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Marine Oil Transportations in the Baltic Sea Area

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Summary

Oil transportations in the Baltic Sea create two principally different kinds of environmental hazards; accidental and intentional oil spills. Whereas the former are rare but may cause havoc to local ecological systems as well as major economic loss and social disturbances when they happen, the latter comprise the many small acts of pollution when operators clean tanks or flush machine compartments *en voyage* without taking proper care of oily residuals from these operations. It is shown in this report that international regulation of marine oil transportations is comparably well ordered hierarchically, where IMO serves as the legislative umbrella for lower level regulations at regional and national levels. However, a considerable implementation deficit is apparent where, for example, Flag State responsibility is more or less a chimera, Coastal State tightly circumscribed by the Freedom of the seas regulations and Port State control, although important, seem to vary considerably between different regions, countries and ports. Stakeholder involvement is considerable at the international level, where sector organizations both provide important knowledge and affect regime outcomes in for them preferred directions. Classification societies and insurance companies are shown to play important roles in the modernisation and increased safety of the oil tanker fleets. However, stakeholder influence and participation, as well as other forms of civil society involvement, are considerably less intensive at lower governance levels. It is concluded that the technical safety of modern oil tankers has been significantly improved by, for example, requirements on double hulls, separated ballast tanks and advanced navigation equipment during the last few decades. Despite this, technical malfunctions still cause a substantial number of incidents, and improvements are still possible. Therefore, incentives as well as international regulations aiming at additionally increased marine safety continue to be important. However, human factor errors have become the most frequent cause behind marine accidents in the Baltic Sea. Better training of seafarers and stricter control of crew composition (adequate number of crew members in each professional category) are probably important means to address human factor errors. It is suggested in this report that in order to ensure that training of seafarers in different countries and at different training centres becomes consistent and of high quality, IMO needs to be given stronger mandate to oversee these activities. The composition of individual vessel's crews can probably only be effectively monitored in Port State controls. A stronger IMO is needed also here, possibly through revising the present system of national inspectors to an international system where IMO is responsible for training and guidance of inspectors globally. Although hard to accomplish, this would most likely not only make control of crew composition more effective, but moreover reduce differences in the implementation of Port State control generally and thus reduce the problems related to variation in Port State controls in different countries and regions that exists despite the common IMO regulations on procedures. Finally, it is shown that potentials exist to improve Baltic Sea marine safety at the regional and sub regional level. First, HELCOM may be used as forum to discuss and attempt to find consensus on ways to increase safety on issues such as designation of ports of refuge, traffic separation and surveillance. If consensus is reached,

proposals could be uploaded to IMO/ILO, with the ultimate aim of subsequent downloading to EU, where considerably stronger enforcement mechanisms are available. Second, sub regional or bilateral collaboration on e.g. monitoring, surveillance and cooperation on accident preparedness may prove to be in the best interest of specific groups of typically neighbouring countries. It is shown that several examples of such cooperative initiatives to reduce implementations gaps have been undertaken, but also that this form of collaboration could be further developed. Third, and finally, local involvement of stakeholders, NGOs and citizen groups in deliberative processes may be important as a mechanism to increase trust in central governing capacity as well as make important contributions to e.g. preparation of local preparedness in case of a nearby major oil spill accident emerge.

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1. Scope and aims

One of the issue areas significant for Baltic Sea's ecological status and the potential for ecosystem based management is environmental hazards related to marine oil transportations, which is the scope of this case study (Schmidt-Thomé, 2009). Frequent oil transportation means environmental hazards, primarily due to risks for oil spills and operational pollution. This requires effective and efficient environmental risk governance.

This study will, by integrating social and natural science approaches and by providing theoretical and empirical evidence, improve our understanding of institutional mechanisms, communication and structures, which will be useful for policy actors involved in maritime oil transportation. It will help to increase understanding of how governance structures relate to environmental risks and how are they assessed and perceived among different stakeholders and scientific experts. It will furthermore propose opportunities for effective, sustainable and legitimate environmental risk governance (RISKGOV Research Plan to BONUS+, 2010).

The major aims of the maritime oil transportations project are to:

- Provide a description and evaluation of current approaches to the assessment, management and governance of the oil transportation risk from an ecosystem based management perspective.
- Identify strengths and weaknesses of current oil spills management as well as governance and communication settlements.
- Provide a better understanding of conditions for regional and sub regional environmental risk governance.
- Provide normative suggestions on how to improve future governance of oil transportations (RISKGOV Research Plan to BONUS+, 2010).

The constructive/normative aim of this study is to reveal possibilities for improvement in the governance of environmental risks that relates to oil transportation in the Baltic Sea. In order to be able to suggest a normative framework, the current state needs to be first researched (RISKGOV Research Plan to BONUS+, 2010).

The analytical and descriptive aim of this study is to improve understanding of the structures and processes shaping the governance of environmental risks relating to oil transportation in the Baltic Sea. Three separate parts will therefore address the following content:

- a) Governance structures: Policies, regulations, decision making process and participation in decision making in relation to oil transportation and related risks in the Baltic Sea

- b) Governance processes: Risk assessment and risk management relating to oil transportation and interaction between assessment and management.
- c) Governance processes: Stakeholder communication (RISKGOV Research Plan to BONUS+, 2010).

The Case Study Report is based on 1) interviews from several of the main actors within the field, and 2) literature studies. The interviewees were chosen due to their respective position within the different organisations or institutions, all in diverse positions and with various backgrounds; in Sweden as well as in other countries. This has been necessary in order to cover the wide field of actors dealing with oil. The interviewees comprise members of different NGO's and Baltic Sea networks, EU authorities, sector interests and different governmental officials. The interview list can be found in Annex 1. Since shipping is a highly globalised industry not all the informants dealt with the Baltic Sea specifically but had a more general insight, which is a natural consequence of such a worldwide business.

The interview technique used was qualitative semi-structured interview, based on an interview guide, which was evidently amended slightly depending of the informants' backgrounds and positions. On occasion only certain themes were addressed, but the main idea was to make the interviews as comparable as possible.

2. General background

2.1 Introduction

The Baltic Sea is one of the largest brackish water basins in the world and the specific hydrographical, chemical and physical features of the sea make it quite unique (Stankiewics & Vlasov, 2009a). The processes of self-cleaning are slower than in warm waters, oil pollutants may therefore considerably harm the marine ecosystems of the Baltic Sea (Pupienis, Jalinskas, Vyšniauskas, 2007). One of the causes for oil pollution is oil discharge, which is one of the main environmental effects of shipping (Stankiewics & Vlasov, 2009b).

The shipping traffic in the Baltic Sea is heavy, with an estimate of 15 per cent of the world's total cargo transports (HELCOM,2009). Around 3500-5000 ships are sailing the Baltic Sea monthly, and 2000 ships are present in the sea at all times (Jalkanen & Stipa, 2008). The amount of oil that is transported increases each year. In 2008 over 170 million tonnes of oil was transported. The oil transports are believed to increase by 40 per cent until 2015 and the oil tankers are also assumed to increase their capacity to be able to carry 100 000 to 150 000 tonnes of oil (Stankiewics & Vlasov, 2009b).

During the transportation, oil may be discharged into the sea *intentionally* or due to an *accident*. Each year 120 accidents occur on average, causing pollution in about seven per cent of the cases (Stankiewics & Vlasov, 2009b). The most common type of accident is grounding, and the second is collision. Tankers have been involved in 117 accidents during the period of 2000-2007 (Stankiewics & Vlasov, 2009b). Special conditions in the Baltic Sea are due to the difficulty of navigation through narrow straits, shallow water and icy conditions increasing the risk of ships accidents. However, in the recent years the collision rate as a whole has decreased noticeably, even though the traffic as such has increased (Stankiewics & Vlasov, 2009b).

The reasons for the decline in the number of accidents might be due to the HELCOM AIS, traffic separation systems and the ship reporting systems (Stankiewics & Vlasov, 2009c). HELCOM AIS stands for Automatic Identification System introduced by HELCOM – The Helsinki Commission, in order to monitor maritime traffic. HELCOM is an intergovernmental organisation comprising all Baltic Sea States, Denmark, Estonia, Finland, Germany, Latvia, Lithuania, Poland, Russia, Sweden and the European Community. It works with the protection of the marine environment from pollution and degradation, as well as safety of navigation (Stankiewics & Vlasov, 2009c).

When AIS is used in combination with the Sea Track Web (STW) oil drift forecasting system (STW/AIS) it represents according to Stankiewics & Vlasov (2009c) an efficient tool to track intentional oil discharges, which are more common than accidents.

HELCOM is coordinating aerial surveillance among the member countries to discover polluters. The operations are backed up by satellite observations and patrol vessels. These aerial operations are coordinated by the Response Group of HELCOM (HELCOM RESPONSE), a subsidiary working group dealing with the development of measures for reaction to pollution accidents (Stankiewics & Vlasov, 2009b). Another working group, the Maritime Group (HELCOM MARITIME) deals with safe navigation and sea-based pollution such as emissions, discharges and invasive alien species (Stankiewics & Vlasov, 2009c). There is also cooperation between the states to investigate violations when ships move between national territorial waters and ports, and attempts to harmonise fines between the countries have been made. Incidents aboard a ship must also be reported by the person/s in charge, in accordance of international agreements¹ (Stankiewics & Vlasov, 2009a). As to now, there are 45 ships in the HELCOM fleet on stand-by in case of an oil spill accident.

Out of all detected intentional illegal discharges only a small percentage of polluters are actually identified. Similarly as the number of accidents has been decreased, also the number of illegal oil spills has been decreased; about 249 oil spills were detected in 2007. Still HELCOM is trying to fight illicit oil spills by upgrading STW/AIS system to increase the rate of polluters' identification.

There are two main international conventions regulating pollution from ships; the HELSINKI CONVENTION and MARPOL 73/78. The HELSINKI CONVENTION of the Protection of the Marine Environment of the Baltic Sea Area, for which one of the aims is, to prevent pollution from ships was signed for the first time in 1974 and came into force in 1980. Its strengthened version was signed by all Baltic States¹ in 1992 and came into force 2000. The most recent amendments came into force in 2008 (Stankiewics & Vlasov, 2009a).

The second convention regulating pollution from ships is MARPOL 73/78 - The Convention for the Prevention of Pollution from Ships. It originates from 1973 and was amended in 1978. It prohibits and restricts discharges and dumping of oil, oily mixtures, noxious liquids and garbage/wastes into the water. In terms of oil, it is not allowed to discharge any oil or oily mixture, neither from the cargo tanks nor from any other part of the ships machinery, unless the discharge is smaller than 15 parts per million. According to the HELCOM Action plan 2007 any discharge of oil-containing water shall be prohibited. All ships are obliged to report any discharges above permitted level, observations of significant spillages of oil or other substances, damages, groundings, etc. (Stankiewics & Vlasov, 2009a). HELCOM action plan is based on the "Ecosystem approach to management" - EAM:

¹ See the *Clean Seas Guide The Baltic Sea Area, a MARPOL 73/78 Special Area*, 2009:14 for the full list of incidents that are obliged to be reported.

“Ecosystem approach is based on a multi-species framework, where emphasis is on long-term sustainability, integrating human activities and conservation of nature, including political, economic and social values, and should propose solutions which are socially acceptable. It is also important to recognise that it is human activities that we are able to manage, not ecosystems per se” (HELCOM, 2010d).

It is, however, very unclear if, how and to what extent has been Ecosystem Approach to Management applied in practice, as its implication in risk management may be rather complex and challenging task; dealing with uncertainties is one of the challenges.

2.2 Theory – A brief review

Research related to ocean governance, regimes on oil transportation in general and with bearing on the Baltic Sea in particular has been undertaken in a number of different sub-areas. Theoretically, most of the research has been undertaken on developing the conceptual areas of regime effectiveness and interaction.

This research has not been exclusively targeted at oil transportation hazards but on international collaboration within different issue-areas, of which various environmental problem areas have been those most intensively researched (Helm and Sprins 2000; Miles et. al., 2001; Young, 2002; Oberthür & Gehring, 2006; Stokke and Hønneland, 2007).

The still most commonly used definition of a regime was given by Stephen D. Krasner already in 1983:

...a set of explicit or implicit principles, norms, rules, and decision making procedures around which actor expectations converge in a given issue-area.

Based on the fundament of the sovereignty of nation-states resulting in an anarchic international system, the early regime theorists argued that observed international collaboration could be explained by referring to the existence of mutual benefits from cooperation, despite the primacy of national interests and the lack of a supranational enforcer (Hassler, 2008). The issue of the determinants behind regime effectiveness and efficiency has continued to spur considerable amounts of scholarly interest as new regimes emerge and old ones transforms to meet the requirements of the increasingly globalised international system (Miles et al., 2001; Hovi, Sprinz and Underdal, 2003; Koremenos et. al., 2004). Factors such as numbers of involved actors, distribution of capability and interests, problem structure (i.e. how biogeophysical characteristics of particular environmental problems affect likely collaboration patterns), issue linkage and institutional mechanisms designed for facilitating extended cooperation have all been suggested as important in understanding environmental regimes.

During the last decade, issues related to regime interaction have been given increased interest. As international interactions are becoming increasingly complex, broadened and accompanied with increasing numbers of formal conventions interaction between individual regimes cannot be neglected according to these scholars (Stokke, 2001a, 2001b; Rosendal, 2001; Oberthür and Gehring, 2006a, 2006b, 2006c). This line of research comprises two quite distinct but related areas; on the one hand detailed case studies on how specific international conventions affect each other's effectiveness and on the other elaboration of typologies of various sub categories of regime, or institutional, interaction often arrived at using meta-analysis of collections of case studies.

A first distinction on different forms of regime interaction can be made between opposing and synergistic interaction, that is, whether the interaction increase or decrease the effectiveness of the respective regimes. The interaction could furthermore be classified as vertical or horizontal in relation to regulatory (geographic) scale. Vertical integration is of particular relevance in relation to oil spill regulation, as there is a comparatively distinct hierarchy between global conventions (IMO – International Maritime Organisation, ILO – International Labour Organisation), regional rules and procedures (EU, HELCOM and regional Memorandum of Understanding - MoUs) and national legislation in this issue-area.

A number of sub categories of interaction types have furthermore been developed. For example, Young (1996) distinguishes between interaction as being *embedded* (lower level conventions may be embedded in overarching principles such as IMO conventions being embedded in the larger principle of the freedom of the seas and state sovereignty), *nested* (conventions within limited areas maybe nested in conventions with a larger functional or geographical scope, such as HELCOM vis-à-vis IMO), *clustered* (related conventions may be brought together under a common organisational heading such as in IMO) and *overlap* (different regimes partly cover the same regulatory area, such as IMO conventions and related EU directives). A typology somewhat more closely attached to established rationalistic theory was suggested by Stokke in the early 2000s (2001a) when he identified on the one hand utilitarian interplay (measures are taken by actors in one institution that affect distribution of costs and benefits in another) and on the other interplay management, where actors try to coordinate measures within different regimes in order to reduce duplication and unnecessary costs.

Turning to the specific area of oil transportation hazards a major contribution on weaknesses and possibilities to improve the effectiveness of global regulation on especially intentional oil spills has over the years been made by Ronald Mitchell and colleagues (Mitchell, 1994; Mitchell et. al., 1999; Mitchell & Keilbach, 2004; Mitchell, 2006). The probably most important theme in the findings of Mitchell concerns the changes from *intentional regulations* (i.e. what is allowed and what is not allowed to do during operations at sea) towards an

increased focus on *technical requirements* (i.e. pushing for requirements related to separated ballast tanks, double hulls, load on top preparations etc.) within IMO regulatory frameworks. Initially, IMO focused primarily on regulating allowable emission of oil from ships, but it soon became apparent that it was not possible to reach an acceptable level of monitoring effectiveness to deter operators from, for example, cleaning tanks or flushing machine rooms at sea. It was much easier to inspect vessels to make sure that they followed existing regulations regarding technical requirements, under the assumption that this would reduce incentives to pollute and decrease risks for accidental spills.

However, compliance still has to be monitored, and the system of *flag state control* was not very effective, even though exclusion mechanisms have improved standards to some extent (Corres & Pallis, 2008; DeSombre, 2008). Therefore, *port state control* has become increasingly important as a mechanism to enforce compliance. The port state typically has stronger incentives to undertake effective inspections compared with the flag state, as an oil spill would very likely affect the port state. It is furthermore easier for the port state to inspect vessels visiting its ports, compared with flag states' possibilities to monitor ships flying its flag in far-away waters. Nevertheless, substantial differences in the implementation of port state regulations have been observed, which pose considerable problems in ensuring compliance. Although port state control is rather tightly regulated in IMO conventions, substantial differences between regional MoUs have been noted (Knapp & Frances, 2008).

According to for example HELCOM statistics on reported causes to incidents and accidents, human error is an important factor amounting for approximately one third of all incidents (BRISK, 2010). The issue of what causes these human errors has not been substantially researched, but important reasons might include non-adequate training of lower level staff on-board ships, language barriers and under-sized crews (Sampson & Bloor 2007, Knudsen & Hassler forthcoming 2011). Another, partly related cause behind accidents might be related to what may be called regulatory overload, especially when combined with implementation deficits. It has been suggested that regulatory overload may result as a consequence of political pressures to tighten regulation, typically after a major accident (Knudsen & Hassler forthcoming 2011). However, as it is often not additional regulations that are needed, but rather more effective implementation of existing instruments, additional rules may make compliance with all requirements if not impossible in certain situations, at least very complicated. In fact, the increasing complexity of regulations may in certain situations increase rather than decrease risks.

Finally, some research has been undertaken on the classification of the Baltic Sea (except for Russian territorial waters) as a Particularly Sensitive Sea Area (PSSA) and the potential for unilateral, bilateral and sub-regional projects as mechanisms to improve maritime safety in the Baltic Sea (Rodin, undated; Uggla, 2007; Hassler, 2008). The PSSA classification means that

a framework for APMs (Associated Protective Measures) under the auspices of IMO has been put in place. So far, the most important APMs that have been implemented include revised traffic separation schemes, additional so-called Areas to be avoided, deep water routes and pilotage systems (Lindén et. al, undated). Regarding the potential for sub-regional initiatives to complement existing international maritime conventions, it has been suggested that individual countries in the Baltic Sea, or small groups of countries, could have incentives to facilitate implementation and to support other countries through e.g. technical cooperation and training. It has been shown that a substantial number of such projects have been undertaken, and that these initiatives most likely have contributed to improve maritime safety in the Baltic Sea region (Hassler, 2008).

3. Governance Structures – Results

In this chapter the governance structures on the international, EU and regional level are delineated. The chapter is divided into two main parts. In the first part the organisations (governmental as well as non-governmental) working on different levels are presented including conventions adopted as a result of the policy-making process. We will then discuss the networks, interactions among actors, possibilities for participation and regulatory frameworks in the second part.

3.1 UN organisations and agencies

One of the major international organisations working with, inter alia, maritime issues is the UN (United Nations), its Division for Ocean Affairs and the Law of the Sea is especially concerned with ocean affairs (DOALOS, 2010).

The result of the third UN conference on the Law of the Sea, which took place from 1973 to 1982, is the UN Convention on the Law of the Sea (UNCLOS). It is an international agreement, a law regime that governs uses of oceans, seas and their resources (DOALOS, 2007a). It includes, inter alia, the protection of marine environment and therefore addresses oil spills (UNCLOS, 2010b).

It came into force in 1994 and has been ratified by all Baltic States. In the same year (its 49th session), the General Assembly, which is “the main deliberative, policymaking and representative organ” (General Assembly, 2010) decided to undertake annual reviewing and monitoring of the implementation of the Convention and other developments that would be relevant for consideration. It was furthermore decided in 1999 to found an open-ended informal Consultations Process, in order to support these annual reviews. UN Member States, UNCLOS parties, State members of the specialised agencies, entities invited for participation as observers, and intergovernmental organisations with competence in ocean affairs may participate in these meetings. Non-governmental organisations (NGOs) may attend meetings in case they have a consultative status with Economic and Social Council or are accredited to the roster of the Commission on Sustainable Development (DOALOS, 2007b). They are allowed to present and distribute their reports to State Parties (UNCLOS, 2010a).

In a 1968 report, the UN Administrative Committee on Coordination (ACC) noted that several UN agencies have potentially overlapping responsibilities for marine environmental protection, and that the range of information required to meet these responsibilities spans a wide range of scientific disciplines (FAO, 2010). GESAMP - The United Nations Joint Group of Experts on the Scientific Aspects of Marine Pollution (GESAMP) was therefore founded in 1969, for provision of interdisciplinary, scientific advice on marine protection. A group of experts and scientists from governments, NGOs and sector organisations is selected by GESAMP (GESAMP, 2008).

UN besides of the Assembly, the Council and committees, consists of different, for this project relevant, departments (such as UN Department of Economic and Social Affairs and its Division for Sustainable Development), bodies (commissions, such as the International law commission), programmes and funds (such as United Nations Environment Programme – UNEP) and agencies, such as ILO and IMO (UN, 2010).

Several UN bodies, agencies and programmes are adopting policies addressing similar aspects relating to marine environment and its preservation, so we can observe some *overlapping interactions*, which are one type of interactions described in Young 1996 as well as in the theoretical section 2.2. They are however, more or less specific or stringent and some are legally binding while others are perceived more as a “soft law”, such as recommendations, or even combination of both, such as strategies or action plans.

The UNCLOS convention (UNCLOS, 2010) is rather general in nature. Article 208 on “Pollution from seabed activities subject to national jurisdiction” for example, is saying: 1. “Coastal States shall adopt laws and regulations to prevent, reduce and control pollution of the marine environment arising from or in connection with seabed activities subject to their jurisdiction”, so the treaty does not explain how, or goes into details, it just urge states to adopt laws for preventing and reducing pollution and allows states ample room for implementation. However, “Such laws, regulations and measures shall be no less effective than international rules, standards and recommended practices and procedures.” Reminding of the importance of the international rules, even though interpretation of what “less effective” may vary.

Then we have two other comprehensive UN products, which are addressing sustainable development, Agenda 21 and WSSD (World summit on sustainable development). Agenda 21 is a UN action plan relating to sustainable development from 1992 and its chapter 17 in the section II is addressing the importance of protection of the oceans and seas. Several parts of this chapter are addressing oil spills and shipping, adding also *means of implementation*. Similarly WSSD invites states to ratify or accede to and *implement* UNCLOS and IMO conventions and refers to Agenda 21 (Agenda 21, 2009; WSSD, 2002).

In respect to shipping is Agenda 21 addressing similar issues as UNCLOS. States are called to ratify and implement relevant conventions and protocols for protecting marine environment with respect to UNCLOS and IMO conventions in general and specific conventions: “States should consider ratifying the Convention on Oil Pollution Preparedness, Response and Cooperation, which addresses, inter alia, the development of contingency plans on the national and international level, as appropriate, including provision of oil-spill response material and training of personnel, including its possible extension to chemical spill response.” While Agenda 21 and WSSD are both stressing the need for risk assessment, Agenda 21 in addition includes the programme of actions needed for sustainable oceans,

which implementation supports also WSSD. Its “means of implementation” includes: human development, capacity-building and provision of education and training (Agenda 21, 2009; WSSD, 2002). Education and training is actually addressed also in ILO conventions. One of its important policy outcomes is for example ILO Maritime Labour Convention. Its regulation 1.3 on “Training and qualifications” is saying: “Seafarers shall not work on a ship unless they are trained or certified as competent or otherwise qualified to perform their duties” (ILO, 2006). Here, was EU according to Riddervold (2006) the main advocate pro for high minimum standards and strict control measures.

In order to support fulfilment of such programmes (Agenda 21, WSSD Plan) or other UNEP Governing Council Decisions and global conservation priorities, UNEP, the United Nations Environment Programme, has launched the Regional Sea programme (UNEP, 2010a). It covers 18 world regions, including the Baltic Sea. The Baltic Sea programme is an “independent” programme, which means it is not established under UNEP auspices, however, there is coordination and cooperation between actors and UNEP is disseminating information on marine oil pollution via publications and special website (GPA, 2005; UNEP, 2010b).

3.1.1 IMO, decision making process and enforcement

IMO (International Maritime Organisation) with its seat in the UK is a UN specialised agency, established in 1948 and exclusively devoted to maritime matters. The IMO organisation comprises the Assembly, which is composed of all 169 member states (including all Baltic Sea countries); the Council, into which 40 members can be elected to, and five main Committees; the Maritime Safety Committee MSC (Subcommittee on Oil Pollution since 1965); the Marine Environment Protection Committee MEPC; the Legal Committee; and the Technical Co-operation Committee and the Facilitation Committee. MEPC is previous Subcommittee on Oil Pollution (IMO, 2010a).

The Council is the executive organ of IMO and it is responsible for supervising the work of the organisation. It is performing all the functions of the Assembly between the sessions except of making recommendations to Governments on maritime safety and pollution prevention. Countries that either have the largest interest in international shipping service provision (10 countries in *A group*), have the largest interest in international seaborne trade (10 countries in *B group*), or have a special interests in maritime transport or navigation (*C group*) can be elected to the council. With the latter group, they try to assure the representation of major geographical areas in the world. In the last six years the Russian Federation and Sweden + Germany and Denmark were elected into the first, second and third group respectively (IMO, 2010a).

Besides the Assembly and the Council there are also several committees involved in the decision-making mechanism such as the Maritime Safety Committee (MSC), Marine

Environment Protection Committee (MEPC) and the Legal Committee and the Facilitation Committee (IMO, 2010b). Committees are preparing the proposals and submitting them to the Council, which then submits them to the Assembly (IMO, 2008; IMO, 2010a). However, the initiators are actually the Member States, looking through the rules governing relationship with NGOs. According to an informant from an international NGO, accredited NGOs may raise an issue directly within the IMO, but most of the times it is preferable to first go through a lower level intergovernmental organisation such as HELCOM (Interview, 2010). Committee has its rules needed to be considered when deciding whether they will include a new item in the work programme of an IMO body (IMO, 2008).

MEPC is responsible for policies relating to prevention and control of pollution from ships and MSC for policies relating to safety, navigation, equipment (very technical). There are nine sub-committees, such as Sub-Committee on Ship Design and Equipment (DE), or Sub-Committee on Flag State Implementation (FSI), Sub-Committee on Safety of Navigation (NAV) which are assisting the work of MEPC and MSC (IMO, 2010a). They function as policy-making bodies, in addition to the help of Sub-Committees; subsidiary bodies are assigned the work and act as operational, technical bodies (IMO, 2008). Technical Co-operation Committee has been established as a subsidiary body of the Council and Legal Committee as a subsidiary body for legal questions. Also MEPC has been established as a subsidiary body to assist the Assembly. However, it has later accomplished a full constitutional status (IMO, 2010a). Thus, initiatives normally come from the Committees and other bodies to the Council, which then comment and add recommendations when appropriate and send it further to the Assembly and Member States (Interferry, 2010; IMO, 2010a).

The Assembly, which consists of all Member States meets once every two years, if necessary, they may arrange also extraordinary session. At that occasion is assembly taking decision on approval of the work programme (IMO, 2010a). If Assembly or in some cases the Council gives authorisation for continuation of the work, is committee continuing with the work to finalise the proposal to details. IGO with observer status and NGO with consultative status besides the Member States may provide their advices, comments (Interferry, 2010). Committees and subsidiary bodies can set up also working groups, drafting groups and correspondence groups (IMO, 2008). When the final draft is completed, a conference is arranged, where the final decisions are taken. Some technical decisions are taken also on committees and sub-committees sessions attended by marine experts from Member Governments, interested intergovernmental and non-governmental organisations (IMO, 2010c).

All IMO Member States and also all UN Member States are invited to the major conferences; also IGOs and NGOs can be present and provide their advice, however, only the Member States have the right to vote: Rule 7: “Such observer shall have no voting rights but may, on

the invitation of the Chairman and with the approval of the body concerned, speak on any item of the agenda of special interest to the non- governmental international organisation of which he is the representative.” (IMO, 2001b). All parties invited are also invited to comment on proposal beforehand (Interferry, 2010). Decisions can be taken by simple majority, qualified majority of two thirds or consensus (unanimously without a formal vote) (Ehlers, Lagoni, 2006). According to an NGO representative who has been attending IMO meetings for 14 years, IMO is always trying to find consensus (Interview, 2010). Amendments can then be suggested by any party to the convention, and can be adopted either by MEPC or at the Conference of the Parties, for which “tacit acceptance” can be used and can speed up the process. In fact, several SOLAS amendments have been adopted by “tacit acceptance”. It means that without additional ratification, amendments become binding for Member States (Ehlers, Lagoni, 2006).

NGOs can acquire consultative status by the Council and Assembly approval, if they “have the capability to make a substantial contribution to the work of IMO”. These non-governmental organisations are supposed to be “truly international”, with members from a broad geographical scope and not one region only. Currently, there are 79 organisations having such status. Among non-governmental groups there are different interests, they probably have different objectives and reasons for being present at the meetings and being able to participate in the policy-making process (IMO, 2010d).

Some non-governmental organisations with consultative status are representing:

- *Industries:* for example International Bunker Industry Association (IBIA) or International Council of Marine Industry Associations (ICOMIA), International Bunker Industry Association (IBIA);
- *Educational Institutions, Institutes:* for example Institute of Marine Engineering Science and Technology (IMarEST), International Maritime Lecturers Association (IMLA) or International Ocean Institute (IOI);
- *Shipping associations,* such as International Association of Dry Cargo Shipowners (INTERCARGO), or International Association of Independent Tanker Owners (INTERTANKO), BIMCO
- *Environmental (and health) protection organisations,* such as Friends of the Earth International (FOEI), Clean Shipping Coalition (CSC), Greenpeace International, International Maritime Health Association (IMHA), World Wide Fund For Nature (WWF);
- *Transport associations* - including International Road Transport Union (IRU), World Nuclear Transport Institute (WNTI).

Out of 79 NGOs seven are focused mainly on environmental protection. However, it cannot be estimated/concluded that any of the groups would be prevalent as even within industry the activity is vary varied.

An example of an international NGO is WWF which is working for the enhancement of shipping practices on the international level and lessening its impact on marine ecosystem. This includes sensitive areas, improving transparency and accountability of industries and improving operational standards and practices (WWF, 2010). As they have a consultative status within the UN, this means they may participate in the policy-making process. They are also monitoring policies and commenting on possibilities for improvements, publishing reports and therefore influence the public. WWF (as well as Greenpeace) was one of the promoters for including the Baltic Sea area among the MARPOL sensitive areas.

The main IMO treaties indirectly or directly controlling oil spills and shipping in the Baltic Sea are Annexes I of MARPOL (1973/1983) for pollution from oil, SOLAS (1974/1980) safety agreement, COLREGs, 1972/1977 – Convention on the International Regulations for preventing Collisions at Sea, OPRC Convention (1990/1995) on oil pollution preparedness, response and Co-operation (IMO, 2010e).

The first attempt in trying to control oil pollution was OILPOL Convention 1954: International Convention for the Prevention of Pollution of the Sea by Oil (IMO, 2010f), which was then superseded with 1973 International Convention for the Prevention of Pollution from Ships called MARPOL Convention. Much of the OILPOL convention was incorporated, expanded and improved in the Annex I of MARPOL (IMO, 2010e).

SOLAS is the International *Convention for the Safety of Life at Sea (SOLAS)* adopted in 1974, and it entered into force in 1980. The SOLAS convention is specifying minimum standards for the construction, equipment for safety operation of ships (IMO, 2010i). All Baltic Sea States are parties. This means that they either have ratification or accession status (IMO, 2010). Ratification and accession means the treaty has been approved by the government or parliament. In ratification the country has signed the convention, whereas in accession a country was not able to sign the treaty (Law and our rights, 2005).

The OPRC Convention, *the International Convention on Oil Pollution Preparedness, Response and Co-operation* was adopted in 1990 and in 1995 it became international law. Some of the agreements are: Requirement of “oil pollution emergency plan” on board as reporting any discharge oil, assessment of the incident and informing other possibly affected states. Furthermore, development of a national system for a prompt and effective response to oil pollution incidents is required. Parties are also agreeing in international co-operation in pollution response, technical co-operation, research and development (for oil pollution preparedness, response, clean-up, etc.) (IMO, 2010j).

Furthermore, there are some additional conventions relating to oil spill compensation:

The BUNKER convention (2001/2008) is an instrument for compensation for pollution damage caused by oil spills when carried in ship bunkers, similarly is CLC – *International Convention on Civil Liability for Oil Pollution Damage* (1992/1996) ensuring compensation for oil pollution damage caused by oil-carrying ships (IMO, 2010g, IMO, 2010h). CLC is associated with the *International Convention on the Establishment of an International Fund for Compensation for Oil Pollution Damage - FUND* (1992/1996) which is related to financial and legal aspects of the CLC convention. This protocol established the International Oil Pollution Compensation Fund (IOPC) which is not part of the UN system (IMO, 2010k; IMO, 2010i).

Additional treaties relating to shipping and safety are the Tonnage and Load Lines with objective to define the limits for a ship load and the STCW Convention on Standards of Training, Certification & Watchkeeping (IMO, 2010l).

3.2 EU: Role, decision-making processes and enforcement

The main bodies involved in the process are the European Commission (EC), the European Parliament (EP) and the Council of the European Union (the Council). From the three types of procedures *consultation*, *assent* or *co-decision* is the latter is the most commonly used (also for the maritime affairs) in the EU law-making and will be therefore explained. According to co-decision rules, is the EC initiator (for maritime this would be DG Maritime Affairs) while the legislative power is shared between the Council and the EP (EU, 2010a).

EC has according the Lisbon Treaty “right of initiative” and is therefore responsible for policy proposal preparation (EU, 2009). This is done through consultation process:

The Commission’s proposal is the result of an extensive consultation process, which may be conducted in various ways (impact assessment, reports by experts, consultation of national experts, international organisations and/or non-governmental organisations, consultation via Green and White Papers, etc.).” (EC, 2010a) “Green Papers are documents published by the European Commission to stimulate discussion on given topics at European level. They invite the relevant parties (bodies or individuals) to participate in a consultation process and debate on the basis of the proposals they put forward. Green Papers may give rise to legislative developments that are then outlined in White Papers.” (EC, 2010b) “White Papers are documents containing proposals for Community action in a specific area” (EU, 2010b).

The consultation may address the question of need for revision of existing directives, evaluation of frameworks, general future policy (EC, 2010c; EC 2010d). There was for example a consultation for general public on the “Thematic Strategy on the Protection and conservation of the Marine Environment” in 2005 (EC, 2010d). Each open consultation is targeting different groups, such as civil society, public concerned, interested stakeholders, all

citizens or combination of a combination of these. However, in any case citizens, organisations or public authorities can submit their ideas (EC, 2010d). Green papers for Maritime Policy was commented by many stakeholders; including European Institutions, National Governments, regions (HELCOM), industries, trade unions, international bodies, NGOs and civil society (including WWF, Greenpeace), research, science and education (EU).

The drafting stage is supported by advisory bodies (Richardson, 2006): expert groups; some expert groups in maritime affairs are for example: Marine Implementation Group, Maritime Policy Member State Experts Group, Marine Observation and Data Expert Group) (EC, 2010a); community agencies – includes European Environmental Agency - “We provide independent information on the environment, to feed into EU and national policymaking” (EU, 2010c) and European Maritime Safety Agency (EMSA). EMSA assists EC when drafting policy proposals.

The Agency's main objective is to provide technical and scientific assistance to the European Commission and Member States in the proper development and implementation of EU legislation on maritime safety, pollution by ships and security on board ships. (EMSA, 2010)

When the proposal has been finalised, it is forwarded to the Council and the EP, as well as to the national Parliaments, if relevant also to the Committee of the Regions and the Economic and Social Committee (EC, 2010a). The proposal is received by the most appropriate parliamentary committee(s) in the Parliament. In the case of Integrated Maritime Policy, several Committees were involved including TRAN (Transport and Tourism) - responsible, ENVI (Environment, Public Health and Food Safety), PECH (Fisheries) as well as ITRE (Industry, Research and Energy) and REGI (Regional Development) (for opinions) (EP, 2010a). They may add amendments, which are put on vote with a simple majority. Then the amended proposal needs to be adopted by a simple majority by the committee and political groups in the plenary session (EP, 2009; EC 2010a). The Council is concurrently engaged in a preparatory work within specific working parties. It is acting with a qualified majority with Commission’s agreement. The Council can approve EPs amendments and adopt the act as amended. If EP has not added any amendments not the Council, the policy is adopted with the same wording as in the Commission’s proposal. If the Council and the EP cannot agree on any part of the legislation, the process continues with a common position and the second reading until the agreement is achieved (EC, 2010a). While NGOs and civil society actors are involved in the consultation process, they do not have a voting power (Votewatch, 2010).

There are several NGOs and Lobbying agencies such as T&E, EEB, WWF, INTERTANKO and BIMCO trying to influence EU officials in the Commission as well as in the Parliament. Parliament has for example 4 570 accredited lobbyist organisations. The exact number of individual lobbyists is not clear, there are estimations however that about 15.000 active

lobbyists are active in Brussels (Brussels hosts the official seats for EC, the Council, and the second seat for the EP), trying to influence policy making process from initiation to the final interpretation and implementation of regulation in the nation state. reference

About at the same time as SOLAS and MARPOL, was EU adding elaboration of a Common Maritime Policy (CMP) in its agenda. However, only after 1990 marine policy initiatives were becoming more strategic and long-term oriented (Pallis, 2006). According to Marks, Hooghe and Blank EU has in the 1990s become a regional multilevel governance body, where actors placed on multiple levels are contributing to policy making process (Marks, Hooghe and Blank, 1996).

The role of EU and enforcement

Several directives and regulations are governing maritime transportation (Environment, Mobility&Transport) (EC, 2010f). Some of them are: Directives 2002/6/EC - *formalities for vessels at the arrival/departure of ports*, 2000/59/EC - *waste and residue reception*, 2002/59/EC - *vessel monitoring and Regulation* (EC) N° 725/2004 - maritime security; considered in the *Marine Transport Strategy 2018* (EU, 2010d). Protection of marine environment governs Directive 2008/56/EC – *Marine Strategy Framework Directive* and Directive 2000/60/EC - *The EU Water Framework Directive* (EC, 2010e).

The basis for the EU legislative work is as in the international regulations, in terms of safety standards is the Flag State control (responsibility of flag state to assure safety shipping of ships flying their flags) is combined with Port State control, which means ships may be inspected in ports by contracting governments. Both approaches are actually covered in the SOLAS convention. Port State Control is based on the Memorandum of Understanding (Paris MoU). The idea is to ensure compliance with IMO conventions on safety and pollution prevention, such as SOLAS 74, MARPOL 73/78, STCW 78/95, COLREG 72, Load Lines 1966 and ILO Convention No. 147. Parties to MoU may be inspected or may inspect 25 per cent of foreign ships visiting their ports. Besides meeting criteria for ship safety, pollution prevention and crewing standards, can inspection includes also reviewing crew's knowledge of important procedures (Tan, 2006). By introducing Port State Control into the EU law as the Directive 95/21/EC has EU thus introduced and enforced all the international conventions mentioned above.

Membership in IMO does not bring any obligation for ratification of the conventions, whereas EU membership means stronger commitment. EU could therefore enforce international rules for its Member States, even if the countries have not been MoU parties. Therefore could have been EU successful, or could play a supportive role for implementation of the international legislation.

Actually, up until 2000 EU was focusing mainly on the implementation of the international legislative works for oil pollution which EU applied in the EU region. However, after the two major accidents, Erika in 1999 and Prestige in 2002; EU responded with several new legislative packages. One package was “Erika I”, which strengthen Port State Control (so the ships inspected as substandard may end up on a “blacklist” which is then published on the Marine Safety Agency website) and quality requirements for classification societies in order to be authorised for inspections (2001/105/EC – see table below). Third policy outcome, response to the accident was Regulation (EC) No 417/2002 for phasing out single hull tankers (Hui, 2006). EU has been reacting faster and did not go through IMO, which has expressed disappointment for: “not to choose IMO as the international forum for consideration and adoption of such measures” (Oil Spill Intelligence report, 2003). Anyhow, IMO later on amended MARPOL convention, for phasing out single hull tankers by 2010 (Mason et al., 2008). Erika II package was introduced as a supplement to Erika I. 2002/59/EC:

The purpose of this Directive is to establish in the Community a vessel traffic monitoring and information system with a view to enhancing the safety and efficiency of maritime traffic, improving the response of authorities to incidents, accidents or potentially dangerous situations at sea, including search and rescue operations, and contributing to a better prevention and detection of pollution by ships.”

“Member States shall monitor and take all necessary and appropriate measures to ensure that the masters, operators or agents of ships, as well as shippers or owners of dangerous or polluting goods carried on board such ships, comply with the requirements under this Directive.

While in IMO membership does not mean, that the member states are obliged to ratify the conventions IMO has laid down EU membership brings stronger commitment. EU can be therefore more effective enforcing the EU legislation. Its role was not only to support implementation (special EU network IMPEL is working on implementation), it also went beyond, and introducing stricter regulations than IMO.

Another important policy, which is part of the framework of Marine Strategy Framework Directive, is Integrated Maritime Policy, where “clean shipping” is one of the operational objectives. The policy is as well addressing ecosystem approach to management:

“Union funding should be designed to support exploratory work on actions which aim to promote the strategic objectives of the Integrated Maritime Policy, including the integrated maritime governance at all levels, the further development and implementation of integrated sea-basin strategies tailored to the specific needs of Europe's different sea basins, the definition of the boundaries of sustainability of human activities in the framework of the Marine Strategy Framework Directive, which constitutes the environmental pillar of the Integrated Maritime Policy, paying due attention to their cumulative impacts, on the basis of

the ecosystem approach, the further involvement of stakeholders in integrated maritime governance schemes, the further development of cross-cutting tools for integrated policy-making, the promotion of the international dimension of the Integrated Maritime Policy, and sustainable economic growth, employment, innovation and competitiveness.” (Proposal for establishing a programme, 2010)

With the new EU outcomes we can notice a trend towards producing not only legally binding documents, but also offering possibilities for support (technical, financial), developing programmes and means for monitoring. The new *Proposal* for a regulation is trying to establish a Programme to support the development of an Integrated Maritime Policy Maritime policy. It’s accompanied by an action plan, with defined objectives and forms for addressing them (actions, outputs) (Proposal for establishing a programme, 2010).

3.3 Regional and sub-regional level, beyond nations

According to UNCLOS, 1982 states are responsible for taking necessary measures (using best available means and in accordance with their capabilities) to prevent, reduce and control pollution of the marine environment; this includes pollution from vessels, measures for preventing accidents and dealing with emergencies, ensuring safety, preventing intentional and unintentional discharges. State that becomes aware of a pollution is obliged to notify other States possibly affected (Articles 194, 198) (UNCLOS, 2010b).

In addition may states bordering straits adopt laws and regulations relating to transit passage through straits in respect of prevention, reduction and control of pollution, by giving effect to applicable international regulations regarding the discharge of oil, oily wastes in the strait. User States and States bordering a strait should by agreement cooperate in regard to maintenance of safety of this zone and for the prevention, reduction and control of pollution from ships (UNCLOS, 2010b).

The Flag State has jurisdiction and control in administrative, technical and social matters over ships flying its flag. Flag states need to adopt laws and regulations for the prevention, reduction and control of pollution of the marine environment from these vessels and they should also take measures for their ships to ensure safety, which includes making sure that the master, officers and the crew are fully conversant with the international regulations concerning safety at sea, prevention of collision, the prevention, reduction and control of marine pollution (UNCLOS, 2010b).

In respect to pollution beyond limits of national jurisdiction international rules, regulations and procedures have to be established to prevent, reduce and control pollution from activities in this area undertaken by vessels, ships flying their flag, etc. In terms of pollution from vessels, states acting through international organisation need to establish international rules

and promote its adoption. Just as well shall states adopt laws and regulation concerning pollution from vessels flying their flag or of their registry (HELCOM, 2009e).

As directed in UNCLOS nation states are expected to cooperate: exchange data about pollution, undertake research programmes, establishing scientific criteria for establishing rules, standards and recommendations. They may cooperate directly or through international organisation (Article 204) (UNCLOS, 1982). Also according to Article 197 in UNCLOS states shall determine regional standards individually, or through a competent body (UNCLOS, 1982).

HELCOM represents such competent body for the Baltic region, through which the Baltic States and European Community are cooperating. It works in accordance with the UNCLOS framework, the IMO and the EU (Ehlers & Lagoni, 2006; Brusendorf & Ehlers, 2002).

WE ACKNOWLEDGE the joint endeavours already undertaken by the Baltic Sea States, work undertaken and on-going within the International Maritime Organisation as well as the European Community. (HELCOM, 2003)

“WE ARE CONVINCED of the need to adopt measures, in accordance with UNCLOS, within the framework of the International Maritime Organisation, because of the global character of shipping, supplemented if necessary by measures at HELCOM level and by measures at EU level. (HELCOM, 2003)

One interviewee described the situation working with regulations within the area. The HELCOM recommendations are not binding, however, HELCOM may work towards the harmonising implementation of specific IMO regulations. If there is a common interest among the Baltic Sea countries in a specific issue, and where there might be an interest to change the global regulations, the Baltic Sea countries may come together in a common position within the IMO negotiations. In these situations HELCOM serves as a co-ordinating platform for that work (Interview, 2010).

Also regional intergovernmental organisations such as the Council of the Baltic Sea States (CBSS), Baltic 21 and VASAB play important roles in certain areas and at certain times. HELCOM contracting parties (which are the Baltic Sea states and the European Union) are represented by a delegation of representatives (HELCOM, 2008). Delegations are typically from the Ministry of Environment from each of the country and DG Environment from the European Commission (HELCOM, 2010).

Upon invitation by the Commission any intergovernmental organisation and non-governmental international organisation with specialised technical, scientific or equivalent expertise pertinent to objectives of the Convention may be represented at the meetings of the Commission as an observer. The criteria and the selection process for granting such status, the suspension of such status as well as

the rights and obligations of such an observer in the deliberations of the Commission is adopted by the Commission (HELCOM, 2008).

Some of the intergovernmental organisations with observer status are: the Baltic 21, the Baltic Sea Parliamentary Conference (BSPC), IMO and UNEP. International NGOs are, inter alia, BIMCO, Coalition Clean Baltic (CCB), International Chamber of Shipping (ICS) and WWF (HELCOM, 2010a).

The HELCOM Commission has a regular meeting at least once a year and every three years there is a ministerial meeting. There are two types of meeting, *meetings of the commission* and *meetings of heads of delegations*. In the first type can also other invited governments, IGOs and NGOs attend these meeting; in addition to all contracting parties. These meetings are regularly held every year and every three years at the ministerial level. The second type of meetings is mainly for the delegations, but can be attended by the organisations given an observer status as well. These *meetings of delegations* are held twice a year and in these meetings policy and strategy proposals are made and implementation of the policy is supervised. So they are also taking the responsibility for the *implementation of the policy, strategies and programmes*.

Another important duty of HELCOM is to follow up the implementation of the Convention and HELCOM Recommendations. Reporting facilitates the assessment of the status of implementation of required measures in the Contracting Parties providing information also on the effectiveness and gaps of the requirements (HELCOM, 2010b).

Also representative of the subsidiary bodies (subsidiary bodies can be established by the Heads of Delegation to support the work of the Commission) or PITF (Programme Implementation Task Force) can be sometimes invited to the meetings of heads of delegations. Decisions of the Commission, the Heads of delegations and the subsidiary bodies are adopted unanimously (HELCOM, 2008).

Annex IV of the Helsinki Convention covers pollution from ships specifically. It is actually reaffirming the IMO conventions. Regulation 1 “The Contracting Parties shall, in matters concerning the protection of the Baltic Sea Area from pollution by ships, co-operate: b) in the effective and harmonised implementation of rules adopted by the International Maritime Organisation.”

In Maritime Activities segment of the HELCOM Baltic Sea Action Plan, it is again stressed (HELCOM works within the framework of international conventions) the importance of internationality in the shipping and the IMO. Action plan is therefore addressing, inter alia, the following management objectives (HELCOM, 2007):

- Enforcement of international regulations - No illegal discharges
- Safe maritime traffic without accidental pollution
- Efficient emergency and response capability

In particular, it calls states to ratify the IMO conventions and agree to cooperation with the European Maritime Safety Agency, to harmonise satellite and aerial surveillance to cover the whole area of Baltic Sea, with idea to improve detecting illegal oil spilling (HELCOM, 2007).

In addition to ensuring the implementation of IMO conventions is action plan as well stressing the importance of “an integrated assessment of the inputs of pollution from shipping and their effect on the Baltic Sea environment”, the awareness raising and capacity building, public engagement, stakeholders participation, which are considered as crucial factors for successful implementation:

WE ACKNOWLEDGE that public engagement and stakeholder involvement can effectively contribute to a successful implementation of the Baltic Sea Action Plan and therefore RECOMMEND countries, regional and local government and organisations representing civil society to engage the public and stakeholders in activities promoting a healthy Baltic Sea and to actively promote public participation in decision making (HELCOM Baltic Sea Action Plan, Awareness rising and capacity building, 2007).

“WE STRESS the importance of further capacity building within and between authorities as well as for industries on the identification and implementation of requirements concerning hazardous substances (HELCOM Baltic Sea Action Plan, Awareness rising and capacity building, 2007).

Also the interview results are confirming the emphasis of the importance of public participation including an active work with stakeholder conferences, press releases and different publications. The importance of acting sub-regionally was stressed where the focus not necessarily is nation-wise but sub-regionally, including heavy cooperation between countries with the sharing of resources and assistance from neighbouring countries in case of an accident.

Trumbull (2009) describes the collaboration between different actors and building social capital as important for implementation of HELCOM recommendations, especially for the countries in transition:

The building of social capital among water resources planners, managers, city government leaders, international funding agencies, private investors, political leaders, and the public of neighbouring counties became an important element in fostering alliances to pursue compliance to HELCOM guidelines and also in

strengthening partnerships to be able to pursue other urban development policies and goals (Trumbull, 2009).

One of the lobbying actors for the Baltic Sea area working on the national level is the CCB, Coalition Clean Baltic. It is an NGO, established in 1990 with an aim to improve the Baltic Sea environment. CCB is a member organisation, at the moment 27 member organisations are part of CCB, located in Finland, Russia, Sweden, Denmark, Estonia, Latvia, Lithuania, Poland, Germany and the Ukraine. Counting all members from these organisations gives the CCB over half a million members in total. Some of CCB activities are raising awareness on the potential threat to the Baltic Sea environment and to Baltic Sea coastal areas from the transportation of oil and hazardous substance. CCB campaigns for the phasing-out of the single-hull tankers and the introduction of compulsory pilotage for ships navigating in areas of the Baltic Sea, where accidents are more likely to happen like e.g. the Gulf of Finland and the T-route. It also campaigns for the protection of the Baltic Sea from the negative impacts from the expansion of oil business and other existing and planned harmful installations. To achieve its goals CCB actively lobbies governmental institution for the development of new national legislation that are environmental friendly and sustainable. CCB support its member organisations by organising seminars, workshops, exhibitions and fairs. It publishes and distributes materials on environmental problems of the Baltic Sea and possible solutions to its members as well as provides financial support.

3.5 Main actors and interactions

There are several actors that can be classified into a few competing groups of actors which main interest differs, and which are striving for promoting their agenda on international conferences for policy making.

Tan (2006) is dividing actors into two main groups (and a third group concerning developing countries, not relevant for this report). The first group includes actors with maritime, commercial and economic interest and the second covers actors with coastal and environmental interest. While the first group of maritime, military and economic actors is seeking for maintaining freedom of navigation and trade, and where ship and cargo-owners are not in favour of extra costs of regulation, the environmental NGOs and groups with coastal interest are striving for stricter regulations for protecting the marine environment. According to Tan's (2006) division, governments could be placed somewhere in between these two groups as they have interest in assuring security for vessel traffic as well as they have economic interest. They are also positive towards environmental regulations, even though the commitment varies among countries.

According to Tan (2006) more energy on international negotiations for vessel pollution regulations is coming from interest group politics working independently from states than

from state or institutions discourse, while among all different arenas, where basis for decision making are being formed (local, national, regional, global level), the processes in the arena behind national boundaries is the most fundamental for settling the demands addressing maritime and coastal interests. The member states are the ones that may act as initiators. Only states have the right to vote which could be the reason that members (IGOs, NGOs) with observer or consultative status are struggling even more to promote their interests. Tan (2006: 34): “In response, IMO has had little choice but to accede to the demands of these interests for more stringent pollution control measures”.

Ship-owners and operators are mainly business representations, they can act as individuals or are members of association, representing their interest. Some examples of such organisations are: International Chamber of Shipping (ICS), International Association of Independent Tanker Owners (INTERTANKO) or Baltic and International Maritime Council (BIMCO). All these three organisations are associations for shipping industry, with a similar idea, to promote ship-owners and operators interests and are all members driven. They all have NGO consultative status with IMO. However, they do differ in certain areas besides the year of establishment (BIMCO was established first, 1905, then ICS in 1921 and INTERTANKO in 1970). Besides the size and small differences in organisational structure, they mainly differ regarding the members they attract and the approaches they take. ICS members are national ship-owners’ associations (whose members are then shipping companies), while members of INTERTANKO and BIMCO are attracting independent and private ship and tanker owners and operators directly.

ICS members operate about 75 per cent of the world’s merchant fleet and INTERTANKO members operate about 80 per cent of the world’s tanker fleet. ICS and BIMCO are organisations for ship-owners in general (in addition BIMCO attracts broker, agency members) while INTERTANKO members are tanker owners in particular (INTERTANKO, 2010; BIMCO, 2010; ICS, 2010). In addition to NGO status with IMO, BIMCO also holds observer status with some other UN bodies and ICS is engaged with DOALOS, UNCITRAL, OECD, WCO and WTO. ICSs has a sister organisation, International Shipping Federation (ISF) associating employers in the shipping industry; it works mainly with ILO, followed by IMO (ISF, 2010). INTERTANKO in addition participates in International Compensation Fund discussions and has consultative status at the United Nations Conference on Trade and Development. They all are cooperating with the EU. INTERTANKO has one of its offices in Brussels, which indicates clear wish for lobbying in EU decision making process and BIMCO is registered with “Register of Interest representatives”. They all have a similar organisation structure, with executive committee and secretariat, sometimes also council and management committee (INTERTANKO) and several working committees, one of these is working with marine issues. ICS has three other committees, Maritime Law Committee, Shipping Policy Committee and Insurance Committee in addition to Maritime Committee which has additional

panels and sub-committees including Environment Sub-Committee, Oil Tanker Panel. INTERTANKO committees are besides maritime issues (which includes environment) working also with communications, shipping policy, technical issues, etc. BIMCO's structure seems most simple, with documentary and maritime security committee in addition to marine committee (INTERTANKO, 2010; BIMCO, 2010; ICS, 2010).

Traditionally, protection of the marine environment is not the main goal of ship-owners and they would not be in favour of strict regulations (causing extra costs). They would, however, be keen on synchronised rules among different countries as that would simplify their international operations. According to Tan (2006) it is traditionally rather their interest to maximise their profit. Cargo Owners are in this aspect similar. According to Tan, 2006: "Both industries typically resist expensive pollution control measures since these tend to result in higher transportation costs reflected in higher freight and consumer prices."

Therefore, a tactical behaviour of a ship owner would be, to register their ship under "flags of convenience" which is generally low-cost and then try to avoid interference from the coastal states or regulatory bodies. Traditionally they have not been so environmentally oriented, but we can nowadays observe the trend of exposing their environmental concern, acting progressively, proposing new more environmental friendly ideas, showing their "responsible behaviour". INTERTANKO's mission is for example to: "Provide leadership to the Tanker Industry in serving the world with the safe, environmentally sound and efficient seaborne transportation of oil, gas and chemical products". Second, even if they typically resist high standards, is the shipping lobby according to Tan (2006) having negligible effect for opposition, since the industry has been already recognised as the main polluter and the regulations are being introduced to rather control and minimise pollution than providing waste reception facilities (Tan, 2006). Associations are therefore rather acting pragmatically. One of the interviewees expressed that they are not trying to prevent any new law or go against the enhancement of maritime safety or environmental concerns or anything, they just want it to be pragmatic and realistic, and that it should function. They also like to express their responsible behaviour nowadays; one association for example has by itself proposed switching to distillates instead of using heavy oil (Interview, 2010). The main concern is nevertheless profit, however, it is apparent that cooperation and "responsible behaviour" can be more contributable for the business.

Businesses are commonly working with maintaining good public relation. Even though the industry has traditionally a conflict interaction with environmental groups or actors trying to enhance regulation over shipping, the interviews display a more sensitive approach towards the media. Mass media is perceived to alter the image of shipping both in regard of the public as well as the politicians, by for example depicting oil spills with a bird caught with oil; an image not very common in the day-to-day operation where things are done correctly, and

where the shipping industry is contributing to keep the oil trace running and also insure that transport is done in the best possible environmentally friendly manner (Interview, 2010). Another interviewee from a different industry association had similar opinions on media, as it was considered to present only one side when it comes to accidents; a fact that increased the incentives only to talk to media that understands the industry as such. On the other hand, an informant from an environmental NGO expressed the opinion that nowadays it is much more difficult to attract attention of the media. In the early days it was easy, a problem was exposed through spectacular actions and it was all over the news. Today there are a different story where so many other things in the media landscape that draws attention.

P&I Clubs are non-profit insurance associations. A number of these Clubs (the largest can be found in the USA, UK, Norway and Japan) have formed an International Group of P&I Associations. Their members are covering about 90 per cent of world's shipping tonnage, which means that almost all ships are having their operations insured. Ship-owners are normally insuring their operations against hull and machinery (H&M), which may provide coverage for losses resulting from collisions, groundings or other accidents, and third party liability risk, which insures the owners against claims by third parties affected by the damage, such as other ship owners, port authorities or other pollution victims (Tan, 2006). P&I Clubs are liaising with the inter-governmental bodies, such as IMO, OECD, national governments, EU and other industry organisations, such as BIMCO, INTERTANKO and ICS (P&I, 2010). Even though P&I Clubs are well cooperating, there is still dynamical competition among them. It means that it is still possible to obtain insurance coverage even for a sub-standard ship (for the actors taking "just enough" approach, in order to comply with the minimum requirements) from a less discriminating club. However, insurers would not intentionally like to insure the substandard operator as they are more likely to fail, which would damage the reputation and cause financial burden for the insurance company (OECD, 2004; Tan, 2006).

3.6 Discussion

The governance structures covering safety and environmental aspects of marine transportations are very complex. Because of the globalised character of these activities it is necessary to have a global umbrella of conventions in order to reduce temptations for various actors and stakeholders to shirk or in different ways behave strategically in order to cut costs, save time or attract investment and businesses. IMO is the main organisation responsible for global governance of marine issues. Decision making processes are often cumbersome and time-consuming in IMO. An important problem is the fact that the Assembly, which needs to approve the working programme, meets on a regular basis only once every two years. Only in “urgent” cases, additional meetings could be held. When a new IMO convention has been taken, a long period before it eventually has been ratified by a sufficient number of member states to become valid typically follow. On the other hand, when IMO conventions finally are put into effect they have global reach, and have been shown to be effective, especially when it comes to requirements on improved technical safety levels on-board vessels.

EU decision making is faster, and even more importantly, the supra-state features of EU make it possible to improve implementation levels significantly (e.g. by converting selected regulations into directives). The adoption of targeted strategies such as the Baltic Strategy may also be important when it comes to improving regime effectiveness. However, EU has to act in accordance with the international law framework and cannot introduce legislation which is in contradiction with IMO legislation or UNCLOS, as European Community is a party to UNCLOS and IMOs conventions.

Despite the requirements on consensus, the work of HELCOM to improve maritime safety has proven rather successful. First, as Russia is a member of HELCOM but not of EU, the former plays an important role as a bridge on these matters between the two entities. Thanks to its long and well established cooperation among all the Baltic Sea countries dating back to the aftermath of the Stockholm Conference on the Human Environment in 1974, HELCOM serves as an important forum for deliberation and information sharing in this region. Second, and partly because of these reasons, HELCOM may function as a mechanism to up-load concerns and suggestions from the Baltic Sea countries to EU and/or IMO/ILO. For example, it is clear that before going to IMO to suggest that the Baltic Sea ought to be classified as a PSSA (Particularly Sensitive Sea Area), some of the more engaged member countries first anchored this proposal within the HELCOM structure, to facilitate the subsequent up-load to IMO. Despite the resistance by Russia, the other HELCOM countries managed to convince IMO to classify all of the Baltic Sea, except for Russian waters, as a PSSA.

It seems quite clear that implementation deficits are more problematic than lack of adequate regulations when it comes to marine governance. The regime covering marine environmental safety is comparably well ordered, and there are few experts that argue that negative

interactions between regulations at different or the same levels comprise major problems. A significant degree of effort is laid down within the various authorities to avoid judicial contradictions or ineffectiveness caused by unexpected negative regime interactions. However, the sheer size and complexity of the regulatory web could become somewhat of a problem, causing what has been called *regulatory overload* in the literature. It simply may become difficult for operators in various intricate situations and time typically is short to make sure that all relevant rules and recommendations are adhered to. Sometimes less is more, and attempts to simplify existing regulations (not only in content, but as importantly in how they are phrased and described) and to remove redundancies that do not really contribute to over-all safety probably should be considered.

Finally, two important observations in this section of the report should be noted. First, the role played by classification societies seems to be an important reason behind the comparably successful improvements in vessels' technical safety (e.g. double hulls and improved navigation equipment). Due to the need for operators to get a certificate from a respected classification society showing that the vessel has been constructed or retrofitted in compliance with existing international conventions in order to be able to get reasonable terms from insurance companies, the former are in effect acting as *de facto* agents of public monitoring. The qualifications of the classification societies in turn need to be monitored by intergovernmental bodies – their permit to issue certificates may be withdrawn – but this is considerably less time consuming than if the public bodies had to do all the monitoring themselves. Attempts should be made to analyse what can be learnt from this, and if it would be possible to improve other aspects of marine safety using similar measures and mechanisms. Second, increased efforts should be devoted to the development of new types of *smart governance mechanisms*. Given that vessels cannot be monitored everywhere and at all times in combination with the fact that no set of regulations can be designed that covers all types of contingencies, actors' incentives to voluntarily follow established rules need to be strengthened, or rather, their incentives *not* to follow these rules should be weakened. For example, attempts have been made to differentiate route fees in relation to what type of fuel that is used, making it more attractive to use less environmentally harmful types of fuels. It is often difficult to design such smart governance measures that are in full agreement with formal regulations as well as established norms and practices, but the inherent difficulties in policing operators at sea makes the continued search for new effective and efficient mechanism imperative.

4. Risk assessment and risk Management – Regional and bilateral coping strategies

Introduction

Oil spill affects marine environment and its habitants in different ways. In general terms it can impair or increase mortality of wildlife habitat due to physical contact, ingestion, inhalation and absorption. Most oil floats due to lower density than water. It covers the upper sea layer and can therefore contaminate plankton (algae, fish eggs, and the larvae of various invertebrates). Aquatic organisms can then get affected due to feeding on contaminated prey or while being directly exposed to toxic substances (Effects of Oil on Wildlife and Habitat, 2010).

Effectively accumulating polycyclic aromatic hydrocarbons toxic substances (PAH) occur in crude oil (Aas et al. 2000; Baussant et al. 2001). PAH can have mutagenicity, carcinogenicity and DNA binding effects. Results from the studies are confirming accumulation of hazardous compounds by aquatic organisms after the oil spill. For example, after the oil spill in the Bûtینگë oil terminal in the Baltic Sea, increased micronucleus levels has been detected in fish, which means that compounds have had genotoxic effects (Baršiene et al. 2005). Consequently humans are indirectly or directly affected when consuming as fish are capable to transform xenobiotic compounds accumulated in tissues into mutagenic and carcinogenic metabolites (Baršiene et al. 2005, Effects of Oil on Wildlife and Habitat, 2010).

How severe the effects are depends on geographical location, temperature – the season and the weather, type and quantity of oil spilled, kind of habitat, type of shoreline and the tidal energy and type of waves in the area of the spill (Effects of Oil on Wildlife and Habitat, 2010). There are immediate and long-term effects of oil spills.

Immediate effects of oil spills are quite straightforward. Birds that flow on the water surface may due to oil exposure lose their ability to fly, drown when diving for food or after floating. As they groom they may inhale or ingest oil that can cause death or contamination of their bodies and eggs (Effects of Oil on Wildlife and Habitat, 2010).

Long-term effects on marine mammals, birds and aquatic organisms are considerably harder to predict. It has been found that, oil ingestion can damage skin, organs, cause ulceration or behavioural change. Causes of affected immune system may lower the ability to avoid predators or find food. On the long term their ability to reproduce might be impaired, which may impact the levels of populations.

The Baltic Sea is especially sensitive to oil spills because of several reasons. First, the comparably cold temperature of the sea means that oil spills degrade slowly, which in turn may cause more severe ecological disturbances than in warmer waters (Lindén et. al., n.d.). Weathering, chemical processes and microbial degrading all affect ecological effects from oil spills. Although individual processes in these three categories are reasonably well understood in theory, actual propagation patterns and effects upon ecological systems and particular species are extremely difficult to predict (National Research Council 2002). Icy conditions during cold winter periods in parts of the Baltic Sea tend to increase complexity in terms of propagation patterns, makes monitoring more difficult and clean-ups after oil spills complicated. Second, the widespread archipelagos in especially Sweden and Finland mean that extensive coastlines may be affected. Third, because of the brackish water, individual species and ecosystems may live under considerable stress, as they typically are not fully adapted to this level of salinity. In case of oil spills, this stress increases and may cause severe consequences, not the least in important bird habitats in, for example, the *Hoburgs bank* south of the Swedish island *Gotland*, Estonian marshes and other ecologically sensitive areas.

The risks related to intentional and accidental oil spills respectively are in several ways different. Intentional spills are typically small and the acute hazards are not severe. The probably most important factors concerns (a) long term consequences from the large number of intentional spills in relation to marine ecosystems as well as individual species and (b) how these spills may interact with other polluting substances, depending on local biogeophysical conditions. The ecological consequence from this type of oil spills are not yet known in detail and additional research is therefore needed. What is known is, however, that intentional spills are most frequent close to the major ports visited by tankers (Knudsen and Hassler forthcoming, 2011).

Furthermore, it is quite clear that even when the No-special-fee is working as it is supposed to, that is no extra fees are charged for using reception facilities of oily wastes, operators may nevertheless have considerable incentives to clean tanks at sea. The major reason for this is that it saves time compared with using the port facilities. Apart from proximity to a major port, it is reasonable to expect intentional spills to be more common in regions where surveillance is known to be lax. No reliable data on this exist, but given the large differences in flight hours in different regions referred to above operators can be expected to choose certain areas rather than others. More knowledge on risks caused by overlap between areas with lax surveillance, frequent transportations and ecological sensitivity is needed. The “lack of drama” when it comes to intentional spills should finally be noted. Because of the long-term and creeping effects from this form of pollution, political pressure to enact stricter regulations is typically lower compared with accidental risks. This affects risk perceptions among the public as well as decision-makers which in turn influences international collaboration on management.

Accidental risks are primarily related to risks for collisions and groundings (Stankiewicz & Vlasov, 2009c). The increased technical requirements on e.g. double hulls and advanced navigation equipment, traffic separation schemes and designation of especially sensitive areas has most likely reduced risks for large accidental spills in the Baltic Sea. However, the increased number of vessels as well as the larger average size of tankers in the Baltic Sea has probably increased risks, which means that it is uncertain whether over-all risks have increased or not. The number of reported accidents have been somewhat reduced during the last years according to the latest HELCOM statistics (Stankiewicz & Vlasov, 2009c), but it is too early to say whether this reflects a long-term decline or not.

The number of accidental oil spill incidents seems to have increased somewhat over the last years (2006-2008), although no clear trends are discernible. As can be seen from Table 1, the number of incidents was, for example, larger in 2004 and 2005.

Table 1. Number of accidental incidents with and without pollution of the seawater.

Incident	2004	2005	2006	2007	2008
Without pollution	133	133	110	114	125
With pollution	9	13	5	4	9
No information	-	-	2	2	1
<i>Total</i>	<i>142</i>	<i>146</i>	<i>117</i>	<i>120</i>	<i>135</i>

Source: HELCOM 2008.

It should be noted that the vast majority of the reported incidents did not result in actual oil spills. The number of substantial accidental oil spills has so far been few.

It is likely that the total amount of oil – in similarity with what has been reported in other regions - entering the Baltic Sea from intentional spills is larger than the amount emanating from accidents (Mitchell, 1994). However, because of the often unreliable status of selfreports that is used for almost all official statistics, all estimates have to be treated with great care. According to what has been reported by the respective Baltic Sea countries regarding aerial monitoring, we know that the number of flight hours have remained roughly the same over the last ten years, while the number of confirmed spills seems to have decreased despite the growing number of vessels sailing the Baltic Sea (Table 2).

Table 2. Number of flight hours and subsequently confirmed spills.

Year	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Flight hours	4 833	5 230	4 837	4 864	4 946	5 534	5 638	5 128	3 969	4 603
Confirmed spills	488	472	390	344	278	293	224	236	238	210

Source: HELCOM 2008.

It should be noted that despite several attempts to coordinate aerial surveillance within HELCOM, the number of flight hours vary considerably between different countries. During the ten years covered in Table 2, Sweden has for example reported approximately half of the total flight hours, while Russia has no reported flight hours at all during this period. Similarly and certainly related to variance in flight hours between different countries, confirmed spills vary as well. Also here, Sweden has reported about half of the total number of intentional spills.

In similarity with intentional spills, the long-term local effects from a substantial spill are not well known. However, short term effects are comparably easy to assess, even though the magnitude of the damage crucially depends on factors such as weather conditions at the time of the spill, the geographical location of the spill, type of oil and what immediate and short term abatement measures that were taken. The ecological (e.g. on fish spawning areas, sea birds, ecosystems), economic (e.g. fishing, tourism, real estate) and social (local livelihoods) impacts all crucially depend on the exact location, extent and timing of the accident.

Although the location and timing of accidental spills never can be predicted, it is important to assess locations where accident likelihoods could be expected to be comparably high, as well as where the effects are especially severe. The ecological sensitivity of different areas and “marine crossroads” where incidents may be more likely to occur are comparably easy to identify and locate. What is more complex is to relate these parameters to what we know on likelihood of human errors. More research is needed on what type of human errors that are related to type of vessels as well as crew training, conditions and numbers is needed. Although clear distinctions between on the one hand human error and on the other technical malfunction seldom can be made, available statistics show that the former tend to continue to be the most common cause behind incidents and accidents (Knudsen and Hassler forthcoming 2011; Stankiewics & Vlasov, 2009c).

4.1 Risk assessment and risk management

Risk assessment and management are thoroughly discussed by Renn (2008). They can together be described as the process of reducing risk to a level that is accepted by the society, including control, monitoring and communicative measures (Renn, 2008). Things to take into account regarding risk reduction may include the limits of current technology, governmental

and third-party incentives, compensation schemes, insurance/liability issues and cognitive options (such as labelling or voluntarily work) (Renn, 2008). Other things to consider in risk management situations are related to certain predefined criteria such as effectiveness, efficiency, reduction of side effects, sustainability, fairness, political/legal issues, ethical considerations and public acceptance. The issue of scale shall not be forgotten; what works in one part of the world does not necessarily function in the next. Within risk management one must consider the evaluation, selection, implementation and monitoring of the management options and performance. Different risks need different risk management strategies, based on the intricate elements of complexity, uncertainty and ambiguity there (Renn, 2008).

Risk management presents three potential outcomes of the situation at hand: intolerable situation, tolerable situation and acceptable situation. Depending on the degree of controversy the risk prevention strategy differ (Renn, 2008). Risk management options include the avoidance and reduction of risk, risk transfer and also self-retention. Things to take into account regarding risk reduction may include the limits of current technology, governmental and third-party incentives, compensation schemes, insurance/liability issues and cognitive options (such as labelling or voluntarily work). Other things to consider in risk management situations are related to certain predefined criteria such as effectiveness, efficiency, reduction of side effects, sustainability, fairness, political/legal issues, ethical considerations and public acceptance. The issue of scale shall not be forgotten; what works in one part of the world does not necessarily function in the next. Within risk management one must consider the evaluation, selection, implementation and monitoring of the management options and performance (Renn, 2008).

In some cases there might linger an unwillingness to implement protective measures even though the risk of a catastrophe exists due to certain weaknesses in the system. There might also be strong differences in risk perception. In these cases a solution can be found through public-private partnerships (Renn, 2008).

Organisational capacity refers to the capabilities of the institutions to fulfil the tasks of risk governance issues. It is helpful to explore the concepts of assets, skills and capabilities of the different institutions. Assets refers to the social capital, knowledge and structure while skills cover the quality of the performance of the risk management operations and capabilities describes the overall framework for the institutions to handle risks through the assets and skills (Renn, 2008). The role of political culture is also important to take into consideration when exploring risk governance in a governmental context. There might be severe differences in political policy-making strategies due to the contextual cultural climate, which makes it important to consider the circumstances of every situation when analysing the risk governance process and its application (Renn, 2008).

4.2 The Organisation and type of risk assessment activities

The risk assessment in the Baltic Sea in regard of oil spill is not that elaborated. However, a lot of management strategies are in place to cope with presumed risks of oil spills, and also to detect them and comprehend the people responsible for the pollution.

In Article 7 of the Helsinki Convention it is stated that:

Article 7

Environmental impact assessment

1. Whenever an environmental impact assessment of a proposed activity that is likely to cause a significant adverse impact on the marine environment of the Baltic Sea Area is required by international law or supra-national regulations applicable to the Contracting Party of origin, that Contracting Party shall notify the Commission and any Contracting Party which may be affected by a transboundary impact on the Baltic Sea Area.
2. The Contracting Party of origin shall enter into consultations with any Contracting Party which is likely to be affected by such transboundary impact, whenever consultations are required by international law or supra-national regulations applicable to the Contracting Party of origin.
3. Where two or more Contracting Parties share transboundary waters within the catchment area of the Baltic Sea, these Parties shall cooperate to ensure that potential impacts on the marine environment of the Baltic Sea Area are fully investigated within the environmental impact assessment referred to in paragraph 1 of this Article. The Contracting Parties concerned shall jointly take appropriate measures in order to prevent and eliminate pollution including cumulative deleterious effects.

Helsinki Convention 2008:5

In the following article pollution from ships are considered:

Article 8

Prevention of pollution from ships

1. In order to protect the Baltic Sea Area from pollution from ships, the Contracting Parties shall take measures as set out in Annex IV.
2. The Contracting Parties shall develop and apply uniform requirements for the provision of reception facilities for ship-generated wastes, taking into account, inter alia, the special needs of passenger ships operating in the Baltic Sea Area.

Helsinki Convention 2008:5

Further on, Article 14 deals with cooperation when fighting pollution:

Article 14

Co-operation in combating marine pollution

The Contracting Parties shall individually and jointly take, as set out in Annex VII, all appropriate measures to maintain adequate ability and to respond to pollution incidents in order to eliminate or minimise the consequences of these incidents to the marine environment of the Baltic Sea Area.

Helsinki Convention 2008:7

What is done in order to prevent damage as well as coping with the uncertainty of oil spill accidents? A number of different measures are taken in order to be prepared for oil pollution:

Examples of sub-regional collaboration and unilateral initiatives

Several initiatives have been taken in the Baltic Sea region, often connected to infrastructure and local capacity-building, that operate on a sub-regional level as a contrast to the regional one (Hassler, 2010).

Table 3. Examples of regional and sub-regional/unilateral initiatives to improve environmental safety in the Baltic Sea.

Type of initiative	Empirical examples	Countries involved
<i>Regional implementation of universal conventions</i>		
Automatic monitoring	HELCOM AIS (real-time monitoring of all larger vessels in the Baltic Sea)	All HELCOM member countries
Emergency preparedness	Balex Delta (yearly joint exercises)	All HELCOM member countries
Tanker routing	Traffic separation lanes, avoidance of ecologically sensitive areas	All HELCOM member countries
<i>Unilateral and sub-regional initiatives</i>		
Accident preparedness	Bilateral agreements on assistance and/or training	Sweden-Estonia/Latvia/Lithuania, Finland-Estonia, Finland-Russia
Air surveillance	Swe-Den-Ger (trilateral agreement on air-borne surveillance of oil illegal discharges).	Sweden, Denmark, Germany
Hydrographical surveys	Assistance in updating of data	Sweden-Estonia/Latvia/Lithuania
Port state control	Assistance projects in form of training courses	Sweden-Estonia/All Baltic States/Poland
Special regulations	Classification of the Baltic Sea as a Particularly Sensitive Sea Area (PSSA)	All Baltic Sea countries except Russia

Source: Hassler 2010.

4.2.1 Training exercises

Within HELCOM several training exercises are taking place, amongst them the international pollution response exercise BALEX DELTA which is the largest exercise in the Baltic Sea. It includes several response vessels, helicopters and aircrafts and the main objective is to ensure that all Baltic Sea states can manage an extensive response operation (Stankiewics & Vlasov, 2009b). An oil spill disaster is difficult to manage for a single country, hence the importance of such operation. It started in 1990 and the exercise is executed once a year, simulating several kinds of accident (Hassler, 2010). The 2006 exercise included all Baltic Sea countries except Estonia. The EU was also represented. In 2007 a simulated oil spill was used to train coordination between 19 involved vessels, aircrafts and helicopters (HELCOM, 2007) (Hassler 2010). A similar type of drill was arranged by Russia outside Kaliningrad in 2008, and in 2009 Latvian authorities hosted a maritime exercise on combating oil spills just outside Riga (Stankiewics & Vlasov, 2009b, Stankiewics & Vlasov, 2009c). During the 2000s most of the Baltic Sea countries have participated most of the times, and the number of vessels taking part in the exercises has varied between 11 and 23 (Hassler, 2010).

4.2.2 Finding oil polluters

In 2008 there were 135 ship accidents in the HELCOM area. 2007 the number was 120 and in 2006 there were 117 detected accidents. Within the same time span the traffic increased by 20 per cent. The majority of the accidents occurred in harbours or close to the shoreline. Cargo vessels were involved in 45 per cent of all accidents, passenger vessels were involved in 18 per cent of the accidents and tankers with 10 per cent. All tankers involved in accidents in 2008 were equipped with double hulls. The by far most common reason for accidents were the human factor which was reported to be the cause in 47 per cent of all cases, followed by external factors as causing 18 per cent of the accidents, and technical factors in 13 per cent of the cases (HELCOM, 2009d). Out of 135 accidents in 2008, nine resulted in discharges. Overall seven per cent of all accidents between the years 2000-2008 ended up with pollution (HELCOM, 2009d).

In the amended annex of MARPOL 73/78 and the EC Regulation 1726/2003 the carriage of heavy oil in single hull tankers is regulated. In 2007 a system to detect single hull tankers was launched, based on HELCOM AIS and created within a project called the HELCOM/EMSA Single Hull Tanker Project (Stankiewics & Vlasov, 2009c).

HELCOM AIS

The Baltic Sea is covered in a HELCOM Automatic Identification system (AIS) and an oil drift forecasting system, HELCOM Seatrack Web, is in operation. The combination of these systems has proved effective in identifying oil polluting ships, since it is possible to back track simulations of detected discharges. Since 2008, satellites are connected to the systems (Stankiewics & Vlasov, 2009c). The HELCOM AIS was installed in 2005 and it makes it

possible for annual analyses of the ship traffic in the Baltic. Since 2006, fixed AIS lines are registering crossing vessels. According to IMO regulations, ships of 300 gross tonnage, and over engaged on international cruise must be equipped with an AIS transponder. Cargo ships of 500 tonnage and over not engaged on international voyages also have these requirements.. The AIS system identifies the name, position, course, speed, draught and cargo of the ship. It also provides the data within a background map (HELCOM, 2009d).

To find and comprehend oil polluters is a task of high priority. Aerial surveillance is carried out by each coastal state on national waters, and there are joint missions as well. Over 25 aircrafts and helicopters are available and their presence has had an impact on the level of pollution, which has decreased during the recent years. Technical equipment of remote sensing includes side-looking airborne radar (SLAR), infrared (IR) cameras, ultraviolet (UV) cameras, as well as photo and video gears (Stankiewics & Vlasov, 2009b).

The whole of the Baltic Sea is also covered by satellite surveillance within the CleanSeaNet (CSN) satellite service, provided by the European Maritime Safety Agency (EMSA), as well as national satellite surveillance operations (Stankiewics & Vlasov, 2009b). In 2007, 54 out of 313 detected possible oil spills, turned out to be mineral oil.

Air surveillance – SweDenGer and CEPCO

A joint collaboration air surveillance scheme, SweDenGer, is a trilateral agreement between Sweden, Denmark and Germany that aims at combating oil spills in the Southwest Baltic Sea. The idea is to comprehend swift responses, no matter which of the collaborating countries the spill occur (Hassler, 2010; Søværnets Operative Kommando, 2004). Twice a year a Coordinated, Extended Pollution Control Operation (CEPCO) is performed within HELCOM (Stankiewics & Vlasov, 2009b). The majority, up to 90 per cent of the oil discharges are smaller than one cubic meter. In 2007, the total estimated volume of observed oil spills was 125.4 cubic meters. It is very rare to reveal the identity of the oil polluters, but since the air surveillance operations started, the detected illegal discharges have dropped dramatically (Stankiewics & Vlasov, 2009c). The flights are undertaken in both the northern and southern parts of the Baltic Sea and the time of the flights are scheduled to 24-36 hours. The aim is to both detect oil spills and to train national air surveillance crews to cooperate with crews from other countries. Equipment used for the air surveillance are Side Looking Airborne Radar (SLAR), Forward Looking Infra Red Cameras (FLIR Cameras) and Infrared or Ultraviolet Scanners (Hassler, 2010).

4.2.3 Safety of navigation

The Baltic Sea is a busy water environment. Safety measures for ship trafficking is in place; a Mariners´ Routeing Guide has been prepared. There are four reporting systems in action in the Baltic, where three of them are mandatory systems that force the ships to send reports to the

Vessel Traffic System (VTC) Centre. These are: the BELTREP in the Great Belt Traffic Area, the GOFREP in the Gulf of Finland and the GDANREP in the approaches to the Polish Ports in the Gulf of Gdansk. According to IMOs recommendations should large ships sailing in the Sound between Sweden and Denmark report to the SOUNDREP service (Stankiewics & Vlasov, 2009c).

Tanker routing and Hydrographical surveys

In order to avoid collisions and groundings, the need of tanker re-routing and traffic separation schemes have been recognized, which also have been applied in certain areas (Hassler, 2010). In order to ensure safe navigation, new and up-dated data on hydrographical conditions must be acquired (Lindén et al., n.d.). Joint measures have been initiated to provide different countries with data and train national crews, as well as printing nautical charts (Hassler, 2010). HELCOM has also launched a routing guide as an addition to nautical charts - the HELCOM Transit Guide for the Baltic Sea (HELCOM, 2006b).

4.2.4 Strategies

In 1998, the HELCOM Ministerial Meeting made the Baltic Strategy operational. The main objective is to ensure that ships comply with global and regional discharge regulations in order to minimise waste discharges at sea, and to promote environmentally friendly waste treatment in port facilities (Stankiewics & Vlasov, 2009c). The Baltic Sea countries have elaborated the *Baltic Legal Manual* which contains guidelines for successful conviction of polluters at sea. Joint effort to harmonise the fines for polluters has also been in place (Stankiewics & Vlasov, 2009b).

The Baltic Sea is also a MARPOL 73/78 Particularly Sensitive Sea Area (PSSA) (HELCOM 2009c). The Russian waters are however an exception from this (Hassler 2010, Knudsen 2006, Lindén et al., undated).

Accident preparedness and port state control

Several agreements between states exist concerning cooperation in case of oil spills; for example between Finland and Estonia for the Gulf of Finland or the one between Finland and the former USSR that is still valid (Hassler, 2010, Jolma, 2005). There are also several bilateral agreements of cooperation on lower levels (Hassler, 2010). Projects concerning Port State control have been undertaken, concentrating on training staff members of Estonian Maritime Authority and flag state responsibilities (Swedish Maritime Authority). There has also been cooperation and assistance in adapting local regulations to EU directives (Hassler, 2010).

Manual on the response to marine pollution

A HELCOM Response Manual regarding oil spills have been elaborated and enhanced since 2001. It is named the HELCOM Manual on Co-operation in Response to Marine Pollution within the framework of the Convention on the Protection of the Marine Environment of the Baltic Sea Area. The manual was adopted in 1996 and consists of two parts where the first is dealing with marine pollution in general, and the second deals with chemicals in particular. The aim of the manual is to be a reliable tool and guidance when two or more Contracting Parties to the Helsinki Convention will engage in a joint action to combat oil spill or other kinds of discharges. It should be seen as a practical implementation of the OPRC Convention (HELCOM, 2010c).

4.3 Results – Interviewees perspectives

Reviewing development of legislative work, we can notice a trend which shows that several amendments to the legislations have been laid down after major oil spills, such as Erika or Prestige for example. A question may be therefore raised, whether there was a weakness of legislation, its implementation or even in the management of the risks? Is this a matter of past or the deficiency still persist?

There are apparently not only environmental risks but there is also a risk, that there is a gap in the legislation or rather that implementation of the legislation is ineffective and that oils spills may happen which could after all influence not only the environmental ecosystem, but would also affect the reputation of Baltic Sea countries.

One interviewee from an Environmental NGO described the problem of the reactions right after an oil spill accident in terms of a scenario when governments want to show power of action which might force unwise rules and regulations. It is better even from the Green NGO perspective to sit down and moderately shape laws concerning decreased risk than force an instant ban or change after the spill. Countries might lose a lot of credibility. The HELCOM countries are described as strong environmental countries within the IMO for example, however, if a major spill would occur and the Baltic countries cannot deal with it they would lose a lot of prestige, which would result in a situation where the environmental forces lose power in an organisation such as the IMO, which would affect the future political situation.

Interviewees have in general expressed satisfaction with the legislation, giving credit to IMO, which is considered the highest authority (“the big boss”). Some interviewees believe the regulations to fit together very well together, that they’re closing the gaps, and yet others are, however, seeing the gaps and opportunities for improvement.

One example, where legislation has been proven as effective was amended annex of MARPOL 73/78 and the EC Regulation 1726/2003 for phasing out the single-hull tankers.

Interviewee, who is aware of the situation in the shipping market, has confirmed, that single-hull tankers, which reduces the risk of oil spills can be hardly find on the market nowadays and that legislation has been in that case contributable (Interview, 2010). This is, however a good example, where the legislation has been rather straight forward, concerning technical specification which is not so difficult to be tracked. Some producers are having very fast reactions, they may follow the new developments in the policy-making and benefit by being first on the market providing solution, which is about to be required with new regulations for example. The trend is going towards more environmentally friendly shipping (Interview, 2010). However, technical error is second after the most common cause for accidents, which is human error. The second type, the efficiency of managing illegal spilling and its legislation is according to an Environmental NGO, weak. During the interview has an NGO described an example that happened in the Baltic Sea area, where the proof for oil spilling was very strong (chemical analysis); however, no one was convicted.

4.3.1 Risk assessment, sub-regional cooperation and capacity-building

BRISK is one of the important projects, with the aim “to increase the preparedness of all Baltic Sea countries to respond to major spills of oil and hazardous substances from shipping” (BRISK, 2010a). It is actually partially financed by the EU in within the Baltic Sea Region (BSR) Programme 2007-2013 and it includes all Baltic Sea countries, including Russia (BRISK, 2010a; Interview, 2010).

The idea of BRISK is to first identify the key hot spots; investigate sub-regional resources in place, possibilities for preparedness – such as ships, equipment, personal available to tackle oil spills. The second step is then raising the needs for investments in order to close the possible gaps, which project itself does not cover (Interview, 2010). It involves the authorities who are actually involved in shipping and pollution, such as coast and border guards, navy, maritime offices (Interview, 2010).

The project activities include a comprehensive analysis of the risks of pollution by oil and hazardous substances from ships, and based on it, investigation if the existing emergency and response capacities in each sub-region of the Baltic are sufficient to tackle medium-size and large spills. Based on the identified gaps, an investment plan for missing resources will be prepared. Project Manager: Mr. Peter Soeberg Poulsen, Denmark, 2010

The project has also prepared a proposal for harmonised bilateral and multilateral agreements on joint response operation in the Baltic Sea. Project Manager: Mr. Peter Soeberg Poulsen, Denmark, 2010

It includes risk analysis, which includes the risks for oil pollution (identification of “hot spots”) and modelling the oil spill response effect which is done by outsourced experts (BRISK, 2010b; Interview, 2010) and sub-regional cooperation – sub-regional agreements

and Investment plans. For this reason, has been Baltic Sea divided into six sub-regions: Gulf of Bothnia (Finland Sweden); Gulf of Finland (Finland Russia); South-eastern part of the Baltic Proper (Latvia, Russia, Poland); South western Baltic Proper and the Pomeranian Gulf (Denmark, Germany, Poland, Sweden) (BRISK, 2010c). The idea of sub-regions are described by the interviewees as a shift to think beyond the nation-wise, with shared resources and assistance where courtiers help out in case of an emergency and where the shared responsibility also may be an cost-efficient act.

4.3.2 Risk management and Ecosystem approach to management

The interviewees have in some cases discussed the Ecosystem approach to management; some had never encountered the term before, while others are actually trying to implement it. Within HELCOM the Baltic Sea Action Plan considers the implementation of the EAM in the Baltic Sea area. One interviewee describes the procedure as to first see what the requirements for reductions are, then what measures are needed to be taken and finally, when. As quoted by an informant:

[...] part of the ecosystem approach to management of human activities is of course the follow up of how the actions are impacting the sea, or how the status is changing, and then: do we need some adaptation to our plans? (Interview, 2010)

One interviewee depicted the work with the EAM as requiring a very detailed management cycle with objectives, and often also modelling with specific targets. The first step is to have a baseline and develop a plan, which can be compared with the results. The Baltic Sea countries are currently presenting how they will take action, even though the progress differs. Base assessments will function as a kind of baseline or reference point for comparison in the future development (Interview, 2010). An informant from a Green NGO describes a situation where the EAM is high up on the agenda, even though it is a bit problematic since nobody really knows what it means, even though it sounds very nice. The word EAM is considered to be misused and the difficulty of adding a monetary value to the environment raised concern, as well as the problem of the lack of information and facts regarding the EAM, facts that would make the decision-makers to listen. EAM is believed to be more of a theory, and there is a rift within the environmental movement whether to price the environment or not. The cost of an oil spill is mentioned as an example, with several variables involved and where only a small part of the damage caused by an oil spill can be properly valued (Interview, 2010). However, regarding the Baltic Sea yet another interviewee believed the knowledge base for implementing the EAM to be ample, which is a good justification for the countries to really do something, and thus avoid the argument that there is not enough knowledge to take action (Interview, 2010).

4.4 Discussion

Environmental hazards caused by oil spills are of two different kinds; accidental and intentional spills. The former are caused by unexpected events and may – in the worst cases – cause havoc to ecological system and give substantial repercussions on local economic, social and cultural sectors and domains. On the other hand, these accidents are rare and have so far not hit the Baltic Sea. Intentional spills, in contrast, take place more or less continuously, when operators choose to clean tanks or flush machine rooms to save time and money or do not take sufficient precaution during day to day procedures at sea.

To be able to reduce these different kinds of oil spill risks, it is of crucial importance to identify key causes and drivers. Similarly, to be able to design remedial institutional structures, likely scenarios have to be identified and management options defined. Moreover, to achieve effective and efficient governance, different actors' incentives to contribute needs to be carefully assessed in order to develop joint strategies and action plans, strategies and action plans that do not only look good on paper but actually add important components to the over-all environmental safety of the Baltic Sea.

The importance – and accomplishments – when it comes to improved technical safety in relation to reduced accident risk was emphasized in the previous chapter. According to exiting statistics, technical malfunctions and similar seem to be a declining cause to incidents, albeit still not insignificant. According to most experts, human factor errors are the most important causes to incidents, comprising maybe around half of all recorded accidents and near-accidents. Even though statistics in this area is uncertain, there is little doubt that human factor errors as risk components need to be seriously addressed if over-all safety is to be improved.

To effectively address human factor errors, additional regulation is probably not what is most urgently needed. Instead, it could be reasonably argued that human factor errors do not only consist of "freak accidents" but might to significant extents have systemic roots. Staff numbers are not reduced to dangerously low levels because of random factors, but rather because of shortsighted economic gain. Similarly, crews with inadequate training are typically not hired due to ignorance, but more often because they ask for lower wages. In a somewhat similar vain, port controls are not carried out in different manners and with varying diligence and discipline in completely unpredictable ways. Sloppy behavior is typically the result of weak or non-existing positive relations between individual behavior and resulting consequences. However, incentive structures of different sets of key actors need to be better understood, before effective structural and institutional reforms can be designed. This is an area of major importance in the upcoming years in academia, as well as in practical marine administration.

In contrast with the often complex roots behind accidental oil spills, reasons to intentional oil pollution are in most cases straightforward. Oil is spilled to save time and money, sometimes via hiring crews that are not properly trained. Also when pollution is not directly intentional – such as when cleaning tanks and flushing machine rooms – but rather a result of “accidents”, the real reason may be that costs have been cut by hiring cheap crews nor properly trained in how to handle day to day procedures in an environmentally sound way. The resulting spills are then indirectly caused by intentional cost-saving choices by the operators. Although the number of detected oil spills has decreased somewhat during the last years, this form of pollution is still a threat to the ecological integrity of the Baltic Sea.

It is often said that improved monitoring and surveillance are the only effective means to curb intentional oil pollution. Violators of established rules have to be detected and made to pay fines, or be prosecuted. The latter has proven inherently difficult to achieve when it comes to vessels of other nationalities. Despite the many detected oil spills, only a miniscule part of them actually ends up in court rooms and fewer still are convicted. The use of administrative fees – according to UNCLOS members states are allowed to use monetary penalties when a foreign vessel violate international law - is much simpler to handle, as no complicated judicial processes have to be initiated. However, although these administrative fees may have some effect by making pollution costly, the fees are typically too small to really have an impact and moreover unevenly carried out in different parts of the Baltic Sea. Attempts have been made to make regional implementation more uniform, but so far these attempts have had only mixed results.

The intentional spills have lately been addressed also by the use of smart governance mechanisms, especially the so-called No-special-fee system. The idea behind this system is to reduce operators’ incentives to save costs by cleaning tanks etc. at sea by including the use of reception facilities for handling oily wastes in the port fee. This makes the marginal cost equal to zero for the operator, as the size of the port fee is not affected by whether the reception facilities are used or not. The No-special-fee system seems to have had some effect in reducing the number of intentional spills, but the fact that it is still a lot faster to clean tanks en voyage than in ports, in combination with less than perfect implementation of the system, has reduced its effectiveness.

It has been shown in this chapter that collaboration between smaller groups of countries at sub regional or bilateral level can add to over-all environmental safety in the Baltic Sea region. These forms of collaborations are principally of two different kinds. First, countries with similar interests may cooperate to make implementation more effective and efficient. The SweDenGer collaboration on aerial surveillance is a good example of this form of cooperation. Second, countries with stronger interests in protection of the environment and/or are in a more vulnerable situation in case of a major accident, have more resources than others

and/or superior knowhow and capability, may choose to support other countries in order to induce changes in behavior that are aimed at improved safety. Sweden has, for example, offered training courses on Port inspections and assistance in hydrographical surveys etc. to some of the Baltic States.

What seems to be important here is not so much a common interest in the protection of the Baltic Sea – the ecosystem services of the Baltic Sea as a common good – but rather (a) differences in interests and capability of the involved countries and (b) identifiable national benefits. The explanation to why differences are important to explain cooperation is that these differences make various forms of exchanges beneficial to both parties (compare market exchanges). One country may find it rational to invest in e.g. improved navigation by updating hydrographical surveys in a neighboring country's waters rather than in its own, if this improves marine safety in nearby waters more efficiently. Finally, it is important for the donor country that tangible benefits can be identified, and that these benefit the donor country. When all or at least a significant number of countries benefit from a particular undertaking, incentives for single countries to make initiatives may be reduced because of free-riding effects. Countries may thus be hesitant to take the initiative, hoping that someone else takes the lead and by doing this bears most of the involved risks and expected costs.

5. Framing and the importance of stakeholder communication

Risks are inherently difficult to communicate as different interpretations and implications are bound to emerge. This means that to understand the concept of risk and risk management, this has to be done in relation to communicative aspects (Renn, 2008).

5.1 Risk framing

5.1.1 The concepts

Framing and framing theory holds that an issue can have several meanings and be perceived from different angles depending on the specific circumstances in which the issue is presented. It can also be described as to get a grip on how the major actors involved perceive the risk itself, which often presents conflicting ideas (Chong & Druckman, 2007; Renn, 2008). Or in other words: framing can be explained as policy positions which rely on certain underlying structures of beliefs and perceptions, and in the case of different actors holding different views regarding a certain phenomena a conflict of frames might arise (Schön & Rein, 1994). Framing also involves the process where the actors develop a certain conceptualisation of a topic or specific political matter of discussion, and also the re-conceptualisation of that matter. It can also, more precisely, be defined as the attitude towards the subject is the weighted sum of a set of beliefs about that specific subject matter (Chong & Druckman, 2007). Frames are usually taken for granted and do not normally pose a discussion or reflection in everyday life (Olausson, 2009).

The different framing of a conflict are often the root to dissimilar meanings and opinions among the concerned parties. Schön and Rein (1994) portray the process as consisting of two kinds of policy disputes where the first can be described as *policy disagreements* where the solution lies in the assessment of the facts at hand, and the other one might be labelled a *controversy* where the disagreement prevails irrespectively of these facts. In the case of a controversy the interpretation of the fact vary and the opinion whether a fact is relevant or not differ. These different ideas of the facts regarding the actual phenomenon (risk) focus our attention towards our own interpretation and often create a barrier of ignorance towards the opinions of our opponents (Schön & Rein, 1994). One should remember to distinguish frames and interest as two separate concepts which should not be used as synonyms. However, the two notions are intertwined since the interests are formed by the frame as well as the frame might be exercised to support a certain interest. It is the frame that determines the interest among the actors, and in that respect also shapes the conflicting frame. In this sense it also becomes impossible to falsify a frame (Schön & Rein, 1994). There can also be a wide variety of frames: rhetorical frames and action frames, which in turn can be categorised into policy, institutional action and metacultural frames. The institutional context frames the issues through specific channels, roles and norms in the discussions, and different policy forum

facilitates the debate in for example media, newspapers, radio and television as well as within academia or governmental- or legislative spheres (Schön & Rein, 1994). Rhetorical frames utilise a swaying story in the argumentation, while the action frame focuses on informing policy practice. A frame is not a static concept; there is always possible to reframe a problem or policy issue. What was first perceived as unthinkable might change over a time period (of various length) to become accepted (Schön & Rein, 1994).

5.1.2 Framing and communication

Framing as such can also be viewed in the light of communication and texts. Entman (1993: 52) eloquently describes framing as:

To frame is to select some aspects of a perceived reality and make them more salient in a communicating text, in such a way as to promote a particular problem definition, casual interpretation, moral evaluation, and/or treatment recommendation for the item described.

In this setting, frames can be said to define the problem, diagnose the causes, make moral statements and also suggest solutions to the problem at hand, even though a frame not necessarily must include all elements (Entman, 1993). Frames within communication can be viewed in four phases, where the first is the communicator, the second the text, the third the receiver and fourth is the culture itself. Frames highlight certain bits and pieces of information that is meant for the receiver to obtain and remember (Entman, 1993). The communicative framing efforts do not only exist in written text but also in speech. Chong & Druckman (2007) discuss the frames in communication where a speaker chooses to frame a subject towards the way he or she wants the audience to react. The way the elites communicate in order to influence citizens attitudes and opinions, their frames, are called *framing effects*. Nevertheless, the way that different frames are communicated is not only this one-way communication but a mix of frames travelling in different directions from politicians to other politicians, media or citizens to citizens (Chong & Druckman, 2007).

How well a frame stays within the mind of a recipient depends on a number of different factors such as strength of the frame, other competitive elements and individual motivations. The exposure of competing frames is also of importance (Chong & Druckman, 2007). The discourse of *media frames*, how the media in framing issues, is also a very significant topic within the realm of framing (Hansen, 2010, Olausson, 2009) where the media framing functions as a way to construct a specific environmental issue and create a response or conclusion amongst the media recipients (Hansen, 2010). Our understanding of environmental risks may not only depend on the information given but also *who* gives the information (Cox, 2010).

This image of risk as an immediate threat, or a pending danger, can be applied to the risk of oil accidents. Few other risk areas give rise to such reactions, as when birds and other mammals are caught in picture when fighting for their lives, being smeared with black oil. The accompanying pictures of voluntary workers removing oil from beaches and seashores strengthen this impression ever more. This type of framing certainly affects the kinds of societal responses that are called for by the public and the control over how the spill is portrayed and who describe it matters a lot.

5.2 Institutional arrangements of risk communication

5.2.1 Overview of risk communication

“Risk communication is a mammoth topic” is the short but punchy description by Breakwell (2007:172). She asks what makes risk communication different from other forms of communication, and concludes that one thing that distinguishes it is the problem of doing it well (Breakwell, 2007). Risk communication about environmental problems is part of the wider notion of environmental communication, defined by Cox (2010) as “the pragmatic and constitutive vehicle for our understanding of the environment as well as our relationships to the natural world; it is the symbolic medium that we use in constructing environmental problems and negotiating society’s different response to them” (Cox, 2010:20).

A classical model of communication *per se* is the source-transmitter-receiver model, where a message is sent from a source, to a transmitter who decodes it and sends it towards the receiver, the audience, (Cox, 2010, Fiske, 2001) who in turn interprets the message due to one’s own experiences and context (Renn, 2008)². Cox tries to expand that view of human communication by including symbols that gives the transmitted messages a meaning (Cox, 2010). This model can be applied and somewhat amended to fit the patterns of risk communication, where the *sources* can consist of scientists, public agencies, interest groups and/or eye witnesses, the *transmitters* are mass media, public institutions, interest groups and opinion leaders and the *receivers* are the general public, specific target audiences, group members or exposed individuals. Traditionally risk communication studies have had a focus on the means of transmission as well as the composition of the message and thus its ability to persuade the audience in a certain direction (Breakwell, 2007). However, view of solely a one-way-communication (from “experts” to “laymen”) has in many ways been abandoned on behalf of a more inclusive view of communication through systems and network over time and within (deliberate) decision-making about risks (Breakwell, 2007). Risk communication in contemporary risk discourse display several types of risk communication strategies. We find the *communication of fear* where the worst case scenario is brought to light in the most

² See specific schedules of the organisation of risk communication structures in Renn 2008:209-210.

horrifying ways, and there is also quite the opposite way of communicating, namely the *communication of opportunity* where every obstacle is seen as an opportunity and the belief of future technical solutions are strong. None of these views can alone embrace the whole spectrum and complexity of contemporary risk politics (Renn, 2008). However, it is worth noticing that risk communication is packed with emotions and often display a situation where the audience either is already frightened or about to become afraid, and where *fear* is an important component in risk communication and a useful tool in order to frame the message, and thus change behaviour (Breakwell, 2007).

In any risk assessment or management strategy effective risk communication is of the essence (Renn, 2008). In every step of the risk handling process and towards involved actors as well as the public the risk communication facilitates procedures and cooperation. Communicative teamwork between scientists, staff and policy-makers enhances performance. The challenge to communicate risk towards the public is a difficult task (Renn, 2008). Risk communication comprise several essential elements including education/enlightenment for the audience, risk training for involved parties to cope with the risks and to build up confidence in risk management as well as to help create confidence towards risk handling institutions, and also to enhance cooperation and conflict resolutions in risk-related decision-making processes. These specific functions of risk communication all require slightly different forms of communication, including documentation, information, mutual dialogue and involvement (Renn, 2008).

Risk communication is tricky business. Public understanding of a risk is hampered by the complexity of risks as such and the different stages where the risk messages are passing and transforming further add to the already complex picture (Renn, 2008). The communication of risk messages aims at behavioural change of the audience, although it is very hard determining the effect of the communication activities due to the complex process of transmitting and receiving. The correlation between attitudes and behaviour is a weak one and one of the major challenges of risk communication as such. To change attitudes is hard; to change behaviour is harder (Renn, 2008). Important factors for behavioural change include continuous transmission of the same message (information), consensual and relevant information and/or behavioural change among role models. The issue of credibility is of high importance, the ability to catch the interest of those interested as well as those not so interested is another obstacle to overcome and the insight that it is impossible to create a system that fits everybody, are all important lessons to be learned in regard of risk communication (Renn, 2008).

5.2.2 Credibility and trust

Risks are not necessarily a firsthand experience, but rather something communicated through different channels in the abundance of information flow of today's modern society. The

abundance of such information is overwhelming and the majority passes without attention, although the facts who receive attention are not by coincidence but rather through a construction of selection. The important criteria for selection in regard of risk information are *ability* and *motivation* (Renn, 2008). The ability to receive information is due to the physical access to information, the time to process it and absence of source of distraction, and the motivation depends on references to personal interests and involvement. When risk information is given through second hand sources the *credibility* of the source becomes very important (Renn, 2008). *Trust* is here a key concept and it establishes how people view and process risk information; a trusted or distrusted source affects the perception of a risk in different manner (Frewer, 2003).

At least three different forms of trust can be crystallised: 1. *Public trust* including the trust towards all societal institutions, the decision-making system including key figures. 2. *Institutional trust* towards specific organisations and institutions. 3. *Specific trust* aiming the trust at something specific, as an institution handling the explicit issue of interest. They can all be said to be part of social trust and when talking about risk perception all three of them can become important (Breakwell, 2007). In the case of distrust there are several things to consider, for example the actions, perceived motives and level of support of an institution, as well as the possible gains for the audience (Breakwell, 2007). Trust towards institutional performance is a key factor in risk management (Frewer, 2003, Pidgeon, 2006, Renn, 2008). The concept of trust is not a given one with clear boundaries, and there are numerous components of importance discussed in the literature such as perceived competence, objectivity, fairness, consistency, sincerity, faith and empathy (Renn, 2008), commitment, caring and predictability (Breakwell, 2007) and honesty, accuracy, knowledge and concern with public welfare (Frewer, 2003). Trust is fragile and the slightest mistake from risk managers threatens to ruin the credibility (Renn, 2008), as depicted by Breakwell (2007:144): “trust is a fragile flower”. A definition of trust is given by Renn (2008):

Institutional trust refers to the generalised judgement whether and to what degree the perceived performance of an organisation matches the subjective and/or socially shared expectations of a variety of social actors and the public with respect to its assigned institutional function, including its perceived competence in meeting its tasks and its communication style in dealing with professionals, stakeholders, media and the public at large.

The relationship between trust and the impact of the message within risk communication is not a linear one since the trustworthiness may change depending on what is communicated, in what context, when and to whom it is communicated, and the impact of a message may change depending on the level of trust surrounding the risk at hand in that specific moment (Breakwell, 2007). Trust of the source of the communication, the communicator, is also dependent of the initial attitudes towards the risk (Breakwell, 2007).

Important insights of good risk communication practice include the habit of review one's own performance in relation to public trust, to reflect over the timing of communication and the importance of a good communication in the whole risk management process, as well as applying a strategy that is suitable for the targeted audience. Other issues of significance refer to the need of providing and accurately communicate factual evidence and probabilities, the competence and performance of the institution and the ability to handle different views and values among the concerned parties (Renn, 2008).

5.2.3 Media communication

One major source of risk communication is the different media channels (Breakwell, 2007, Renn, 2008) and several scholars have investigated media communication and the environment and/or risks (Allan et.al, 2000, Anderson 1997, Hansen, 2010, Nilsson et.al, 2000, Weingart et. al, 2000, Zinn & Taylor-Gooby, 2006b). Media function as a communicator which direct the attention of the public as well as politicians towards environmental problems; the media may either retransmit the scientific knowledge of an environmental issue, or function in other ways, as described by Hansen (2010) regarding controversial environmental topics in the media: "...it is clear that the battles over these issues are now much more to do with persuasive communication, with 'winning hearts and minds' than they are to do with understanding the 'science' behind these issues" (Hansen, 2010:6). Some concerns of media communication consider however the media are creating new, or reflecting existing, messages, and further; how biased are the journalists delivering these messages? Research has point at a situation where the media function as an agenda setter but does not change the values immediately, but rather over a more extended time period (Renn, 2008) and where media might severely influence social identities, risk definitions, risk selection and risk knowledge and thus have a vital role as to shape public risk perception (Zinn & Taylor-Gooby, 2006b).

Some common element in media coverage of risk elements include the insight that the media creates reality in the same fashion as the recipients construct the understanding of the information given, that the focus of the media often points towards specific events and not particularly continuous developments. And further, the media have no ways of resolving, or judging for that matter, the often conflicting views among experts in the specific matters at hand (Renn, 2008). It has also been shown that the attention among the audience is short where the attention demonstrates a declining interest unless new facts fuel the debate, and finally the issue vanishes and the attitudes toward the risk become more tranquil (Renn, 2008) and the media attention towards environmental issues has been described by numerous scholars as being fluctuating with lots of ups and downs (Hansen, 2010).

5.2.4 Stakeholder communication

Renn (2008) discuss stakeholder participation within risk governance and puts a finger on two major things to consider in policy-making and stakeholder involvement are *inclusion* and *selection*, or in other terms: what and/or whom to include and what/or whom to select. One can use the concept of inclusive governance when discussing stakeholder participation in risk decision-making, which has the overall aim at engage comprehensive cooperative measures among politicians, business actors, scientists and civil society. Inclusive governance strives at empowering engaged actors from involved fields, to produce a joint framing of the risk at hand, create an understanding of the risk and the management of it (in respect of the different opinions and world views among the actors), to have a forum for common decision-making of the risk issues and to generate an overall understanding and connection of the different levels of decision-making and implementation. However, giving space to different stakeholders and actors do not guarantee dialogue and consensus since the inner dynamics of the engaged participants may benefit or detriment certain elements (Renn, 2008). Timing of the stakeholder participation is of the essence. At any given phase of the risk governance process the stakeholder involvement should contain a fair deal of transparency, competence, fairness among the participants, efficiency, clear mandate of what to expect from the participation, diversity in perspectives and professionalism (Renn, 2008).

Public participation in risk policy has shifted from a technical one-way communication towards a more inclusive approach between science and society of two-way learning (Pidgeon et.al, 2006). A major incentive for activating public participation processes is to restore the public confidence in authority (risk regulators and regulatory practice) although the argument that increased public participation and democratised scientific process is a good thing in itself also prevail (Frewer, 2003). There are certain deliberative processes and models in decision-making procedures, where the core function is mutual exchange of arguments and opinions instead of persuasion, pressure or status. The deliberative processes can/should include enhanced understanding, it should present new options, calm hostile attitudes among participants, try to find new problem framings, inform policy-makers, generate proper solution packages as well as aid consensus and compromises (Renn, 2008). Increased participation may reduce, for example, differences in trust, but certain drawbacks are also present such as larger unpredictability in risk perception and behaviour due to increased transparency when uncertainties in risk management becomes more visible in the public debate (Frewer, 2003).

5.2.5 Risk perception

Environmental concern in the western world in the 1970s and forward gave rise to what is now called research in *risk perception* (Pidgeon et.al, 2006). The meaning of risk is dependent on the situation in which the term is used and how the risk in particular is perceived is

dependent of the risk construction principle of the recipient; how we behave when encountering risks is due to our risk perception and not necessarily by facts, or the interpretation/belief of them (Renn, 2008) and where the risk perception can be linked to the social identity (Zinn & Taylor-Gooby, 2006a). Several scholars have investigated the risk perception in different countries, however, as pointed out by Boholm (1998) there is no uniform standard for cross-country comparisons which obstruct interpretations (Boholm 1998).

The initial understanding of a risk can be described as a *mental model* of that risk (Breakwell, 2007). The mental modelling approach holds that people develop certain conceptual structures that match the risk perception they have of a certain risk or other parts of reality (Zinn & Taylor-Gooby, 2006a). In risk communication a major challenge is to change the mental model and for the communication strategies to be effective it is important to first map the mental models of the audience in order to set the targets right. Important to note is the fact that there is not a single strategy for risk communication but several, all depending on the primary risk perception and thus mental models. There can also be a discrepancy between the expert and the public view of the risk, which aggravate the efficiency of communication and the awareness of mental models is imperative for designing good risk communication approaches (Breakwell, 2007). There can also be different semantic risk pattern which determine the risk perception, where the risk for example can be perceived as an immediate threat, a stroke of faith, a challenge to one's own strength, a gamble or an early indication of danger (Renn, 2008). In the era of technology certain accidents have occurred due to system failure or the like, regardless of the efforts to maximise safety. These accidents may have catastrophic impacts on the environment and society, and even though the chances of an accident are low, they can theoretically occur at any moment (Breakwell, 2007). This semantic image of risk as an immediate threat, or a pending danger, can be applied to the risk of oil accidents.

Another view of risk perception is the social amplification of risk framework (Frewer, 2003, Kaspersen et.al, 2003, Murdock et.al 2003, Pidgeon et.al 2006, Renn 2008, Zinn and Taylor-Gooby 2006a). It started as an attempt to bridge the gap between risk perception and risk communication research through a framework including findings from different schools (Kaspersen et.al 2003). In short it describes the process of risk perception by amplifying certain signal from a risk source while diminishing others, taking account for the contextual elements of psychological, social, institutional and cultural processes that affect behaviour who in turn shape secondary outcomes and consequences (Renn, 2008). The message (or "signal" in traditional communication theory) passes through several stages, "social amplification stations" which might consist of scientists, media, governmental agencies, politicians or interest groups, which may amplify or diminish certain features of the original message depending on the social structure and background (Pidgeon et.al, 2006) and where the trustworthiness of the transmitting source affects the perception of the message as well as

individual preferences affect if the amplification will occur or not (Frewer, 2003). The social amplification of risk approach has, however, been criticised for not being able to account for the influence of media in a sufficient manner (Murdock et.al, 2003) or of having a weak predictive ability (Zinn and Taylor-Gooby, 2006a).

A problem within risk perception and risk communication is the differences in opinions and perception among for example the eyewitness and the scientist regarding a specific event (Renn, 2008). Controversies between the views of ‘experts’ and ‘lay-people’ are common and discussed by many scholars (Fiorino 1989, Renn 2008, Sinn and Taylor-Gooby 2006a).

5.3 Results – Interviewees’ perspectives

5.3.1 Communication in decision-making process

Organisations use different forms of communication (representing ship owners, people, industry) while trying to influence decision makers. An NGO might first try to promote the issues with HELCOM or the national government (member of IMO) which would then, if convinced, exercise their influencing and negotiating skills on the IMO level. Communication goes however in both directions, so government or governmental organisation could just as well provide information to other stakeholders.

5.3.2 Risk Communication & Public

Various channels are used by the actors, going towards new interactive methods “viral communication” from traditional advertising on the TV. An informant from a Green NGO described that in the communication process all ways possible are used and that there is a current rapid change in the media landscape. Mass media and news (traditional media) is still the foremost tool. Personal contacts and lobbying are described as extremely important; it is all about to put the questions on the agenda and the formation of opinion, and anchor the issue with politicians and decision-makers. It also depends on the current campaign where it the importance of performing a power analysis is stressed; to target a company is easy, but to affect the politics is hard, both in Sweden and elsewhere. There are no shortcuts. This is a question that people dealing with communication struggles with on a daily basis, not only the campaigning Green NGOs. In the current flow of information it can be hard to reach through to the audience, where the green message but one of many in the mass media landscape (Interview, 2010)

5.3.3 Communication among stakeholders

Interviews have shown that cooperation in a vertical direction is much more developed than cooperation in a horizontal direction, among stakeholders. Associations are mainly

communicating with their members, with other organisations in horizontal direction and this is as far as it goes. They do have roundtables and are providing brochures, information on the internet, however, any form of “strong” cooperation on horizontal level with other stakeholders can be hardly found. For example, an environmental NGO is cooperating with HELCOM, IMO, EU (as they are holding conferences for stakeholders or consultations), but not with other environmental NGOs, or even with industries, ship-owners.

The cooperation between the Green NGOs seems to be rather limited, even though one interviewee mentioned that they cooperate with other organisations in some projects, ad-hoc. An interviewee representing the industry, explained, that they get a lot of information from people in their network, which they build in a number of years, who trust them. This may be hardly established by cooperating on some ad-hoc projects only.

One interviewee expressed concern about coordination on the national level and between the countries. There was no major critique against the large organisations and their structure, but rather regarding the coordination on a national basis and between the countries, which was considered to display serious overall flaws, where shipping is only a minor part (Interview, 2010)

The key element in communication and cooperation are naturally, people. If people are changing positions, this aggravates the process. An interviewee from an international NGO expressed that the key to effectiveness is that the same people operate continuously. This enhances cooperation and possibilities for a long-term relationship. Another interviewee mentioned the problem of fluctuation within communication process, and that the employee turnover within governmental entities aggravates collaboration. Once a working relation has been established the cooperation runs smoothly. Nevertheless this cooperation is easily interrupted when the employees move to other positions and then the relationships must be built again from scratch (interview, 2010). An interviewee mentioned that Nordic countries apparently have an advantage as the people commonly work in the same place for a longer time, which helps building sustainable networks and establishing trust. The same person normally stays at their post a little bit longer, hence enhances the possibilities of smooth cooperation (interview, 2010).

5.4 Discussion

The environmental risks related to accidental and intentional oil spills are very different from each other, and therefore have to be discussed and managed in somewhat different ways. Not the least the need for stakeholder involvement and communication has to be closer addressed and evaluated than it traditionally has been. Accidental risks are often discussed and framed in technical terms, either regarding vessel construction or in relation to the complexity of international law. This means that risk perception and trust becomes crucial factors. When management is perceived as too complex by important groups of the public, responsible authorities need to be trusted. As long as governmental authorities are believed to have the situation under control, the public need not to increase participation or in other ways get assurances that existing threats are not imminent.

The fact that big accidents take place only seldom makes communication between decision-makers and experts on the one hand and the public on the other problematic indeed. When studying the history of marine regulation during the last decades it is striking to see that stricter regulation almost “needs” a major accident to get the necessary acceptance. On the other hand, when a major accident does happen, swift action is politically necessary to make sure that this kind of accident will not happen again. This does not always lead to the most rational long-term revisions of existing regulations.

Ship owners are sometimes, according to our informants, perceiving media reporting as not constructive, as media (not specialized for industry) wants to attract attention. They report only when an oil spill happens, showing pictures which are not really attractive (bird caught in oil spill), so it kind of ruins trust to the industry for the public and "ruins" the relationship between the media and industry so they would not like to cooperate with them. According to theories in communication have such approaches turned to be ineffective as when people are scared they feel like there is nothing to do to make it better, so a better approach would be to communicate before and in a more constructive way.

Although a very complex task to achieve, improved public communication could most likely benefit long-term safety in a positive way. The primary goal would here be to focus more on rational end effective governance models and less on quick responses immediately after an accident has occurred. Many different ways to improve public communication have been tried and described in the literature; public hearings, citizen forums, public referendum, surveys and mediation just to mention a few.

However, the global structure of the marine sector makes public communication and citizen participation extraordinarily demanding. IMO guidelines on these matters need to be more fully elaborated, and even more importantly, national authorities need to be sensitive in

relation to local conditions when implementing adopted recommendations. A possible way forward could be to assess specific needs for the Baltic Sea region in HELCOM, and then upload to IMO, with the possible aim of making EU adopt more extensive regulations.

Stakeholder participation is a major feature of global marine governance. International sector organisations, insurance businesses, classification societies and environmental NGOs are all important actors in this field. They promote their respective interests, but also bring important knowledge into the regulation of marine transportation concerning practical experiences as well as data compilations.

However, it seems to be the case that whereas stakeholder involvement is extensive at the global scene, this is generally not the case at the national and local levels. Even in the rare cases where forms for stakeholder participation are in place, it is often unclear to what extent they actually are taken into account in decision making; that in the end in decision making some soft factors are important (how good are people in making contacts, building network and trust). At these lower levels, accident prevention can hardly be addressed, but important initiatives could be taken in regard to, for example, remedial preparedness. A considerable effort has been made in the Baltic Sea region to coordinate joint use of national resources in case of a major accident. However, the situation at local levels is less clear. More research is needed on how local stakeholders are brought into closer collaboration with municipalities and state authorities in coastal areas that are especially vulnerable. Moreover, research on how these local initiatives evolve in different Baltic Sea countries is needed.

Environmental risks related to intentional spills are of different character compared to the accidents, and are typically framed quite differently when becoming part of the public discourse and debate. First, according to what has been found in this project, more research on the actual damages caused the many small oil spills in the Baltic Sea is needed. Despite the efforts that have been made to assess especially the long-term effects from these spills, no clear picture of the situation exists, and even less so assessments on what the most urgent remedial actions would be. Two observations are obvious; (a) the Baltic Sea is because of several biogeophysical reasons and the high pressure from large populations around the sea very vulnerable and (b) the public framing of intentional spills is very negative in the sense that those doing these unlawful acts are not only braking the law, but also acting against quite strong norms not to pollute the environment. The political response in especially Sweden and Finland has been quite predictable – to increase the level of aerial surveillance and monitoring. This may be seen as a reasonable response given the public outcries on more policing. However, authoritative studies on the causal relationships between increased surveillance/monitoring and decreasing incidents of observed pollution are few, if any. In fact, the causal relation between increased surveillance and less pollution is far from certain. It could very well be the case that the modernisation of the fleets have affected not only technical safety but also the incentives not to take proper care of oily residues, the No-special-

fee system can have been instrumental in decreasing intentional pollution and the increased pressure on business to keep a good environmental record could also be part of the story. It is also possible that the seemingly reduced number of observed incidents of international oil pollution does not reflect true reductions. Despite more advanced surveillance, we know that certain parts of the Baltic Sea are hardly covered at all. This is known by the operators, and it is possible that intentional pollution has migrated to these areas where the risk of being observed is very small.

To improve the effectiveness and efficiency of reducing ecological harm from intentional oil spills in the Baltic Sea, systematic knowledge on ecological risks from small but repeated spills is needed. We need to know more on what specific species and ecosystems that are most vulnerable, what kinds of environments, what kinds of oils that are especially hazardous and how local conditions on e.g. temperature wind, sea depth etc. affect risks. Having more detailed knowledge of this, careful thought has to be given on what location that may be especially “attractive” for cleaning of tanks so that ecological sensitivity and likelihood of an intentional spill can be related to each other. Reasonably, surveillance and monitoring should be targeted to these specific areas.

Finally, more knowledge is also needed on how human factors affect accidental as well as intentional oil spills. We know that human error probably is the most important factor behind accidents in the Baltic Sea and probably also important in relation to improper day-to-day procedures leading to “intentional” oil spills. But this knowledge is much too aggregated to be useful for management purposes. A systematic understanding on different kinds of human errors has to be delineated in order to make it possible to design measures that reduce this cause to environmental hazard.

6. Conclusions

We summarise the main findings in this study in the following brief bullet points. The focus is primarily placed on policy-relevant observations and conclusions rather than on theoretical findings, as the major objective in this report has been to analyse present conditions in order to find novel ideas and key issue areas where management potentially could be improved. Most of our conclusions are relevant for all Baltic Sea countries, but some of them involve different roles played by different countries and stakeholders, depending on, for example, resource availability, vulnerability, economic interests and public concern. Each bullet is related to problem definition and description, what has been found to be an urgent problem area and right after follow suggestions for potential remedies.

- **Human error** Human error has always been an important cause to marine accidents, but as vessels are getting safer, navigation assistance more advanced and sea motor ways more common, the relative importance of the human error factor has increased.
 - It is clear that improved control over seafarers training is needed. Many training facilities are of high quality, but others urgently need restructuring of curricula, better trained staff etc. It has been suggested in the literature that a possible way to reach this goal could be to give IMO a greater responsibility in overseeing training facilities. We think this is an interesting suggestion, although critical voices from individual IMO members should be expected, as this would infringe somewhat on national sovereignty. To ensure appropriate size and composition of crews, stricter Port state control is probably the most effective way forward.
- **Port state control** Related to the point above is the suggestion that Port state control needs additional improvement, as Flag state control often is ineffective and Coastal state control tightly circumscribed by international legislation. It has been shown in several reports and articles that Port state control (a) is not undertaken in identical ways in all Ports and (b) substantive differences between the regional MoUs complicate matters for operators with global reach.
 - Also in this case, IMO could be given a more active role. Possibly, IMO could even be given the responsibility for Port state control by having its own bureau of inspectors. This would most likely make Port state control more uniform. However, such a reform would most likely meet strong resistance from many countries. A long term strategy could therefore be to start from sub-regional collaboration between like-minded countries in the Baltic Sea region, with the aim of up-loading first to HELCOM and then to IMO (possibly followed by

eventual down-loading to EU). Possibly, sector organisations could fruitfully be involved in this process as higher predictability in terms of Port state control would decrease market uncertainties. It would be crucial here that Russia is part of the process from the beginning, because of the huge transports of oil leaving Russian Baltic Sea ports.

- **Implementation deficits** It has been argued in this report that the formal regulation of marine activities under the umbrellas of IMO and ILO is comparably well-structured. This suggests that while continuous reform and refinement of existing regulations always will be needed, major revisions and new conventions do not seem to be the most urgent needs. Rather, improved implementation of existing regulations would most likely have a significantly higher impact on over-all safety. The prime responsibility of implementation rests with individual governments and needs to be undertaken at national and local levels.
 - Implementation deficits are inherent parts of most international collaboration on environmental issues as effective enforcement mechanisms typically are lacking. The case of marine transportations is no exception. One way to improve the situation in the Baltic Sea specifically could be to further develop sub-regional and bilateral collaboration between on the one hand the most engaged and resource-full countries and on the other hand the laggard states. The issues to collaborate within would then primarily be related to capacity-building and infrastructure investment initiatives where reasonably straight lines between invested resources and tangible benefits are expected. In these cases national interests and improved (sub-) regional safety need not to be contradictory.
- **Framing of oil spill hazards** All initiatives to reduce marine oil pollution have to be clearly targeted to the specific problem that is addressed. It has been shown in this report that the distinction between accidental and intentional pollution is important, and that these different kinds of spills are framed quite differently in especially mass media. Whereas the dramaturgy of large accidental spills typically results in strong public demands for stricter regulation, intentional spills are seldom resulting in newspaper headlines. One potentially negative consequence of the former is an unpredictable “policy timeline” where major accidents lead to swift but not always carefully assessed changes in existing regulations, whereas intentional spills rather risks being forgotten and their effects not seriously assessed.
 - The way issues such as oil spills are framed cannot easily and intentionally be influenced. These framings continuously evolve because of a multitude of actors’ behaviours and events beyond anyone’s control, and cannot reliably be predicted. What can be done, it is argued in this report, is rather to in a long term perspective build institutions and structures that facilitate continuous

public discussion and deliberation. To find the proper forums and mechanisms for this, additional research is needed. This research could most likely benefit considerably from prior attempts to e.g. revitalise local democracy as a way to widen policy perspectives, increase legitimacy and trust in public decision-making and expertise.

- **Stakeholder involvement** Stakeholder involvement is a cornerstone in modern environmental governance at all levels. There are several reasons why so much emphasis is being put on this aspect. First, stakeholders often bring case-specific knowledge into the decision-making process. Second, making key stakeholders part of the governance process is assumed to increase legitimacy and making implementation more effective and efficient. Third, the involvement of civil society representatives of various kinds may from a normative perspective add important components to democratization processes of modern governance. From the studies undertaken in this project, we conclude that whereas stakeholders are deeply involved at the global level (especially sector interests), this is generally not the case at lower levels (especially local levels).
 - The strong involvement of sector interests in global governance of shipping most likely makes it more effective and efficient, but also biased towards dominating stakeholders perspectives and priorities. The almost exclusive focus on technical aspects of marine safety is at least partly a result of stakeholder agenda-setting. Sector interests bring considerable knowledge into policy-making, and also make sure that business perspectives are well integrated into rule-making processes. Although some NGOs and other voices of civil society have enough resources to be able to influence global governance processes, the greening and improved safety of marine transportation is probably more a result of consumer pressure and the importance of having a "clean record" than demands made by NGOs. It is a prime responsibility of national governments and IMO/ILO as organisations to balance sector and citizen interests, as direct citizen involvement other than from international NGOs is problematic at the global level. However, citizen participation and stakeholder involvement at especially local levels probably could be increased. Local initiatives to increase accident preparedness and monitoring of potential consequences from intentional spills could be stimulated by e.g. county boards and municipalities. If these activities could be connected in national networks and furthermore extended to transnational contacts between local regions facing similar situations, regional governance would most certainly benefit.

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Annexes

Annex 1: List of interviews

Interview No.	Type of Organisation	Date
1	INGO*	March 2010
2	INGO	March 2010
3	Industry	March 2010
4	Industry	April 2010
5	Green NGO	April 2010
6	GOV	May 2010
7	INGO	May 2010
8	GOV	May 2010
9	EU	May 2010
10	Network ORG	May 2010
11	Green NGO	October 2010
12	Research	November 2010
13	EU	November 2010
14	EU	November 2010
15	Nat GOV (SWE)	November 2010

*INGO = International NGO