other Tweets

Dr Neil James @DrNeilJames · Apr 16, 2020

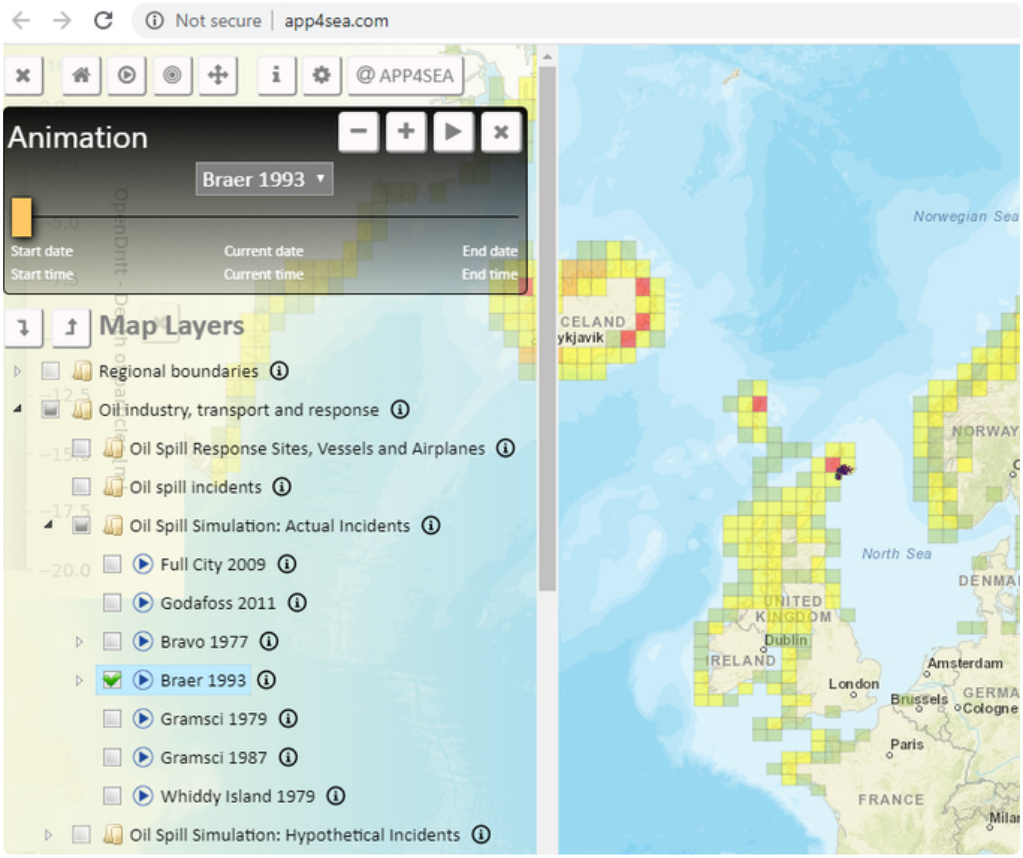
Replying to @DrNeilJames

7/10 Another layer displays the summed Oil Vulnerability Index (OVI) for all seabirds species present during the non-breeding season. #APP4SEA2020



Dr Neil James
@DrNeilJames

8/10 Layers can be combined with others in the APP4SEA smart map. For instance you can select a seabird OVI layer and view an oil spill simulation at the same time. #APP4SEA2020



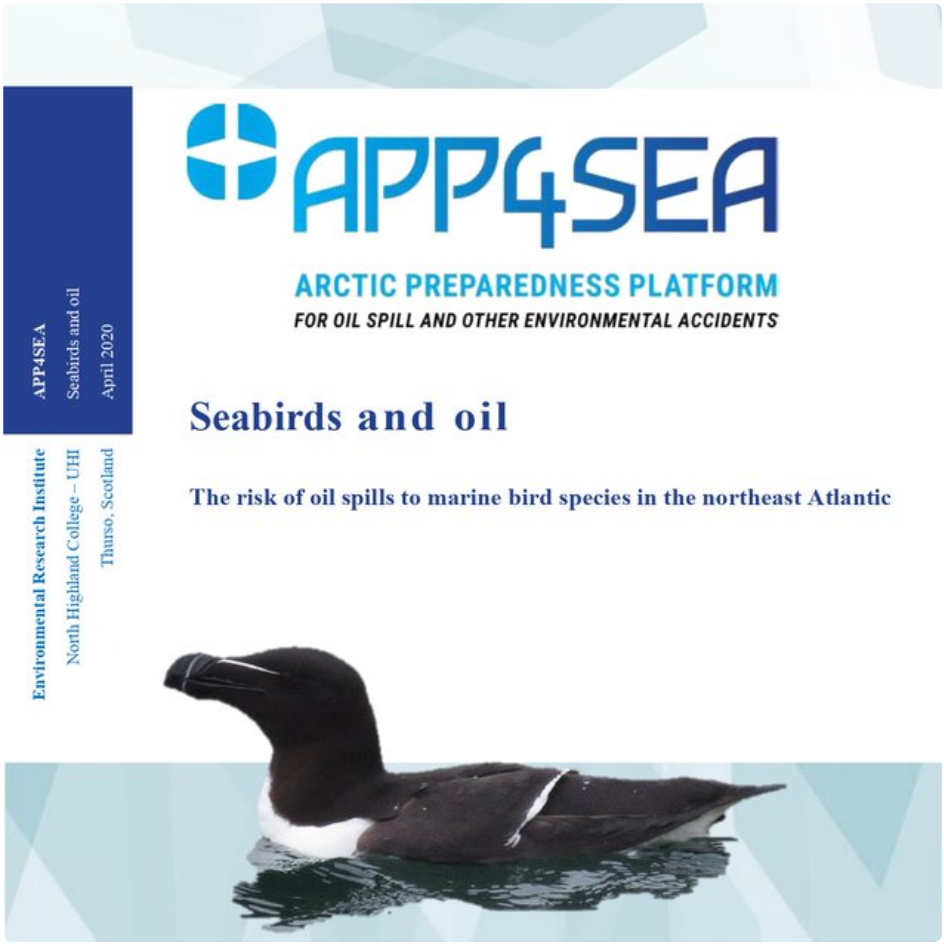
♡ 7 1:21 PM - Apr 16, 2020

See Dr Neil James's other Tweets

Dr Neil James @DrNeilJames · Apr 16, 2020

Replying to @DrNeilJames

9/10 We've made a guide "Seabirds and oil: The risk of oil spills to marine bird species in the northeast Atlantic" outlining how birds are affected by oil, OVIs, & how to access the seabirds layers in the APP4SEA smart map #APP4SEA2020



Dr Neil James
@DrNeilJames

10/10 And that's all from me. Please check out the APP4SEA smart map at APP4SEA.com. Feel free to ask questions, or follow me and the wonderful @APP4SEA_NPA for more updates.

12 1:27 PM - Apr 16, 2020

See Dr Neil James's other Tweets

APP4SEA_NPA
@APP4SEA_NPA

And that’s a wrap! Big thanks to our speakers! You have shared your knowledge with the Twitter community, whose hunger for #Arctic issues has not been satisfied yet! Thanks to our many followers, keep the tweets flying and check the map at app4sea.com #APP4SEA2020

19 1:29 PM - Apr 16, 2020

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