# 13. HELCOM RECOMMENDATIONS AND RELATED GUIDELINES ON COMBATTING MATTERS

## 13.1 LIST OF VALID HELCOM RECOMMENDATIONS AND RELATED GUIDELINES

**HELCOM Recommendation 11/13**

Recommendation concerning development of national ability to respond to spillages of oil and other harmful substances
- adopted 14 February 1990, having regard to Article 13, Paragraph b) of the Helsinki Convention
  (supersedes HELCOM Recommendations 1/7 and 4/3)

**Guidelines** for applying HELCOM Recommendation 11/13 on development of national ability to respond to spillages of oil and other harmful substances
(CC 17/15, Annex 5)

**HELCOM Recommendation 12/7**

Recommendation concerning special cooperation in case of a chemical tanker accident in the Baltic Sea
- adopted 20 February 1991, having regard to Article 13, Paragraph b) of the Helsinki Convention

**HELCOM Recommendation 12/8**

Recommendation concerning airborne surveillance with remote sensing equipment in the Baltic Sea Area
- adopted 20 February 1991, having regard to Article 13, Paragraph b) of the Helsinki Convention
  (supersedes HELCOM Recommendation 7/11)

**HELCOM Recommendation 12/9**

Recommendation concerning follow-up studies in connection with major oil spills
- adopted 20 February 1991, having regard to Article 13, Paragraph b) of the Helsinki Convention

**Guidelines** for oil spill follow-up studies
(HELCOM 12/18, Paragraph 9.15 referring to HELCOM 12/9, Attachment 5)

**HELCOM Recommendation 17/12**

Recommendation concerning measures to abate pollution by oil and other harmful substances in cases of grounding, collision, sinking of a ship or other maritime casualty
- adopted 13 March 1996, having regard to Article 13, Paragraph b) of the Helsinki Convention

**HELCOM Recommendation 19/17**

Recommendation concerning measures in order to combat pollution from offshore units
- adopted 24 March 1998, having regard to Article 13, Paragraph b) and Regulation 2 of Annex VI of the Helsinki Convention
  (supersedes HELCOM Recommendation 10/10)

**HELCOM Recommendation 19/18**

Recommendation concerning reporting on incidents involving harmful substances and emergency dumping

- adopted 24 March 1998, having regard to Article 13, Paragraph b) of the Helsinki Convention

(supersedes HELCOM Recommendation 7/12)

**HELCOM Recommendation 20/5**

Recommendation concerning minimum ability to respond to spillages in oil terminals

- adopted 23 March 1999 having regard to Article 13, Paragraph b) of the Helsinki Convention 1974

(supplements HELCOM Recommendation 11/13)

**HELCOM Recommendation 22/2**

Recommendation concerning restricted use of chemical agents and other non-mechanical means in oil combatting operations in the Baltic Sea Area

- adopted 21 March 2001 having regard to Article 20, Paragraph 1 b) of the Helsinki Convention

(supersedes HELCOM Recommendation 1/8)

**HELCOM Recommendation 24/7**

Recommendation concerning further development and use of drift forecasting for oils and other harmful substances in the Baltic

- adopted 25 June 2003, having regard to Article 20, Paragraph 1 b) of the Helsinki Convention

(supersedes HELCOM Recommendation 12/6)

**Guidelines** for the implementation of HELCOM Recommendation 24/7 on further development and use of drift forecasting for oils and other harmful substances in the Baltic
(HELCOM RESPONSE 1/2002, 14/1/Rev.1, Annex 4)

**HELCOM Recommendation 24/9**

Recommendation concerning ensuring adequate emergency capacity

- adopted 25 June 2003, having regard to Article 20, Paragraph 1 b) of the Helsinki Convention

**Guidelines** for the implementation of HELCOM Recommendation 24/9 on ensuring adequate emergency capacity
(HELCOM RESPONSE 2/2003, 13/1, Annex 3)

**ELCOM Recommendation 28E/12**

Recommendation on strengthening of sub-regional co-operation in response field

- adopted 15 November 2007, having regard to Article 20, Paragraph 1 b) of the Helsinki Convention

## 13.2 VALID HELCOM RECOMMENDATIONS AND RELATED GUIDELINES

**HELCOM Recommendation 11/13**
(This Recommendation supersedes HELCOM Recommendations 1/7 and 4/3.)

Adopted 14 February 1990
having regard to Article 13, Paragraph b)
of the Helsinki Convention

### DEVELOPMENT OF NATIONAL ABILITY TO RESPOND TO SPILLAGES OF OIL AND OTHER HARMFUL SUBSTANCES

**THE COMMISSION,**

**RECALLING** the provisions of Regulation 2 of Annex VI*) to the Convention on the Protection of the Marine Environment of the Baltic Sea Area, 1974, (Helsinki Convention), concerning the ability of the Contracting Parties to the Convention to combat spillages of oil and other harmful substances at sea,

**RECALLING ALSO** the former HELCOM Recommendations 1/7 and 4/3 having dealt with the national ability to respond to oil and chemical accidents,

**RECOGNIZING** the need for further development of the national ability of the Contracting Parties to the Helsinki Convention to combat spillages of oil and other harmful substances,

**BEING AWARE** of the great value of coordinating national efforts in this respect,

**BEING MINDFUL** that the maximum tonnage of an oil tanker entering fully laden the Baltic Sea is up to 150 000 dwt,

**RECOMMENDS** that Governments of the Contracting Parties to the Helsinki Convention should, in establishing national contingency plans, aim at developing the ability of their combatting services,

a) to deal with spillages of oil and other harmful substances at sea so as to enable them:

(i) to keep a readiness permitting the first response unit to start from its base within two hours after having been alerted;

(ii) to reach within six hours from start any place of a spillage that may occur in the response region of the respective country;

(iii) to ensure well organized adequate and substantial response actions on the site of the spill as soon as possible, normally within a time not exceeding 12 hours,

b) to respond to major oil spillages

(i) within a period of time normally not exceeding two days of combatting the pollution with mechanical pick-up devices at sea; if dispersants are used it should be applied in accordance with HELCOM Recommendation 1/8, taking into account a time limit for efficient use of dispersants; **)

(ii) to make available sufficient and suitable storage capacity for disposal of recovered or lightered oil within 24 hours after having received precise information on the outflow quantity,

c) to respond to spillages of harmful substances other than oil with suitable countermeasures:

(i) to consider hereby the provision in Volume III***) of the Helsinki Commission Manual on Co-operation in Combatting Marine Pollution;

(ii) to make the necessary efforts to recover floating chemicals (floaters) with a reasonable retention time using adequate mechanical pic-up devices at sea normally not exceeding 2 days of combatting at sea; **)

(iii) to use their best endeavours in research and development activities to develop suitable techniques or methods to recover such sunken chemicals from the sea bottom if they have a long retention time without dissolving tendencies,

d) should continue with the development and improvement of the combatting services, taking into account:

(i) relevant factors such as the length and configuration of the coastline, safe haven harbour approaches, vulnerable ecological areas, probability of adverse weather conditions, ice, etc.;

(ii) that this capability should be considered in connection with the national salvage and lightening capacity; and

(iii) the targets specified above concerning oil response ability, to be reached as soon as possible and, in any case, within the early nineties;

(iv) the targets specified above concerning chemical spill response ability, to be reached as soon as possible and, in any case, before the end of the nineties.

*) the relevant reference is to Annex VII of the 1992 Helsinki Convention
**) The given response time limit can also be fulfilled by agreed regional cooperation of other Contracting Parties.
***) the present Volume 2 of the HELCOM Response Manual

# GUIDELINES FOR APPLYING HELCOM RECOMMENDATION 11/13 ON DEVELOPMENT OF NATIONAL ABILITY TO RESPOND TO SPILLAGES OF OIL AND OTHER HARMFUL SUBSTANCES

## 1. INTRODUCTION

The purpose of these guidelines is to specify detailed technical and operational demands concerning the implementation of HELCOM Recommendation 11/13 on development of national ability to respond to spillages of oil and other harmful substances.

It must be realized that due to adverse weather conditions and probable local limitations the demanded operational and technical means can not always ensure a successful cleaning operation at sea.

## 2. SPILL SPREADING

### 2.1 Oil

Oil spill spreading is a very fast process calling for immediate reactions with a maximum of recovery vessels in order to use effectively the first spreading phase with appropriate layer thicknesses. Experiences have shown that the key of effective recovery lies in the first 24 hours after a spontaneous outflow. The layer thickness in relation to the elapsed time and the potential surface sweeping performance must be used for the definition of the needed capacity, taking into account weathering of the oil, type and viscosity, sea state and wind influences.

### 2.2 Liquid substances

Spreading, dispersion and dissolution of liquid chemicals in almost all cases runs much faster; the tracing of this process is often very difficult as many of the floating substances are colourless and odourless with a very low viscosity.

Response measures in case of chemical spillages often have to be limited to tracing the remnants of the released substance and to alert threatened population or ship crews.

Aerial reconnaissance flights, especially with helicopters, are hereby a very helpful tool to position the combatting units in those areas where most of the outflow is concentrated.

## 3. DETECTION AND MONITORING

The delectability of a discharged hazardous liquid substance includes the localizing, identification and tracing of the substance in the aquatic environment. This precondition for adequate response measures depends mainly on the density, vapour pressure, solubility, viscosity, surface and interfacial tension, colour and odour of the substance. Most of these properties are relevant also for the penetration in the sea bottom sediment. For their own safety and for supporting salvage and recovery actions response units must have a minimum standard of detection tools (detection kits) to ensure a minimum of risk for involved crew members.

For situation and safety analysis in case of response spills, several measurements and observations are needed, such as:

- identification of the polluter
- identification of the pollutant
- measuring the properties of the pollutant
- localizing the polluted area

- determining the dimensions of the polluted area
- hazard identification
- measuring details regarding the atmospheric conditions prevailing on the spill site.

To protect response personnel and the area immediately affected, the chemical spill and its hazards should be assessed prior to undertaking counter-pollution actions.

## 4. SKIMMER PERFORMANCE

Based on a certain outflow quantity one might use the skimmer performances per hour in order to quantify the recovery capacity per day or within two days, but the manufacturers' figures are mostly based on extremely favourable circumstances with unrealistic layer thicknesses and assuming also a calm sea surface. Therefore, those figures are neither comparable nor reliable, as the Baltic Sea States operate various skimmer systems.

## 5. CONTAINMENT BOOMS

A provision of having a certain length of containment booms available could be an appropriate part of the specified equipment. The length of the boom capacity could be orientated on the fact that e.g. a spill caused by 10,000 $m^3$ of oil will after 24 hours cover an area of 30-60 $km^2$. But the main part of the total outflow is concentrated mostly on an area covering only 10 percent of the whole contaminated surface. Assuming that this slick concentration is drifting within the down-wind side of the moving slick then a total length of 2,000 m is needed to ensure that most of the slick concentration is surrounded.

But those countries which have based their recovery capacity on self-propelled skimmer ships with e.g. sweeping arms/spring-sweep systems or combination of deflecting containment booms with skimmer devices in the apex of the V-shape may prefer a higher sweeping capacity - see 6.2 - which can compensate large lengths of high sea booms in combination with various skimmer types.

Consequently, the following minimum requirements are demanded for:
- containment sea boom lengths, with auxiliary vessels to launch booms and deploy skimmers
- autonomous self driven skimmer ships with the definition of cleaning performance per day in $km^2$
- performance per day of adhesion/suction devices like belt-disc skimmer/weir and vortex skimmers.

## 6. CAPACITIES TO RECOVER VARIOUS PERSISTENT OIL TYPES

The minimum requirements are as follows:

**6.1** 2,000 m high sea booms

**6.2** 2.5 $km^2$ of sweeping performance. The calculated area is hereby based on a working speed of 1-2 knots of the sweeping or skimming vessels. A sweeping area of 4.5 $km^2$ has to be fulfilled by those countries which mainly use autonomous drive skimmer ships. The total boom length of 2,000 m can be diminished to 1,200 m if the sweeping capacity is considerably greater.

**6.3** Six (6) high performance sea skimmers with full sets of auxiliary equipment.

**6.4** Sufficient storage tank capacity should be available at sea for continuous operations. The land-based disposal arrangements of the recovered mixture close to the potential sea areas must also be ensured.

## 7. REQUIREMENTS TO RECOVERY/RESPONSE VESSELS

### 7.1 Minimum required measuring equipment on board a response vessel:

a) Generally, response ships that could be involved in the release of hazardous materials should be permanently equipped with an adequate supply of protective clothing and breathing apparatus for those crew members likely to become involved in responding to an emergency spill situation. For the detection, the determination of the dimension or the determination of the concentration of a spill, several measuring devices will be needed.

It is recommended to have on board a response vessel the following safety and protection equipment:

- protective clothing (oilskins, gloves, full protective suit, breathing hood, goggles, respirators, canister-type mask, oxygen breathing apparatus, face mask or hood)
- devices for measuring toxic atmosphere (chemical reaction tubes)
- explosive meter
- photo or flame ionisation detector
- sampling devices
- flash point meter
- pH-meter
- electric conductivity meter
- radiation meter
- oxygen meter
- thermometer
- test kit.

b) In addition to this basic equipment it is advisable to be equipped with side scanning sonars and echo sounders with high sensitivity and high ground resolution. Bottom sampling devices and visual perception by remote controlled TV-cameras or TV-cameras operated by divers.

**7.2** Each Contracting Party should have precautions made to provide, in case of emergency lightering operations, sufficient tank capacity to ensure the refloating of a grounded vessel or to lighter endangered tank capacity, e.g. by settling a model contract with tankship owners or tankship owners' association.

### 7.3 Salvage and recovery of sunken or lost packaged dangerous goods

The response unit should have or make arrangements for sufficient space on board to store recovered packages with leaking corrosive or toxic contents in a water-protected and air-tight space; alternatively special containers meeting the aforementioned properties can also be used for provisional storage of harmful packages.

A set of overpacks is needed to transfer leaking drums or cylinders with compressed or radioactive substances in emergency situations.

Each Contracting Party should ensure that in case of responding to a chemical spill including salvage or recovery of packaged goods the response unit and the strike teams on board must be equipped and/or protected to encounter the following hazards:

- combustibility
- corrosivity
- explosiveness
- flammability
- radioactivity
- toxicity in air and in water.

**HELCOM Recommendation 12/7**

Adopted 20 February 1991
having regard to Article 20 Paragraph 1 b)
of the Helsinki Convention

**SPECIAL COOPERATION IN CASE OF A CHEMICAL TANKER ACCIDENT IN THE BALTIC SEA**

**THE COMMISSION,**

**RECALLING** Article 11 and Annex VI*) of the Convention on the Protection of the Marine Environment of the Baltic Sea Area, 1974, (Helsinki Convention), concerning cooperation in combating marine pollution which also covers cooperation in combating chemical spillages,

**RECALLING ALSO** the provision of Regulation 9.1.d of Annex VI**) to the Convention, which establishes an information network between the competent authorities of the Contracting Parties,

**RECALLING FURTHER** that HELCOM Recommendation 11/13 concerning the development of national ability to respond to spillages of oil and other harmful substances establishes common requirements for national ability to combat chemical spillages,

**RECOGNIZING** that in combating chemical spillages, special expertise on several fields is needed, and all necessary experts may not be available in each of the Contracting Parties, especially if the accident occurs off the coast of a Contracting Party where the chemical concerned is not used on a large scale,

**RECOGNIZING ALSO** that disposal of chemical wastes originated from the combatting operation may cause overwhelming difficulties to the third Parties not using that chemical,

**RECOMMENDS** that the Governments of the Contracting Parties to the Helsinki Convention:

a) nominate a contact point through which competent authorities of other Contracting Parties can, in emergency situations, without delay get information on the chemicals carried by a tanker from or to a harbour of a Party concerned;

b) by national measures create as soon as possible but not later than by the end of 1992 an information system which would, in case of a chemical spillage, facilitate access by the competent authorities to data concerning the chemicals carried by the tankers;

c) provide, in accordance with Regulation 8 of Annex VI*) to the Convention, and within their ability, other Parties with special assistance like experts to respond to chemical spillages, special protective clothing and equipment for combating personnel, and special instruments for chemical analyses,

**RECOMMENDS ALSO** that the Governments of the Contracting Parties inform each other of their national facilities where chemical wastes emanating from combating operations can be treated and disposed of and make all efforts to provide necessary waste treatment possibilities after an accident has occurred off the coast of another Contracting Party,

**AUTHORIZES** the Combatting Committee***) to develop an appropriate section concerning the implementation of this Recommendation to be included into the Manual on Co-operation in Combatting Marine Pollution****),

**URGES FURTHER** that action taken by the Contracting Parties to implement this Recommendation should be reported to the Commission and its Combatting Committee***) for the first time before 30 May 1993.

*) the relevant reference is to Annex VII of the 1992 Helsinki Convention
**) the relevant reference is to Regulation 10 of the 1992 Helsinki Convention
***) the relevant reference is to the HELCOM Response Group
****) note that Volume 2 of HELCOM Response Manual “Response to accidents at sea involving spills of hazardous substances and loss of packages dangerous goods” has already been developed and is available at HELCOM home page

**HELCOM Recommendation 12/8**
(This Recommendation supersedes HELCOM Recommendation 7/11)

Adopted 20 February 1991
having regard to Article 20, Paragraph 1 b)
of the Helsinki Convention

## AIRBORNE SURVEILLANCE WITH REMOTE SENSING EQUIPMENT IN THE BALTIC SEA AREA

**THE COMMISSION,**

**RECALLING** Regulation 3 of Annex VI*) of the Helsinki Convention according to which the Contracting Parties shall develop and apply, individually or in co-operation, surveillance activities covering the Baltic Sea Area, in order to spot and monitor oil and other harmful substances released into the sea,

**BEING CONVINCED** that airborne surveillance with remote sensing capabilities provides a greatly enhanced capability for improving the response to major oil releases of the shipping casualty type,

**ALSO BEING CONVINCED** that airborne surveillance with remote sensing capabilities provides a potential improvement in the ability to collect evidence for prosecution purposes in cases of illegal operational discharges from ships,

**FURTHER BEING CONVINCED** that regular airborne surveillance has a deterrent effect on potential offenders of the discharge regulations of the relevant conventions,

**CONSCIOUS** that the surveillance can only be efficient if remote sensing equipment, that can function also at night and in bad weather, is used,

**NOTING** that joint action by the Parties on aerial surveillance has started in accordance with a special HELCOM plan,

**RECALLING** that the Ministerial Declaration of the ninth meeting of the Helsinki Commission calls for the development and establishment of airborne surveillance with adequate sensor systems,

**RECALLING FURTHER** that the Baltic Sea Declaration by Heads of Governments and Ministers assembled in Ronneby, Sweden, in September 1990, stressed the need to encourage considerably intensified cooperation regarding airborne surveillance between the respective competent authorities,

**RECOMMENDS** that the Governments of the Contracting Parties to the Helsinki Convention should introduce airborne surveillance with remote sensing equipment in their surveillance of the Baltic Sea Area as soon as possible but not later than by the end of 1994,

*) the relevant reference is to Annex VII of the 1992 Helsinki Convention

**RECOMMENDS ALSO** that the Governments of the Contracting Parties to the Helsinki Convention take action to

a) intensify their endeavour to cover by individual/and joint action the whole of the Baltic Sea Area with regular and efficient airborne surveillance;

b) develop and improve the existing remote sensing systems so that they can function efficiently also at night and in bad weather conditions; and

c) improve the possibility to use the information given by the surveillance as evidence to court for the prosecution of offenders of oil discharge regulations,

**RECOMMENDS FURTHER** that the Governments of the Contracting Parties to the Helsinki Convention, bilaterally or multilaterally, undertake to co-ordinate such surveillance activities which take place outside territorial waters, as appropriate.

**HELCOM Recommendation 12/9**

Adopted 20 February 1991
having regard to Article 20, Paragraph 1 b)
of the Helsinki Convention

**FOLLOW-UP STUDIES IN CONNECTION WITH MAJOR OIL SPILLS**

**THE COMMISSION,**

**RECALLING** Article 16*) of the Convention on the Protection of the Marine Environment of the Baltic Sea Area, 1974, (Helsinki Convention), concerning, inter alia, promotion of studies on the assessment of the nature and extent of pollution in the Baltic Sea Area and the tasks of the Helsinki Commission in this respect,

**BEING MINDFUL** that accidents may form a remarkable part of the oil pollution load on the Baltic Sea and that major oil spills may have enormous adverse ecological and economical consequences in the Baltic Sea,

**BEING ALSO MINDFUL** that the Contracting Parties have conducted follow-up studies in connection with past oil spills,

**RECOGNIZING** the need for commonly adopted principles and guidelines for such studies,

**RECOMMENDS** that the Governments of the Contracting Parties to the Helsinki Convention study the ecological and economical effects of accidental oil pollution in connection with every major oil spillage in the Baltic Sea,

**RECOMMENDS FURTHER** that the Governments of the Contracting Parties should use the Guidelines adopted jointly by the Environment and Combatting Committees of the Helsinki Commission when conducting such follow-up studies.

*) the relevant reference is to Article 24 of the 1992 Helsinki Convention

## GUIDELINES FOR OIL SPILL FOLLOW-UP STUDIES

(relating to HELCOM Recommendation 12/9, adopted in March 1991)

The guidelines consist of the studies and research tasks which are of importance to be implemented in cases of major oil spills. The guidelines are divided into five functional parts, namely **(1) organization of research work, (2) physical and chemical studies, (3) ecological studies, (4) fishery studies and (5) documentation**. It must be recognized that the guidelines do not give exact information or detailed methods for the way the studies must be practically and technically carried out and arranged in the Contracting Parties to the Helsinki Convention because these matters depend on the readiness of the responsible research and combatting organizations of the Countries.

The guidelines will introduce the research work as an essential and useful part of the total response operation involving every large oil spill incident for purpose to assist combatting operations and to provide necessary evidence linking oil pollution damage and an oil spill at hand, and furthermore, to assess impacts of oil on the marine environment and natural resources.

The studies shall be carried out by responsible research institutes. Research actions must be started immediately after a major oil spill simultaneously with the combatting operation. The national Contingency Plan should also cover the plans for follow-up studies. In the research plan an expert group or institute with responsible names of persons is nominated to take care of necessary research tasks.

The cooperation between the research and combatting staffs should be active and kind of mutual exchange of information. The scientific input to the combatting operation is characterized as to make analyses and summaries on cumulated data and to try to translate it in relation to a real situation.

How extensive the research work will be depends on the severity of the oil spill situation. Several extra studies are needed to be carried out if the oil has sunk or been intensively dispersed and disappeared in a margin sea area or a dispersant has been used as a combatting measure.

### 1. ORGANIZATION OF RESEARCH WORK

It is necessary to make in advance a research plan which contains information on research resources applicable and available for oil spill follow-up studies. In such a plan the responsible person (coordinator) for this purpose should be nominated in advance. The plan shall include procedures on how the research organization can be alerted and activated in the event of an oil spill.

In every severe oil spill situation a senior research scientist or specialist group will coordinate and take care of the necessary research tasks in accordance with the research plan. She/he is responsible:

(1) **for making** a detailed plan of research actions in regard to severity and development of an actual spill situation;

(2) **for arranging** cooperation between responsible national research organizations, research and combatting organizations and to take care of administrative and financial matters related to the research work. A cooperative group of members of research and combatting organizations may be established for the purpose to assist in the cooperation between the organizations;

(3) **for contracting** other responsible research organizations and delegating the necessary research tasks to be carried out;

(4) **for arranging**, in case the oil has spread into the territorial waters of the neighbouring countries, cooperation between the research organizations of the countries involved;

(5) **for participating** in a surveyor group which will always be established by the authorities in a severe oil spill incident for the purpose to investigate and gather the claims from those who have suffered pollution damage;

(6) **for providing** information on the environmental effects of an oil accident;

(7) **for preparing** a final research report based on the results of the studies carried out during an oil spill incident.

## 2. PHYSICAL AND CHEMICAL STUDIES

Physical and chemical studies to be implemented in every severe oil spill incident concern the following research tasks:

(1) **To establish** data on the type and quality of a spilled oil immediately after a spill. If data is missing or the oil type is unknown, analyses of physical and chemical properties, such as **density, viscosity, pour point, water and wax content of oil**, must be carried out as soon as possible. **Pure (fresh) oil** from the ruptured tanks or containers must be saved and be available for use as a reference oil for identification purpose and other analyses.

(2) **To predict** the behaviour and **to estimate** the spreading of oil on the basis of the first-hand data on physical and chemical properties and in regard to prevailing conditions as soon as possible. The use of available computerized spreading models is encouraged to help the combatting operations and as well as the research work on impact assessments as general.

(3) **To determinate** the degree of alteration and **to estimate** the behaviour of weathered oil in slicks at sea. Oil samples for physical and chemical analyses will be collected following a strict timetable, if the oil is moving uncontrolled within a very wide sea area, e.g. oil drifting with ice.

(4) **To identify** the origin of the oil in slicks detected at sea, on shores and e.g. in damaged fish traps. Although it would seem clear that the detected oil originates from an actual oil spillage at hand, it must be proven by chemical analyses. Results of these analyses are necessary evidence for the documentation of the oil spill situation and for compensation matters.

(5) **To provide** evidence on the fate of oil, degree and extent of oil pollution/contamination in the marine environment. **Water and sediment samples will be collected** for chemical analyses of petroleum hydrocarbons, e.g. of total petroleum hydrocarbons (by UV/F) or more qualitatively of aliphatic fractions (by GC) and aromatic hydrocarbons (by GC/MS or HPLC). This should always be done in the oil spill situations when the oil has intensively dispersed, sunk or disappeared or a dispersant has been used as a combatting measure.

(6) **To summarize and establish** the spreading area of oil according to available data on oil observations, combatting and clean-up operations, reconnaissances of oil on shores, chemical analyses of seawater and sediments etc. It must be noted that a spreading area of oil is probably not the same as an oil-influenced sea area. This can be established only after some of the studies pointed out in chapters 3 and 4 have been performed.

## 3. ECOLOGICAL STUDIES

The ecological studies to be implemented in cases of severe oil spills concern the following research tasks:

(1) **To verify** the vulnerability of the nature protection areas of archipelagos and coast, important nesting islands of sea birds, breeding zones of seals, fishing zones which are of priority to be protected against oil pollution. There is always a need for up-to-date information on sensitivity of sea bird communities, seal populations and fish stocks which are depending on seasons. This information will assist a combatting organization to concentrate their protection measures on the right targets and areas. To prepare Environmental Atlases over the vulnerable areas is of priority and will promote not only the oil pollution control but also other kinds of research and monitoring programs.

(2) **To quantify and document** losses of natural resources e.g. kills of sea birds, fish and seal pups, damage on vegetation **as well as** the degree of oil pollution in the oil-affected areas and results of clean-up actions there, damages on fish traps/catches and other damages. Furthermore, expected impacts on affected targets will be estimated.

(3) **To quantify** the degree and extent of oil-contamination in marine organisms. Indicator organisms should always be collected and studied in the oil spill situations when a dispersant has been used or oil has intensively dispersed or sunk or disappeared in a margin sea area. Some good indicator species are the amphipods, **Gammarus sp. and Pontoporeia sp.**, which are also an important food source for fish. These have been proven to be very sensitive for oil pollution. Oil droplets are visible and the degree of contamination can easily be determined by using microscope technique. Also the gastropod **Lymnaea sp.**, which is common for the whole basin of the Baltic Sea, can be sampled for chemical and histopathological analyses as well as the bivalves, common blue mussel (**Mytilus edulis**) and the Baltic clam (**Macoma balthica**). Analyses of petroleum hydrocarbons as pointed out in chapter 2 (paragraph 5) will give more comprehensive data on the extent of a sea area influenced by oil. Fish species useful for oil spill follow-up studies are listed in chapter 4.

Additional studies on the quantitative effects on the sea-floor fauna and also on zooplankton and phytoplankton should be carried out in relation to the severity of the spill situation and the need for these kind of studies.

The results of the ecological studies are of importance when considering the need for restoration of the nature damaged by oil.

## 4. FISHERY STUDIES

(1) **To quantify and document** the damage on fisheries. All the reported damages on fisheries must be confirmed and documented at the place of damage by authorities of a research or combatting organization. Damaged traps will be photographed and an oil sample will be taken for identification. If there is a doubt about the tainting of the catches a sample of the fish can be delivered to a laboratory specialized e.g. in analyses of petroleum hydrocarbons or in odour and flavour tests. Furthermore, collecting and studying statistics on catches will also bring evidence on the possible effects of oil, e.g. diminished catches are always of biological interest but these can have also economical consequences.

(2) **To study biological effects** on fish. Fish species to be pointed out are flounder (**Platichtys flesus L.)**, Baltic herring (**Clupea harengus membras L.**) and Smelt **Osmerus eperlanus L.** and their larvae. Also other fish species common in an oil-affected sea area can be chosen, e.g. perch (**Perca fluviatilis L.**). These fish species can be sampled for different purposes; to study diseases, physiological changes, reproduction disturbances, abnormalities and tainting, and as a whole to bring evidence into which degree the oil has affected fish.

## 5. DOCUMENTATION

(1) A final report shall be prepared on the basis of different research documents delivered by sub-organizations.

(2) Research documents (reports) will consist of the results of the follow-up studies and other investigations and all necessary data to be of importance for final consideration and for preparation of strategy for continuing research work, e.g. to study recovery of affected sea areas.

(3) For instance, a documentation of analytical and circumstantial evidence can be done **with maps** consisting of all information on oil movements and dates, relevant wind and current data, spreading area of oil, oil polluted areas of archipelagos and coastline and degree of pollution and results of clean-up actions of shores. The maps will be designed so that they serve as necessary documents for compensation applications addressed to polluters, insurance companies and the International Oil Pollution Compensation Fund. Furthermore, the maps will serve the planning of further studies in the affected sea area months after an oil spill incident.

(4) The final report should:

**describe** the geographical distribution of the oil and the degree of oil pollution in the affected sea areas,

**estimate** the fate of the oil,

**provide** evidence linking the actual oil spill and the documented damage of the oil pollution,

**identify** the sensitive and affected targets,

**assess** the ecological effects and the impact on fisheries,

**predict** the long-term effects and

**establish** a strategy for continuing research work with the aim to recover the affected parts of a marine ecosystem.

(5) The final document should also provide feedback information on the unexpected environmental effects of the oil combatting operations performed during the acute phase of an oil spill situation.

**HELCOM RECOMMENDATION 17/12**

Adopted 13 March 1996
having regard to Article 20, Paragraph 1 b)
of the Helsinki Convention

**MEASURES TO ABATE POLLUTION BY OIL AND OTHER HARMFUL SUBSTANCES IN CASES OF GROUNDING, COLLISION, SINKING OF A SHIP OR OTHER MARITIME CASUALTY**

**THE COMMISSION,**

**RECALLING** paragraphs 6 and 7 of Article 2, Article 11, Annex II and Annex VI of the 1974 Helsinki Convention and paragraphs 7, 8 and 9 of Article 2, paragraphs 1 and 2 of Article 3, Article 5, Article 14, Annex I and Annex VII of the 1992 Helsinki Convention,

**RECALLING ALSO** International Convention Relating to Intervention on the High Seas in Cases of Oil Pollution Casualties, 1969 and Protocol relating to Intervention on the High Seas in Cases of Pollution by Substances other than Oil, 1973, as amended,

**RECALLING FURTHER** Articles 211 and 221 of the United Nations Convention on the Law of the Sea,

**BEARING IN MIND** the recent incidents which posed a serious threat to the marine environment of the Baltic Sea Area and to the coastlines and related interests of the Contracting Parties to the Helsinki Convention,

**CONSCIOUS** that the introduction of any harmful substance to the marine environment of the Baltic Sea is liable to cause pollution,

**BEING AWARE** of the importance of precautionary measures to avoid pollution caused by maritime casualties,

**TAKING INTO ACCOUNT** the polluter-pays principle stipulated in the 1992 Helsinki Convention,

**REQUESTS** the Governments of the Contracting Parties, which have not yet done so, to ratify the International Convention on Salvage, 1989, in order to establish a modern legal regime concerning efficient and timely salvage operations to maintain the safety of the vessels, to protect other property in danger and the marine environment of the Baltic Sea Area,

**REQUESTS ALSO** the Governments of the Contracting Parties, which have not yet done so, to ratify the Protocol of 1992 to amend the International Convention on Civil Liability for Oil Pollution Damage, 1969 (CLC PROT 1992) and the Protocol of 1992 to amend the International Convention on the Establishment of an International Fund for Compensation for Oil Pollution Damage, 1971 (FUND PROT 1992), in order to ensure compensation for responding to oil pollution incidents in the exclusive economic zones or equivalent areas of the Contracting Parties,

**REQUESTS FURTHER** the Governments of the Contracting Parties:

i) to cooperate within the International Maritime Organization (IMO):

1. to promote early elaboration of a convention on wreck removal;

2. to study possibilities of amending the list of substances annexed to the 1973 Protocol relating to Intervention on the High Seas in Cases of Pollution by Substances other than Oil (INTERVENTION PROTOCOL, 1973) by inclusion of other harmful substances, such as nutrients, which give coastal states the right to intervene in sea areas particularly sensitive to any kind of pollution;

3. to study proposals concerning the amendment of MARPOL 73/78 by a new annex related to solid harmful substances;

ii) to cooperate during the diplomatic conference to be arranged by IMO for the purpose of

1. amending the 1976 Convention on Limitation of Liability for Maritime Claims (CLLMC) by higher limits of liability; and

2. adopting the convention for liability and compensation for damage caused by hazardous and noxious substances (HNS Convention),

**URGES** the Governments of the Contracting Parties, in cases of grounding, collision, sinking of a ship or other maritime casualty, to take appropriate action on the basis of international law in their exclusive economic zones or equivalent areas, or in response regions in accordance with Regulation 7 of Annex VI*) to the Convention, to:

1. remove the bunker fuel oil, other oils and any other harmful substance carried as a cargo on board which may cause or are likely to cause immediate or delayed hazards to the marine environment, coastlines of the Contracting Parties or their related interests;

2. carry out salvage of a ship and removal of a wreck whenever she may pose a danger to the safety of navigation and to the marine environment,

**URGES ALSO** the Governments of the Contracting Parties to provide the Combatting and Maritime Committees with reports on the progress related to this Recommendation every year.

*) the relevant reference is to Annex VII of the 1992 Helsinki Convention

**HELCOM Recommendation 19/17**
(This Recommendation supersedes HELCOM Recommendation 10/10.)

Adopted 24 March 1998
having regard to Article 20, Paragraph 1 b)
and Regulation 1, Paragraph 1 of Annex VII
of the Helsinki Convention

**MEASURES IN ORDER TO COMBAT POLLUTION FROM OFFSHORE UNITS**

**THE COMMISSION,**

**RECALLING** Article 10 of the 1974 Helsinki Convention which stipulates, inter alia, that each Contracting Party shall ensure that adequate equipment is at hand to start an immediate abatement of pollution in the Baltic Sea Area, *)

**RECALLING ALSO** Article 12 of the 1992 Helsinki Convention which stipulates, inter alia, that each Contracting Party shall ensure that adequate preparedness is maintained for immediate response actions against pollution incidents caused by exploration and exploitation of the seabed and its subsoil,

**RECALLING** further Regulation 7 of Annex VI and Regulation 2 of Annex VII of the 1992 Helsinki Convention concerning contingency planning,

**NOTING** HELCOM Recommendation 1/8 on Minimization of the Use of Dispersants, Sinking Agents and Absorbents in Oil Combatting Operations in the Baltic Sea**) and HELCOM Recommendation 11/13 concerning the development of national ability to respond to spillages of oil and other harmful substances and guidelines for applying this Recommendation,

**BEING AWARE** of other HELCOM activities concerning restriction of discharges and monitoring of exploration and exploitation of the seabed and its subsoil,

**BEING ALSO AWARE** of the IMO Manual on Oil Pollution - Section II, Appendix 2 AOil pollution emergency plans for offshore units, seaports and oil handling facilities@, which has been developed within IMO under the umbrella of the International Convention on Oil Pollution Preparedness, Response and Co-operation, 1990,

**RECOMMENDS** the Governments of the Contracting Parties to the 1974 Helsinki Convention***) to ensure that each of the offshore units shall be furnished with the Pollution Emergency Plan, developed in accordance with the principles specified below:

a) Pollution Emergency Plan shall be harmonized with the national contingency plan and approved in accordance with the procedure established by the appropriate national authority, and it shall take into account the risk assessment connected with the operation of the offshore unit;

b) Pollution Emergency Plans shall be drawn up before the offshore units are taken into use, and also shall be:

(i) appropriate to the type of the offshore unit,
(ii) relevant to the conditions of the offshore unit=s operation,
(iii) effective, i.e., friendly to users;

c) Pollution Emergency Plan shall appoint the exact storage place for the combatting equipment, e.g., the emergency stand-by vessel and/or a land base with due regard to location of the offshore unit;

d) The equipment should be located so that retaining measures can be taken at a sufficiently early stage with due regard to the environmental sensitivity and geological conditions of the area. The response measures should be taken immediately by the operator of the platform. The other supporting measures within the overall contingency plan should be taken not later than in eight hours after the spillage;

e) The use of dispersants in oil combating operations is limited as far as possible and any such use is subject to authorization, in each individual case, by the competent national authorities;

f) Total capacity of the equipment should correspond with the spill expectancy rate:

(i) The quantity of the equipment shall be sufficient to combat spills corresponding to the discharge of oil from a production drilling, a production platform or a pipeline, with due regard to evaporation and emulsification of the oil,

(ii) For exploration drilling the quantity of equipment shall be sufficient to combat spills of oil corresponding to the probable discharge with due regard to the geological location of the drilling site, and to evaporation and emulsification of the oil,

g) The equipment for combating operations must be able to fulfil the following requirements:

(i) Oil recovery systems, booms and transport material shall be designated to be operational under the conditions of wave height and current prevailing in the waters involved, limited to a significant wave height up to 20 m and/or a current velocity of up to 1 knot.

Moreover, the equipment shall be able to operate efficiently under prevailing temperature conditions in the actual areas (due to blow-out situations),

(ii) Combating equipment which is liable to be used under ice conditions must be well tested for this purpose;

h) The equipment for combating of pollution caused by harmful substances other than oil, if used in significant quantities, must be able to fulfil the following requirements:

(i) The quantity and type of equipment shall be dimensioned in order to enable the user to measure and report on the extent and location of the pollution, as well as to reduce the discharge of the substances,

(ii) Where the pollutants remain floating on the surface of the water and are not easily soluble in water, the user shall be able to encircle, take up and transport the pollutants under the weather conditions specified in Paragraph g) (I),

(iii) In such cases the equipment shall be sufficient to allow combating of the substances present at that time;

i) The equipment shall be stored and maintained so that combating measures can be taken immediately,

**REQUESTS** the Governments of the Contracting Parties to continuously exchange information through the Helsinki Commission on the location and nature of all planned or accomplished offshore activities and on the nature and amounts of discharges as well as on contingency measures that are undertaken, and also to inform:

a) other Contracting Parties with borders to the sea area where offshore activities take place about the contingency measures taken for combating pollution of the sea, in due time before the offshore activities are started up;

b) the Combatting Committee****) about the approved measures on the conditions required for each separate offshore unit according to Paragraph d) above, as well as on other detailed information, which may be essential for a joint response to pollution incidents,

**REQUESTS ALSO** the Governments of the Contracting Parties to provide reports on the implementation of this Recommendation in accordance with a procedure established by the Combatting Committee****).

*) the relevant reference is to Article 14 of the 1992 Helsinki Convention requiring the Contracting Parties to maintain adequate ability and to respond to pollution incidents in order to eliminate or minimize the consequences of those incidences

**) the relevant reference is to HELCOM Recommendation 22/2 on restricted use of chemical agents and other non-chemical means in oil combating operations on the Baltic Sea area

***) the relevant reference is to the 1992 Helsinki Convention

****) the relevant reference is to the HELCOM Response Group

**HELCOM Recommendation 19/18**
(This Recommendation supersedes HELCOM Recommendation 7/12 concerning the application of the IMO guidelines for reporting incidents involving harmful substances.)

Adopted 24 March 1998
having regard to Article 20, Paragraph 1 b)
of the Helsinki Convention

**REPORTING ON INCIDENTS INVOLVING HARMFUL SUBSTANCES AND EMERGENCY DUMPING**

**THE COMMISSION,**

**RECALLING** Regulation 5 of Annex VI concerning reporting on incidents involving harmful substances and Article 9, Paragraph 4 concerning emergency dumping of the 1974 Helsinki Convention,*)

**RECALLING ALSO** Regulation 5 of Annex VII concerning reporting procedure and Article 15**) on notification and consultation on pollution incidents as well as Regulation 1, Paragraph 2. a) of Annex VII concerning pollution incidents which affect or are likely to affect interests of other Contracting Parties and Article 11, Paragraph 4 concerning emergency dumping of the 1992 Helsinki Convention,

**RECALLING FURTHER** Article 8 and Protocol I (Resolution MEPC. 21(22)) of the International Convention for the Prevention of Pollution from Ships, 1973 as modified by the Protocol of 1978 relating thereto (MARPOL 73/78),

**TAKING INTO ACCOUNT** HELCOM Recommendation 19/16 concerning co-operation in investigating violations or suspected violations of discharge and related regulations for ships, dumping and incineration regulations,

**TAKING ALSO INTO ACCOUNT** HELCOM Recommendation 17/13 concerning the use by the Baltic Sea States of the Manual on Co-operation in Combatting Marine Pollution within the framework of the Convention on the Protection of the Marine Environment of the Baltic Sea Area (Helsinki Convention) which contains, inter alia, a chapter (Volume I, Part II, Chapter 5) on the reporting procedures describing the POLREP BALTIC and ALGPOLREP systems,***)

**NOTING** with deep concern the number oil pollution incidents in the Baltic Sea Area,

**CONSCIOUS** that efficient and effective reporting on incidents involving harmful substances is an essential tool in taking appropriate and timely measures to combat pollution and to investigate the matter,

**RECOMMENDS** that the Governments of the Contracting Parties shall instruct ships flying the flag of the Contracting Parties to apply IMO Resolution A. 648(16) concerning General Principles for Ship Reporting Requirements, Including Guidelines for Reporting Incidents Involving Dangerous Goods, Harmful Substances and/or Marine Pollutants,****)

**RECOMMENDS ALSO** that IMO Resolution A. 648 (16)****) shall be applied as far as practicable in cases of emergency dumping,

**RECOMMENDS FURTHER** that for the purpose of notification and consultation on incidents referred to in Article 13 and Regulation 1, Paragraph 2. a) of Annex VII of the 1992 Helsinki

Convention, the Governments of the Contracting Parties shall apply the POLREP BALTIC system in case of a need of preventing, reducing and controlling pollution,

**REQUESTS** the Governments of the Contracting Parties to report on implementation of this Recommendation in accordance with Article 16, Paragraph 1 of the 1992 Helsinki Convention.

*) the relevant references are provided in the paragraph below
**) the relevant reference is to Article 13 of the 1992 Helsinki Convention
***) the relevant reference is to the HELCOM Response Manual which contains, inter alia, a chapter (Volume I, Chapter 3) on the reporting procedures describing the POLREP BALTIC and ALGPOLREP systems
****) IMO Resolution A. 648(16) has been superseded by IMO Resolution A.851(20) adopted by the Assembly of IMO on 27 November 1997

**HELCOM Recommendation 20/5**
(This Recommendation supplements HELCOM Recommendation 11/13.)

Adopted 23 March 1999
having regard to Article 20, Paragraph 1 b)
of the Helsinki Convention

## MINIMUM ABILITY TO RESPOND TO OIL SPILLAGES IN OIL TERMINALS

**THE COMMISSION,**

**RECALLING** Article 11 of the Convention on the Protection of the Marine Environment of the Baltic Sea Area, 1974 (Helsinki Convention) and Article 14 of the 1992 Helsinki Convention according to which the Contracting Parties shall individually and jointly take all appropriate measures to maintain adequate ability and to respond to pollution incidents in order to eliminate or minimize the consequences of these incidents to the marine environment of the Baltic Sea Area,

**RECALLING ALSO** Annex VI of the 1974 Helsinki Convention and Annex VII of the 1992 Helsinki Convention which provide basic principles on co-operation of the Contracting Parties in responding to marine pollution incidents,

**RECALLING FURTHER** HELCOM Recommendation 1/8 on minimization of the use of dispersants, sinking agents and absorbents in oil combatting operations in the Baltic Sea Area*), HELCOM Recommendation 11/13 concerning development of national ability to respond to spillages of oil and other harmful substances and HELCOM Recommendation 17/13**) concerning the use by the Baltic Sea States of the Manual on Co-operation in Combatting Marine Pollution within the framework of the Convention on the Protection of the Marine Environment of the Baltic Sea Area (Helsinki Convention),

**RECALLING FURTHERMORE** Article 7 of the 1992 Helsinki Convention on Environmental impact assessment and HELCOM Recommendation 17/3 concerning information and consultation with regard to construction of new installations affecting the Baltic Sea,

**BEARING IN MIND** the plans of the Contracting Parties to increase the amounts of oils to be transported at sea, the development of the existing and the construction of new oil terminals, and consequently the increased risk of pollution incidents during loading/unloading operations,

**STRESSING** that a pollution incident in a coastal area may cause serious damage to the well-being and the socio-economic development of the peoples, to the coastal ecosystems, to the natural habitats, to the biological diversity and to the ecological processes,

**BEING AWARE** that a pollution emergency plan for an oil terminal should be based on a systematical assessment of risks of oil spills and that the pollution emergency plan should be a part of the overall safety policy and safety planning of that oil terminal,

**TAKING INTO ACCOUNT** Article 3 of the International Convention on Oil Pollution Preparedness, Response and Co-operation, 1990 (OPRC Convention) and the provisions of seaport emergency plans of Section II of the IMO Manual on Oil Pollution - Contingency Planning,

**RECOMMENDS** that the Governments of the Contracting Parties shall, as a supplement to HELCOM Recommendation 11/13 concerning development of national ability to respond to spillages of oil and other harmful substances, ensure that the Guidelines on minimum ability to respond to oil spillages in oil terminals attached to this Recommendation are applied by the oil terminals in their respective countries,

**RECOMMENDS ALSO** the Governments of the Contracting Parties to carry out Environmental Impact Assessment (EIA) studies in accordance with the 1991 Espoo Convention on Environmental Impact Assessment in a Transboundary Context and/or the European Council Directive 85/337/EEC of 27 June 1985 (as later amended) on the assessment of the effects of certain public and private projects on the environment before the plans for enlargement of existing oil terminals or construction of new oil terminals are decided,

**AUTHORIZES** the Combatting Committee***) to amend the Guidelines contained in the Attachment,

**REQUESTS** the Governments of the Contracting Parties to apply this Recommendation from the date of its approval to new oil terminals and in 2001 to existing oil terminals,

**REQUESTS ALSO** the Governments of the Contracting Parties to report on the implementation of this Recommendation, in accordance with Article 16, Paragraph 1 of the 1992 Helsinki Convention,

**REQUESTS FURTHER** the Governments of the Contracting Parties to report to:

- the Combatting Committee***) on the combating arrangements in oil terminals in accordance with the procedure approved by the Combatting Committee***), and

- the Environment and Technological Committees****) on the implementation of the concept of EIA studies in relation to oil terminals in their respective countries.

*) the relevant reference is to HELCOM Recommendation 22/2 “Restricted use of chemical agents and other non-mechanical means in oil combating operations in the Baltic Sea area”
**) the relevant reference is to HELCOM Response Manual
***) the relevant reference is to the HELCOM Response Group
****) the relevant reference it to the HELCOM Monitoring and Assessment Group and HELCOM Land-based Pollution Group

**ATTACHMENT**
HELCOM Recommendation 20/5

## GUIDELINES ON MINIMUM ABILITY TO RESPOND TO OIL SPILLAGES IN OIL TERMINALS

### 1. INTRODUCTION

The purpose of these guidelines is to outline technical and operational means concerning the implementation of HELCOM Recommendation 20/5 concerning minimum ability to respond to oil spillages in oil terminals.

The Guidelines should be implemented in close co-operation between the Port Authority and the operators of the oil terminal, taking into account the situation of the terminal: whether at open sea[1)], within a semi-enclosed sea area or in an enclosed port area.

A pollution emergency plan for an oil terminal should be part of the safety arrangements of the port, aiming primarily at the prevention of accidents and oil spills. Safety arrangements shall be based on systematical risk assessments and analysis and on reducing the identified risks minimizing the possibility for an oil spill during oil tanker operations in ports and terminals.

In a port area there are normally several private operators in addition to the Port Authority, the operators being responsible for their own activities. It is important that one of the actors, mostly the Port Authority, takes care of the coordination of the safety arrangements of the various private operators. In a similar manner the Port Authority should prepare an overall contingency plan for the port and make sure that the pollution emergency plans of the various operators correspond with the overall contingency plan. The Port Authority and the operators shall exchange information about these plans and organize exercises on a regular basis.

Nevertheless, it must be realized that due to adverse weather conditions and probable local limitations the outlined operational and technical means can not always ensure a successful cleaning operation.

### 2. POLLUTION EMERGENCY PLANS

The Port Authority should ensure that each oil terminal has its own pollution emergency plan, elaborated in accordance with both Chapter 2 of Section II of the IMO Manual on Oil Pollution and with national regulations, and that these plans are a part of the overall port contingency plan in order to establish an organization, communication and other procedures for responding to marine oil spills. Due consideration should be given to all emergency incidents which could occur during ship movements and oil handling on jetties and terminals.

1) Oil terminals situated “at open sea” include also offshore terminals.

The pollution emergency plan must take into account:

- the type and quantities of handled oil (crude oil and oil products); special attention has to be paid to persistent oils,
- maximum dimensions of laden tankers and their dwt and dimension of the biggest cargo tank in $m^3$,
- maximum discharge rate (m3 per hour) and description of emergency stopping device,
- location of the terminal or jetty, such as open sea terminals, enclosed or semi-enclosed terminals,
- access from the port approach to the terminal,
- currents, exposition to sea swell,
- weather and ice conditions,
- manouvering space for terminal berthing tankers and tug boat regulations,
- description of the fairway from the open sea to the oil terminal.

## 3. POLLUTION RESPONSE EQUIPMENT

The pollution emergency plan should appoint the exact storage place for the combating equipment and its access.

The equipment should be located nearby the oil piers and jetties; in case of an open-sea loading platform or mooring boyos, on stand-by supply vessels. The response measures should be taken immediately by the terminal operator. Other supporting measures within the overall contingency plan should be a part of the pollution emergency plan, inter alia, tug boats and fire fighting vessels.

The total capacity of the equipment should correspond with the spill expectancy and the unloading or loading rate.

The equipment for combating operations should fulfill the following requirements:

- Oil recovery systems and booms shall be designated to be operational under the conditions:
  -- of wave heights up to two (2) m and current velocity of up to one (1) knot in open sea terminals, and
  -- of wave heights up to one (1) m and current velocity up to one (1) knot in enclosed and/or semi-enclosed ports.

Combating equipment which is liable to be used under ice conditions should be well tested for this purpose.

<u>Dispersants</u>

The use of dispersants in an enclosed port area is restricted to very exceptional cases, if no other adequate means can be applied and if the use of dispersants has no impact on the coastal Baltic Sea Area. Any such use is subject to authorization by the competent national authorities.

## 4. BOOM AND SKIMMER CAPACITIES

### a) Confined port areas

The ability to close the port entrance in case of a serious outflow is recommended, if the width of the channel or entrance is not exceeding 1,000 m. The closing of the port entrance requires at least a **coastal sea boom** for this purpose.

### b) Semi-enclosed port areas

Within semi-enclosed port areas coastal booms should be stored for easy access and for fast deploying to ensure the surrounding of the maximum tanker size.

In the case of both confined and semi-enclosed port areas, a specialised port cleaning boat is recommended when the wind direction and wind force lead to an oil-concentration in port regions or corners where booming and recovery with skimmers could be difficult. Vacuum trucks could also be useful for land-based clean-up operations.

### c) Open sea terminals

A **high-sea boom** is recommended in open sea terminals and in ports with an entrance to the open sea or with an entrance exposed to the open sea.

Regular training with tugboats or other powerful auxiliary vessels should ensure a fast deployment of the booms.

If the current along the terminal or jetty exceeds 0.7 knots the boom configuration should be adjusted to maximum deployment angels to flow direction at different current strengths for bottom tension booms to prevent the escape of oil.

Technical information paper No. 2 of ITOPF[2)] contains further details on various boom deployments. The two-fold length of the maximum tanker should be the basis orientation when deciding the length of the booms within the port. Thus making it possible to prevent the oil already along the berth from spreading. This requires a high alert time and a trained tugboat crew.

In case of open sea terminals the length of high-sea booms should be at least not less than three (3) times the length of the maximum tanker visiting the terminal.

The skimmer performance should be orientated on the maximum wing tank capacity of the biggest tanker calling at the port or the terminal. The skimming capacity must be part of the standard response set, together with hydraulic generators suitable for operation in explosive atmosphere.

The skimming capacity should be sufficient to recover at least 50% of the tank contents within 24 hours.

The port or the terminal operator should update this calculation in close co-operation with the Port Authority in order to adjust the skimming capacity to changing tanker dimensions.

A permanent readiness for emergency response measures should be ensured during ship movements and/or oil loading/unloading activities for both confined port areas, semi-enclosed port areas and open sea terminals.

During winter and icy conditions special arrangements are recommended in addition to those described above.

[2)] ITOPF = International Tank Owners= Pollution Federation

**HELCOM Recommendation 22/2**
(This Recommendation supersedes HELCOM Recommendation 1/8.)

Adopted 21 March 2001
having regard to Article 20, Paragraph 1, b)
of the Helsinki Convention

**RESTRICTED USE OF CHEMICAL AGENTS AND OTHER NON-MECHANICAL MEANS IN OIL COMBATTING OPERATIONS IN THE BALTIC SEA AREA**

**THE COMMISSION,**

**RECALLING** Regulation 7 of Annex VII of the Convention on the Protection of the Marine Environment of the Baltic Sea Area, 1992 stipulating that mechanical means are the preferred response measures, and that chemical agents may only be used in exceptional cases, after authorization has been granted in each individual case,

**RECALLING ALSO** the IMO Guidelines on Oil Spill Dispersant Application and the Technical Information Paper No. 4 of the International Tank Owners= Pollution Federation,

**BEARING IN MIND** that new response means, such as bioremediation, fertilization techniques and biosorbents as well as their effective and regular use in oil spill response, are still at development stage,

**RECOGNIZING** that the in-situ burning of oil could be a response option, especially under ice conditions,

**RECOMMENDS** that when in individual cases authorizing the use of chemical agents the appropriate national authority should ensure the use of chemical agents with optimised efficiency and acceptable affects to the marine environment (net environmental benefit),

**RECOMMENDS ALSO** that when the national authority considers whether to authorize the use of chemical agents at open sea it should make careful use of the IMO Guidelines on Oil Spill Dispersant Application taking into account the following:

- potential damage to the marine environment, sea birds, and other marine resources, if no other response method can be successfully applied;

- quantity, type of oil and its natural dispersibility enhanced by higher sea-state and wind forces;

- new products have a widened range of application, e.g., in heavy fuel oil (HFO) spills or if the viscosity has already increased up to 10.000 centistokes (cst);

- use in shallow waters should be authorized only in exceptional cases, for instance if this is the only option to avoid serious losses of sea birds within endangered breeding colonies, and must be restricted to minor oil spills,

**RECOMMENDS FURTHERMORE** that the Governments of the Contracting Parties ensure that

- sinking agents are not used at all; and

- absorbents are used only when sufficient recovery devices ensure the timely removal of the absorbed oil from the sea surface,

**REQUESTS** the Governments of the Contracting Parties to report on the implementation of this Recommendation, to the Sea-based Pollution Group, in accordance with Article 16, Paragraph 1 of the Helsinki Convention.

**HELCOM RECOMMENDATION 24/7**
(This Recommendation supersedes HELCOM Recommendation 12/6 “Development of a drift forecasting system to respond to spills of oil and other harmful substances”.)

Adopted 25 June 2003
having regard to Article 20, Paragraph 1 b)
of the Helsinki Convention

**FURTHER DEVELOPMENT AND USE OF DRIFT FORECASTING FOR OILS AND OTHER HARMFUL SUBSTANCES IN THE BALTIC**

**THE COMMISSION,**

**RECALLING** the need for accurate and swift prediction of the drift of oil and other harmful substances in connection with accidental or illegal spills for the efficiency of response measures, law enforcement and for the protection of the marine environment;

**BEING AWARE** of
- the enhanced threats due to increasing maritime traffic and oil transport in the Baltic Sea
- new big oil terminals requiring efficient forecasting tools
- the need for optimisation due to limited response resources in relation to big accidents
- the need to increase the ability to secure environmentally sensitive areas from accidental contamination
- the need to extend the existing open water drift forecasting system to include local and coastal forecasting requirements;

**BEING AWARE ALSO** of
- improved scientific and technological means to detect oil and to forecast its drift, including the enhanced ability of weather and sea circulation forecasting systems
- new opportunities given by modern development in information technology in presentation and dissemination of results;

**MINDFUL** of the potential to use results from drift modelling systems when hind-casting the drift of an oil slick for use in cases of illegal discharges;

**TAKING INTO CONSIDERATION** that the implementation of improved systems for the support of response operations in the Baltic Sea should be accelerated by co-operation between the Parties. Each user should contribute to the development of the joint drift forecasting system;

**RECOMMENDS** the Governments of the Contracting Parties to the Helsinki Convention:

a) to further develop existing drift forecasting systems and to co-operate closely in doing so, bearing in mind new requirements;

b) to, in particular, focus the development on
   - modules for different types of oils, chemicals and also prediction of movements of oils and chemicals in ice;
   - linking the outcome of the drift modelling with GIS system, containing data of environmentally sensitive areas and other protective areas in order to better estimate the real threats and to guide the response operations and minimize the damages; and
   - higher resolution in coastal areas and archipelagos;

c) to use drift modelling as a mean to facilitate prosecution of offenders of oil and chemical discharge regulations,

**RECOMMENDS FURTHER** that the Governments of the Contracting Parties report on the implementation of this Recommendation in accordance with Article 16, Paragraph 1 of the Helsinki Convention;

**AUTHORISES** the HELCOM Response Group to adopt technical guidelines for the implementation of this Recommendation and to supplement Volume I of the HELCOM Manual on Co-operation in Combatting Marine Pollution by a new chapter regarding oil drift forecasting.

**GUIDELINES FOR THE IMPLEMENTATION OF HELCOM RECOMMENDATION 24/7 "FURTHER DEVELOPMENT AND USE OF DRIFT FORECASTING FOR OILS AND OTHER HARMFUL SUBSTANCES IN THE BALTIC"**

***In order to assess whether a Contracting Party has implemented the Recommendation fully, partly or not at all, many different operational and technical requirements should be taken into consideration. To fully fulfill the Recommendation, the forecasting system should have the following elements and the following features:***

**General**

- The system must be based on computerized, scientifically transparent, documented and tested models;
- The user interface of the system must be user friendly if the system is operated by response personnel;
- The results of the modeling system should be immediately available by fax, e-mail, etc., if the model is operated and calculated in research institutes, etc., remote from the accident command center;
- The first forecasts should be available instantly from the request;
- The meteorological data must be easily and rapidly available;
- Forecasts shall be available 24 hours/day.

**Models**

The modeling system must include at least an oil drift and spreading model, which are combined under the same interface. Other modules like chemical module, ice model, etc. can also be parts of the modeling system.

- Drift model
  - 3-D model with vertical resolution sufficient for surface spill simulation;
  - Has the possibility to take into account also wind forecasts (5 days ahead) and history (few days at least) or should be connected to some operational Baltic Sea oceanographic model (HIROMB, etc.);
  - It should be possible to update the drift forecast simulations by slick observations and improved wind forecasts during the calculation process;
  - Methods to assimilate current meter and other measured data into forecast calculation should be included in the modeling system.
- Spreading model
  - Possible to input data of most common oil types;
  - Includes the weathering processes;
  - Calculates continuously the mass balance of the oil slick.

**Outputs**

- Trajectories of the mass center of the slick in adjustable time steps;
- The oiled area after specified time periods;
- Possible to store the results in adjustable time steps;
- All the information preferably on sea charts;
- Information of the ice covered areas that are taken into account in drift calculation;
- Possibility to calculate also in the reverse mode for evidence to court documentation.

**Resolution of the model**

- At open sea approximately 1 to 5 km;
- Near shoreline and in archipelago depending on the roughness of the shoreline, type of archipelago, etc.

**Additional characteristics** (not for the implementation evaluation)

To make more efficient use of the models, following additional features can also be taken into account when developing modeling systems:

- To simulate the effects of oil response measures to the spreading of oil, the impact of booms, the effect of response vessels, etc. could also be incorporated to the modeling system;
- The same modeling system could also be used in connection with SAR operations due to the similarity of the forecast needs and the fact that the drift models often are used by the same personnel.

**HELCOM RECOMMENDATION 24/9**

Adopted 25 June 2003,
having regard to Article 20, Paragraph 1 b)
of the Helsinki Convention

**ENSURING ADEQUATE EMERGENCY CAPACITY**

**THE COMMISSION,**

**RECALLING** the "Declaration on the Safety of Navigation and Emergency Capacity in the Baltic Sea Area (HELCOM Copenhagen Declaration)", adopted on 10 September 2001 in Copenhagen by the HELCOM Extraordinary Ministerial Meeting,

**RECALLING ESPECIALLY** Paragraph XI of the HELCOM Copenhagen Declaration containing the commitment of the Governments of the Contracting Parties to ensure adequate emergency capacity (fire-fighting, emergency lightering and emergency towing capacities),

**BEING AWARE** that in many incidents satisfactory emergency capacity and the readiness hereof have prevented serious oil spills,

**CONSCIOUS** of the sensitivity of the marine environment of the Baltic Sea area and of the importance it represents to the people living around it, for economic, social, recreational and cultural reasons,

**RECOGNIZING** that if harmful substances are introduced to this vulnerable sea they will remain there for a long time,

**ACKNOWLEDGING** the difficulties the Baltic Sea area presents to navigation due to narrow straits, shallow depths, archipelago areas and ice cover during winter period,

**EXPRESSING** concern as to the growing density of maritime traffic in the Baltic Sea area and the accidents which have taken place,

**BEING CONVINCED** of the need to improve the emergency and response capacities in the Baltic Sea area,

**TAKING INTO ACCOUNT** the findings of the consolidated version of the compilation "Emergency Towing, Fire-fighting and Intermediate Storage Capacity", according to which only the south-western part of the Baltic Sea and the St. Petersburg area have a satisfactory towing and fire-fighting capacity,

**TAKING INTO ACCOUNT FURTHER** that the conclusions of the above-mentioned compilation are only relating to the availability of the capacity but are not dealing with the readiness of the ships,

**NOTING** that Regulation 2 of Annex VII "Response to pollution incidents" to the Convention on the Protection of the Marine Environment of the Baltic Sea Area, 1992 (the Helsinki Convention) encourages, as appropriate, the development of bilateral or multilateral plans for a joint response to pollution incidents,

**RECOMMENDS** that the Governments of the Contracting Parties keep their national inventories on emergency capacity continuously updated,

**RECOMMENDS FURTHER** that the Governments of the Contracting Parties ascertain a satisfactory readiness of their emergency capacity. This can for example be done by applying one or more of the below-mentioned procedures:

a) by elaborating a Memorandum of Understanding between the salvors and the responsible authority,

   i) stating the normal readiness for the resources, and
   ii) providing for an immediate exchange of information in case of changes in that readiness, as well as
   iii) possibly outlining the payment by the authority of part of the improvement costs of the salvor;

b) by investigating the possibility of drawing up bilateral or multilateral plans, under the Helsinki Convention, for certain sea areas, like the Gulf of Finland and the south-western Baltic Sea;

c) by taking into consideration, when building new ships, the possibility of installing on board satisfactory emergency capacity; or

d) by other means,

**RECOMMENDS FURTHERMORE** that the Governments of the Contracting Parties establish a national training and exercise programme to ensure the effectiveness of their emergency capacity,

**RECOMMENDS ALSO** that the Governments of the Contracting Parties report on the implementation of this Recommendation in accordance with Article 16, Paragraph 1 of the Helsinki Convention.

## GUIDELINES FOR THE IMPLEMENTATION OF HELCOM RECOMMENDATION 24/9 "ENSUREING ADEQUATE EMERGENCY CAPACITY"

***To be used when drawing up national implementation reports and for assessing the implementation status of HELCOM Recommendation 24/9 "Ensuring adequate emergency capacity"***

### 1. Introduction

Recent regional and national assessment of emergency towing, fire fighting and intermediate storage capacity has shown that especially emergency towing and fire fighting capacity at sea as first-approach-operations to marine accidents are lacking in some parts of the Baltic Sea which are affected by high traffic frequency involving also a high proportion of transported hazardous cargo.

As a number of international marine accidents have shown, the lack of in-time on-scene emergency towing capacity in marine accidents increases the risk of damage to the marine and coastal environment.

Therefore, in the aftermath of the „Sea Empress" – grounding and oil pollution accident, the International Maritime Organization has presented guidelines for requirements by Emergency Towing Vessels (ETOW vessels). The same necessity exists for lightering capacity in case of damaged or grounded vessels threatening the coastline by the possible discharge of hazardous material on board, whether it may be cargo, machinery fluids, stores or bunker. In a maritime emergency all such operations including fire fighting at sea are normally executed by assisting units, in most cases SAR-, coastguard- and other response units as well as by private salvors.

During the past decades the necessity of governmental action for the provision of ETOW- capacity was not apparent because private salvage companies kept such capacity around the world at all major marine traffic risk positions in order to be close to their markets. Nowadays larger and therefore costly towage capacity is kept in operation by the owners whether it is at oil production plants, at sea or in other services world-wide. Waiting for salvage operations at a fixed position, however, is a very rare type of business today and therefore states authorities have to think how to maintain the availability of ETOW- and lightering capacity along their area of responsibility as a precautionary measure against ships' groundings and related coastal pollution.

A number of North Sea littorals and countries in other shipping areas of the world have protected specified coastal areas by ETOW vessels contracted on an annual basis or during the bad weather seasons in different stages of availability.

The aim of these guidelines is to inform on technical and operational questions that have to be taken into account when investigating the national or regional ability to respond to marine accidents by emergency towing and lightering capacity in order to protect the marine and coastal environment.

### 2. Areas where emergency capacity is required

In line with the findings of the HELCOM compilation on emergency towing, fire fighting and intermediate storage capacity, emergency capacity is found to be necessary especially in areas where large bulk cargo carriers like oil tankers frequently sail to loading and unloading ports and en route along high frequency shipping lanes presenting a number of navigational obstacles.

Access to emergency capacity should be provided along the areas of high risk, such as narrow traffic lanes involving high traffic and difficult navigation risks, often with weather and visibility restrictions. Emergency capacity should be tailored to regional shipping requirements (type and size, draft tank sizes, cargo types etc.). There can be different ways in which emergency capacity is being kept in place. A vessel with emergency capacity can be utilised either as patrolling, escorting

or stationed vessels. Possibilities for multi-purpose tasking of such vessels (ice breaker, patrol vessel, hydrographic survey vessel, pollution response vessel etc.) are to be examined. Economical but also reasons of higher preparedness standards of the crew speak for such multi-tasking models.

Where tank cargo is loaded or unloaded, agencies exist which can inform or even charter suitable empty tank space for lightering operations. Less capacity is required for other hazardous substances or packaged goods which perhaps need re-packing. Adequate capacity can be found at chemical production plants, terminals, refineries and specialised fire fighting services. It is advisable to prepare lists of contacts for existing equipment and pre-defined ways of access to it.

## 3. General requirements for ETOW vessels

For an assessment of the requirements for an ETOW vessel, inter alia, the following criteria should be examined:

- Basis port of the ETOW vessel
- Permanent or limited readiness (i.e. sailing within 1 or 2 hours)
- Speed, draught, bollard pull, manoeuvrability, endurance at sea
- Rough sea capabilities (operations possible in at least Beaufort 9)
- Modern navigation, On Scene Commander-facilities (communication and documentation equipment, etc.)
- Crew experience, training, sufficient personnel for boarding assistance
- Special features for safety (i.e explosion proof deck machinery)
- Multi-purpose tasking features

## 4. How to assess the necessary ETOW capacity

According to recent Baltic States' investigations the largest vessels operating in the Baltic Sea are tankers and bulk carriers of appr. 150.000 dwt. Other vessels requiring sufficient bollard pull capacity are ferries, car transporters and other RO-RO-vessels being sensitive to wind because of high perimetric side wall surface structures.

After having examined the regional, national or local requirements, decisions on suitable solutions to the above requirements are to be taken into account.

This can be i.e. the chosen status of readiness, range of operation, replacement in cases of repairs, possibility of regional or national co-operation or combination of existing capacity.

When having found the appropriate type of ETOW vessels and agencies offering access to lightering facilities, operative details in line with the identified coverage areas of risk and their varying requirements will then lead to a definition of capacity and action required.

## 5. Final remarks

Provision of emergency capacity is a project that involves the assessment of a number of scientific, nautical, technical and scientific data, expertise and future development. After having found the necessary capacity and the preferred type of operation, thoughts should be given to the possibility of regional or bilateral co-operation.

This is especially appropriate where countries neighbour in close vicinity to each other because this means that coverage areas of risk are either the same or very close to each other.

Such a situation will give the possibility to jointly cover an area sharing costs and amalgamating operating procedures for both sides giving economical but also operative benefits to both partners.

As transport statistics and the number of dangerous cargoes shipped in the Baltic Sea show a permanent rising tendency the provision of improved emergency capacity presents a task of rising importance for the Contracting Parties to the Helsinki Convention.

**HELCOM RECOMMENDATION 28E/12**

Adopted 15 November 2007
having regard to Article 20, Paragraph 1 b)
of the Helsinki Convention

**STRENGTHENING OF SUB-REGIONAL CO-OPERATION IN RESPONSE FIELD**

**THE COMMISSION,**

**BEING AWARE** that the increasing maritime traffic is causing a potential threat of a pollution incident at sea,

**BEING ALSO AWARE** that spills of oil or other harmful substances can have a long-lasting harmful impact on the sensitive marine environment and the coastal areas of the Baltic Sea,

**RECOGNISING** the efficiency of an operational "three tier" approach for planning and response to pollution incidents in the Baltic, whereby minor oil spills are addressed by one Contracting State, spills of medium size are addressed by well-organised and timely action by several Contracting State located in the vicinity of the accident, and the largest spills are addressed by the co-ordinated efforts of all Contracting Parties and, if necessary, with use of external assistance,

**NOTING** the significance of sub-regional approach to ensure timely and well-organised emergency towing, fire-fighting and lightering and, if needed, response to a pollution incident, including shoreline response, and in that way to minimise environmental damage caused by an accident,

**NOTING FURTHER** that sub-regional co-operation is of crucial importance when effectively using the emergency and response resources,

**RECOMMENDS** that the Contracting Parties take necessary steps to assess the risk of oil and chemical pollution and on that basis review emergency and response resources on a sub-regional basis in order to ensure that:

1. there are sufficient emergency resources in the area to provide adequate emergency towing, fire-fighting and lightering capacity to a ship in need of assistance within a reasonable period of time;
2. there are sufficient response resources/capacity to ensure effective collection of pollutants in case of a "medium-size" pollution incident or to control large-scale pollution incidents until the assisting forces arrive on the scene;
3. there is adequate response capacity to enable effective shoreline response,

**RECOMMENDS ALSO** that the Contracting Parties draw up bilateral or multilateral agreements and/or response plans for major risk areas and/or dangerous objects located in the vicinity of their borders and where co-ordinated efforts are needed to ensure adequate response to pollution incidents,

**RECOMMENDS FURTHER** that the Contracting States cooperate by carrying out joint surveillance operations and/or flights by one Contracting State over the responsibility area of the other Contracting State(s) in order to ensure that the minimum HELCOM requirements on aerial surveillance are fulfilled,

**RECOMMENDS ADDITIONALLY** that the Contracting States endeavour to do their best in order to ensure that a ship in need of assistance would be accommodated in the most appropriate place of refuge without undue delay,

**RECOMMENDS FINALLY** that the Contracting States integrate shoreline response into national contingency plans, and cooperate by conducting trainings and organising exchange programmes to ensure swift and adequate response capacity and to develop best practices.

## GUIDANCE FOR SUB-REGIONAL PLANS TO QUANTIFY NEEDED EMERGENCY/RESPONSE RESOURCES

The idea of enhanced sub-regional co-operation, which has been discussed and agreed in HELCOM RESPONSE, rests on a four-step logic:

- Analysis of the likely accident scenarios taking into account sub-regional specifics;
- Identification (both quantitative and spatial) of the emergency and response resources needed sub-regionally to respond to an accident of Tier 1 and 2 and how to deal with a Tier 3 accident until the assistance arrives;
- Comparison of the identified needs to the available resources and development of plans to meet the needs for resources in the sub-region in the most effective way;
- By the above standing steps, achieving adequate emergency and response preparedness in the most cost-efficient way.

Even though the risks and likely accident scenarios certainly vary sub-regionally, it might be beneficial to have a general discussion on certain aspects of the assessments in order to facilitate sub-regional actions:

- Likely maximum accident for which the sub-regions should be prepared;
- Principles for the estimation of the needed emergency and response resources as well as their preparedness and spatial allocation.

*Emergency towing*

Every sub-region should have adequate emergency towing capacity to be able to handle the largest vessels sailing in the region in rough sea conditions (e.g. Beaufort 10-12 in the Baltic Sea).

Spatial allocation and preparedness should correspond to the time limits for approaching and securing a ship in distress along the major shipping lane(s) in the sub-region before it reaches shallow waters.

*Emergency lightering*

Emergency lightering capacity (pumping capacity, intermediate storing and possible places of refuge) should be analysed for a lightering operation of the biggest ships sailing in the area (up to 150,000 tonnes).

*Emergency fire fighting*

Emergency fire fighting capacity should ensure at least availability of Fire Fighters class 1 according to Det Norske Veritas (DNV) or similar (around 20,000 litres/minute).

*Places of refuge*

Based on risk assessment in a sub-regional context, including evaluation of the environmental factors, adequate response capacities should be available for places of refuge.

*Shoreline response*

Every sub-region should have adequate equipment and trained personnel to protect the coast, especially vulnerable habitats and areas (Baltic Sea Protected Areas, BSPAs) and to ensure immediate and appropriate action on shore.

Shoreline response capacity should be addressed and arranged in its complexity within sub-regional agreements between adjacent Contracting States. Such agreements are aimed at ensuring

fast and sharp reaction when a second and/or third tier or transboundary pollution accident has occurred.

The logic described in HELCOM Recommendation 11/13 serves as a basis to analyse and utilise the personnel, amount and type of booms, skimmers, vacuum cleaners, washers and other relevant equipment needed to maintain readiness for actual operations in such accidents.
All priorities related to vulnerable areas (BSPAs) are to be pre-planned within sub-regional action plans; this may include wildlife response as deemed feasible.

*Response capacity*

Response capacity should be available for responding to a 1,000- 5,000 tonnes (depending on the likely accident in the area) oil spill at sea in favourable weather within 3 days. Local geographical and other specifics (e.g. archipelago area, shallow water, etc.) should be taken into account.

**Action Plan**

When the above standing analysis has been performed, there should be an action plan for how together to improve the capacity. Who buys what and when? How do the others get hold of it in an emergency situation, etc.

**Notification**

NB -There is no need for special alarm procedures, etc. Normal HELCOM routines should be applied, but of course it is permitted to call or mail the sub-regional partners as a first notification.