Thomas Fagö
Chairman
HELCOM RESPONSE

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Managing the risk in the Baltic

The Baltic Sea is a brackish water area with very slow exchange of the water. It takes around 30 years to change the entire water content. The flora and fauna is quite rare and very sensible to environmental changes. The Baltic Sea is one of the IMO Particularly Sensitive Sea Areas.
The sea traffic in the Baltic Sea is very dense. An AIS snap shot shows more than 1800 ships on route .Around 25% of those are oil tankers. Groundings, collisions and other incidents occur frequently.
The total oil transportation in the Baltic Sea is estimated to more than 200 million tons. A major part of that comes from Russia and the terminals in the Gulf of Finland.. Also the size of the oil tankers has increased immensely. The average tonnage for some harbours has doubled in a few years. Tankers up to more than 100 000 tons is a daily sight and the new terminals are constructed to receive tankers up to 150 000 tons.

Further development.

Prognostications up to 2015 indicate a further strong increase of the oil handling, another 40% is estimated. Economical reasons promote to the use of Baltic Sea maximum size tankers (100 000-150 000),as the cost per ton of transported oil decreases considerably by using large tankers.
Oil drilling is so far only a minor thing in the Baltic Sea, but will increase, especially if the price continues to be on a high level.

Risks

The developing oil handling during the nineties has brought serious problems to the area. One of them was the number of “substandard ships”, old ships and insufficiently maintained, sometimes unclear ownership due to having changed several times, not the best of crews and sometimes even lacking sea-charts and modern navigational aids.
Not only the ownership of the tanker sometimes appears to be unclear, but also the ownership of the oil cargo. The more unclear these things are, the higher is the likelihood that a substandard ship will be used for the transportation.

Winter conditions in the Baltic Sea can be quite hard, with a lot of ice in the Gulf of Finland and the Gulf of Bothnia. In the past winters there have been several narrow escapes with tankers that got stuck in the ice and also some collisions. Hopefully some agreements have now more or less solved that problem, but last two winters

were quite mild so the willingness to live up to the commitments has not been really tried.

The last years the situation in general has changed to the better. The average age of the tankers has decreased and so does the number of single hull ships. For example, tankers calling the Primorsk terminal in Russia have an average age of 4 years and are all double hull.
However, the increasing sea traffic in general, brings a higher risk for collisions and groundings. If also the size of the ships increases, the risks for major oil spills get higher. A large bulk or container ship carries as much bunker oil as a small coastal tanker.
The Fu Shan Hai, a bulk carrier, which collided and sank in the southern Baltic, had around 1800 tons of fuel and lubrication oils in her tanks. The POLO M that drifted and grounded before Christmas had around 1000 tons .Recovery of such volumes is however possible to handle.
The rapidly growing size of the oil tankers brings on other types of risks that can not be met only with increasing the oil recovery capacity. A collision or grounding of an average coastal tanker might have a potential of up to 5000 tons of oil, a total loss could mean around 10 000 tons. A collision or severe grounding of a 100 000 tons tanker could result in a discharge of 20 000-30 000 tons, and a total loss could mean a discharge of maybe 50 000 –70 000 tons and the rest remaining in leaking tanks on the sea bed. The ERIKA and the PRESTIGE incidents were of that magnitude and we all know the consequences. They had both taken their oil from Baltic Sea terminals.
The intensive sea traffic also brings a high number of illegal oil spills. Most of them with a volume less than 1 m^3, but nevertheless causing harm to the sensible fauna and to the food web.

What have we done so far?
After the fall of the Soviet Union, in the beginning of the nineties, there was a special program within HELCOM for assisting Estonia, Latvia and Lithuania in the response field. A first seminar was held in 1993 Riga and after that a comprehensive training program and capacity building has been carried out.
We can today conclude that these activities and other bilateral activities have fulfilled their aims to build up competence and response capacity to a satisfactory level in all Baltic Sea states.
Since many years there is a 24-hours network for response co-operation. The Operative Manual for this provides all needed in beforehand for efficient co-operation, like:
- Alarm routines,
- Contact points,
- Command structures,
- Radio schemes within the response fleet,
- Customs matters and
- Reimbursement regulations.

With this, the more than thirty response ships from the different Baltic sea states, which constitute the “HELCOM Fleet”, can be used in an efficient way. In order to keep the Fleet fit for fight there are regular alarm and equipment exercises. These exercises are conducted in different parts of the Baltic Sea in order to ascertain that the crews are familiar with navigational and other conditions, but very important is

also to ascertain that each party is able to command and control an operation with a lot of ships involved, and that they can do it in English. Several bi-or trilateral exercises also take place on an annual basis.

Besides the Operative Manuals, HELCOM works through Recommendations. A Recommendation is a “soft law” which the parties have agreed to implement in their national regulations. They deal with several things, e.g. the use of dispersants, national ability to respond, the use of oil drift forecasting, aerial surveillance, but also with administrative matters like reimbursement of costs.

There is also a common system for oil drift forecasting, the Sea Track Web, covering the Baltic Sea as a whole, which has been of great value during incidents but which also has been used for so called backtracking, in order to find possible illegal polluters.

In some matters the HELCOM work has been a trigger for EU, what has started within the Baltic Sea has later been considered for implementation in EU as a whole. On the other hand, EU has contributed to the process within HELCOM, in matters of great importance for safer sea traffic in the Baltic Sea.

What is Helcom doing for the time being?

HELCOM Copenhagen declaration
A lot of the ongoing work has its basis in the “HELCOM Copenhagen Declaration, 2001” where a comprehensive program for safer navigation and response was adopted.
The declaration comprises i.e.
- Routeing measures for certain parts of the Baltic Sea,
- Enhancing the use of pilots
- Re-surveying of major shipping routes and ports
- Ensuring ENC coverage of major shipping routes and ports
- Enhancing the use of ECDIS
- Intensifying Port State Control (PSC) of paper charts onboard i.e. tankers
- Enhancing the use of AIS and
- Ascertaining the availability of emergency capacity, response capacity and places of refuge.

MARIS
The Maritime Accident Response Information System (MARIS) is now introduced, consisting mainly of a number of datasets, describing
- The areas most sensitive and vulnerable to oil spills
- The traffic and risk distribution
- Available response resources

The purpose of MARIS is to visualize the risks of maritime transportation in the Baltic Sea and the capacity to handle these risks. Some datasets e.g. sea charts, shore types, traffic and risk data, are still missing but will be included at a later stage.

Further development of drift modelling
By using the available comprehensive meteorological and oceanographic information about the Baltic sea, regarding winds, temperature and currents, it is possible to make thousands of oil drift simulations, thus finding out where an oil spill probably will end up, but also where the likelihood is small. Also changes of the mass balance of the oil can be calculated, all this giving us a background for decisions on preparedness, need for aerial surveillance, exercises and for co-operation.

Illegal discharges
As mentioned, the illegal discharges are a matter of great concern for the Baltic Sea. Sweden has set up a national aim to get rid of the illegal oil spills by 2010. In other countries the situation is more unclear. Organisational, but above all, economical constrains make the situation unsatisfactory, sometimes not even survey able.

Lack of aerial surveillance and unsatisfactory remote sensing equipment, make our statistics for the Baltic Sea as a whole uncertain. Some countries have very reliable statistics, other rarely fly at all. This means that the noticed considerable reduction in some parts of the Baltic Sea could not be taken as a guarantee for a reduction as a whole. It could mean that the polluters, at least partly, have chosen areas of less risk for making the discharges. Hopefully further co-operation in aerial surveillance and the use of satellites can help us on this.

However the situation is not dark all over. Since many years the parties of HELCOM make co-ordinated, aerial surveillance operations over a certain sea area, where planes and ships from a number of parties take part. The aim is to catch the polluters red-handed, and that happens from time to time. Being hung out in mass-media for an illegal discharge and being taken to court is not what a ship-owner or a captain likes, so the effect of deterrence is quite high and has contributed to at least breaking the up-going trend in oil spills, and in some parts to a considerable decrease.
Since a few years there is also a network of prosecutors from the different parties in order to improve the international co-operation on law enforcement.

Denmark, “the door keeper” to the Baltic Sea, has since a few years applied a hailing procedure, in which ships are called on channel 16, and asked about their call sign, port of call and other questions but also reminded about the Baltic Sea as a MARPOL Special area, where no oil discharges are permitted.
Now, when the AIS-system is running the need for hailing is less and HELCOM is therefore working on a project for integrating AIS with Sea Track Web in order find out what or which ships that have been on the same position as an illegal oil spill at the same time.

What more can be done?

Shipping is international so the work has to be long term. The conditions for shipping have to be global and only in certain circumstances should there be regional restrictions. At first hand, we should work for that already existing regulations are respected, for example the MARPOL annex 1and 2. If that can be achieved, there would be less need for more regulations. I am also quite sure that STCW and ISM will contribute to a cleaner Baltic Sea, like the declaration of the Baltic Sea as a PSSA. Some questions, like not using or phasing out of the single hull tankers takes time, although progress in speeding up the process has been made lately within the EU and IMO.

Another project the" HELCOM Transit Guide" is intended to be an internet based ,single source/overview of navigational information for the masters navigating or planning a voyage through the Baltic Sea in order to assist laden tankers and other ships in safe navigation in the Baltic sea.

HELCOM has also recently started a pilot project on the use of dispersant in brackish waters. A lot of research has to be done in order to build up a data base on Russian oils and about suitable dispersants. We hope to manage to make this research supported by the European Commission and their special agency, EMSA.
EMSA has also contracted five oil or bunker tankers for supporting the HELCOM Fleet in an oil spill operation. We welcome this initiative and will make our very best to make those ships fit in to the HELCOM co-operation. We also very much welcome the EMSA plans to co-ordinate the use of satellite images.
For future mutual capacity building HELCOM has started a three tier system consisting of national capacity as Tier 1, subregional as Tier 2 and the total HELCOM response capacity as Tier 3. One of the aims is by comparing sub regional risks with sub regional capacity, is to conclude lacking capacity and to make agreements on purchase of equipment so that the parties together create a satisfactory response system for the area. Such a system should also include Places of Refuge and open up for mutual use of them.

Finally, we can conclude that building up of Emergency Capacity (emergency towing, fire fighting and lightering) now is in progress some five years after the HELCOM ministerial Copenhagen Declaration. Germany has already a system with full cover along its coast line, and others are now following, among them Finland and Sweden. There are also meetings on creating a system for multilateral co-operation in certain areas aiming at always to have an ETOW ship at sea.