



# **BOILEX 2011**

## **Final exercise report**

Baltic Oil Spill Exercise 27-29 September  
2011, Nynäshamn



CENTRAL BALTIC  
INTERREG IV A  
PROGRAMME  
2007-2013



EUROPEAN UNION  
EUROPEAN REGIONAL DEVELOPMENT FUND  
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## **Preface**

All countries in the Baltic Sea Region have different preconditions when it comes to managing a large oil spill affecting the shores. We are differently organized, we have varying legislation and our coastlines differ as well as our response capacities. Only one thing is common for all – no country alone is capable of protecting all their valuable coastlines in case of a major oil spill. There is a well-established international cooperation both within HELCOM and the Copenhagen Agreement regarding offshore oil spill response. However, when it comes to shoreline oil spill response the Baltic Sea countries are lacking a platform for exchanging experiences and knowledge. This is the background for the EnSaCo project and the BOILEX exercise.

The number of stakeholders involved in a shoreline oil spill response is far larger than the ones operating at sea which leads to a more complicated operation. This complexity is present also in shoreline exercises. BOILEX was no exception; we combined a theoretical table top with practical field exercises both on-shore and offshore. The exercise included 81 different organizations from 8 countries.

HELCOM will include shoreline oil spills and oiled wildlife response in their overall response in the near future. We have developed a manual for cross-border shoreline exercises, based on experiences gathered in BOILEX. The EnSaCo partners believe that such a manual can be of particular interest for HELCOM regarding future exercises in the Baltic Sea Region.

Among the final products of EnSaCo are the harmonized Environmental Atlas system and the manual for handling of oiled wildlife. These tools will also be important in future cross-border shoreline oil spill response operations and exercises.

Our hope is that the EnSaCo project with BOILEX in the forefront has paved the way for other nations to arrange these important cross-border shoreline exercises in the Baltic Sea on a regular basis.

**Karl-Erik Kulander**

Shoreline oil spill expert/EnSaCo project coordinator

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## Summary

EnSaCo is short for Environmental and Safety Management on Shoreline Oil Spill Response and the project aims to strengthen cross-border cooperation between central Baltic Sea countries. The shoreline oil spill exercise BOILEX was the major practical component of the project.

National shoreline oil spill exercises have been held yearly in different parts of Sweden during the last four years, which has given valuable experience to the planning of BOILEX. A large-scale shoreline oil spill accident, or exercise, includes a large number of organizations; several municipalities and rescue services, counties and central authorities, NGOs and commercial actors. In a cross-border incident the number of involved organizations is increased rapidly. A simple, robust management system becomes crucial in order to control the accident in a timely matter.

The BOILEX exercise managed to involve 81 different organizations from 8 countries. Bringing together a wide spectrum of stakeholders was seen as important in order to create a realistic scenario and a collaborative environment between organizations and countries. Furthermore, an offshore field exercise held under the Copenhagen Agreement was carried out parallel to BOILEX and is also evaluated in this report.

The overall aim in BOILEX was to increase the knowledge about managing an oil spill that is affecting the shoreline. Furthermore, the objective was to achieve well-functioning international cross-border cooperation concerning management, assessments and decision making in the early stage of the oil spill. The exercise also aimed to identify future needs for development.

The trained nations, Sweden, Finland, Estonia and Russia have increased their ability to give and receive aid during a larger shoreline spill which exceeds any individual municipality, county or nation's response capacity. Responders have, through participation in this exercise, gained knowledge in the deployment of response resources both on the shoreline and offshore.

The alarm offshore is well organized and well-functioning. However on the shoreline the number of involved organizations is much larger and the alarming system is in need of improvement. There is a delay in the information toward the municipalities and county administration boards which is unnecessary and the delay may be very costly. The NGOs concerned with oil wild life response should also be informed in an early stage.

There is a need for more joint exercises and harmonized educations between the countries. The organizational structures differ among the countries and it

would be beneficial to strive as much as possible to achieve similar working methods on the shoreline. This is already the case offshore in the Baltic Sea within both HELCOM and the Copenhagen Agreement.

A holistic view is needed regarding coordination of international help on shoreline oil spill response. Routines should be formalized and the type of international help needed should be identified. It is also necessary to learn more on how to utilize available agreements.

Generally all nations and responders would preferably have been more proactive in their response. Many reported that they would monitor the situation and take no further action until it was considered necessary or requested by someone else outside their organization. It is recommended that resources get placed in stand-by mode immediately, personnel gathered and equipment inventoried so that everything is prepared as much as possible if it should be needed. This would save very valuable response time.

It was unclear who was authorized to request the oiled wildlife resources, especially international resources. There was also question on how the international aid was to be funded.

A recommendation is that policies are developed to outline the steps necessary to affect a timely request and delivery process. It can be very difficult to deal with international borders, immigration issues and variety of safety standards and labor laws. All these issues, and more, need to be resolved prior to an incident.

BOILEX revealed a number of areas that need further improvement and development. The most important recommendations from an international point of view are:

- There is a need for exercises and education cross-border, cross-organization, cross-systems on regular basis at local, regional and central management levels.
- A HELCOM approach is needed on the shoreline that is similar to the cooperation which is established for the offshore response.
- There is a need to clarify where the most sensitive areas are located in Baltic Sea region. To be able to protect these areas in a proper way there is a need to know where resources are located, equipped and how different countries are able to use these resources. This information should be available on internet and accessible to all parties. This will facilitate giving and receiving help across the borders.

- NGOs should be included in the response and the routines regarding their involvement should be upgraded. These routines should clarify how NGOs are alarmed and how they are connected to the response operation.
- A joint alarm plan is needed which includes both shoreline and offshore organizations.

# 1. Background

## 1.1 The EnSaCo project

EnSaCo is short for Environmental and Safety Management on Shoreline Oil Spill Response and the project aims to strengthen cross-border cooperation between central Baltic Sea countries. The shoreline oil spill exercise BOILEX was the major practical component of the project.

There is a long tradition and a well-established cross-border cooperation regarding offshore oil spills in the Baltic Sea, both within HELCOM and the Copenhagen Agreement. On the shoreline however, a common platform for exchanging experiences and knowledge is missing, which the EnSaCo project is aiming to create.

Universities, rescue services, governmental authorities and NGOs from Sweden, Finland and Estonia are represented among the EnSaCo project partners. The combination of practical and theoretical knowledge creates a broader platform of knowledge as well as a multi-focal understanding that stretches from local, to regional, national and international perspective.

The EnSaCo project was initiated in the end of 2009 and its results will be presented during the spring 2012. At the end of the project we have together created a foundation for well-functioning cross-border cooperation in the shoreline oil spill response. Among the final products of EnSaCo are a manual for regular oil spill exercises and a joint manual for handling of oiled wildlife. Furthermore the countries' separate Environmental Atlas systems will be harmonized and oil combating resources will be easily accessible in the Environmental Atlas web tools.

## 1.2 About BOILEX and CEX

National shoreline oil spill exercises have been held yearly in different parts of Sweden during the last four years by MSB and Swedish Coast Guard. In the first year on Gotland only a practical field exercise was held. An experience has been that it is suitable to combine the practical exercises with an educative, theoretical table top, which has been done in different formats ever since. In 2010 the exercise was held under the name Matteus in Gothenburg and was made parallel to a Copenhagen Agreement (CEX) offshore exercise.

In BOILEX the parallel offshore exercise could as well have been a Balex Delta offshore exercise held under HELCOM. However, it is not necessary to combine an offshore exercise to the shoreline; there are pros and cons for both alternatives.



At BOILEX 2011 we chose to combine the shoreline (BOILEX 2011) and offshore (CEX 2011) and this evaluation report will cover both of these. SCG has also made a specific evaluation of CEX separately.

| Agreements           | Involved countries   |
|----------------------|----------------------|
| MIC                  | EU countries         |
| HELCOM               | Baltic Sea Countries |
| Copenhagen agreement | Nordic countries     |
| NORDRED              | Nordic countries     |
| Bilateral agreements | Sweden-Estonia       |

**Table 1. Agreements available for requesting assistance from neighbouring countries in the Central Baltic Sea.**

### 1.2.1 Pre-exercise OLIVIA

The pre-exercise Olivia was a table top exercise for the four elected municipalities (Nynäshamn, Haninge, Tyresö, Värmdö) and Stockholm County Administrative Board of Stockholm which were also targeted in BOILEX. Furthermore, oiled wildlife NGOs and concerned central authorities took part. A pre-exercise was seen as necessary in Sweden in order to reach cross-border cooperation at BOILEX.

The scenario used in Olivia was smaller and more simplified than the scenario played at BOILEX. The aim of the exercise was that the participants would gain experience of working together and developing a strategy regarding oil-spill protection. A draft of a joint municipal oil-spill contingency plan for five municipalities was tested. It was seen as important to strengthen the network between people from different organizations in the region who become involved in a large shoreline oil spill.

### 1.2.2 Choice of exercise method

A large number of organisations will be involved in a shoreline oil spill; several municipalities and rescue services, counties and central authorities, NGOs, and commercial actors. In a cross-border shoreline oil spill the number of involved organisations is increasing rapidly. A simple, robust management system becomes crucial in order to control the cross-border shoreline oil spill accident in a timely matter.

This is the background to why the trained persons were divided into five functional groups: system command, incident command, environment and waste, resources and information. It is also worth mentioning that national incident commanding systems have been successfully implemented in several other Baltic Sea countries.

### 1.2.3 Definition of key words

The report structure is built upon the four overall aims of the exercise which are roughly defined in table 2.

|               |   |
|---------------|---|
| Alarm         | The information flow that creates awareness of the accident and consequences for concerned countries and stakeholders   |
| Command       | Management of the response including both civilian and uniformed organizations.   |
| Cooperation   | Focus is on the cooperation between the training organisations and individuals, nationally and cross-border: sea-land, sea-sea, land-land, including uniformed organisations, environmental expertise and NGOs.                           |
| Communication | Focus is on all communication within the exercise: sea-land, sea-sea, land-land, between training individuals, organisations and countries The external communication which is not part of the exercise, such as media, is excluded here. |

**Table 2. Definition of key words.**

### 1.2.4 International panel

The aim for the session was to give an overview of the actions taken in early phases of the accident and to highlight any differences between the countries. The panellists represented key organisations from Sweden, Finland, Estonia and Russia and were given the questions prior to the panel discussion. The testing part of the BOILEX started in phase 3 with the national groups.

A detailed log of the panel discussion can be found on [www.ensaco.fi](http://www.ensaco.fi).

### 1.2.5 Participants

The BOILEX exercise managed to involve 81 different organisations from 8 countries. These organisations represented various scales, from local municipalities through regional bodies to national authorities. One of the important aspects of the exercise was bringing together a wide spectrum of stakeholders, governmental and non-governmental, in order to create a realistic scenario and a collaborative environment. See appendix 7.4.

The participants invited to the exercise were divided into two groups – training audience and observers. These groups differed from day 1 to day 2.

During the table top exercise day 1 the participants were first divided into national groups and later into the following five functional groups; system

command, incident command, environment and waste, resources and information.

### 1.3 Scenario

| Time       | Description of coarse of events   |
|------------|---|
| 05:10      | Ship collision between oil tanker M/S Goose Sleep Town and Shu Shing Shi has occurred. The oil tanker's tank is damaged.<br>Weather: clear, light air, shifting wind directions   |
| 06:10      | Due to weather conditions it is difficult to make a reliable forecast. Oil stays near the accident site. Prognosis: leakage for 12 hours from 2 wing tanks, each holding 10 000 tonnes.<br>Weather: high pressure. Temp 14°C in the water, 18°C in the air.   |
| 11:10      | Prognosis: 20 000 tonnes of oil is leaking to the sea. Risk of serious emergency; shipwreck.<br>Weather: Increasing SE winds  |
| + 56 hours | Oil starts to reach the shores, but al lot remains at sea. Offshore SCG recovery operation with assistance from international units. Amount of recovered oil corresponds to 5 000 tonnes. Predicted amount still at sea 15 000 tons. SCG is able to recover 60% at current weather conditions.<br>Weather: SE winds 9 m/s |
| +3 months  | Ships are gone. No oil left in the water. Swedish coast has a lot of oil on the shores. Focus has moved from the national to local level. Other events are becoming more prioritized. The organizations that first were committed are showing signs of exhaustion.<br>Weather: The winter is approaching, ice at sea      |

**Table 3. The scenario was divided into five phases and was based on a collision leading to a damaged oil tanker carrying 100 000 tonnes of crude oil.**

### 1.4 BOILEX - Overall aim and objectives

BOILEX 2011 was a learning exercise with some testing elements. The overall aim was to increase the knowledge about managing an oil spill that is affecting the shoreline. Furthermore, the objective was to achieve well-functioning international cross-border cooperation concerning management, assessments and decision making in the early stage of the oil spill. The exercise aimed to identify future needs for development.

The theoretical exercise day 1 had two aims – to test the ability on management at normative and strategic levels to use appropriate assessment tools. The main objective was to increase knowledge regarding large-scale shoreline oil spills in the following areas; Alarm, command and control, communication, cross-border cooperation, cooperation with NGOs and agreements.

The field exercise day 2 had two main elements; Shoreline response exercise, including oiled wildlife response and offshore exercise according to the Copenhagen Agreement.

The aim of the Copenhagen Agreement (CEX) offshore exercise was to test the ability to cooperate and use oil spill recovery equipment. SCG was responsible of and implemented this part of the exercise parallel to BOILEX.

The objectives of CEX was to test the alarm routines with POLREP, as well as liaison functions between incident commanders, SOSC, NOSC and all participating units, as well as laying booms and recovering simulated oil at sea.

The aim of the shoreline response exercise was to simultaneously test operational resources from different countries. Another aim was to test the oiled wildlife response manual which has been developed in EnSaCo. All participants should get increased knowledge about available resources for oil recovery, logistics and management of waste connected to an shoreline oil spill.

The objective of the shoreline exercise was to increase the knowledge and ability on cooperation of management (command and control). Furthermore, BOILEX tested handling of equipment from the national depots and rescue services and the oiled wildlife response.

The aim of day 3 was to provide the participants with possibility to discuss the experiences and lessons learnt from the previous days, together with a panel of experts discuss and immerse the knowledge regarding oil spill recovery in the shoreline. Future needs for development should also be identified.

The overall objective for the exercise concerning the participating countries was to increase the ability, both for the personnel and materiel, to receive or give help to another country during a major oil spill. The participating individuals should achieve increased knowledge about management of an oil spill that is affecting the shoreline and an increased ability to cooperate in the following areas: management, assessments and decision making in an early stage of the oil spill.

The objective of day 3 was that all participants will take part of the panel discussion and were given possibilities to discuss and immerse the knowledge regarding oil spill recovery in the shoreline, as well as identify future needs for development.

| <b>Phases in scenario</b>                           | <b>Panel discussion (day 1)</b> | <b>Table top (day 1)</b> | <b>Field exercise (day 2)</b> | <b>Seminar (day 3)</b> |
|---|---------------------------------|--------------------------|-------------------------------|------------------------|
| 1 Collision, oil spill detected                     | A, C, D                         |                          |                               |                        |
| 2 It is clearly going to be a large scale oil spill |                                 | A, B, D, E               |                               |                        |
| 3 Entire Stockholm archipelago is threatened        |                                 | B, C, D, E               | B, C, D, E, F                 |                        |
| 4 Oil reaches the shores of Stockholm county        |                                 |                          | B, C, D, E, F                 |                        |
| 5 Months after accident, future issues              |                                 |                          |                               | G (C, D)               |

**Table 5. Exercise objectives in relation to phases in the scenario and exercise method. A = Alarm, B = Command, C = Cooperation, D = Communication, E = Volunteers, F = Practical issues, G = Future needs**

## 2. Results

### 2.1 Achievement of objectives



**Figure 1. Illustration of the objectives at BOILEX.**

The Central Baltic Sea Nations Sweden, Finland, Estonia and Russia have increased their ability to give and receive aid during a larger shoreline spill which exceeds any individual municipality, county or nation's response capacity. Responders have, through participation in this exercise, gained knowledge in the deployment of response resources both on the shoreline and offshore.

They have become more effective in a joint operation requiring cooperating between all responders in order to successfully mount an effective response.

- Assessment tools (environmental atlas, sea track web)
- Agreements
- Command and control
- Cooperation

| Description of EnSaCo objectives  | Results | Evaluation method  |
|---|---------|--|
| To develop efficient operative management tools for ecological prioritizing and for the mobilization of technical and human resources in the central Baltic Sea to enable rapid cross-border cooperation (WP 2)                               | R       | Questionnaire<br>HSEEP 's EEG  |
| To develop response preparedness and a protocol for oiled wildlife (WP 3)   | R       |  |
| To create better preparedness for shoreline oil spill response in the Central Baltic Sea area achieved by enhanced practical level competence among authorities and other parties involved (WP 4)   | R       |  |
| To develop and realize a cross-border learning platform for shoreline oil spill response (WP5)  | R       |  |
| Tools for assessments   | R       |  |
| Oil contingency plans (Södertörn)   | NR      | Questionnaire  |
| Liaison function  | NR      | Key for communication<br>Questionnaire   |
| Command, cooperation and communication  | R       | Acci Map<br>Questionnaire<br>Key for communication   |
| POLREP MIC offshore   | R       |  |
| MIC shoreline   |         |  |
| Nordred land  | NR      |  |
| NGOs Land and sea   | NR      |  |
| Alarm routines by POLREP  | R       | CEX-template   |
| Cooperation with international units  | R       | Hot Wash with Deviation<br>investigation MTO:<br>All units on land<br>All units at sea<br>Joint command<br>Designated evaluators<br>CEX-template |
| Waste logistics, resource usage, logistics  | R       |  |
| Limiting oil spills   | R       |  |
| Mechanical recovery   | R       |  |
| Liaison functions   | R       |  |
| Bird Rehabilitation<br>First contact (how, when)<br>Communication<br>Preparatory efforts (KFV, SBS)<br>Management, decision making<br>Response by RS, SCG, municipalities<br>International cooperation (on whose initiative)<br>HELCOM manual | R       |  |
| Identify future developmental needs   | R       |  |

**Table 6. BOILEX involved all EnSaCo work packages and goals addressed to these. Colour codes: NR =not reached, R =reached**

## 2.2 Alarm

The initial phase of the exercise, including shoreline alarm was described by an international panel and was thus not tested at BOILEX. The aim was to increase knowledge and identifying areas in need of improvement. The offshore alarm routines were tested according to the Copenhagen Agreement.

In Sweden the county administration board (CAB) has a coordinating role within its region. There are a large number of stakeholders involved in a large scale oil spill, such as; municipal and county contingencies units, technical units, environmental units, information units, operational units and management units. Many of these are not part of the ordinary alarm chain in Sweden, and will initially inform themselves about the accident through media or other sources. The CAB cooperation platform would be established as soon as possible.

There are no routines to inform NGOs, such as KfV, who could prevent birds from being oiled if alerted in an early stage.

The need for requesting international aid was discussed between MSB and SCG. Sweden did not request assistance from the neighboring countries during the table top exercise. However that was probably due to the fact that the neighbors were already involved in the incident.

Time was lost to discussions of costs, responsibilities and organization structures. Ministry of defense was informed.

The other countries, Finland, Estonia and Russia all closely monitored the situation and waited to be contacted by Sweden with request for assistance. Estonia requested more information from Sweden.

Sweden, Finland and Estonia are using the Sea Track Web prognosis tool in contrast to Russia. Media is a major channel of information for all countries.

The Swedish Coast Guard was notified of the oil spill incident and immediately carried out actions in accordance with the Copenhagen Agreement, Helsinki Convention and the International Convention on Oil Pollution Preparedness,

Response and Co-operation. Since the collision resulted in a breach of the oil tanker's two tanks, the spill was estimated at 20,000 tons. As such, the Swedish Coast



**Fig 4. Swedish Coast Guard is responsible of informing both other countries and concerned land organizations in Sweden**



Guard sent request/notification via the POLREP system to request assistance from neighboring countries. Finland and Estonia accepted the request and responded with vessel and personnel support. The response was immediate and worked well on all levels.

## 2.3 Command

In Sweden Södertörn Rescue Service (SBFF) is appointed to be the rescue leader in the entire area, although at least one other (SSBF) rescue service's region is affected. SBFF begins planning their actions for when oil reaches the shore. They had continuous contact with SCG. SCG notified the municipalities, the County Admin Boards and rescue services anticipated to be impacted by the oil spill.

In Sweden the County Admin Board is responsible of forwarding and coordinating requests from the municipalities. The County Admin board would forwards a request for aid to MSB. MSB would then collect all information and gives a situation awareness report to the ministry of defense, as well as answer for maintaining a national incident overview. However, Sweden did not request for international aid during the table top exercise.

The system command group started to summarize how a request for international assistance would look like in the different participating countries. They concluded that there is a lack of functioning routines regarding this topic, especially when it comes to asking for assistance. To send assistance after receiving a request is delegated but to ask for assistance created an uncertainty within the Swedish command.

### Stockholm regional forum for coordination

- Strengthen ability to cope with incidents from everyday situation to a crisis in the region
- Forum for intelligence, analysis and coordination
- Create situation awareness
- Create a base for decision making



**Figure 6. Description of the role of the Stockholm Regional Forum for Cooperation.**

Swedish local rescue services activated Stockholm regional forum for coordination. Municipalities report they would be consulting their oil contingency plans and are prioritizing which areas to protect.

In Sweden, the individual municipalities have responsibility for the oil as it comes ashore. If cross-border cooperation is needed, the county administrative boards can step in and provide that function for example through the Stockholm regional forum for coordination. MSB has national oil spill depots which are utilized and mobilized.

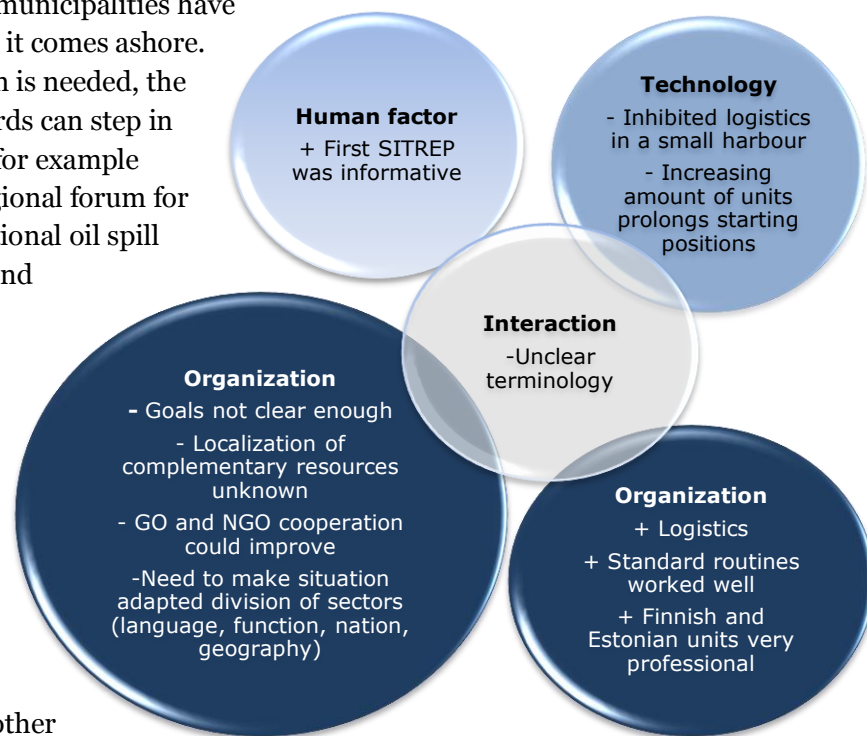
Finland, Estonia and Russia are all waiting for further information from Sweden. They are all prepared to receive a request for assistance from Sweden but do not act proactively. It is unclear what resources Sweden would need from other countries and who would receive and command it. The other countries have specified what they could supply.

It was difficult to estimate how much material would be needed, how much oil would eventually reach the shores and how large areas would be affected. A rough inventory was made of all material resources available in all four countries together with the logistics, time for transports and such. The worst case scenario was estimated.

Prioritized areas for protection of the approaching oil belt were localized by municipal expertise, KfV, Environmental Atlas and SWAM Oil Emergency Response Advisory Unit (oljejouren). Stockholm CAB prioritized among the many identified areas and forwarded the information to the incident command.

### 2.3.1 Technology

The reported deviations were personnel's endurance in respirators and the need for a bridge-bridge radio channel and the problem of managing vessels in a small harbor such as the one in Nynäshamn. Furthermore, there were deviations regarding formation of vessels and problems accruing during pumping oil from ship to tanker.



**Fig 7. Results from the MTO evaluation regarding command at the field exercise.**

The shoreline oil combating vessels were working very efficiently and the 10m<sup>3</sup> of popcorn had to be re-launched into the water several times. The shoreline protection sheets were also effective and easy to use.

### 2.3.2 Offshore

During the offshore exercise, the Swedish Coast Guard showed well-structured management and coordinated the resources well. SCG was comfortable and confident in their abilities. They were familiar with their capabilities and were very efficient at making decisions. It also was evident that the SCG's personnel worked well together as a team. They have practiced oil spill response efforts routinely, thus they were familiar with equipment, techniques, and oil spill response strategies, see figure 8.



**Fig 8. Characteristics of the offshore oil spill response.**

## 2.4 Cooperation



**Figure 9. A generalized picture of cooperation between offshore organizations and land based organizations and the cooperation between these.**

### 2.4.1 Land-land cooperation

The on scene commander from Södertörn Rescue Service (SBFF) was in charge of all staff and resources on site including national and international rescue teams and national and foreign NGOs. The shoreline response was successful due to well-functioning cooperation between the countries and different organizations involved. There were no cultural or language problems.

Estonian rescue team was not provided with necessary equipment for communication, such as radios. They were not integrated in the system command decisions. The Estonian rescue team was managed the same way as local NGOs under the on scene commander, and not on the NOSC level.

The cooperation between Swedish and Finnish NGOs in oil wildlife rehabilitation worked well. Furthermore, there were no problems between these NGOs and incident command. The wildlife rehabilitation was provided with preconditions for their work; space to operate, electricity and water.



**Fig 10. The participating organizations in the shoreline field exercise all under the command of SBFF's on scene commander.**

### 2.4.2 Land-sea cooperation

The liaison officers from SCG and SBFF placed on sea and land worked well in the field exercise and facilitates communication. SCG and rescue services were working together on the shoreline with their response vessels. It was unclear who was in charge of the operation, SBFF or SCG. They performed well, but some ambiguities remain regarding overall responsibility and information flow.

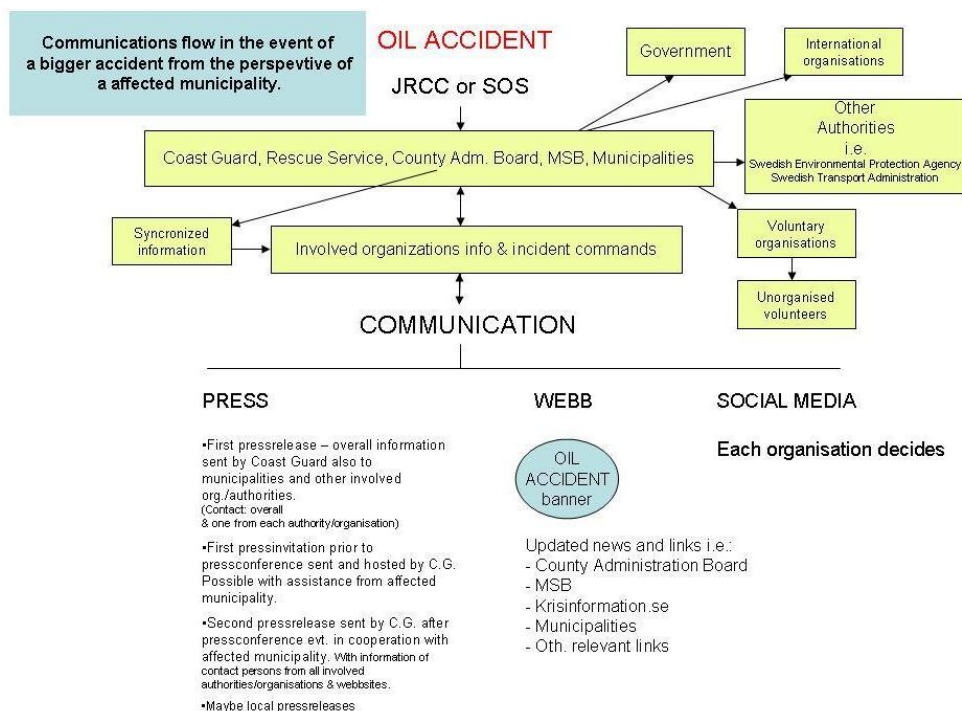
### 2.4.3 Sea-sea cooperation

Leading and coordinating the work with the towing booms worked out well. The SCG placed liaison officers onboard the vessels from Finland and Estonia with the NOSC onboard. This was to improve communication flow and to ensure nothing was lost in translation. The coordination and delineation of task went smoothly. The SOSC was able to direct on-water recovery assets effectively and efficiently to recover oil on the water. The SCG was familiar with the capabilities of the response vessels provided by EMSA and Finland.

## 2.5 Communication

### 2.5.1 The information group

A group of information officers from different organisations were trained in the table top exercise. Their task was to attain an overview of the situation and to forward it to the public (the observers). The group was also assisting the media coordinator regarding the press conference and real media on site.



**Fig 11. Schematic flow developed by the information group at the table top exercise**

The information group reached the following results:

- The functional groups have not been communicating very well amongst each other.
- Initially first information will be sent from MRCC, maritime rescue coordination center.
- Municipalities, county administrative board and governmental authorities will publish synchronizes information.
- Municipalities will use the information in a local context.
- Coordination telephone conferences will be a key element in the task of procuring coordinated messages

### 2.5.2 Breakfast notes

Breakfast notes were produced daily by the information group with the purpose to give the participants short summaries of the previous day and to give a briefing on the days program. The breakfast note was a way to easily spread information to a large organization. The notes were laid on chairs, on the breakfast tables or in the conference hall. Nobody could have missed them.

### 2.5.3 Language

English was the exercise language throughout BOILEX. Nordic languages were used in the offshore exercise, CEX, according to Copenhagen Agreement customs.

### 2.5.4 Technology

Several channels were used at several occasions when sending out important information to all units. There was a need of a specific radio channel for commanders, making them able to avoid all “disturbance” from all units. Some misunderstanding related to miscommunication occurred.

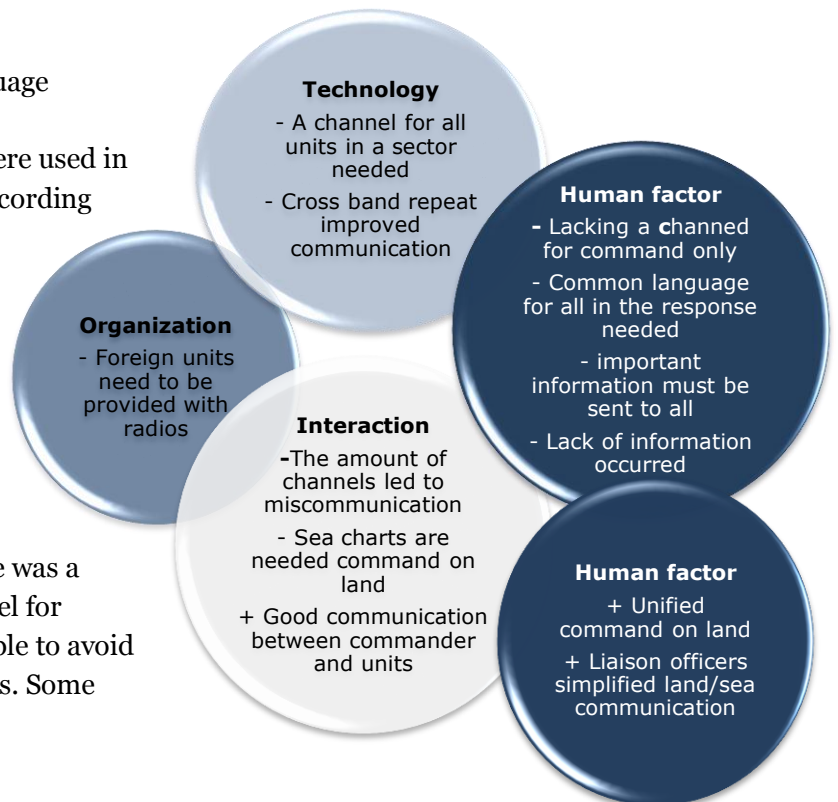


Fig 12. Results from the MTO evaluation regarding communication.

## 3. Analysis

### 3.1 Alarm

The alarm offshore is well organized and well-functioning. However on the shoreline the number of involved organizations is much larger than offshore and the alarming system is in need of improvement.

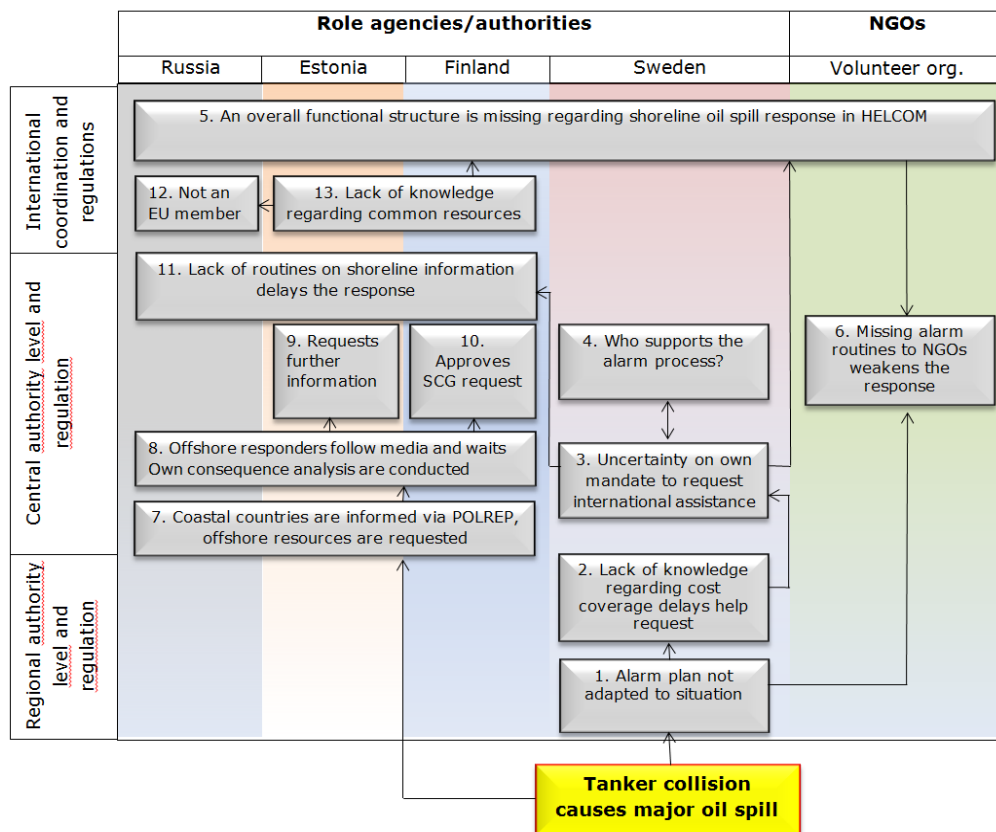


Figure 3. The alarm and information routes plotted in an modified Acci Map figure. See descriptions of numbers in table 7.1 in appendix.

There is a need for improvement of the information flow in Sweden regarding oil large scale oil spills. There is a delay in the information toward the municipalities and county administrations which is unnecessary and potentially very costly. As soon as land impact is deemed most likely, counties and municipalities need to be notified immediately to allow for as many protective strategies as possible to be mobilized before impact. A notification tree is needed which includes all concerned stakeholders.

The NGOs concerned with oil wild life response should be informed in an early stage. Their first priority is to prevent birds from becoming oiled by mobilizing volunteers on the beaches and scare them away from the beaches likely to be affected. If rehabilitation center will be necessary they also need time to mobilize this so that they are prepared to take care of oiled birds when the oil is reaching the shores.

It was unclear if all countries are using Sea Track Web. A recommendation is that anyone with trajectory modeling capability run the spill if for no other reason, validate that they are not currently threatened.



The neighboring countries, Finland, Estonia and Russia, take on a dangerous position as they monitor the situation and await information from Sweden. It would be better to mobilize more proactively and then stand back down as it becomes apparent resources are not needed, rather than try to catch up on the mobilization when oil is almost on the beach.

### **3.2 Command**

There is a need for more joint exercises and harmonized educations between the countries. The organizational structures differ among the countries and it would be beneficial to strive as much as possible to achieve similar working methods on the shoreline. This is already the case offshore.

A holistic view is also needed regarding coordination of international help on shoreline oil spill response. Routines should be formalized and the type of international help needed should be identified. It is also necessary to learn more on how to utilize available agreements.

The impact of long-term sustained operations that place significant stress on existing systems should be considered in planning. Location and assigning relief crews and resources is needed based on realistic expectation for time-on-scene both in shoreline and offshore response. It should also be noted what impact a long, sustained operation would have on the organization's ordinary functions.

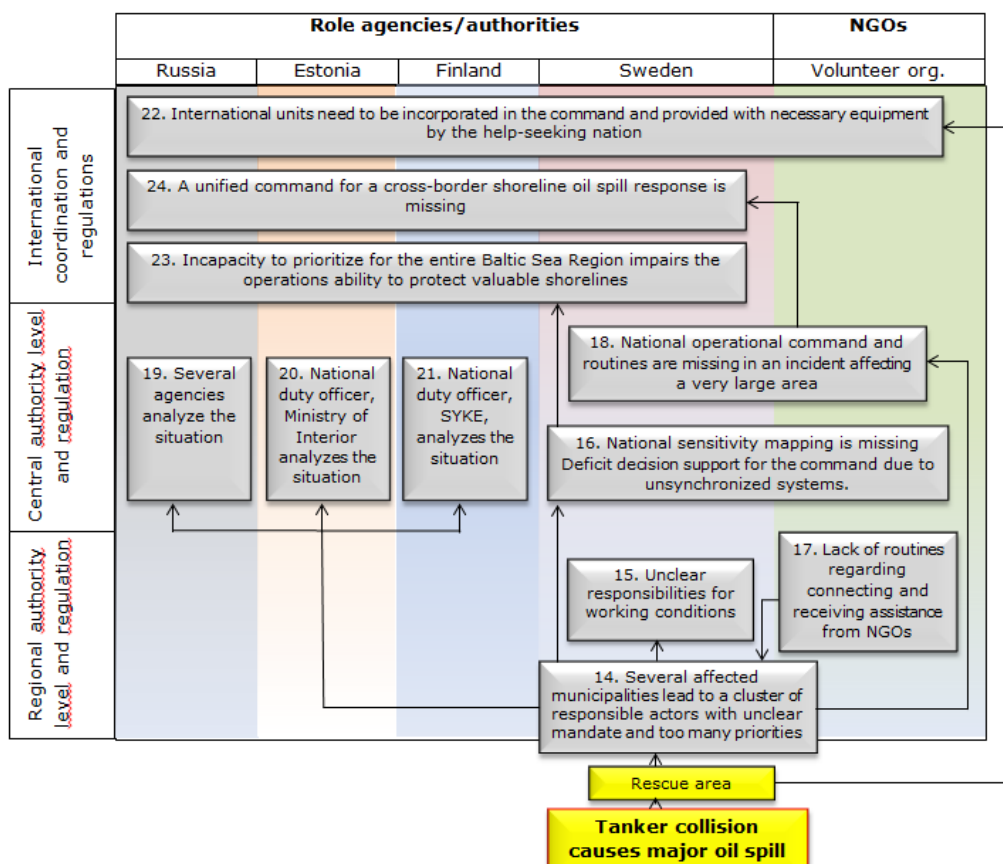


Figure 5. Results of the command plotted in an modified Acci Map figure. See descriptions of numbers in table 7.1 in appendix.

### 3.2.1 Decision support tools

It was concluded that a national layer should be developed in the Environmental Atlas that enables prioritization among the abundant priorities on local level. The realistic prioritizing for a large area with many environmentally and socio-economically sensitive areas is time consuming. The actual decisions are taken under stress may be arbitrary and should ideally be made already beforehand.

It has also been noted that a large scale oil spill, affecting several countries simultaneously would demand a holistic view of the entire affected area. Today it is very difficult to get an overview of the sensitive areas in the entire Baltic Sea Region, which decreases the possibility to protect the most valuable areas.

The Environmental Atlas should be accessible to everyone. A connection between Sea Track Web is very useful, especially for the rescue services and municipalities, but is not working today in Sweden.

### **3.2.2 Command in Sweden**

The organizational situation in Sweden is rather complex. If a large area is threatened and includes more than one fire department's response area there may be a situation where Sweden has more than two rescue leaders on land. In BOILEX SSBF gave the lead to SBFF and this situation did not occur although both were equally affected. Offshore and shoreline cross-border cooperation under one command is interesting and should be more discussed.

In Sweden, the individual municipalities have responsibility for the oil as it comes ashore. If cross border cooperation is needed, the county administrative boards can step in and provide that function. The Stockholm CAB reached an incorrect conclusion that they were not needed in this situation which led to loss of time and unnecessary confusion.

There are no routines in Sweden to coordinate NGOs and the contacts today are established on a needs basis. Relevant NGOs should be identified and included on checklists, such as those involved in oiled wildlife rehabilitation. KfV and other similar NGOs need to be informed well before the oil reaches the shore in order to prevent birds from being covered in oil.

## **3.3 Cooperation**

### **3.3.1 Cross-border**

Generally all nations and responders would preferably have been more proactive in their response. Many reported they would assume the stance of monitoring and take no further action until it was deemed necessary or requested by someone else outside their organization. It is recommended that resources get placed in stand-by mode immediately, personnel re-called, and equipment inventoried so all are ready should they be needed. This would save very valuable time.

Sweden was unclear in how they would receive international aid if it was offered without them requesting it. Other nations expressed uncertainty on how aid would be transferred. It is recommended that each nation develops a domestic policy on who determines aid is needed and how this will be routed domestically and once aid is requested, have processes in place with other nations to formalize the request/receipt aid process. Authorities, obligations and methods need to be delineated.

All participating nations were in agreement they could share aid; the problem came to actually requesting the aid. Releasing aid was not a problem once request had been received. However, if aid was offered without having been requested, a problem arose as in nobody knew who had the authority to accept

un-solicited, but needed aid. In short, everyone wanted to help, nobody really knew how to help in a timely manner.

A recommendation is that policies are developed to outline the steps necessary to affect a timely request and delivery process. It can be very difficult to deal with international borders, immigration issues and variety of safety standards and labor laws. All these issues, and more, need to be resolved prior to an incident.

The answers from field exercise questionnaire shows that cooperation has been working quite good, both between land and sea and between governmental and volunteer organizations. A liaison officer from SCG placed in the shoreline commander staff made cooperation easier. This good initiative was picked up on the landside. However, the task and mandate of the liaison officers were not clear. There should be common training and education for this position by both land and sea organizations.

Not all shoreline units did get a clear picture of the oil spill and the current situation. Furthermore, the objectives and goals with the operation were unclear to some units. This knowledge is necessary in order to reach an effective operation. Clear tasks should be given to other units than the country in charge, as well as to the present NGOs.

### **3.3.2 Oiled wildlife response and volunteers**

It was unclear who was authorized to request the oiled wildlife resource, especially those not coming from Sweden, and how the response would be funded. Volunteers would need food, lodging and travel expenses paid even if their actual labor is free. It is recommended that a clear policy regarding this is established to enable a rapid response and that this policy be amended to all municipalities oil contingency plans.

Cooperation between the different NGOs worked well. WWF Finland, KfV and SBS worked smoothly together as one operative unit. Cooperation with the on scene commander was also smooth.

## **3.4 Communication**

### **3.4.1 Information group**

The municipalities and participants in the group recognized the need for joint communications, but did not have a process in place for coordinating press releases between agencies, and as a Unified Command system does not exist, it would be difficult to issue a joint press release in a timely fashion. They did conclude that the municipality web pages were a good medium for this cooperation.

There should have been appointed secretaries in each group during the table top exercise to document the proceedings so that the results would have remained. The summary made by the information group was too short.

### **3.4.2 Media**

It was discussed who had the responsibility for press releases and it was decided the lead agency would do this, initially SCG would have the lead in this exercise, however, the group recognized the media perspective would quickly expand to where SCG would not be the best agency to always issue the press releases.

The role of the communication officers will be very important. They need to be updated with the last situation awareness, they answer questions asked by international media and they are responsible for spreading accurate information to the public through updating web sites and other forums. This was tested with the information group as they were creating joint situation awareness and forwarding it to the “public” (the observers).

### **3.4.3 Language**

The field exercise questionnaire revealed that English must be used as the language of communication in an international operation such as this one. However, it is worth mentioning that English would not always be the most natural common language in a Baltic Sea exercise as it may be more natural for some countries to communicate in Russian language.

### **3.4.4 Technical and practical communication**

The commanders need their own radio channel so they don't disturb the working units on the scene. To avoid miscommunication, important information to all units should be sent on one channel at the same time, not several times on different channels. Doing so will lead to misunderstanding of who is in charge and what information that concerns each vessel. Information came late or not at all to some units. In reality there would have been a greater need for radio communication between the vessels and the commander at sea, but in this exercise they were near enough to enable physical visits.

A good communication was established between the shoreline commander staff and the offshore commander. One contributing factor was the placing of a SCG liaison officer in the shoreline staff.

While the shoreline protection was on-going, recovery operations at sea continued. SCG had resources on-scene as did the NGO SSRS. The communications and coordination between the offshore operations and the shoreline operations were not firmly established as the rescue leader a shore did not have direct communications with SCG and SSRS, rather had to work

through a SCG liaison that was in the vicinity. It is recommended that in future operations, clear and direct communications are established between operations at sea and on-land. Daily in-person meetings need to be held to coordinate strategies and operations. The common operating picture shall be used during the development of the daily operations to ensure maximum effect of limited resources. Without this daily joint operations briefing, it is likely resources will not be deployed in the most suitable areas.

These problems show that in an operation like this, communication and information paths needs to be planned beforehand and checked regularly under operation. But there are things to learn about that worked well. The communication between shoreline and sea worked well because of the SCG officer at land. A liaison officer in commander staff simplifies communication between the command units.

#### **3.4.5 Communication at the pre-exercise Olivia**

Evaluator found it surprising the Swedish participants chose **not** to work with the response organization developed during the Olivia exercise even though it was available, see fig 13. The organization developed during the Olivia Exercise is more of a needs diagram than an organizational diagram. It is however an excellent starting point for developing an actual organization diagram by assigning responsibilities to each expressed need. Who will manage all of this? Jurisdictions need to be outlined, where there is overlap, decisions must be made as to who has the lead. In this exercise, we also had the interesting twist that international resources were involved which necessitates the need for international cooperation on a cabinet/minister level. That also needs to be incorporated in the Incident command structure.

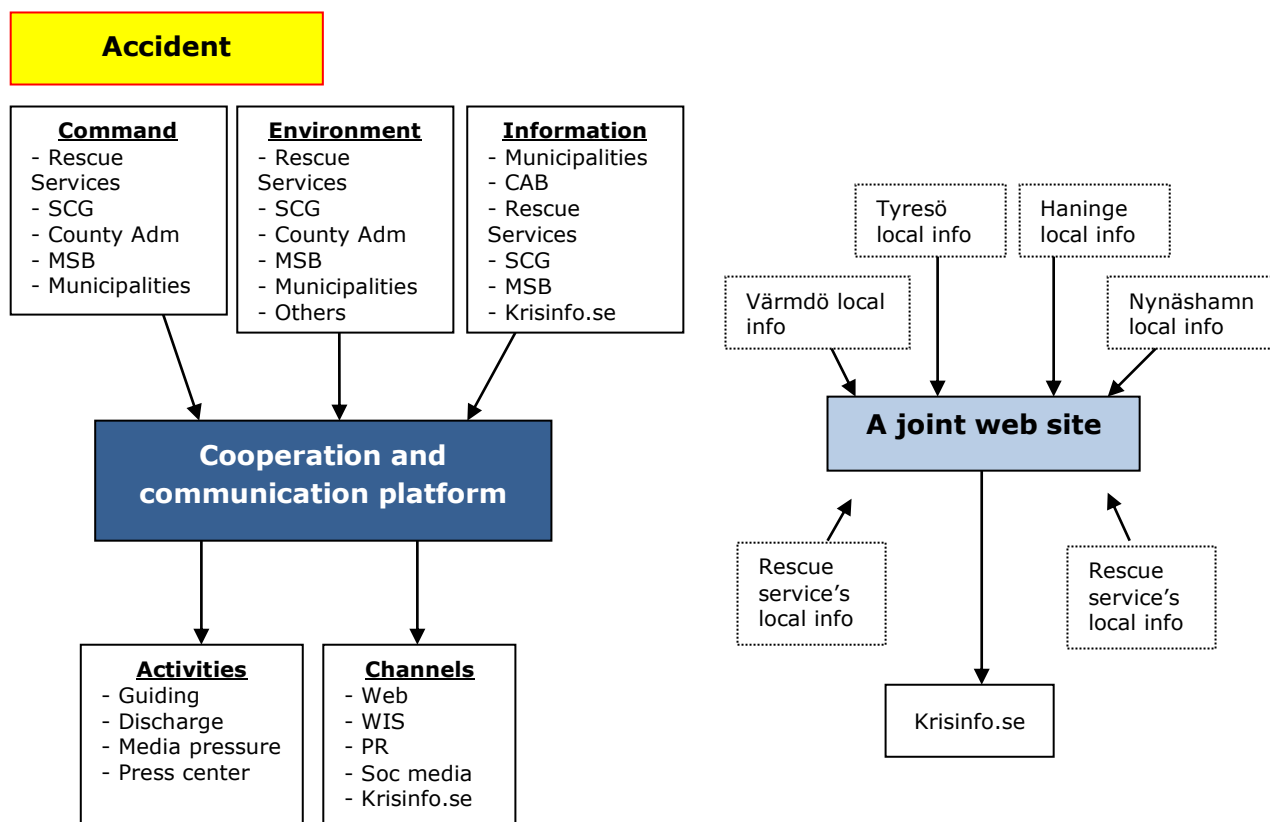


Fig 13. Organizational diagram of the Swedish pre-exercise Olivia.

### 3.5 Future exercises

The scenario impacted several rescue service's response areas and it would have been very interesting to see how resources and operations were allocated and coordinated between them. In future exercises, recommend rescue services actually have to develop response strategies taking the scenario impact and the Environmental Atlas in to consideration. Then they should deploy resources while maintaining communications with SCG for updates.

The equipment demonstrations were useful for responders who may otherwise not get a chance to observe oil spill response equipment deployed, as was it useful to those who are responsible for actually deploying the equipment. We recommend this practice continue, and that in the future, equipment not be pre-staged, but rather mobilized during an actual exercise after the Incident Command, or Unified Command, has prioritized sites for protection.

As we did not observe communications between rescue leaders in the field and the overall incident commander and further to MSB etc. we feel a future exercise shall establish this communications chain and have participants resolve issues via the established communications program. If they are co-located, but not in the immediate proximity to each other, exercise control can

inject local concerns to one rescue leader and have the issue worked up the chain. Same goes for MSB, they can attempt to learn the overall response picture through one Incident commander who in turn will have to reach out to field rescue leaders to gather information. A successful response hinges on effective communications in a fashion similar to the chain envisioned above or according to already established communication protocols.

## 4. Recommendations

BOILEX revealed a number of areas that need further improvement and development. The most important ones have been listed and ranked below. The recommendations are divided into 3 areas: shoreline, offshore and overall, meaning they are of concern for both on land and sea.

A recommendation is that policies are developed to outline the steps necessary to affect a timely request and delivery process. It can be very difficult to deal with international borders, immigration issues and variety of safety standards and labor laws. All these issues, and more, need to be resolved prior to an incident.

| <b>First priority</b> |             |  |                            |
|-----------------------|-------------|--|----------------------------|
| <b>No.</b>            | <b>Area</b> | <b>Recommendation</b>  | <b>Responsible parties</b> |
| 1.                    | Shoreline   | Create a national Incident Command System for Sweden.  | Sweden                     |
| 2.                    | Overall     | Exercise and educate (cross-border, cross-organisation, cross-systems) on regular basis with all three management levels       | International              |
| 3.                    | Shoreline   | A HELCOM approach is needed on the shoreline that is similar to the cooperation which is established for the offshore response | International              |



| <b>Second priority</b> |             |   |                            |
|------------------------|-------------|---|----------------------------|
| <b>No.</b>             | <b>Area</b> | <b>Recommendation</b>   | <b>Responsible parties</b> |
| 4.                     | Overall     | Point out barer of responsibility for prioritization in the whole affected area. Who has the overview of the situation when several countries are affected simultaneously? Could HELCOM fill this role?   | International              |
| 5.                     | Overall     | Same basic information for prioritization on all levels: local, regional, national and between the countries. Synchronize the Environmental Atlas, SCG aerial data, Sea Track etc.  | International              |
| 6.                     | Offshore    | Develop the options for the SOSOC to organize the off shore sections with the objective to enhance the flexibility of taken action.   | International              |
| 7.                     | Shoreline   | A joint alarm plan is needed which includes both shoreline and offshore organizations   | International              |
| 8.                     | Overall     | NGOs should be included in the response and routines regarding their involvement should be upgraded. The routine should clarify how NGOs are alarmed and how they are connected to the response operation   | International              |
| 9.                     | Overall     | There is a need to clarify where the most sensitive areas are located in Baltic Sea region. To be able to protect these areas in a proper way there is a need to know where resources are located, equipped and how different countries are able to use these resources. This information should be available on internet and accessible to all parties. This will facilitate giving and receiving help across the borders. | International              |
| 10.                    | Overall     | Give the liaison officers, both from land and sea, an education for the job including mandate and routines.   | International              |
| 11.                    | Overall     | Create a joint information structure  | Sweden                     |
| 12.                    | Overall     | Cooperation land-land, land-sea, sea-sea  | International              |

| Third priority |  |                     |
|----------------|--|---------------------|
| Area           | Recommendation   | Responsible parties |
| Overall        | Clarify employers' liability and work environment issues                       | Sweden              |
| Shoreline      | Create an oiled wildlife manual in the Baltic Sea Region.                      | International       |
| Overall        | Unify Baltic countries regarding: MIC, Sea Track web/Environmental Atlas, EMSA | International       |

**Table 8. Recommendations for future development based on the exercise experiences. The recommendations have been ranked from 1-3, with no internal ranking among them. Overall refers to both shoreline and offshore.**

## 5. Evaluators

It was considered important to have a broad evaluating team with representatives from each of the participating country since the exercise is forming the base for a shoreline cross-border exercise manual. Eva Ljungkvist, SÖRF was responsible of the evaluation and worked together with Sonja Dobo, MSB. The evaluation report was compiled with representatives from several organisations.

| Table top exercise Day 1  | Field exercise Day 2  | Field exercise OWR Day 2   |
|---|---|--|
| Anders From, SSBF<br>Igor Berezin, KPOOS<br>Ivar Frantsuzov, ERB<br>Petri Lyttinen, I-U RS<br>Sonja Dobo, MSB | Alo Tammsalu, ERB<br>Nicolay Federov, Sue PILARN<br>Patrik Risberg, SCG<br>Peter Johansson, I-U RS  | Jan-Åke Hillarp, KFV   |
| Seminar Day 3 Observers reflections   | Overall EnSaCo goals  | Evaluation report  |
| Eva Ljungkvist, MSB/SÖRF<br>Sonja Dobo, MSB   | Agneta Dahl USCG<br>Anders From, SSBF<br>Jonas Fejes, IVL<br>Lars-Göran Uddholm, SBFF<br>Mark Sawyer, USCG<br>Patrik Risberg, SCG<br>Thomas Sjödin, Stockholm CAB | Anders From, SSBF<br>Eva Ljungkvist, MSB/SÖRF<br>Karl-Erik Kulander, MSB<br>Lennart Jansson, MSB<br>Patrik Risberg, SCG<br>Sonja Dobo, MSB<br>Thomas Sjödin, Stockholm CAB |

**Table 9. The evaluators at BOILEX originated from each of the four participating countries as well as USA.**

## 6. Evaluation methods

### 6.1.1 Questionnaires

To evaluate the objectives of the table top exercise day 1 questionnaires were to be filled in by the training audience in the working groups directly after the exercise day 1. Answers in the paper versions of the questionnaires were

collected by the DISTAFF. There was also a reminder on Internet after the exercise to fill in the questionnaire. In a total there were 31 answers from approximately 65 persons in the training audience.

The questionnaire contained 11 questions concerning the four main objectives. The questionnaire is found in appendix.

### **6.1.2 Acci Map**

Acci-Map is principally a method aimed at investigating accidents. The method is developed from a hierarchic system perspective with focus on various actors and the interactions between them, a so called socio-technical perspective. The idea is to get a picture of the system and point out deficiencies. This will enable an explanation of the accident or the critical events that led to it, and will point out what actors or which societal functions have affected, or might affect in the future, the conditions for the accident. This information can later be used to improve different types of security and quality issues.

Due to the complexity of the BOILEX exercise it was interesting to test parts of Acci Map in the analysis. The evaluation of BOILEX consists of two parts; the graphic description of the socio-technical context and an analysis. The analysis aims to reveal the relations between the various parts in the graphic description.

In BOILEX the method was tested to see if it can be applicable to evaluate exercises. While evaluating BOILEX we had to do some deliberate deviations from fundamental elements of the method to be able to use it as an evaluation and analysis tool. The results of mapping, identification and analysis with Acci-Map were very satisfactory with the modified version of the method.

The result of this test shows that Acci-Map can definitely be used for evaluation in future exercises. However, the users of the method need to have sufficient knowledge of the method in order to reach satisfactory results.

### **6.1.3 MTO**

The concept MTO (Man – Technology – Organization) stands for a holistic view safety and working conditions and the interaction between these. That means that knowledge and analysis are focused on how different parts of an operation or the surrounding function together. The MTO perspective combines systematic approach, social science and the interaction between technology and organizations and working methods. When MTO is used for analysis of accidents a holistic view is achieved which is a appropriate support in finding the underlying reasons for the accident. The reasons are often based on systematic faults and it is important to identify these in order to prevent it from happening in future operations.

#### **6.1.4 HSEEP EEG**

The HSEEP method is used by the US Coast Guard and relies on the fact that assessment models follow a predetermined pattern/flow of events. The stakeholders are determined in advance and their tasks/behavior are well known to the evaluator. To ensure success and answer the aims of the exercise it needs to be planned based on the questions that should be answered.

HSSEP could be applied properly in future exercises. The analysis is aimed at those questions that should be answered and this could be done while planning the exercise. It can help with a more thorough study of the events flow, focus and analysis of the questions that should be answered. Interestingly, this method can be used on all types of exercises if the basic pattern of it is applied. This might be desirable especially on the authority level due to the applicability of the method on “all” types of exercises. The important benefit in doing so will be that all the analysis will be comparable in the future.

During BOILEX, the U.S. Coast Guard representatives tried earnestly to use the EEGs that were developed based on the BOILEX training plan as a method for evaluating the exercise. However, the EEGs proved ineffective for evaluating this exercise.

In the case of the BOILEX, EEGs were ineffective because the exercise objectives were not clearly defined in a way to build out EEGs correlating to the expected outcomes. Thus, if EEGs would like to be used in future exercises, it is recommended that this evaluation tool be considered at the concept phase of the exercise, so exercise objectives can be clearly defined and EEGs could be created to reflect exercise objectives. Also, someone on the evaluation team that is intimately familiar with the local/regional contingency plans and the desired expected response outcomes should provide input or assist in developing the EEGs.

## 7. Appendix

### 7.1 Acci Map notes

| No | Notes  | Recommendation  |
|----|--|---|
| 1. | It was unclear how the County Administrative Board shall organize the coordination between municipalities and its contacts with the MSB and the Government. It led to confusion for emergency management on decisions and actions.<br>Keywords: Alarm plan, time effectiveness   | An alarm plan for large oil spills should be established. Conditions and decision regarding the request for international assistance needs to be clarified and streamlined at local, regional and central level. Rescue leaders need to be trained regarding requesting resources in large, complex events.   |
| 2. | Time was lost in discussion about who takes the cost for the national aid request. Lack of knowledge delayed the request. Insecurity at MSB regarding mandate. NORDRED can be used directly by from local level to local level without involvement from governments. Other agreements are used on central level. Cost barer is always the requesting country. Keywords: Agreements, time effectiveness | Clarifications are needed on international and central (governmental) levels. Education and increased knowledge about agreements is needed on all levels.   |
| 3. | Uncertainty regarding own mandate to request international assistance Rescue leader on local level has mandate to request assistance directly from local level in another country according to NORDRED. Other agreements are used on central level. Keywords: Mandate, agreements, loss of time  | More knowledge is needed on agreements such as NORDRED and others.  |
| 4. | Who supports the alarm process?<br>MSB and SOS alarm should have a key function Keywords: alarm plan, loss of time   | Secure the alarm chain on land and connect land and sea   |
| 5. | HELCOM shoreline has not yet been established but is in progress. Shoreline will be connected to EU MIC and HELCOM. Unclear which agency in Sweden will be responsible. MIC-function is not used in Russia. Increase the efficiency for decisions. Same knowledge at the right level of command is needed<br>Keywords: Recommendation, requesting aid  | The necessary shoreline work is started within HELCOM. The first step works well offshore as information is spread, clarifications needed on step 2 – requesting aid. An analysis of agreements in the Baltic Sea Region is needed. Overview of the needs regarding large scale oil spills. Education at international and central level about agreements and resources is needed. Russia should be included in the MIC function. |
| 6. | Important NGOs should be included in all alarm plans. The POLREP, the first international aid alarm sent does not include NGOs.<br>Adequate NGO should be identified and contracted. This will release   | POLREP should include NGOs, including wild life organizations. It should also include all concerned land organizations  |

| No  | Notes   | Recommendation  |
|-----|---|---|
|     | time to analyze the situation and plan their response Keywords: Time effectiveness  |   |
| 7.  | Information is sent to neighboring countries and offshore is working well, Copenhagen Agreement. Keywords: Offshore alarm works   |   |
| 8.  | Other countries did not contact Sweden. Could have made a first contact, partly to get an idea of what type of resources will be needed (materiel/experts/manpower) and to imply that they are prepared to assist. Keywords: Time effectiveness   |   |
| 9.  | Estonia contacts Sweden and requests further information. Estonia is prepared to assist with shoreline response material  |   |
| 10. | Finland sends recovery vessels on SCG request<br>Keywords: Offshore system is functioning   |   |
| 11. | Information has been sent out by SCG. Other countries should be proactive and get prepared to help, see no 8, in order to save valuable time. Early warnings will release important time for other countries to analyze and relocate possible resources to send. Keywords: Proactivity, time effectiveness, need for information  | Inform other countries about possible upcoming requests. Other countries should also be proactive and ask if aid is needed when they suspect it is.             |
| 12. | Sea Track Web is not used by Russia<br>In order to streamline dispatching and response Russia should be included in EMSA and the MIC function.<br>Keywords: Common situation awareness  | Russia should be included more in the cooperation. Russia should be have access to Sea Track Web  |
| 13. | Lack of knowledge regarding common resources. EMSA was not discussed, not activated Ensure that the resource is part of the strategic planning stage.<br>Keywords: Resources  | Need to increase knowledge on international and central level about activating EMSA, and EMSA as a resource. Russia should be included more in the cooperation. |
| 14. | The County Administrative Board does not have an operational role. Confusion occurs on has the overall responsibility as large areas are affected. Local responsibility leads to too many priorities and a difficulty to prioritize among them. CAB's should be to role is to distribute resources among several municipalities.<br>County Administration Board has an important role to coordinate and support the stab with distribution of resources<br>Keywords: Recommendation, command system | A national unified command system is needed in Sweden   |
| 15. | Who has the main responsibility for the working conditions? There are at least two rescue leaders in the operation (shoreline and offshore). Demarcation in the shoreline area regarding NGOs and international resources? Keywords: Division of responsibility   | A clear policy for working conditions is needed in she shoreline "grey zone"  |
| 16. | Decision support on local level is available, through Environmental Atlas. It is difficult to analyze these areas on a regional and national level, resulting in time loss for prioritization in a large oil spill.   | A national (and regional?) prioritization is needed in Environmental Atlas as a complementary layer. Environmental  |

| No  | Notes   | Recommendation   |
|-----|---|--|
|     | Synchronization between Environmental Atlas and Sea Track Web is not working. Keywords: Prioritization  | Atlas and Sea Track Web need to be synchronized.   |
| 17. | Receiving assistance from NGOs – who is responsible? Where do they fit in? Should there be a common command group on the systems command level? Keywords: Recommendation, connecting NGOs   | NGOs need to be included to higher extent both in the command and alarm  |
| 18. | Who prioritizes within the entire affected area? What is best for the affected region, among several counties or nationally. Keywords: Recommendation, command support  | Environmental Atlas need to be developed with new layers all the way to Baltic Sea level. A common situation awareness is needed   |
| 19. | Several agencies in Russia are analyzing the situation. Decision regarding sending assistance is taken by foreign ministry. Commander of shoreline response is vice-mayor of municipality together with ministry of emergency situations (EMERCOM) Keywords: Proactivity  | See point 8  |
| 20. | Estonia is monitoring the situation and seeking information through official channels and media. Estonia will not react until request for aid received through POLREP, MIC CECIS or bilateral agreements. Duty officer from National contact point will forward information about the situation to concerned organizations. Keywords: Proactivity | See point 8  |
| 21. | National duty officer, SYKE, is monitoring the situation through media and other sources. Internal notifications are based on if there is a risk Finland might be affected. MRCC is the national point of contact. A request would never be declined unless their assets are already engaged elsewhere. Keywords: Proactivity                     | See point 8  |
| 22. | There were difficulties to lead the international resources and staff by SBFF, Sweden. Management of NGO resources, such as international oiled wildlife organizations worked well. The practical work was successful on site but systematic ambiguities remain. Keywords: Command system   | Foreign units need to be incorporated in the command and provided with necessary tools such as radio equipment   |
| 23. | Inability to prioritize the entire Baltic Sea Region reduces the possibility to protect valuable shorelines. Keywords: Recommendation, command support  | A harmonized sensitivity mapping system is needed that includes data for cross-border prioritization   |
| 24. | A unified command for a cross-border shoreline oil spill response is needed. Keywords: Command support  | International command support is needed from someone who has the overview of the situation when several countries are affected simultaneously. Could this be HELCOMs role? |

## 7.2 Questionnaire for participants in functional groups

| No | Area                 | Subject   |  |
|----|----------------------|---|--|
| 1  | <i>Alarming</i>      | Do you feel like your knowledge about the alerting process in connection to oil spill emergency response has increased?<br>(EU MIC function, NORDRED agreement) | <input type="checkbox"/> Yes <input type="checkbox"/> A lot <input type="checkbox"/> Somewhat <input type="checkbox"/> No <input type="checkbox"/> Can not answer<br><input type="checkbox"/> <b>If No:</b> I already had enough |
| 2  | <i>Management</i>    | Do you feel like your knowledge about command & control in connection to oil spill response?  | <input type="checkbox"/> Yes <input type="checkbox"/> A lot <input type="checkbox"/> Somewhat <input type="checkbox"/> No <input type="checkbox"/> Can not answer<br><input type="checkbox"/> <b>If No:</b> I already had enough |
| 3  | <i>Management</i>    | In your opinion, have the aims with the assessment been articulated and obvious?  | <input type="checkbox"/> Yes <input type="checkbox"/> A lot <input type="checkbox"/> Somewhat <input type="checkbox"/> No <input type="checkbox"/> Can not answer  |
| 4  | <i>Management</i>    | Have oil spill protection plans been used?  | <input type="checkbox"/> Yes <input type="checkbox"/> A lot <input type="checkbox"/> Somewhat <input type="checkbox"/> No <input type="checkbox"/> Can not answer  |
| 5  | <i>Management</i>    | Have you learned about other countries' tools for assessments?  | <input type="checkbox"/> Yes <input type="checkbox"/> A lot <input type="checkbox"/> Somewhat <input type="checkbox"/> No <input type="checkbox"/> Can not answer  |
| 6  | <i>Cooperation</i>   | Has your knowledge increased on other stakeholders' response and actions?   | <input type="checkbox"/> Yes <input type="checkbox"/> A lot <input type="checkbox"/> Somewhat <input type="checkbox"/> No <input type="checkbox"/> Can not answer<br><input type="checkbox"/> <b>If No:</b> I already had enough |
| 7  | <i>Cooperation</i>   | In your opinion, have the decisions been synchronized with other relevant stakeholders?   | <input type="checkbox"/> Yes <input type="checkbox"/> A lot <input type="checkbox"/> Somewhat <input type="checkbox"/> No <input type="checkbox"/> Can not answer  |
| 8  | <i>Cooperation</i>   | Have you learned more about NGOs work connected to oil spill response?  | <input type="checkbox"/> Yes <input type="checkbox"/> A lot <input type="checkbox"/> Somewhat <input type="checkbox"/> No  |
| 9  | <i>Cooperation</i>   | Were some actors missing in the exercise?<br>If yes, which ones?  | <input type="checkbox"/> Yes <input type="checkbox"/> A lot <input type="checkbox"/> Somewhat <input type="checkbox"/> No <input type="checkbox"/> Can not answer  |
| 10 | <i>Communication</i> | Do you feel that your knowledge about communication in connection with oil spill emergency response has increased?  | <input type="checkbox"/> Yes <input type="checkbox"/> A lot <input type="checkbox"/> Somewhat <input type="checkbox"/> No <input type="checkbox"/> Can not answer<br><input type="checkbox"/> <b>If No:</b> I already had enough |
| 11 | <i>Overall focus</i> | What future development needs have been identified during the day?  |  |



## 7.3 Panel discussion of phase 1 and 2

| <b>Phase 1</b>  | <b>Estonia</b>   | <b>Finland</b>  | <b>Russia</b>  | <b>Sweden</b>  |
|---|--|---|--|--|
| Who analyses the accident, damage, threat?                    | Environmental Inspectorate (EI)  | Finnish Environment Institute (SYKE)  | Maritime Rescue Coordination Center                          | Regional HQ and Command Center   |
| Who decides about the need for a first action?                | Environmental Inspectorate decides the need for first action. Police and Border Guard Board is responsible of oil spill response at open sea and Rescue Board is responsible of shoreline oil spill response | Environment Institute (SYKE)  | Ministry of Emergency situations                             | Regional HQ and officer on duty  |
| What tools are used?  | Seatrack Web   | Seatrack Web, EMSA CleanSeaNet, BORIS, Spillmod, HELCOM manuals and applications, weather forecast etc. | Airmobile facilities, weather forecast                       | Seatrack Web, Environmental Atlas  |
| <b>Phase 2</b>  |  |   |  |  |
| Who assesses the need international assistance?               | Police and Border Guard Board at open sea and Rescue Board on shoreline.   | Environment Institute (SYKE)  | Ministry of Emergency Situations                             | Response Commander at Regional HQ and Municipality (Incident Commander)            |
| Is there a national incident commander? If yes, who?          | At open sea is PBGB JRCC<br>On shoreline ERB national duty officer   | Yes, SYKE   |  | No, different commands on sea (SCG) and land (local RS)                            |
| Who is responsible for international contacts in the country? | Ministry of Interior, Information and analysis department (IAD)  | SYKE  | Ministry of foreign affairs/ministry of Emergency Situations | MSB  |
| What level of command is responsible for the action?          | state level (but depends on scale of accident)   | State level   | State level  | Divided between sea and shore: state (sea) and municipal (shore) levels            |
| On what level are the NGOs and private actors represented?    | Only on local level, shoreline cleanup and wildlife response   | According to agreements   | On local level   | National/local   |
| How does the individual municipality react in the country?    | Depends on the size of the oil spill, small spills (less than 5 tons) are dealt with locally   | Not at all  | There is a certain capacity to combat oil on local level     | Legally responsible to protect their shores, supported by MSB, CAB and Swedish EPA |

## 7.4 Participating organisations

|                                     |                                   |                                    |
|-------------------------------------|-----------------------------------|------------------------------------|
| Attunda Fire Department Sweden      | Haninge municipality Sweden       | SSPA, Sweden                       |
| Baltic Master II Sweden             | Havariekommando (Central          | SUE "PILARN, St Petersburg, Russia |
| Baltic Sea Action Group Finland     | Command for Maritime              | SWECO Environment AB, Sweden       |
| Central Baltic INTERREG IV A        | Emergencies Germany)              | Swedish:                           |
| Progr 2007-2013                     | Itä-Uusimaa regional rescue       | Agency for marine and water        |
| Centre for Economic Development,    | services, Finland                 | management (SwAM)                  |
| Transport and the Environment in    | IVL (The Swedish Environmental    | Armed Forces                       |
| Southeast Finland                   | Research Institute)               | Civil Defense League FRG           |
| Committee for nature use,           | Jõelähtme Municipality, Estonia   | Coast Guard                        |
| Environmental Protection and        | KFV Riks, Sweden                  | Maritime Administration            |
| Ecological Safety Russia            | Kotka Maritime Research Centre    | Police                             |
| Swedish county Adm Board of:        | Finland                           | Sea Rescue Society (SSRS) , Sweden |
| Västra Götaland                     | Lower Saxony Water Management,    | Svenska Blå Stjärnan, Sweden       |
| Blekinge                            | Coastal Defence and Nature        | Söderköping Fire and Rescue        |
| Stockholm                           | Conservation Agency (NLWKN),      | Service, Sweden                    |
| Östergötland                        | Germany                           | Söderköping municipality, Sweden   |
| Emergency Services college Finland  | Ministry of defense, Sweden       | Södertörn Fire and Rescue Service  |
| European Maritime Safety Agency     | Ministry of the Environment,      | (SBFF), Sweden                     |
| (EMSA)                              | Estonia                           | Södertörn Environment and Health   |
| EnSaCo Central Baltic               | MSB (Swedish Civil Contingencies  | Protection Union, Sweden           |
| Estonian:                           | Agency)                           | Tyresö municipality, Sweden        |
| Academy of Security Sciences        | Mälardalen Rescue Service union   | US Coast Guard                     |
| Environmental Inspectorate          | Sweden                            | Volunteer Reserve Rescue Team      |
| Fund for Nature                     | Nacka municipality Sweden         | Estonia                            |
| Maritime Academy                    | Nacka Värmdö räddningssällskap    | West-Estonia Voluntary Reserve     |
| Rescue Board                        | Sweden                            | Rescue Team                        |
| Etelä Savo rescue services Finland  | Namepa USA                        | WWF Finland                        |
| Finnish Environment Institute       | Norduppland Rescue Services       | WWF Poland                         |
| (SYKE)                              | Sweden                            | Västerås municipality, Sweden      |
| Finnish ministry of the Environment | Norrköping municipality Sweden    | Västra Nylands rescue service,     |
| Freie und Hansestadt Hamburg,       | Norrtälje municipality, Sweden    | Finland                            |
| BSU Germany                         | Norrtälje rescue services, Sweden | South East Skånes rescue services  |
| Gothenburg Rescue Services Sweden   | Nynäshamn municipality, Sweden    | (SÖRF), Sweden                     |
| Greater Stockholm Fire Brigade      | Ports of Stockholm, Sweden        | Åland rescue service, Finland      |
| (SSBF) Sweden                       | Sea Alarm Foundation, Netherlands | Österåker municipality, Sweden     |
| HAAGA-HELIA Univ. Applied           | SMHI, Sweden                      | Östra Götaland rescue services,    |
| Sciences Finland                    | Southwest Finland emergency       | Sweden                             |
| Hangö Fire station Finland          | services                          |                                    |

## **7.5 List of acronyms and explanations**

|                      |  |
|----------------------|--|
| Acci Map             | Evaluation method, see 6.1.2   |
| BOILEX               | Baltic Sea Oil Spill Exercise  |
| BSR                  | Baltic Sea Region  |
| CAB                  | County Administrative Board  |
| CEX                  | Copenhagen Agreement Exercise  |
| Copenhagen agreement | Nordic cooperation platform on oil and chemical response offshore  |
| EEG                  | Exercise Evaluation Guide  |
| EMERCOM              | The Ministry of the Russian Federation for Civil Defense, Emergencies and Elimination of Consequences of Natural Disasters |
| EMSA                 | European Maritime Safety Agency  |
| EnSaCo               | Environmental and Safety Management on Shoreline Oil Spill Response  |
| ERB                  | Estonian Rescue Board  |
| GO                   | Government Organization  |
| HELCOM               | Helsinki Commission, Baltic Marine Environment Protection Commission   |
| Hot wash             | Initial review of a recently concluded operation   |
| HQ                   | Head Quarters  |
| HSEEP                | Homeland Security Exercise and Evaluation Program  |
| ITOPF                | The International Tanker Owners Pollution Federation Limited   |
| I-U RS               | Itä-Uusimaa Rescue Service   |
| IVL                  | Swedish Environmental Research Institute   |
| JRCC                 | Joint Rescue Co-ordination Centre  |
| KFV                  | Katastrofhjälp Fåglar och Vilt, Swedish volunteer organization active in wildlife rehabilitation                           |
| KPOOS                | Committee for Nature Use, Environmental Protection and Ecological Safety, Russia   |
| Krisinfo.se          | Crisis information from Swedish agencies, County Administrations and municipalities and other responsible actors           |
| MIC                  | The Monitoring and Information Centre (EU)   |
| MIC CECIS            | The Common Emergency Communication and Information System  |
| MSB                  | Swedish Civil Contingencies Agency   |
| MTO                  | Man – Technology – Organization. Evaluation method, see 6.1.3  |
| NGO                  | Non-governmental organization  |
| NORDRED-agreement    | Agreement on rescue services between Nordic countries  |
| NOSC                 | National on scene commander  |
| NVRS                 | Nacka Värmdö Räddningssällskap, Swedish volunteer organization   |
| OLIVIA               | Swedish pre-exercise (table-top) prior to BOILEX   |
| OWR                  | Oiled Wildlife Response  |
| PBGB                 | Police and Border Guard Board, Estonia   |
| POLREP               | Marine Pollution Response  |
| RS                   | Rescue Service   |
| SBFF                 | Södertörn Rescue Service   |
| SBS                  | Svenska Blå Stjärnan, Swedish volunteer organization active in wildlife rehabilitation                                     |

**Swedish Civil  
Contingencies Agency**

Date  
2012-03-15

Reg no  
2011-2836

44 (44)  
Edition  
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|               |  |
|---------------|--|
| SCG           | Swedish Coast Guard  |
| Sea Track Web | Official HELCOM oil drift forecasting system               |
| SfSr          | Stockholm regional forum for coordination                  |
| SOSC          | Supreme On Scene Commander                                 |
| SSRS          | Swedish Sea Rescue Society, NGO                            |
| Sue PILARN    | State Unitary Enterprise, St. Petersburg emergency service |
| SYKE          | Finnish Environment Institute                              |
| SÖRF          | South-east Skåne rescue service                            |
| USCG          | United States Coast Guard                                  |