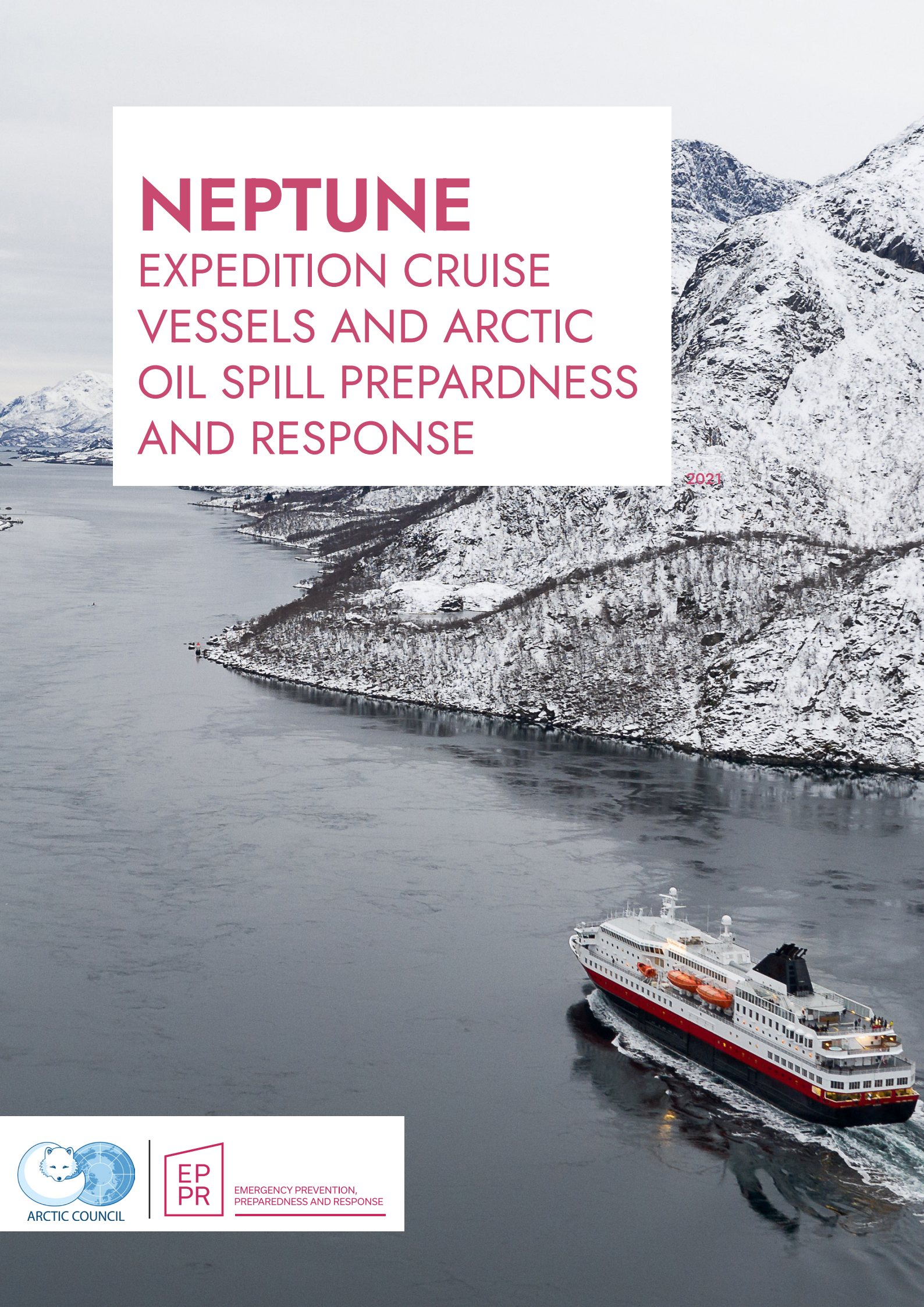
NEPTUNE

EXPEDITION CRUISE VESSELS AND ARCTIC OIL SPILL PREPARDNESS AND RESPONSE

2021



ARCTIC COUNCIL

EP PR

EMERGENCY PREVENTION, PREPAREDNESS AND RESPONSE

CONTENTS

Can expedition cruise vessels be utilized in Arctic Oil Spill Preparedness and Response?

An Arctic Council's Emergency Prevention, Preparedness and Response (EPPR) Working Group project and collaboration between the Norwegian Coastal Administration (NCA), the Association of Arctic Expedition Cruise Operators (AECO) and the US Coast Guard (USGC)

NEPTUNE: Expedition Cruise Vessels and Arctic Oil Spill Preparedness and Response

This document exists in 1 version
ISBN 978-82-93600-99-2 - A4, digital (PDF)

This document is available as an electronic document from the Arctic Council's open access repository: oaarchive.arctic-council.org

Reference
Arctic Council EPPR, 2021. "NEPTUNE: Expedition Cruise Vessels and Arctic Oil Spill Preparedness and Response". Arctic Council Emergency Prevention, Preparedness and Response (EPPR) Working Group. Tromsø, Norway.

Authors
Synnøve Lunde, Norwegian Coastal Administration, Troels Jacobsen and Frigg Jørgensen, Assocication of Arctic Expedition Cruise Operator (AECO) and Jason Scott, US Coast Guard.

Partners
Norwegian Coastal Administration
www.kystverket.no

US Coast Guard
www.uscg.mil

Assocation of Arctic Expedition Cruise Operators (AECO)
www.aeco.no

Published by
Arctic Council Secretariat

Cover photograph
Ondrej Novotny / Adobe Stock

INTRODUCTION

The NEPTUNE project is part of the Arctic Council's Emergency Prevention, Preparedness and Response (EPPR) Working Group and is in collaboration with the Norwegian Coastal Administration (NCA, project lead/co-lead by US Coast Guard) and the Association of Arctic Expedition Cruise Operators (AECO, project partner). The project is funded by Norway's Arctic Council project funding.

The NEPTUNE project aims to investigate and potentially improve the self-reliance of expedition cruise vessels in the event of oil-spills and examine how expedition cruise vessels can be utilized as a resource in Arctic oil spill preparedness and response. The project consists of 6 parts:

1. AECO will in collaboration with the Norwegian Coastal Administration (NCA) and other possible partners develop a survey to map what equipment and competence is presently onboard expedition cruise vessels sailing in the Arctic. NCA will quality assure that the survey includes relevant areas of information, while AECO is responsible for sending out, follow up to ensure responses, and summarize the results.

2. AECO in collaboration with NCA and other possible partners will survey opportunities and obstacles for expedition cruise vessels to become part of the Arctic Oil Spill Preparedness and Response in the expedition cruise industry. Survey will include issues such as equipment, space, storage, responsibilities, competence, costs, organization, etc. NCA will quality assure that the survey includes relevant areas of information, while AECO is responsible for sending out, follow up to ensure responses, and summarize the results.

3. NCA will in collaboration with AECO investigate obstacles and opportunities for expedition cruise operators to become part of the Arctic oil spill preparedness and response with the Arctic oil spill authorities and responders. Survey will include issues such as equipment, space, storage, responsibilities, competence, costs, organization, etc. NCA will quality assure that the survey includes relevant areas of information.

4. AECO will in collaboration with NCA investigate and potentially recommended methods to ensure continuous collection of information from expedition cruise operators regarding their equipment and opportunities and investigate methods to continuous share this information with relevant oil spill response entities and authorities.

    a) As a potential additional element to this project, information about SAR equipment can be made part of this collection and sharing of information.

5. NCA will in collaboration with AECO facilitate a pilot oil spill response exercise on a cruise vessel. NCA will, based on the pilot, develop recommendations for exercises on expedition cruise vessels.

6. NCA and AECO will write a report that summarizes this project.

The Arctic expedition cruise industry is characterized by small and medium sized cruise vessels (typically less than 150 meters length and 200 passengers) designed and equipped (Polar Code compliant) to sail in high Arctic regions and conditions. Approximately 60 expedition cruise vessels have operations in the Arctic and a vast majority are members of AECO. AECO members agree to follow the organization's standards and guidelines, which include a ban on the use and carriage of heavy fuel oil (HFO) when operating in AECO's operational area. AECO's geographic area includes the National Park Russian Arctic (Frans Joseph Land and parts of Novaya Zemlya), Svalbard and Jan Mayen, Iceland, Greenland, and the Canadian Arctic. Peak operations occur during in the summer months however, operations can extend to spring and autumn. Designated winter cruising is generally not occurring.

Due the remoteness of the Arctic, oil spill response and preparedness can pose a challenge. Expedition cruise operations are not the only activity operating in remote regions, other vessels include fishing, research, cargo, government, leisure, etc. Expedition cruise vessels can have a wide geographic range and their presence may represent a resource for other sectors. In the event of an incident at sea, and sometimes on land, expedition cruise vessels may be the first on site and potentially able to act as first responders.

Photo: Dan Avila, Hurtigruten

EXECUTIVE SUMMARY

- A survey among expedition cruise operators shows that the Arctic expedition cruise industry has competence and equipment that can enhance Arctic oil spill preparedness and response if authorities want to cooperate.
- A survey among expedition cruise operators shows that the Arctic expedition cruise industry is willing to consider carrying more equipment and take on increased roles in the event of an oil spill.
- A survey among expedition cruise operators shows that the limitations related to carrying passengers, risks, costs, and itineraries exist and must be regarded if exploiting the expedition cruise industry as a resource in oil spill response.
- A survey among the Arctic oil spill responders shows that oil spill authorities believe that expedition cruise vessels can be utilized in Artic spill preparedness and response.
- A survey among the Arctic oil spill responders shows that the first responders on scene are critical to the initiation and effectiveness of a response.
- A survey among the Arctic oil spill responders shows a cruise vessel could provide initial incident communications and site assessment.
- A survey among the Arctic Oil Spill responders shows that he main obstacles for expedition cruise operators to become a part of the Arctic oil spill preparedness and response system are the conflict with passenger's expectations, the vessel schedule, their bottom line, lack of capabilities and training, and health and safety concerns.
- The project has identified AECO's Cruise database as the presently best suited database to register and share information about expedition cruise operators' onboard oil spill response equipment.
- Two tabletop exercises with two different expedition cruise operators showed that expedition cruise vessels can be a critical resource during an oil spill response in the Arctic. Their presence alone make them an important asset to Arctic nations and response authorities.
- Tabletop exercises revealed that expedition cruise vessels have some limitations for response but can provide critical on scene support during the initial stages of an oil spill.
- Expedition cruise vessels are uniquely equipped to operate in the Arctic environment and can offer numerous capabilities including remote communications, preliminary assessment, equipment staging, underwater

surveys and damage control.

- Tabletop exercises with cruise operators showed us that authorities from Arctic states should utilize expedition cruise vessels in oil spill response planning and include them in regular training and exercise to increase competence.

- The Arctic expedition cruise industry is a resource that could be exploited in Arctic oil spill readiness and response.

PART I - THE EXPEDITION CRUISE INDUSTRY AND OIL SPILL RESPONSE

As one part of the project, AECO with inputs from NCA, designed a survey designated to understand what equipment and competence is presently onboard expedition cruise vessels sailing in the Arctic. This report summarizes the results of this survey.

THE SURVEY

OBJECTIVES

The survey consisted of 20 questions designed to investigate the expedition cruise industry's approach to additional engagement in Arctic oil spill preparedness and response. The questions investigate possibilities, opportunities, and challenges. Multiple choice questions as well as free-write questions were used in the survey. It was not mandatory to answer all questions.

QUESTIONS

The survey questions were developed by AECO in cooperation with the NCA (appendix 1).

RESULTS

AECO sent the survey to all operational members and 15 responses (52%) were acquired. The respondents represent a minimum of 39 vessels which corresponds to approximately 78% of the 2020 AECO fleet. Most (80%) of the respondent's vessels are over 100 meters in length while some (33%) are longer than 150 meters in length.

It is common for Artic operators to operate in more than one Arctic region during the season. All respondents typically operated in Svalbard for at least part of the season. Greenland and Iceland are also visited by the majority of operators while Arctic Canada is visited by about half of the respondents at some stage during the season. National Park Russian Arctic is visited by only a few operators during the season.

To quantify expedition cruise traffic in an area, it is more accurate to use the number of operating days per vessel rather than the number of ships occurring at some stage during the summer season. The survey results indicate that a majority of operators have vessels in the Arctic for a prolonged time during the summer season although shorter Arctic seasons are also occurring.

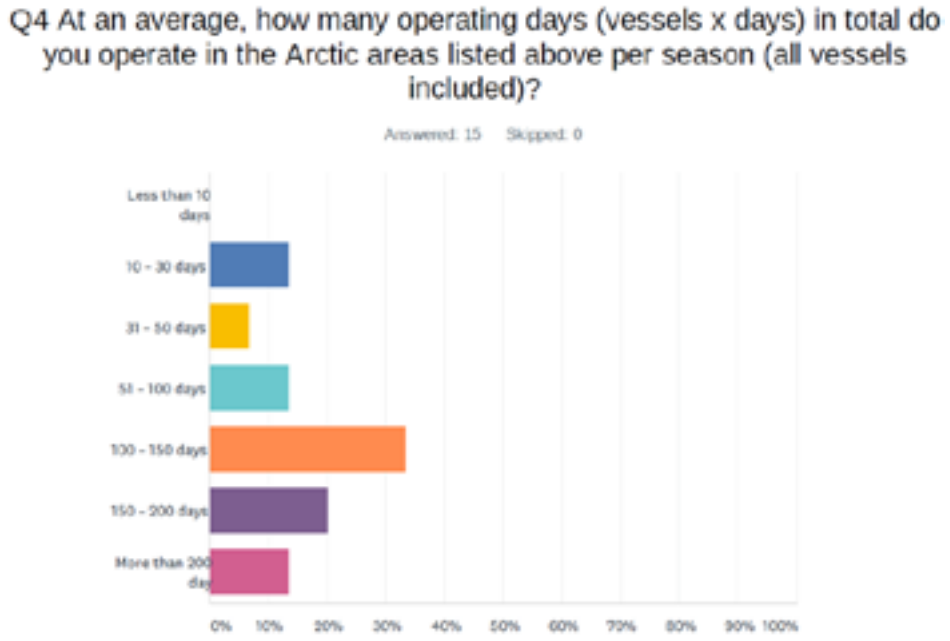


Figure 1 - Operating days of vessels per season

It is worth noting that operators often shift geographical focus during the season e.g., starting in Svalbard in the early summer and move to Greenland and perhaps the Canadian Arctic as the season progresses.

OIL SPILL EQUIPMENT ONBOARD

Regulation 37 of MARPOL Annex 1 requires all vessels over 400 gross tonnage to have an approved Shipboard Oil Pollution Emergency Plan (SOPEP). As part of this contingency planning, vessels are required as a minimum to carry a Marine Spill Kit.

33% of the respondent's state that they carry more equipment than legally required.

Examples additional equipment: Oil booms, Oil Absorbents (organic), Oil Spill dispersant (biodegradable) Multi-Purpose Cleaner Shovel Squeegees Deck brooms, Wilden Pumps, Resistant gloves, disposable overalls, absorbing pads, absorbent pillows, shovels, gloves.

The survey also includes a question on what additional equipment currently carried could be helpful in case of an oil spill. Most respondents mention the availability of Zodiacs that can be used for quick deployment of oil spill gear. Also, some respondents report that they have drones on board that can assist in getting an overview of a potential spill. In addition, hull magnets, leakage seals and magnetic patches for hull breaches are carried by several respondents.

OIL SPILL TRAINING AND DRILLS

The International Convention on Standards of Training, Certification and Watchkeeping for Seafarers (STCW) includes oil spill response training which is undertaken by all. Only very few respondents report that additional training is undertaken by the crew.

Oil spill drills are conducted according to international regulations and include drills during bunkering. All but one replies that drills are conducted once per month.

Oil spill drills organized with external partners are not commonplace. Two respondents report that they conduct tabletop exercises once a year, and two respondents report that they are/have been involved in live exercises.

These questions led to asking respondents to evaluate if they think the current standards and requirements for response, equipment, and training, is sufficient for vessels operating in the Polar areas. Only one respondent answers no to this question. Seven respondents answer that requirements are sufficient and seven reply that they are uncertain.

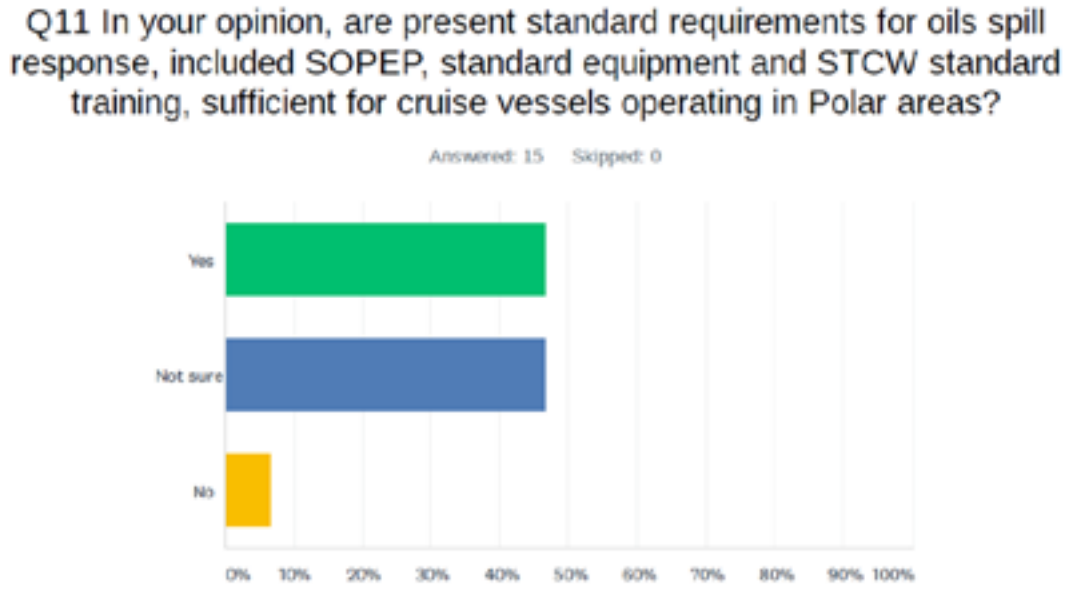


Figure 2 – Percentage of survey respondents that regard the current standard requirements for oil spill response for operating in Polar areas sufficient, not sufficient or are not sure.

A few respondents elaborated their response by suggesting that the present standard requirements only work for a small-scale oil spill. If a large-scale oil spill, involving hull breach, were to occur the current standard would most likely not be enough to mitigate the consequences. Comments were also made on the sensitivity of the Arctic environment and the difficulties of dealing with an oil spill in waters with sea ice - two factors that must be included in training for it to be sufficient. A suggestion that requirements are sufficient if drill routines are upheld, but also that local authorities should engage with operators on live exercises as an example of how preparedness could improve.

CRUISE VESSEL SELF-RELIANCE IN CASE OF OIL SPILL

Joint exercises, which include local authorities and are dedicated to Arctic conditions, were called for by several respondents. When asked “In your opinion, how can expedition cruise vessels improve their self-reliance in case of an oil spill?”, four respondents suggested that more equipment and more training can be considered to enhance self-reliance in case of an oil spill (31%). Only one respondent (out of 13 for this question) suggested the current set up is sufficient.

CARRYING ADDITIONAL OIL SPILL EQUIPMENT TO EXCEED REGULATIONS

The expedition cruise ship industry (87%) is generally willing to carrying more oil spill equipment than is currently required. However, it should be under certain conditions such as being voluntary and vessel size dependent. Smaller yachts will not have the ability to carry additional equipment and even on larger expedition cruise vessels finding additional space for more equipment may be a challenge.

Equipment that could be relevant to carry in addition to current requirements according to respondents: Oil booms, oil spill dispersants, magnetic hull patches (hull repair/plaster kits), oil/water skimmers, drones.

Photo: Ulstein Uavpic

EXPEDITION CRUISE SHIPS INVOLVEMENT IN ARCTIC OIL SPILL PREPAREDNESS AND RESPONSE

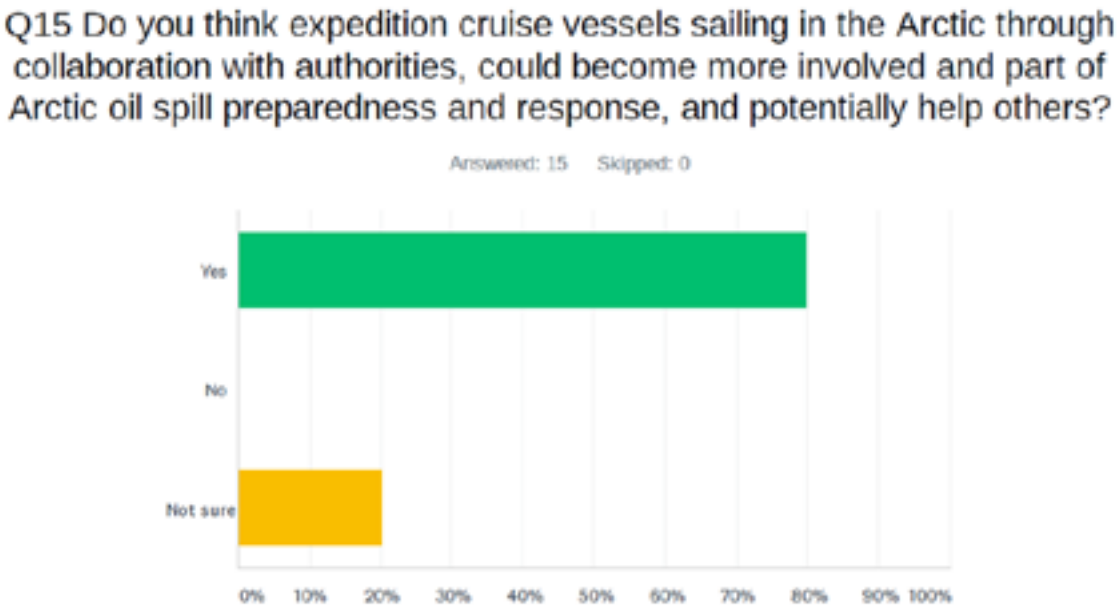


Figure 3 - Involvement of expedition cruise vessels in Arctic oil spill preparedness.

There was significant support among survey respondents to expand the role that expedition cruise ships can have in Arctic oil spill preparedness and response (80%). However, there are different views on how this can be achieved. There is a need to realize the ability of each individual vessel to respond to an oil spill as there are challenges connected with, among other things, the fact that cruise ships will likely have passengers onboard if the vessel is called upon to react. This issue was also raised in connection with other questions asked in the survey (see below).

Keeping the potential added engagement by operators to organize and/or participate in oil spill drills only (no practical deployment in case of a spill) is suggested. Direct involvement to participate with the deployment of extra equipment, use of onboard personnel, etc. is also listed as an option.

The involvement of expedition cruise vessels in oil spill response will likely lead to the cancellations of planned activities, change of itineraries, and possibly even cancellation of trips. It is very likely that such changes could lead to refund claims by passengers and impose a significant financial risk if volunteering to take part in oil spill response efforts. Some survey respondents raised this concern and questioned if expedition cruise operators should receive monetary compensation to cover added costs.

The respondents are generally in favor of receiving monetary compensation for e.g., loss of service, revenue, cost and use of equipment, crew, etc. (60%). The remaining 40% of the respondents are uncertain. Suggestions about possible insurance coverage and local authority involvement in compensations schemes were provided by some survey respondents to encourage the expedition cruise companies to participate in oil spill response. Their suggestions should be addressed to clarify conditions of involvement.

When asked "In your opinion, what would be the largest gain from expedition cruise vessels becoming more part of Arctic oil spill preparedness and response?" The primary view on motivations for the expedition cruise industry to be involved is to minimize the response time and hence reduce the impact on the environment in case of an oil spill. Being a part of such a scheme would also be beneficial to the industry's image, as well as generate a better understanding between local authorities, local communities, and the expedition cruise industry.

On the other hand, the concern for the financial risk in being a part of the oil spill preparedness and response is one of the major obstacles addressed by respondents. This includes the fact that passengers will most likely be onboard if the vessel is called upon for an emergency oil spill and the likelihood of costs associated with cancellations or lost days in the sold itinerary. The cost of additional equipment is another factor mentioned. Also, it is important to realize that even larger expedition cruise vessels have limited storage space available on board for equipment not already required in everyday operations. Expedition cruise ships often carry substantial amounts of equipment for use in delivering a sold product, which is outside the scope of the equipment needed to address regulations for the vessel itself. This could limit the quantity and type of additional oil spill response equipment that vessels can carry onboard.

A variety of response duties as a first responder to an oil spill are suggested in the survey. Some of which may not be possible for certain AECO member vessels due to size and capability, however, there may be opportunities for all vessels to assist in mitigating measures. Practical launch of equipment by use of tender vessels (e.g., Zodiacs) and help to a vessel in need may only be suitable for larger expedition cruise vessels to take on. However, smaller vessels can also act as communication hub to assess the situation and help launch an effective official response.

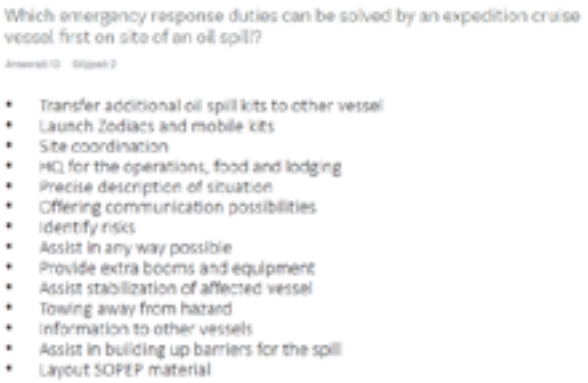


Figure 4 - Emergency response duties suitable for expedition cruise vessels.

FINDINGS

The expedition cruise industry is interested in developing ways to participate in the overall Arctic oil spill preparedness and response. Some uncertainty exists as to whether current requirements concerning oil spill equipment and training are sufficient for the Arctic regions if a large oil spill were to occur. Exercises with local Arctic authorities could improve oil spill preparedness and response competence.

Solutions include carrying equipment in addition to the Marine Spill Kit (SOPEP - MARPOL 73/78 requirement under Annex I) and assist as first responders to oil spill emergencies. There are challenges that need to be addressed such as realizing the limitations of different vessels – even vessels of similar size. Also, there is a

financial risk to companies if their ships respond to oil spills due to the presence of paying passengers on board. Despite the general motivation to help mitigating the environmental impact of oil spills, there is a need to address the possible financial consequences of first responder engagement.

The survey reveals compliance with regulations concerning oil spill drills but also a wish to engage with authorities in additional exercise opportunities.

Photo: AECO

PART II – THE OIL SPILL RESPONDERS, OBSTACLES AND OPPORTUNITIES

THE SURVEY

A survey was also sent to oil spill authorities and responders to better understand their views on the inclusion of Arctic expedition cruise vessels into oil spill preparedness and response. The Survey was sent to all eight Arctic states via their Head of delegation to the EPPR working group. Five countries provided responses to the survey.

Artic states' oil spill authorities were unified in answering that expedition cruise vessels can be utilized in Artic spill preparedness and response. Cruise vessel participation in search and rescue is for the protection of human life and already has very well established guidelines and obligations. Their participation in oil spill preparedness and response will require more consultation and will depend on many issues like the size and the tonnage of the vessel, the status of passengers onboard and the type of incident.

The following is a summary of the Arctic nation's answers to the questions raised by the survey.

Opportunities

The main benefit for cruise vessels to become a part of the oil spill preparedness and response system are that they are physically present in remote areas of the Arctic. They can be the first vessel on site and provide an update of the situation by sending photos, taking samples or using Unmanned Aerial Systems. Cruise vessels have capable communication platforms that are useful for transmitting critical incident information. The information they collect may help authorities to plan their response actions.

Expedition cruise vessels are uniquely designed and outfitted to operate in extreme environments. The vessels and their crew are designed for Arctic service and can play important roles during response to a major oil spill or disaster. They can perform many critical functions including emergency towing.

Many of the expedition cruise vessels have small boats onboard and their own oil spill response equipment. They are also capable of initial boom deployment.

Once authorities have arrived to the site, the cruise vessel can become a platform/HQ for the on-scene coordinator, or be a part of the logistics support to provide catering and other services for the responders.

Limitations

The main obstacles for expedition cruise operators to become a part of the Artic oil spill preparedness and response system according to the authorities' answers are the conflict with passenger's expectations, the vessel schedule, their bottom line, lack of capabilities and training, and health and safety concerns.

One major obstacle for expedition cruise operators to become part of a response is the lack of comprehensive training and specialized equipment. Mariners typically have extensive operational training but not in the areas of spill response, equipment or hazardous material handling and safety.

Liability is another major factor that will have to be worked out via contracts or memorandums of Agreements/ Understanding (MOU/MOA's). Responding to a spill or maritime incident increases risk for the crew, passengers and cruise vessel and will need to be covered through insurance or other means.

Expedition cruise vessels can improve their self-reliance in case of an oil spill by the vessel by having relevant contingency plans and equipment in place to mitigate their own risks. They must ensure they have proper communication equipment, stores of fuel and other consumable materials. A decontamination kit may be valuable as well as conventional boom, absorbent boom and basic knowledge on deploying spill equipment. Proper advanced training will be the key to ensure these vessels are prepared to respond.

The first responders on scene are critical to the initiation and effectiveness of a response. A cruise vessel could provide initial incident communications and the first site assessment. They can assist in pinpointing the location and size of a spill, and reporting on the drifting of oil. Cruise vessels can assist in initial boom deployment, provide logistics and become a work platform for the initial response.

When it comes to equipment for combating oil spills, the cruise vessels are carrying their SOPEP equipment. Additional equipment for being a part of oil spill response operations must be discussed between authorities and operators. It will depend on the capabilities and willingness of each individual vessel and operator.

Professional mariners typically possess a high level of competence in general seagoing skills, occupational safety and dealing with fuel and engine room waste. In order to become more proficient and conduct oil spill response, they should be required to conduct yearly training on general spill response principles and participate in notification/ emergency deployment drills. A requirement for once a year equipment deployment exercises will keep them up to date with new technology/strategies.

If an expedition cruise vessel participates in an oil spill response, the costs will be covered by the "Polluter pays principle". This will need to be addressed in at the onset of a spill. Cruise operators should consider regular participation in the Arctic preparedness and response activities to include equipment deployments, training and exercises. It would also be beneficial for there to be agreements between operators and national oil spill authorities to establish responsibilities and standards.

QUESTIONS

The survey questions were developed by NCA in cooperation with AECO (appendix 2).

FINDINGS

Artic states' oil spill authorities were unified in answering that expedition cruise vessels can be utilized in Artic spill preparedness and response.

The first responders on scene are critical to the initiation and effectiveness of a response. A cruise vessel could provide initial incident communications and the first site assessment.

The main obstacles for expedition cruise operators to become a part of the Artic oil spill preparedness and response system according to the authorities' answers are the conflict with passenger's expectations, the vessel schedule, their bottom line, lack of capabilities and training, and health and safety concerns.

PART III – SHARING INFORMATION ABOUT OIL SPILL EQUIPMENT

OBJECTIVES

The surveys and exercises in this project have determined that the expedition cruise vessels and operators may be considered a resource in Arctic oil spill preparedness and response. These vessels are carrying oil spill equipment as they sail throughout the Arctic. Some carry only the required spill kits but others carry additional equipment onboard that may exceed their legal responsibilities. In the event of an incident, responders may locate vessels by tracking systems, but may not know what these vessels are carrying. This project has therefore considered ways to share timely information about what equipment each expedition cruise vessels has onboard.

ALTERNATIVES AND CONSIDERATIONS

BARENTS WATCH

BarentsWatch is a center in the Norwegian Coastal Administration with the responsibility to share information about Norwegian coastal and marine areas.

BarentsWatch develops digital services for better cooperation, professional development, and sharing of information, both for public agencies, industry, and the public. They have developed "The Shared Resources Register (SRR)" that is a collection of information about resources from government agencies, voluntary originations and private business. The SRR streamlines operational efforts by sharing updated information about relevant resources across agencies and organizations. Through the Shared Resources Register operational agencies and other organizations responsible for life, health and environment, as well as material values, will quickly find the right resources.

In an emergency, the operational agencies have access to quality assured information about available resources, their expertise, equipment and position, in order to find, select and alarm the closest and correct resources when action is required.

This interactive platform for information sharing and exchange contributes to more efficient management and

ensures proper handling of community – critical data across government agencies. The content can easily be adapted to all contingency resources and will enable the visualization of areas in which we are resource-efficient and vulnerable to action areas.

The Joint Rescues Coordination Centers (JRCC) have been the main driver of the Shares Resource Register in the early phase, and the tool is in daily use in their work. In addition to several state and private organizations, non-governmental organizations have also contributed to the development of the service.

AECO'S CRUISE DATABASE

AECO has operated a Cruise Database since 2013. The Cruise Database is primarily a ships scheduler tool and a post visit report upload and statistics platform; however, the database also includes a section on vessel specific information. The current version of the database vessel section is based on the vessel questionnaire that the Governor of Svalbard requires operators to submit prior to the cruising season. It includes a variety of standard information about the vessel including contact information, size data, engine and fuel information, oily water discharge/waste oil, garbage handling and incineration, fresh, grey, and black water data, and ballast water details. A miscellaneous section includes information, among other things, damage control equipment and oil spill response equipment. Data is added by the members directly to the database. Not all operators have included all data on every vessel, but where data may be missing, this can be inquired from the operators.

In the current form, not all data is mandatory to include by operators. Equally, the type of information currently included is up for revision. A revision would most likely include a more comprehensive part of the questionnaire to be filled out as well as more specified details on oil spill response equipment carried on board. The results of the Neptune project will help determine what information is useful and relevant to include in this respect.

The details in the vessel specific information are based on what the AECO secretariat and Arctic authorities consider valuable information to have and can hence be adjusted accordingly. Adjustments of the list of questions asked can be amended with relative ease and an export function, currently not available, can be developed. The format of such an exported file can be directly uploaded into other systems. Further development may however be required. Direct access for external users is currently possible to a limited extent.

Further developments in the AECO Cruise Database would be required to target relevant site access for authorities.

THE UNITED STATES COAST GUARD RESPONSE RESOURCE INVENTORY (RRI)

The United States Coast Guard developed the Response Resource Inventory (RRI) list to locate and classify oil spill response equipment. The RRI includes data received from companies that wish to have their equipment listed in a publicly accessible system, as well as data generated from the Oil Spill Removal Organization (OSRO) classification program. Participation by private industry is voluntary except for classified OSROs, whose participation becomes mandatory when they apply for a classification. The response resource data is available by resource categories which include skimmers, transfer pumps, boom, vessels, HAZWOPER trained personnel, etc. Specific reports for equipment types or geographic areas can be produced to support preparedness or response activities.

AREA CONTINGENCY PLANNING

In the United States, Area Contingency Plans (ACPs) for oil and hazardous material response are mandated by law. These plans cover specific geographic areas and all aspects of preparedness and response. The ACP is where expedition cruise vessel capabilities could be referenced and listed. This plan provides the designated federal on-scene coordinator objectives, response resources, and incident management guidelines. The plan is signed by federal and state authorities but is written and agreed upon by an area committee. This committee includes federal, state and local response authorities, industry members and other non-governmental organizations, and they organize their work in meetings Individual citizens are also invited to attend the committee meetings and provide input. The area committee forum is designed to be an inclusive and cooperative entity. It is an ideal

place for cruise operators and authorities to integrate with and better understand each other's capacities for the industry to understand the authorities role in the system. With the cruise vessels listed in the ACP, they would be notified of preparedness activities and utilized for actual response operations when appropriate.

OTHER

This project has only considered a few of what is likely more opportunities for sharing of information. Any additional opportunity will likely be on a national level. Given the nature of the Arctic cruise operations, where itineraries are likely to include several states and change can change from one itinerary to the other, or from one period of year to the other, it would be beneficial if any platform for sharing of information about the expedition cruise industry's capacities and equipment would be accessible for all Arctic states. A solution where the industry would have to register and keep multiple national databases or plans updated, is not considered a good solution.

CONCLUSION

Throughout the course of this project, three ways of sharing information about oil spill equipment on board expedition cruise vessels were examined. Two of them are national platforms, while the third is the industry's own database. Our findings suggest that the AECO database is the best available database to share information about the oil spill equipment and capabilities onboard each cruise vessel in the Arctic. The advantage of this database is that it is already tailored for industry use and AECO members have a vested interest in keeping the information up to date. Access to the data in the database can be made available to oil spill responders and operators have access to see information about other vessels and operators. In the future, this database may need to be upgraded, but currently the information can be accessed easily, and it can be uploaded into other programs for data sharing and management.

PART IV – OIL SPILL RESPONSE EXERCISES

PURPOSE

The Norwegian Coastal Administration (project lead), U.S. Coast Guard (co-lead) and The Association of Arctic Expedition Cruise Vessels (AECO) (industry sponsor) conducted two virtual tabletop exercises with two separate cruise operators in late 2020. These tabletop exercises were designed to present a realistic scenario and to discuss response options using facilitated questions. The exercises sought to understand the capabilities and limitations of the expedition cruise vessel industry as a whole. The purpose was to identify ways that cruise vessels could support authorities during an actual vessel casualty or oil spill and involve them in a conversation about response operations.

Participants from organizers both exercises:

- Synnøve Lunde and Bjørn Brattfoss (only Ex 2) - Norwegian Coastal Administration / EPPR
- LCDR Jason Scott and CDR Wes James (only Ex 2) - US Coast Guard / EPPR
- Frigg Jørgensen - Association of Expedition Cruise Operators

EXERCISE 1 - HURTIGRUTEN – NORWAY BASED EXPEDITION CRUISE OPERATOR

Participants from Hurtigruten

Head Office: 3 participants

Cruise vessel Master and crew: Engineer, Chief Officer 1st. Mate, Expedition Leader, Hotel manager

"MV Roald Amundsen"

- PC6 Polar Class
- 140m vessel with Hybrid (LNG/Battery Power)
- 1st Hybrid Power vessel to sail the NW Passage

EXERCISE 2 - LINDBLAD EXPEDITIONS – U.S. BASED EXPEDITION CRUISE OPERATOR

Participants from Lindblad Expeditions

"MV National Geographic Explorer": Captain and Staff Captain

"MV National Geographic Explorer": Captain, Staff Captain, Safety Officer, Chief Engineer, Staff Chief Engineer (2)

Lindblad Marine Operations Office: Two Captains

"MV National Geographic Explorer"

- 1A Ice Class Rating
- 112m vessel powered by Diesel engines
- Former Hurtigruten Ferry in Norway

"MV National Geographic Endurance"

- PC5 Polar Class
- 123m vessel powered by Diesel engines
- Newest Vessel in the Lindblad Fleet purpose built for polar exploration

SCENARIO:

- Fishing vessel ***"Hav"*** has grounded north of Spitsbergen in the Archipelago Svalbard, Norway
- The cruise vessel Roald Amundsen is the closest vessel; they have 150 passengers on board
- The cruise vessel is asked by the JRCC to go to the site and provide assistance
- Weather conditions are bad further south in Spitsbergen and it is not possible to get assistance from Longyearbyen at the current time

- There are 12 crewmembers onboard the fishing vessel, no one is reported hurt or injured
- The vessel has reported 750 m3 (4,700 bbls) of marine diesel on board

Locations of Operations

The tabletop exercises were conducted using the Microsoft Teams virtual platform. All participants were located in their home offices or onboard cruise vessels in port.

Exercise Limitations: In-person meetings or live exercises were not possible due to public health concerns and global travel restrictions. No actual equipment or procedures were deployed or observed during these tabletop exercises.

EXERCISE RESULTS

SYNOPSIS OF THE CAPABILITIES AND LIMITATIONS FOR EXPEDITION CRUISE VESSELS

The full results of the tabletop exercises with Hurtigruten and Lindblad are discussed in the capabilities and limitations listed below. In addition, recommended future actions are discussed to provide authorities an idea of steps that can be taken to further develop the capacity of expedition cruise vessels for assisting in oil spill response incidents in the Arctic.

CAPABILITIES

The following observations describe the capabilities of expedition cruise vessels and represent the impactful contributions they can make during an oil spill response in the Arctic.

1. Ability to Operate with Passengers Onboard

The Masters of the cruise vessels and the shore side operations staff were explicit in their ability to respond to an oil spill related incident while they had passengers embarked. They may be restricted by their itinerary if the cruise vessel was near the end of their scheduled journey and needed to bring passengers in to port. They may also be restricted from immediate response if they had passengers and crew away from the vessel for an expedition or port call. Overall, the vessel crew was very willing to respond and assist as necessary with passengers onboard.

2. Arctic Communications

Modern Arctic cruise vessels are equipped with modern communications equipment and are in constant contact with the closest Rescue Coordination Center (RCC), other cruise vessels in the area and their respective parent company. They would be notified of an incident through standard radio communications as a mayday call or notice to mariners from the RCC. In addition to receiving communications, most vessels are able to transmit communications, pictures and other data through satellite communication systems dependent upon their exact location and environmental conditions. Communications systems do vary from vessel to vessel and may become more limited in the far north, but they can be extremely valuable during an emergency response. The advance communications also mean that expedition cruise vessels would make a good initial command and control center to coordinate resources, provide situation updates and potentially host response personnel. The initial response actions have a significant effect on the outcome of any response. Effective coordination is key to any response operation and cruise vessels represent an excellent platform in the absence of government authorities or professional response assets.

3. Boom and Rescue Boats

Expedition cruise vessels thrive on their ability to anchor in remote areas and deploy a fleet of small boats to explore the surrounding areas or move passengers to land. These same small boats can be used for many oil

spill response tasks. They can move people and equipment between vessels or back and forth to land. The boats can pull boom and position it to help minimize the spread of oil. The boats can help tend the boom to ensure it is working effectively and also deploy and collect absorbents as necessary. In remote areas of the Arctic it is critical to have many small boats to tend an incident because a large cruise vessel or response boat may be cumbersome to move around or unable to operate safely due to water depth or other obstructions. In order to launch equipment and small boats, cruise vessels are equipped with cranes. They will vary in size and capacity, but they are useful in a variety of applications including launching spill response equipment.

4. Dynamic Positioning

Many cruise vessels are equipped with an advance dynamic positioning system and it can be a valuable tool for emergency response operations. It allows the vessel to stay on station automatically so the crew can affect a response, launch small boats, conduct air operations and deploy spill equipment. The vessel's master also offered that medium to large sized cruise vessels can utilize this feature to provide a lee for a stricken vessel. If the geographic location allows, a cruise vessel can position up wind or current from a vessel and lessen the effects of weather and sea state on the casualty. This can lessen the likelihood of a stricken vessel capsizing, or sustaining further damage after an incident. It can also lessen the spread of oil and allow favorable conditions for boom deployment and oil recovery. This is an important non-intrusive benefit of having a cruise vessel respond to an oil spill in the Arctic.

5. Small Incidents

Fuel spills and Patching: The Hurtigruten and Lindblad fleet of vessels as with most other cruise vessels are prepared to handle incidents on their own ship. They are capable of handling small fuel spills, transferring fuel between vessels and even damage control techniques such as hull patching with magnetic patches. These capabilities could easily be utilized to assist a stricken vessel in need of minor repair work to prevent a larger incident.

6. Ice rating

Ice ratings are critical for vessels operating in the Arctic. The PC-6 ice rating on the Roald Amundsen classifies it for use in summer and autumn seasons (Arctic) in medium first year ice with the possibility of old ice inclusions as well. This ice rating is common amongst expedition cruise vessels but not with dedicated oil spill response vessels. It is important to understand the capabilities of expedition cruise vessels to operate in harsh Arctic conditions. The National Geographic Endurance has an ice rating of PC-5 which means even more capability and allows it to operate Year-round in medium first-year ice, which may include old ice inclusions

7. Underwater Survey Equipment

Many expedition cruise vessels are equipped with advanced underwater survey equipment. This capability aids the cruise operator in offering true exploratory experiences for their guests. It also serves as a safety measure in case there was an issue with the ship itself, the crew could survey the hull or the sea floor to search for hazards. Some ships are equipped with certified divers. Many carry small remotely operated Autonomous Underwater vehicles (AUV's) that can be used for a variety of purposes. Most ships also carry advanced sonar packages that enable them to use small boats to survey unknown ports, bays and fjords to ensure safe passage for the vessel. These underwater survey tools can be extremely valuable during a maritime incident to survey the hull of a ship for damage, understand the severity of a grounding, clear safe passage for larger response vessels or to help affect repairs to a ship to mitigate an oil spill or prevent a vessel from sinking. This unique capability often requires a technical specialist with specialized equipment to be flown into a location. Expedition cruise vessels can offer this capability to spill responders in remote Arctic locations and potentially without a long transit time.

8. Heli-Pads

Many expedition cruise vessels have heli-pads on board to facilitate the safe transfer of passengers or equipment during emergency situations. The crews are also trained to handle the high-risk hoisting operations if needed. This capability is critical for search and rescue operations and during human health emergencies. It is also important as a way to transport responders or incident command staff out to an incident. More importantly, Heli-pad deck space can allow responders to transport critical response equipment between vessels or from an oil spill

equipment cache on land. Given the remote locations where a spill could occur in the Arctic, helicopters may be the most feasible way to transport needed equipment to the site of a spill. In contrast, fishing vessels and small cargo vessels often have dangerous rigging that makes air dropping personnel or equipment more dangerous.

LIMITATIONS

The following observations describe the limitations of expedition cruise vessels and their ability to respond to oil spills in the Arctic.

1. Passengers on Board

Hurtigruten and Lindblad cruise ships can be very capable response vessels in the Arctic but they are rarely without paying passengers on board. The ship's captain was confident that having passengers onboard would not impede their ability to respond to an incident and cited their agreements to assist during search and rescue requests. While passengers may enjoy the action of responding to an incident, they will reduce the amount of time a cruise vessel is able to support an incident response. It is reasonable to expect a cruise vessel with paying customers could assist for a maximum of three days, but it would likely be less and dependent on where in their itinerary they were and if they needed to get passengers to shore to return to their homes.

2. Nuclear & other Hazardous Materials

There are pollution threats in the Arctic other than oil. Hazardous materials from cargo, electrical generation and batteries will likely be beyond the capabilities of an expedition cruise vessel crew. Responding to an incident involving a nuclear-powered vessel is also beyond the capabilities and safety for expedition cruise vessels and would likely require specialists.

3. Replenishment of Required SOPEP Equipment

Vessels are required to carry spill kits onboard to satisfy the requirements of MARPOL Annex I. The requirements vary by size of the vessel, but the kit is primarily designed to assist in the cleanup of a small spill onboard a vessel like a tank overflow or a fuel line rupture. The kits include a limited amount of sorbent materials and PPE but will not be sufficient for any type of significant spill or casualty incident. There is no requirement for vessels to carry any additional spill equipment. If this equipment is used, it must be replenished immediately. The vessel contingency plans and international regulations require that this equipment be onboard at all times. In order to achieve compliance, the cruise vessel operator will need to have a plan for re-supply or individual nations can have caches of this equipment strategically placed to assist vessels who may help during an incident.

4. Deck Space

Oil spill response operations require a significant amount of open deck space. The Roald Amundsen is a newer built vessel with limited deck space. The deck space is critical for staging equipment, receiving helicopter deliveries and to accommodate waste collection activities. Some vessels in the fleet have more open deck space than others, so it is worth understanding the limitations of each. Open air deck space is safer for the crew to work on and can accommodate extra equipment and supplies while not contaminating the interior of the vessel. The National Geographic Explorer has much more open deck space and may be more useful for certain operations.

5. Seasonal

The expedition cruise season in the Arctic is dependent on weather and ice conditions but typically starts in Late April or Early May and ends in early September. Expedition cruise vessels, during non-pandemic times, are nearly constantly on charter, so when they are not in the Arctic, they are exploring other locations and even the Antarctic. Vessels are not readily available all year long, but do have a significant presence in the Arctic during the Northern hemisphere summer, when the ice cover is at its least and ship traffic is the heaviest.

FUTURE NEEDS

Based on the capabilities and limitations of expedition cruise vessels the following suggestions would greatly enhance their readiness to respond to oil spills in the Arctic.

1. Training with Oil Spill authorities

The professional mariner crews onboard the Hurtigruten vessels have inadequate oil spill response training. They have limited requirements for health and safety training. Formal spill response training with the crews would greatly benefit their readiness to respond to a maritime incident. Training with appropriate spill response authorities would allow the crew to understand the priorities and objectives during an actual response operation where they could be a first responder. A basic understanding of oil spill fate, behavior and response tactics will allow them to more effectively respond to spills in the Arctic. In addition to regular training, ship's crews should integrate spill response drills into their regular schedule to remain proficient. Training for helicopter delivered equipment drops would also be a valuable initiative for the ships' crew. In an emergency, helicopters may be used to deliver spill equipment and personnel between land and ships or remote sites. Experience for the ships crews will ensure safe operations if this situation were needed.

2. Boom Handling

Training for how to deploy, maintain and retrieve containment boom will enhance the capability for the ships crews to mitigate the effects of a potential or actual spill. Hurtigruten ships have some boom (containment and absorbent) onboard, but do not regularly train with how to use it in open water. Basic skills such as towing, anchoring and securing the boom would provide the ship's crew with the confidence to safely respond to spills. The training could be a joint training opportunity with government agencies or privately contracted instruction.

3. Additional spill response equipment

The addition of containment boom is the greatest spill countermeasure that expedition cruise vessels can bring onboard. This addition will make them truly capable of acting as a first responder who could take steps to minimize the spread of oil from a stricken vessel. Along with containment boom, additional personal protective equipment will be required to keep workers safe. If possible, small fuel transfer pumps and portable storage tanks would also be valuable equipment to carry onboard. Oil removal equipment such as skimmers would be beneficial, but take up a substantial amount of storage space, require additional logistics and specialized training. The on board SOPEP response equipment is insufficient for a substantial incident where the threat of oil discharge into open water in present. In general there needs to be more attention put on the amount of available oil spill response equipment stored around the Arctic. Additional oil spill response caches would increase preparedness and provide additional resources that could be readily deployed onto cruise vessels or other vessels capable of responding to an incident. Rough seas, unpredictable weather and ice conditions can slow the transport of critical response equipment in the Arctic. More equipment onboard ships already sailing the area and more pre-staged equipment caches will ensure more effective responses and protection of the marine environment.

4. Resource List

AECO maintains a database that includes vessel characteristics, contact information and other individual details of the expedition cruise vessel fleet. AECO has agreed that with minimal extra requirements on the fleet, this list can be updated to include oil spill response related equipment. At a minimum, this list could include the type and quantity of spill boom, quantity of absorbents, personal protective equipment and any other ancillary response equipment. Having this information in a central database will provide an efficient way for Arctic states or responsible parties to access available response resources for an Artic spill response operation.

5. Full Scale Live Exercise

The only way to truly test and display the capabilities of expedition cruise vessels is to observe their response to a simulated incident during an exercise. Understanding the capabilities of the ship and its crew is critical to building confidence in their ability to respond oil spills in the Arctic. Conducting a Live exercise should remain a priority for Arctic nations and AECO as a cooperative entity.

EXERCISE CONCLUSIONS

Expedition cruise vessels can be a critical resource during an oil spill response in the Arctic. Their presence alone make them an important asset to Arctic nations and response authorities. They can serve many valuable roles as first responders or logistical support platforms until specialized response resources can arrive on-scene. Expedition Cruise operators are in constant communication with each other and coordinate closely as they plan their cruising season and explore new remote destinations. This close coordination and their professional and safety minded crews are incredibly capable of providing support to Arctic states and their relevant authorities. Oil spill prevention, preparedness and response authorities with Arctic and other high north interests should include the expedition cruise industry in their planning. They should be invited to participate in preparedness and training opportunities to increase their understanding of oil spill cleanup procedures and safety considerations.

Developing a template for exercises onboard expedition cruise vessels was included in the application as one of the deliveries. It was difficult to develop this without the planned Livex, so this part was not possible to cover due to Covid-19 and no Livex.

PART V – PROJECT CONCLUSION AND RECOMMENDATIONS

CONCLUSIONS

- The expedition cruise industry can be an excellent partner that is capable of providing valuable first responder services during oil spills in the Arctic. These small, specialized cruise operators are successful through their commitment to sustainability and their self-reliance. Due to the rugged environments in which they operate, they are prepared to respond to emergencies for themselves as well as other vessels. They are not often considered as a spill response asset, but in the Arctic, they could very likely be the first and only asset on-scene for up to a few days depending on location.

- Some limitations must be regarded, but they should be considered in oil spill preparedness planning and response.

- With support from the Arctic Council EPPR workgroup and individual Arctic nations, expedition cruise vessels can serve an important role during emergency response operations. They could greatly mitigate the threat of an oil spill and minimize damage to the environment through their initial actions. They rely on the pristine Arctic environment for the experiences of their guests and have a vested interested in the protection of fragile marine ecosystems.

RECOMMENDATIONS

- Additional training and exercises between Arctic states and the individual cruise operators will help to build trust and understanding and strengthen the relationship between industry and government interests.

- Leverage the administrative coordination of the Association of Expedition Cruise Vessels (AECO) as a central resource for information about cruise vessels, operators, and onboard oil spill equipment and capabilities.

- Assist Arctic State oil spill contingency plan holders and administrators to including Arctic Expedition Cruise operators in their listed resources for spill responses in remote areas of the Arctic with limited resources.

- Support the ammendment to the AECO database and add oil spill response specific equipment on board cruise

vessels operating in the Arctic to the inventory.

- Explore options for encouraging and supporting expedition cruise vessels to carry additional oil spill response equipment like containmnet boom, absorbent materials and containers for safe collection and disposal of oil and oily waste. Develop recomendations with input from Arctic state authority inputs

- The Arctic Council EPPR MER expert group should continue to coordinate with expedition cruise operators and seek ways to increase understanding of their capabilities.

- The MER expert group should also seek to share the information in this report to push for the inclusion of the Expedition Cruise industry into oil spill response plans.

APPENDIX 1 – CRUISE OPERATOR SURVEY QUESTIONS

Opportunities and obstacles for expedition cruise operators to become part of the Arctic oil spill preparedness and response.

PART I – Who are you?

1. How many AECO vessels do you operate in the Arctic?

   a) 1

   b) 2

   c) 3

   d) 4

   e) 5

   f) More than 5

2. What is the size of the vessel(s) you operate in the Arctic (multiple choices possible)?

   a) Shorter than 25 meters overall

   b) 26 – 50 meters overall

   c) 51 – 100 meters overall

   d) 101 – 150 meters overall

   e) 151 – 200 meters overall

   f) Longer than 200 meters overall

3. Which geographical parts of the Arctic do you operate on a regular (seasonal) bases (mark all relevant)?

   a) Svalbard

   b) Greenland

   c) Iceland

   d) Arctic Canada

   e) Franz Josef Land and Novaya Zemlya

   f) Other (list): _____

4. At an average, how many operating days (vessels x days) in total do you operate in the Arctic areas listed above per season (all vessels included)?

   a) Less than 10

b) 10 – 30

c) 31 – 50

d) 51 – 100

e) 100 – 150

f) 150 – 200

g) More than 200

PART II – Oil spill equipment and competence

Regulation 37 of MARPOL Annex 1 requires all vessels over 400 gross tonnage to have an approved Shipboard Oil Pollution Emergency Plan (SOPEP). As part of this contingency planning, vessels under 400' require a 7 Barrel (1100 liters) Marine Spill Kit. Vessels above 400' require a 12 barrel (1900 liters) Marine Spill Kit that includes.

Inclusions:

COMPONENTS	SIZE	SK11OF 7 BARREL SPILL KIT SK1900OF	SK1900OF 12 BARREL SPILL KIT
Absorbent Capacity		1100 liters	1900 liters
Floating Oil Absorbent Boom	125 mm x 3 m	6	10
Oil only Absorbent Boom	480 x 430 mm	500	800
Oil Only Absorbent Roll	50m x 500 mm	1	2
Oil Only Absorbent Pillows	450m x 450 mm	15	22
Contaminated Waste Bags		10	16
Oil Resistant Gloves		2	2
Disposable Overalls		2	2
Lockable Weather-proof Container	1000 liters	1	-
Lockable Weather-proof Container	1500	-	1

5. Do your vessel(s) carry more ***oil spill equipment*** than the standard components as listed above?

   a) No

   b) Yes

   c) Not sure

   d) Comments _____

6. If yes, can you please list the extra ***oil spill equipment***, including number/dimensions/lengths (if relevant):

   _____

7. Does your vessel(s) presently carry ***other equipment that you think could be useful in the event of an oil spill*** from your own vessel, or other oil spills (please consider from a wide angle, e.g. zodiacs, drones, hull plasters, etc.): Please lists:

_____

8. STCW includes oil spill response training. Do your bridge officers and/or crew members have additional competence or training in oil spill response handling? If yes, can you please describe?

_____

9. Does your vessel(s) organize regular oil spill response drills? If yes, how often?

   a) Four or more times per year

   b) Two-three times per year

   c) Once every year

   d) Less than once a year

   e) Comments: _____

10. Does your vessel(s) organize regular oil spill response exercises If yes, how often?

   a) One or more times per year

   b) Every other year

   c) Less than every other year

   d) Comments: _____

11. Has your company/vessel(s) participated in oil spill response exercises organized by others? If yes, can you please briefly describe what kind of exercises, who organized it, where they took place, who participated, and other relevant information:

_____

PART III – Opportunities and obstacles

12. In your opinion, are present standard requirements for oils spill response, included SOPEP, standard equipment and STCW standard training, sufficient for cruise vessels operating in Polar areas?

   a) Yes

   b) Not sure

   c) No

   d) Comments:

13. In your opinion, how can expedition cruise vessels improve their self-reliance in case of an oil spill?

_____

14. Would you be willing to carry more oil spill response equipment (tick all relevant boxes)?

    a) No

    b) Yes, we may be willing to carry more equipment

    c) Yes, but we think is should be voluntary

    d) Yes, but only if cost for additional equipment is covered by authorities/others

    e) Yes, and we think an obligation to carry additional equipment could be regulated in legal framework

    f) Comments:

15. Which additional oil spill response equipment that is presently not (normally) part of cruise vessel's equipment, could potentially be placed onboard expedition cruise vessels?

_____

16. Do you think expedition cruise vessels sailing in the Arctic through collaboration with authorities, could become more involved and part of Arctic oil spill preparedness and response, and potentially help others?

    a) Yes

    b) No

    c) Not sure/comments: _____

    d) If no, why not?

17. If an expedition cruise vessel assisted in an oil spill response emergency, do you think the cruise operators should be in title to monetary compensation?

    a) Yes

    b) No

    c) Don't know/comments: _____

18. In your opinion, what would be the largest gain from expedition cruise vessels becoming more part of Arctic oil spill preparedness and response?

19. In your opinion. what are the main obstacles for expedition cruise operators to become more part of Arctic oil spill preparedness and response?

20. Which emergency response duties can be solved by an expedition cruise vessel first on site of an oil spill?

21. Do you have additional comments/proposals?

APPENDIX 2 – OIL SPILL RESPONDERS SURVEY QUESTIONS

1. Do you think expedition cruise vessels in the Arctic could be part of the oil spill preparedness and response?

2. In your opinion - what is the main opportunities for expedition cruise operators to become part of the Arctic oil spill preparedness and response?

3. What is the main obstacles for expedition cruise operators to become part of the Arctic oil spill preparedness and response?

4. How can expedition cruise vessels improve their self-reliance in case of an oil spill?

5. Which kind of emergency response duties can be solved by an expedition cruise vessel first on site?

6. In your opinion, what oil spill response equipment and other resources could/should a cruise vessel carry in order to be self-reliant in case of an incident. Please list:

7. In addition to the above and in your opinion, is there additional oil spill response equipment that would be beneficial on an expedition cruise vessel to further enhance the oil spill preparedness and response in the Arctic?

8. Which competence will be beneficial for crew/staff onboard a vessel of opportunity to have in order to actively involve in oil spill response activities?

9. What kind of training or exercises are necessary to bring competence on an acceptable level and keep it there?

10. How can the involvement of expedition cruise vessels in Arctic oil spill preparedness and response be organized as a whole/ in your country?

11. What about costs? How should cruise vessels be compensated if they contribute in an oil spill/SAR operation?

12. Any other issues relevant in the project?

APPENDIX 3 – TABLETOP EXERCISE DISCUSSION QUESTIONS

Notifications

- How would you be notified of an incident?
- Who will you notify yourself?
- At what capacity could you respond with passengers on board?
- At what capacity could you respond without passengers on board?

Communications

- What communication capabilities do you have onboard? Could you communicate with NCA/military assets? Could you communicate with the JRCC?
- What is the network capacity of your onboard internet/satellite communications systems? Can you transmit documents and high resolution photos from anywhere in the Arctic?
- Do you have any major limitations in regards to communications in Svalbard? The rest of the Arctic?

Operations

- What spill equipment is onboard your vessel right now that could be used to combat an oil spill at sea?
- How much Personal protective equipment do you have onboard? How long could this sustain your crew onboard?
- Does your vessel have the capability to support accessory hydraulic equipment? Does your vessel have the capacity for any temporary storage of oily waste?
- Does your vessel have drones/AUV's other remote sensing equipment on board?
- How many small boats do you have onboard?

Planning

- Would any of your existing emergency plans cover oil spill response operations?
- Do you have any procedures in place for acting as a good Samaritan vessel or vessel of opportunity?
- Do any of your company or ship's policies preclude you from assisting another vessel in distress?
- What level of training does your crew have for hazardous material management? Emergency management?

Logistics

- How many responders could your vessel house and feed if there were no passengers onboard? How long could you support this team without re-supply?

- Would your vessel need any operational waivers/permits if it is being utilized for purposed other than cruise ship passengers?
- Are there any seasonal restrictions or considerations for your vessel?
- Is your vessel capable of re-fueling other vessels?

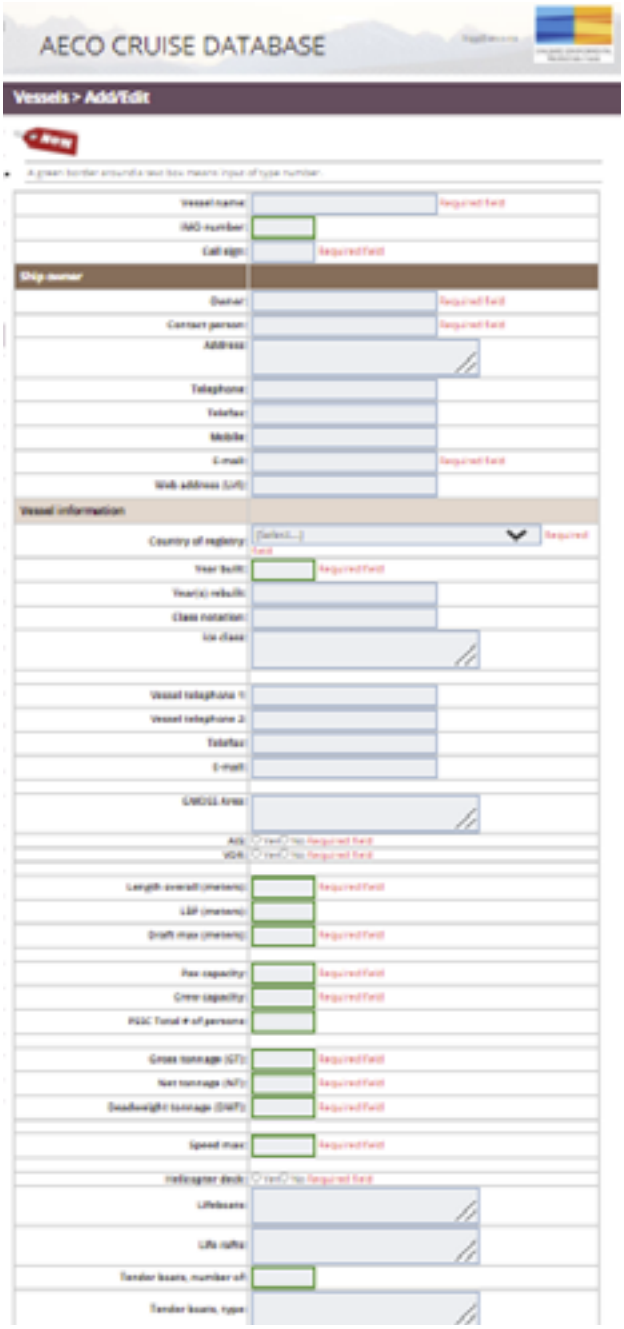
Finance

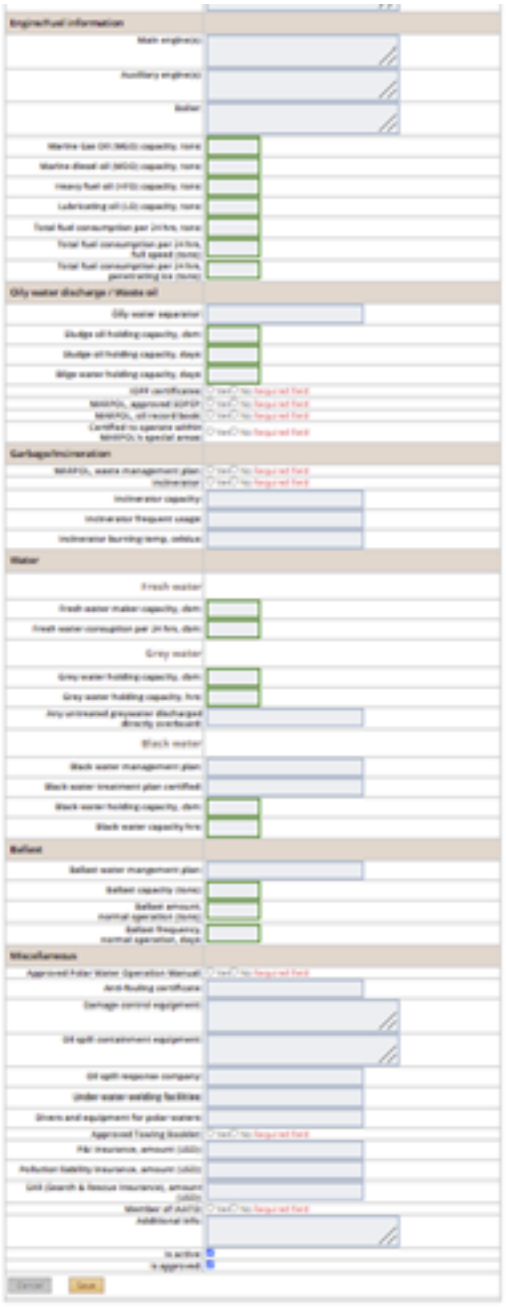
- Does your company have a robust finance department that could handle claims?
- Is there a cost estimate for the use of the cruise vessel for oil spill response activities? Daily burn-rate?

What could authorities have done to make you prepared to do more?

- New laws and regulations?
- Additional training?
- Exercises?
- Other?

APPENDIX 4 – AECO'S CRUISE DATABASE VESSEL INFORMATION





ARCTIC COUNCIL SECRETARIAT
Fram Centre
NO-9296 Tromso Norway
Tel: +47 77 75 0140
acs@arctic-council.org
arctic-council.org