

BALTIC SEA ENVIRONMENT PROCEEDINGS

No. 10

TEN YEARS AFTER THE SIGNING OF THE HELSINKI CONVENTION

National Statements by the Contracting Parties on the
Achievements in Implementing the Goals of the
Convention on the Protection of the Marine
Environment of the Baltic Sea Area



BALTIC SEA ENVIRONMENT PROCEEDINGS

No. 10

**TEN YEARS AFTER THE SIGNING
OF THE HELSINKI CONVENTION**

National Statements by the Contracting
Parties on the achievements in implementing
the goals of the Convention on the Protection
of the Marine Environment of the Baltic Sea Area

Denmark
Finland
German Democratic Republic
Federal Republic of Germany
Polish People's Republic
Sweden
Union of Soviet Socialist Republics

This publication contains the National Statements by
the Contracting Parties to the Helsinki Convention
in accordance with the decision taken by the Commission
at its fourth meeting (HELCOM 4/17, Paragraphs 8.2 and 8.3)

DENMARK

Helsinki Convention - Tenth Anniversary National Statement	1
Legal Actions	2
Scientific-Technological Committee (STC)	3
Harmful Substances	4
Dumping	5
Oil Pollution	5
Monitoring	6
Scientific-Technological Seminars	7
Baltic Sea Environment Proceedings	7
The Future	8
The Maritime Committee (MC)	9
The use of pilots in the Danish straits	9
Position Reporting System.....	10
Traffic Separation Zone.....	11
The Expert Group on Cooperation in Combatting Matters (EGC).....	11
The Danish contingency for combatting oil pollution.....	11
The use of dispersants, sinking agents and absorbents.....	12
Measures concerning combatting operation in case of oil pollution.....	13
The Danish contingency for combatting chemical pollution.....	14
Research and development relevant to combatting oil and other harmful, floating substances.....	14
Conclusion.....	15

FINLAND

National statement on the achievements in implementing the goals of the Helsinki Convention.....	16
1. National legislation and administration related to the protection of the marine environment.....	17

2.	Prevention of pollution from ships.....	2	7
2.1	General.....	2	7
2.2	HELCOM Recommendations related to prevention of pollution from ships.....	2	8
3.	Combatting spillages of oil and other harmful substances.....	2	9
3.1	General.....	2	9
3.2	HELCOM Recommendations related to combatting spillages of oil and other harmful substances.....	3	1
4.	Prevention of pollution from land-based sources.....	3	2
4.1	General.....	3	2
4.2	Restrictions and preparations concerning certain substances.....	3	6
5.	The state of the marine environment of the Baltic Sea.....	3	9
5.1	Monitoring.....	3	9
5.2	Marine mammals.....	4	2
5.3	Assessment of the state of the Baltic Sea.....	4	2

GERMAN DEMOCRATIC REPUBLIC

National statement concerning implementation of the objectives of the Convention on the Protection of the Marine Environment of the Baltic Sea Area.....	45
Legislation.....	45
National results in protection of marine environment.....	50
Implementation of HELCOM Recommendations.....	54
Research and development activities.....	61

FEDERAL REPUBLIC OF GERMANY

Implementation of the Helsinki Convention.....	6	5
1. Hazardous substances.....	6	7
2. Prevention of land-based pollution.....	6	7
2.1 Water protection.....	6	8

	page
2.2 Airborne pollution.....	69
3. Prevention of pollution from ships.....	70
3.1 Co-operation for more safety of maritime traffic.....	71
3.2 Identification of contraventions and administrative action against those contravening.....	72
3.3 Oil.....	73
3.4 Noxious liquid substances in bulk.....	74
3.5 Harmful substances in packaged forms.....	74
3.6 Sewage and garbage from ships.....	75
3.7 Pleasure yachting.....	75
3.8 Reporting alleged inadequacy of reception facilities.....	75
4. Prevention of dumping.....	76
5. Exploration and exploitation of the sea-bed and its subsoil.....	76
6. Co-operation in combatting marine pollution.....	77
6.1 Administrative measures.....	77
6.2 Response measures.....	78
6.3 Other harmful substances.....	79
7. Scientific and technical co-operation.....	80
7.1 Sea water monitoring.....	80
7.2 Other research activities.....	82

POLISH PEOPLE'S REPUBLIC

Report on implementation of obligations arising from the provisions of the Convention on the Protection of the Marine Environment of the Baltic Sea Area in the period 1974-1983	85
I. Legislation initiated in result of the signing and entering into force of the Helsinki Convention.....	85
II. National administration concerned with the marine environment protection and measures taken in the recent period for implementation of the requirements of the Helsinki Commission, as well as actions planned for the near future.....	88

III.	State of implementation of the Recommendations of the Helsinki Commission.....	90
IV.	Participation of the Polish People's Republic in implementation of the Baltic Sea Monitoring Program.....	98
	Measures of protection against pollutions from ships.....	105
	Combatting of oil spillages and other hazardous substances.....	106

SWEDEN

	Statement related to the achievements in implementing the goals of the Convention on the Protection of the Marine Environment of the Baltic Sea Area.....	110
1.	Introduction.....	110
2.	Legislation.....	111
3.	National Administration.....	115
4.	Implementation of HELCOM Recommendations.....	117
5.	Research and Development.....	122
5.1	Monitoring and assessment.....	122
5.2	Water protection technology.....	126
5.3	Preventive measures for vessel-based pollution.....	129
5.4	Combatting oil and other harmful substances.....	130

UNION OF SOVIET SOCIALIST REPUBLICS

	National report for the Review Meeting of the Commission for Protection of the Marine Environment of the Baltic Sea Area.....	134
	Legislation on prevention of marine pollution.....	135
	Research.....	143
	International cooperation.....	144
	National studies.....	147

DENMARK

HELSINKI CONVENTION - TENTH ANNIVERSARY NATIONAL STATEMENT *)

Due to its many islands and very long coastline Denmark has a great interest in protecting the marine environment.

Thus, Denmark participates very actively in the international cooperation and aiming at protecting the marine environment and is party to all relevant conventions in this field.

Among these, the Helsinki Convention on the Protection of the Marine Environment of the Baltic Sea Area plays an important role.

The Helsinki Convention was established as early as in 1974 and came into force in 1980 as all the Contracting Parties had ratified the Convention. Now it is 10 years ago this Convention was worked out and this is a good occasion to look into the effects of the Convention for the Protection of the Baltic Sea Area, the measures taken by the member states, the cooperation between the member states, and what still remains to be done, if the Contracting Parties are going to fulfill the purposes set out in the Convention.

*) submitted by the National Agency of Environmental Protection, Marine Division

Legal Actions

In Denmark the protection of the marine environment is the responsibility of the Ministry of the Environment.

by the time Denmark signed the Helsinki Convention we did not have the necessary legal basis to fulfill the obligations laid down in the Convention. In 1975 the Minister presented to the Parliament a bill which would make it possible for Denmark to fulfill its obligations according to the Convention.

The bill was passed by the Parliament. However, the Act never entered into force though the Minister had the legal power to do so.

The Act only concerned the Baltic marine environment and the Minister considered it to be purposeless to put it into force, because the Convention had not been ratified by all member states and, therefore, had not entered into force.

By the time the Convention entered into force, the Minister preferred to work out a bill concerning the marine environment in general including the Baltic Sea. This bill was presented to the Parliament in 1979 and it was passed in 1980 about the time when the Convention entered into force. It authorizes the Minister the legal possibility to fulfill all the obligations laid down in the Convention. Furthermore, it contains more general provisions concerning the protection of the marine environment and at the same time empowers the Minister to issue by-laws to regulate the more detailed matters.

This responsibility has been used by the Minister by fulfilling the obligations in the Convention concerning oil and the demand for establishing reception facilities for oily residues in the ports. In these matters it is not necessary to ask the Parliament. The Minister is empowered to issue the necessary by-laws after negotiation with all the involved parties.

Although the legal basis for the necessary implementation of the Helsinki Convention has been established, work still remains to be done.

In the near future the necessary provisions for handling and receiving chemical waste are to be worked out. This will mean one further step in the right direction towards the achievement of the Helsinki Convention.

In the coming decade we will still need to do more work to fill out the legal framework of the Convention.

We also have to give an example of how efficient a job might be carried out, despite the different political and cultural backgrounds among the Contracting Parties.

The Danish experience with the more practical work within the Convention is described below.

Scientific-Technological (STC) Committee

Denmark has participated in the work of the Scientific Technological Committee (former STWG) very actively since the beginning of the Convention.

Harmful substances

The exchange of points of view and experiences in the Scientific Technological Committee from year to year, i.a. concerning substances of highest priority: DDT, PCB, PCT, cadmium, mercury, lead, copper and zinc, as well as oil, have contributed to the necessary revisions of the national waste policy from time to time.

The Recommendations on the elimination and limitation of DDT and PCB are good examples of measures, which reduce discharges of hazardous substances. Even before these measures were adopted at the Third Meeting of the Commission in **1982**, the countries around the Baltic Sea had taken steps to reduce the use of these substances. The Baltic Monitoring Programme and other investigations showed accordingly that the levels of harmful substances in the Baltic Sea were decreasing. The adoption of the Recommendations are aimed at maintaining and improving this development.

The elevated level of PCB and other hazardous substances in seals is a major reason for the drastic reduction which has been ascertained in the seal populations in the Baltic Sea Area. Accordingly, a third Recommendation from **1982** states that the countries shall ban or strictly regulate hunting of seals and request them to establish seal sanctuaries. In Denmark hunting of seals has been prohibited for some years and a growing number of seal sanctuaries have been established in Danish waters. New estimates tend to show a slightly growing population of seals.

Undoubtedly, these positive trends found in the last few years have to be contributed to the different kinds of anti-pollution measures which have been applied in the Baltic Sea States. The decreasing level of DDT and PCB in the biota of the Baltic Sea has already been mentioned, the parallel development in the decreasing concentrations of mercury in fish and aquatic animals is another result of the prohibition or strict regulation of the use of hazardous substances which have been effected in the Baltic Sea States.

Dumping

The stringent rules of the Convention concerning dumping of industrial waste have been in line with the Danish policy in this field, and have consequently lead to a strengthening of the Danish attitude towards this kind of waste disposal. The joint Nordic action on these questions in international bodies has a natural background and support in the prohibition of dumping of industrial wastes in the Baltic Sea Area, as stated in the Convention.

Oil Pollution

Another potential threat to the marine life of the Baltic Sea is oil pollution. So far, effects of oil pollution have only been demonstrated in connection with discharge from oil refineries and in connection with discharge of oil from wrecks. Eut taking into consideration the enclosed geography and the slow water exchange of the Baltic Sea and an estimated input of 50-100.000 tonnes of oil per year, the situation must be monitored very carefully. The rules of the Helsinki Commission regarding ship traffic

have already implied a great improvement in the operational discharges from ships and have reduced the number of wrecks. In the Scientific Technological Committee the negotiations on how to limit the discharges from landbased sources are well on their way.

In Denmark a great deal of effort has been put into the mapping of oil pollution from all sources, and especially from the permanent sources, which might turn out to be the most dangerous sources in the long run.

Monitoring

One practical action taken in Denmark due to the work in the Scientific Technological Committee merits special mention. That is the joint monitoring programme "The Baltic Monitoring Programme", which is unique in its field, and which in many ways is the backbone in the work carried out in the Baltic Sea Area to control and reduce the pollution in the area.

In Denmark the monitoring is carried out by the Marine Pollution Laboratory from the National Agency of Environmental Protection. At a number of stations in the Danish Straits and Sounds samples are taken and analyzed for a number of determinants. To facilitate cooperation among the parties to the Convention it is essential to use the same methods. Of great importance are the discussions which take place in the Scientific Technological Committee, but especially the cooperation in connection with the two Biological Workshops which took place in Stralsund, GDR and on Bornholm, Denmark; these Workshops being carried on by special working

groups - in some instances assisted by the Baltic Marine Biologists.

The information which is collected by all the participating laboratories enables us to detect unwanted trends in the Baltic Sea environment at an early date and to keep an eye on the improvement of the water quality due to anti-pollution measures taken at land.

Scientific-Technological seminars

Another aspect of the work of the Scientific-Technological Committee is the scientific and technological seminars and symposia. The work carried out at these seminars and symposia is of great importance, although concrete results are difficult to point out. All subjects of interest are dealt with, and experiences and new ideas are exchanged. Even without taking form of Recommendations the new ideas and measures brought forward at these meetings have a great influence on the work of improving the state of pollution of the Baltic Sea.

Baltic Sea Environment Proceedings

One further example of the work in the framework of the Convention should be mentioned. The Commission's publications: "Baltic Sea Environment Proceedings". This series is aimed at highlighting the work of the Commission, e.g., within the Scientific Technological Committee. Two issues are especially valuable: "The Assessment Report" and "The Baltic Marine Environment Bibliography".

In Denmark, the Assessment Report has been the subject of particular interest. Due to this comprehensive report the knowledge of the problems which we are faced

with in the Baltic Sea Area and the work within the Scientific-Technological Committee to solve these problems are brought to the general public.

The future

As mentioned above, progress has been obtained in many areas. Our scientific and technological knowledge has been increased, clear Recommendations have been adopted and the pollutional load of the Ealtic Sea has diminished.

On the other hand many problem areas still wait for their solution. One such is the increasing levels of many heavy metals found in the sediment of the Ealtic Sea. Another problem is the presence of so-called new contaminants in the biota which might be an indication of a negative trend. The impact of these substances on the Baltic Sea environment is unknown, but their presence and possible trends should be followed carefully and further research is needed.

Finally, the apparent increasing eutrophication which is reported from several places in the Baltic Sea Area gives cause for concern. This is a pattern which is followed very closely in Denmark. A decreasing level of oxygen and an increasing level of phosphorous, even in the open part of the Baltic Sea is an indication of a negative development. In many coastal areas very low concentrations of oxygen have been observed, followed by the extermination of the benthos and even in some cases resulting in fish killing.

Furthermore, mass occurrence of algae including toxic species has taken place in several areas during the last years. Due to these facts an extensive investigation has been initiated with the aim of elucidating these negative phenomena in Danish waters. Based upon the outcome of these investigations, Recommendations on anti-pollutional measures will be put forward.

The Maritime Committee (MC)

The work within the Maritime Committee (MC) has resulted in major adjustments of Danish activities in three major cases as described below:

The use of pilots in the Danish straits

During the First Meeting of the Interim Commission in November 1974 and the Second Meeting in December 1975, Denmark asked for support to a Danish/Swedish proposal for a Recommendation in IMCO (now IMO) concerning the use of pilots in certain ships when navigating in the Sound Area.

The Recommendation (Resolution A.427 (XI)) was adopted in IMCO in November 1979 with the support from the Baltic Sea States.

Since the adoption of this Recommendation almost all loaded oil tankers with a draft of 7 meters or more and all loaded chemical tankers and gas carriers, irrespective of size, have used a Swedish or Danish pilot when navigating through the Sound.

The Danish authorities find that this intensified use of pilots in the narrow and heavily trafficked area has contributed to a reduction of marine casualties in the Sound.

Position Reporting System

HELCOM Recommendation 1/10 adopted on the 8th May 1980 recommends that the contracting parties establish a Position Reporting System for ships in the Baltic Sea Area (BAREP).

In order to comply with this Recommendation Denmark made several major adjustments to the already existing Ships' Reporting System (SHIPPOS).

The BAREP-system has now been in force since the 1st July 1981 and the experience gained shows that a great deal of the ships concerned use the EAREP-system during the passage of the Danish Straits.

Although the EAREP-system is established only on a trial basis until June 1984 the Danish Government believes that the EAREP-system should be established - with some adjustments - on a permanent basis in the Baltic Sea Area.

In this context, Denmark regrets that some difficulties with the BAREP-system have arisen during the running-in period, primarily due to the lack of participation from all the Baltic Sea States.

The participation in the EAREP-system has from a Danish point of view contributed to make a better overall picture of the movement of oil, gas and chemical tankers in Danish waters.

Traffic Separation Zone

At the Fourth Meeting of the Helsinki Commission in February 1983 Denmark asked the Baltic Sea States for support in IMO with respect to a proposal on the establishment of a new traffic separation zone in connection with the dredging of a new route in the sensitive waters around the Hatter Rev/Hatter barn in the Northern part of the Great Belt.

With support from the Baltic Sea States and other countries this change of fairway and the establishment of the new traffic separation zone was adopted in the IMO Maritime Safety Committee in June 1983.

The establishment of a new fairway and traffic separation zone will enter into force the 1st April 1984 and it is the hope of the Danish Government that the new traffic scheme will improve the safety of navigation in the area.

It is the Danish opinion that the ongoing work within the scope of the Maritime Committee of the Helsinki Commission has contributed to the protection of the marine environment and resulted in the implementation of uniform guidelines and various recommendations with respect to the prevention of marine pollution and safety of navigation within the Baltic Sea States.

The Expert Group on Cooperation in Combatting Matters (EGC)

The Danish contingency for combatting oil pollution

During the recent years the Danish contingency for combatting oil pollution has been established, crew has been employed and new combatting equipment has been obtained.

The Danish oil combatting contingency now fulfills the aim of being able to combat spillages up to 10 000 tonnes of oil within a period of time, normally not exceeding 10 days of combatting at sea. This aim is specified in a recommendation adopted in 1980.

The Danish contingency is constantly being evaluated to take into account new combatting techniques as well as traffic patterns in the Danish straits.

Furthermore, the principle contained in the recommendation concerning financial impact of assistance rendered, constitutes the element of the Danish financial modalities in joint actions.

The use of dispersants, sinking agents and absorbents

The use of oil dispersants in Danish waters is covered by the provisions set out in the Act on the Protection of Marine Environment.

As a principal rule the "discharge" of dispersants is prohibited. However, permits to use dispersants may be granted by the Minister of the Environment who has delegated his powers in this respect to the National Agency of Environmental Protection.

A permit should be applied for in each pollution case and is normally granted for that particular oil pollution incident only.

The rather strict rules for the use of oil dispersants in Danish waters serve the purpose of limiting the load by oil and chemical substances as much as possible. Consequently, Denmark is only inclined to permit the use of

dispersants if large concentrations of seabirds or particularly valuable coastal areas are threatened by severe oil pollution.

The use of dispersants for the purpose of cleaning beaches of stony coastlines is accordingly limited. In these cases the aim of the limitation is to protect the biota in the surface layers. It is, therefore, much preferred to remove the oil by mechanical means if at all possible.

Only dispersants which have been approved by the responsible authorities following a test made by an independent authorized laboratory will be permitted to use.

Sinking agents are not used at all. Also the use of absorbents is very rare and then only in extreme small quantities.

Measures concerning combatting operation in case of oil pollution

In 1980 and 1981 a series of Recommendations was adopted with the purpose of making the international cooperation in combatting oil pollution as fast and effective as possible. The Recommendations are dealing with warning-, reporting-, communication- and command-systems, and these systems have been tested in the Baltic Sea Area at several occasions.

Arrangements have thus been set up with the Danish customs authorities to facilitate border passage when assistance in combatting operations has been requested.

Denmark is in this field a lead country for a new pollution reporting system to be used in all regional combatting agreements in Northern Europe.

The Danish contingency for combatting chemical pollution

The Danish contingency for combatting pollution by other harmful, floating substances than oil has existed a few years, but it is still not as developed as the oil pollution contingency. For the time being the chemical pollution contingency is being evaluated, i.a. to bring it in accordance with the directions laid down in the Recommendation from **1983**.

Research and development relevant to combatting oil and other harmful, floating substances

A Danish high sea boom "RO-BOOM" as well as a Danish skimmer "DESTROIL" have recently been developed. They have been tested with great success and are now forming part of the Danish governmental stock of equipment.

In the remote sensing field a Danish developed side-looking radar is now operational. Furthermore, a Danish micro-wave radiometer is under construction and is expected operational in **1984**.

This equipment will be usable in small aircraft for long-range detecting of oil floating on the sea with subsequent measurement of the thickness of the oil-lager.

Thus, the establishing of a contingency for combatting oil and other harmful, floating substances is progressing at the international as well as at the national level.

Conclusion:

In the Danish opinion the co-operation in connection with the Baltic Sea Area based on the word and the spirit laid down in the Convention has resulted in decreasing pollution of the Baltic Sea. Nevertheless, an amount of work to be done still remains.

Thus, we are looking forward to a new decade, during which many important decisions must be taken in order to protect the Baltic Sea.

FINLAND

NATIONAL STATEMENT ON THE ACHIEVEMENTS IN IMPLEMENTING THE GOALS OF THE HELSINKI CONVENTION

In the 1960s the pollution of the Baltic Sea had received increasing attention in the scientific organizations dealing with that sea area. The meetings on co-operation in oil combatting held in Visby in 1969-1971 at the invitation of the Government of Sweden were a start towards a direct co-operation between the Governments of the Baltic Sea States on the protection of the Baltic Sea.

The concern on the quality of the marine environment of the Baltic Sea gave reason for Finland to play an active role in order to find the way to protect the Baltic Sea area jointly in co-operation with the other Baltic Sea States, Denmark, the German Democratic Republic, the Federal Republic of Germany, Poland, Sweden and the USSR. In 1972 the Government of Finland presented the idea of convening a meeting of governmental experts to consider the whole scope of the pollution problem of the Baltic Sea. This meeting, held in 1973 led, through a series of preparatory meetings, to the signing of the Convention on the Protection of the Marine Environment - the Helsinki Convention - in April 1974 by representatives of all the seven Baltic Sea States and later, in 1980, to the entry into force of the Convention.

Finland has vast archipelago areas and a long coast line and does not border any other sea. Fishing is important and by tradition the Baltic Sea and its shores are used for recreation. It is thus natural that Finland has actively participated in the work of the Baltic Marine Environment Protection Commission - the Helsinki Commission - established by the Convention, and in the work of the predecessor of the Helsinki Commission - the Interim Commission. In the efforts to protect the Baltic Sea the government and the authorities have been positively supported by the public. The strive for a healthy environment has also been met with much interest and good will by the industry and the municipalities.

1. NATIONAL LEGISLATION AND ADMINISTRATION RELATED TO THE PROTECTION OF THE MARINE ENVIRONMENT

Matters related to the environment have been as from 1 October 1983 administrated and co-ordinated by the new Ministry of the Environment. This Ministry formulates the environmental policy in all sectors of environmental protection. Furthermore, it carries out tasks concerning land-use planning as well as settlement affairs (housing).

Intermediate-level government in Finland encompasses administration by Provincial Offices, regional (district) agencies of certain Ministries and Central Offices and municipal joint authorities for different purposes.

At present, there are **12** Provinces, numerous districts for state administrative purposes and more than 400 municipal joint authorities in Finland. Regional

administration for environmental protection is vested in the Environmental Protection Sections established in **1982** in each Provincial Office.

Water Act

The Water Act of 1962 contains three principles concerning the use of water-courses. These are the clauses prohibiting the blocking, changing or pollution of water courses.

Pollution is defined as the discharges of dirt, waste, liquid, gas, bark or other substance into a water-course in such a way that it either directly or indirectly causes the effect described in the Water Act. The Act states as such effects, inter alia, the detrimental change of water quality, damage to the fish stock, considerable reduction of amenities, hazards to health or any other comparable violation of the private or public interest.

Permission for activities causing pollution as described can be granted on application by the Water Court. When considering the grounds for granting permission the Court must consider the extent of pollution caused by the activity in comparison with the benefit acquired. At the same time the Court must consider what are the reasonable measures which are necessary for reducing pollution. Hence permissions granted by the Water Courts as a rule include regulations aimed at the reduction of the pollution load on the recipient. Permission must not, however, be granted when the activity would endanger public health, cause perceptible and extensive harmful changes in the environment or seriously impair living conditions in the region concerned. Neither can permission be granted for the pollution of ground water.

According to the Decree on Preliminary Measures for Preventing Water Pollution which is based on the Water Act, permission cannot be granted for pollution by substances harmful to the environment as listed in the Decree. The same decree also includes regulations concerning the starting of an activity which might cause pollution, e.g. establishment of a dumping site would be such an activity. On receipt of the notification the appropriate authorities consider the case. The notifier may be advised to improve his waste water disposal plans or to apply for a permit from the Water Court in case a permit is required, i.e. when water pollution is foreseen.

The Water Act has such a wide range of effects upon the society that revisions required by rapid development are needed in the Act from time to time.

Legislative amendments have been made concerning e.g.:

- Preliminary measures for preventing water pollution;
- Prevention of the pollution of the sea;
- Water Administration;
- A number of separate regulations on the ownership of water areas, financing of water construction projects, financial aid in water pollution control, State water pollution control measures, prevention of oil damage, and sewage fees;

The National Board of Waters and its 13 Water Districts form the organization for national water administration. The National Board of Waters is as concerns water protection matters subordinated to the Ministry of the Environment. One of the tasks of this water authority is to see that the Water Act is observed. Jurisdiction is conferred in the Water Courts.

Sludge disposal is also regulated by law and a number of instructions and guidelines given by different governmental bodies.

Act on the Prevention of Marine Pollution

The disposal and dumping of waste and other matter at sea is regulated in Finland, inter alia, by the Act on the Prevention of Marine Pollution, which has been in force since 1 April, 1979. According to the Act, it is prohibited to dispose or dump, including incineration at sea, any waste or other matter including liquid or gaseous substances or energy without a special permit. The permit shall be issued taking full account of the regulations of applicable international conventions. If the dumping of wastes shall take place outside the Finnish territorial waters, the permit is considered by the Government.

Waste Management Act

The Waste Management Act, which came into force on 1 April 1979, applies to all waste comprising solids, sludges or liquids and gases produced by industry, services, commercial undertakings and domestic households and which will not be discharged into the water or the air. According to the Act, waste management must, whenever possible, be arranged in such a manner as to make it possible to recycle the waste or to utilize it in some other useful manner, without detrimental effects on the environment.

The main principle concerning management of toxic or otherwise harmful waste difficult to render harmless, so called problem waste, is that municipalities have the responsibility for receiving only the oil wastes. In other cases responsibility including transport,

treatment and disposal of problem waste is imposed on the producer of problem waste, i.e. most often the industry. Regulations for transport, treatment and disposal of problem waste are incorporated in the Waste Management Act as amended in **1981**.

A special permit will be compulsory for the treatment or disposal of problem waste. The permit shall be granted by the Provincial Office. Relevant public authorities may cancel the permission for specific reasons. Likewise, under certain conditions, the disposal can be interrupted.

Problem waste will not be allowed to be exported or imported without a prior notice to the Ministry of Environment. The Ministry will have the authority to prohibit the export or import of wastes when necessary, inter alia, if there are reasons to suspect that the wastes would not be transported or treated in an environmentally adequate way.

Air Pollution Control Act

The Air Pollution Control Act and Decree entered into force on 1 October 1982. The Act includes, inter alia, two main instruments:

- (i) The Government can give regulations and directives about air quality, emission standards and product standards (e.g. for fuels) concerning industry, energy production and motor vehicles.
- (ii) Significant industrial plants and similar installations must notify the provincial office of their activities. On the basis of the notification procedure the provincial office can decide on improvements in emission control and on

monitoring of emissions. A list of the activities to be notified is included in the Decree.

The supervision authority lies, according to the Act, from 1 October 1983 with the Ministry of the Environment.

A product standard concerning maximum concentrations of lead and benzene in gasoline was given by the Government in January 1983 (see page 38).

Air quality standards concerning maximum concentrations of sulphur dioxide and suspended particles are under preparation.

Prevention of pollution from ships

The Act and Decree on the Prevention of Pollution of Waters from Ships entered into force on 3 May 1980. The Act embodies the fundamental principles, such as the general obligations and main exceptions thereto, stated in the Convention on the Protection of the Marine Environment of the Baltic Sea Area (Helsinki Convention).

The Act aims at prevention of pollution of waters arising from the normal operations of vessels by prohibiting the discharge into water of oil, oily mixtures, hazardous liquids, sewage and garbage in a manner specified in the Act. Discharge into water shall be understood to include discharge onto ice or so close to the water line ashore that the substance or waste in question may end up in water. The Act is specifically limited to concern the discharge of such noxious substances into water and such pollution of waters as may arise from normal operations of vessels. Regulations concerning discharge into water

of wastes produced elsewhere than on board a vessel are incorporated in the Act on the Prevention of Marine Pollution.

The prohibition referred to further above is almost categorical in the territorial waters of Finland, whereas outside those waters its contents are specified in the Decree in the manner provided for by the Helsinki Convention.

Chemicals and gases

Within the International Maritime Organization (IMO) three codes containing regulations on the safe construction and equipment of carriers for hazardous chemicals and liquefied gases in bulk have been adopted, viz.:

- 1) The Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk (IMO Res.A.212(VII) with addenda);
- 2) Code for the Construction and Equipment of Ships Carrying Liquefied Gases in Bulk (IMO Res.A.328(IX) with addenda); and
- 3) Code for Existing Ships Carrying Liquefied Gases in Bulk (IMO Res.A.329(IX) with addenda).

These codes have served as a basis for a Finnish Decree on Chemical and Gas Tankers, implemented from 15 April **1982**, and an associated Decision by the National Board of Navigation.

Accession to MARPOL 73/78

The Ministry of Trade and Industry has prepared a new decree, which contains the current regulations of the Decree on Oil Pollution from Ships supplemented by

the provisions of MARPOL 73/78* insofar as they pertain to the carriage of oil and discharge of oily mixtures into sea. The entry into force of Annex II (Chemicals) to MARPOL 73/78 will still call for some amendments to chapter 3 of the Decree.

The new decree and the supplementary decision by the National Board of Navigation enabled Finland to accede to MARPOL 73/78 prior to the entry into force of these instruments internationally on 2 October 1983.

The provisions of MARPOL 73/78 relating to the inspection of vessels have been included in the new Vessel Inspection Decree, which governs the inspection of all kinds of vessels.

Organization of the combatting of oil damage

Combatting of oil damage caused by ships is as from 1 October 1983 arranged as follows in Finland:

- The development and direction of the combatting measures devolves on the Ministry of the Environment (till 30 September 1983 on the National Board of Navigation, a body subordinated to the Ministry of Trade and Industry):
- Local responsibility for the combatting measures rests with each municipality concerned, which has to appoint a director of antipollution measures for the purpose;
- In the event of major oil incidents the Ministry of Environment is in charge;
- Responsibility for the procurement of antipollution

* International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 relating thereto

equipment, the training of necessary personnel and the ensuring of a certain basic preparedness in general rests with the municipality.

Reimbursement of expenses

Finland ratified on **10** October 1980 two conventions made in Erussels, viz. the International Convention on Civil Liability for Oil Pollution Damage, 1969, and the International Convention on the Establishment of an International Fund for Compensation for Oil Pollution Damage, **1971**. The national legislation has been made compatible with these Conventions through the promulgation on **30** May 1980 of an Act on Liability for Oil Pollution Damage Resulting from Ships.

Provisions concerning the reimbursement from the Government funds of losses caused by oil pollution arising from ships and any cost of the abatement of resultant damage are included in the Act and Decree concerning the Oil Pollution Fund. The Fund, which is outside the national budget, is administered as from 1 October 1983 by the Ministry of the Environment. Means into the Fund are collected in the form of oil pollution contributions payable by the oil importers according to their import figures.

Payments from the Oil Pollution Fund can be made to those who have sustained losses on account of an incident or who have participated in the abatement of pollution damages. Costs of the procurement of antipollution equipment and facilities for the reception of wastes, as well as costs of the maintenance of a combatting preparedness can also be reimbursed from the Fund.

Nature Conservation

The Nature Conservation Act came into force in **1923**. It has been amended five times. The Act includes regulations concerning the establishment of national parks and nature reserves, both on state owned and private land.

In recent years several surveys have been made to find out which areas should be set aside as national parks or nature reserves. Based on these surveys, different state committees and working groups have worked out their proposals considering the need for preserving the entire diversity of ecosystems, natural site types, as well as endangered species.

The total area of nature reserves and national parks situated in the archipelago areas of Finland comprise about **48.000** ha. The most important archipelago areas protected are the National Park of the Archipelago Sea and the National Park of the Eastern Gulf of Finland.

The National Park of the Bothnian Eay and the National Park of Tammisaari (Ekenäs), Gulf of Finland, will be established in the near future.

Shore Planning

In order to prevent environmental and social disturbances caused by the rapid expansion of building for holiday purposes, shore plan regulations were added to the Planning and Building Act in **1969**. The main aim of these regulations is to organize holiday building on shore areas and also to organize recreational and service areas for the holiday settlements.

A shore plan can be characterized as a typical detailed plan and corresponds in principle to a town and building plan. It differs, however, from the other detailed plans in that the landowner himself is responsible for the drawing up and implementation of the plan (in other plans the responsibility rests with the community). The municipality controls the use of land on shore areas by considering whether a shore plan is needed, and by sanctioning the plans by the provincial office. The rules for the application of shore plan regulations state that the maximum length of a shoreline that can be used for building purposes without a shore plan is a quarter of a kilometre and that at least one continuous stretch of about 250 m has to be left unbuilt per km.

2. PREVENTION OF POLLUTION FROM SHIPS

2.3 General

The discharge requirements of the Helsinki Convention are equal to the discharge requirements for the Baltic Sea as a special area in the MARPOL 73/78 Convention. Thus the requirements as such are quite explicit in nature and only require national implementation with a few matters left for further clarification. The requirements of the Helsinki Convention concerning discharges of oily mixtures, sewage and garbage have been in force in Finnish water areas and for Finnish ships since 3 May 1980.

The question of the establishment of reception facilities in Finnish ports has been fully explained under the auspices of the Helsinki Commission and

IMO. In oil loading ports facilities are available for ballast water and tank washings. In these and all other Finnish ports facilities are available for the reception of oily wastes from machinery spaces, and of sewage and garbage.

Preparations for the implementation of Regulation 5 of Annex IV to the Helsinki Convention concerning the requirements for the carriage of noxious liquid substances in bulk have been undertaken.

2.2 HELCOM Recommendations related to prevention of pollution from ships

In the following, the main recommendations are reflected.

Recommendation 1/1 - Measures to ensure the use of reception facilities. The system of reception in Finnish ports, referred to above, includes the use of a small compulsory fee for the reception of oily wastes from machinery spaces, and of sewage and garbage. This fee shall be levied whether the ship uses the reception possibility or not.

Recommendations 1/2 and 2/3 - The use of IMO resolutions A.393(X) and A.444(XI) for the approval of oily water purifying equipment are used as a basis for the national approval procedure.

Recommendation 1/3 - The use of the International Maritime Dangerous Goods Code. The IMDG Code has been in force in Finland since 1 October 1980.

Recommendation 1/4 - The use of IMO Resolution MEPC.2(VI) for the approval of sewage treatment plants

and Recommendation 1/5 - Approval procedure are used as a basis for the national approval procedure.

Recommendation 1/11 - The use of the MEPC guidelines for the establishment of reception facilities has been used as a basis when considering the reception system referred to above.

Recommendation 1/12 - The use of standard discharge connection has been included in the national legislation.

Recommendation 1/15 - Application of certain provisions on sewage. The provisions of this recommendation have been included in the national legislation.

Recommendation 3/4 - The use of MEPC/Circ.60 when reporting alleged inadequacies of reception facilities. Instructions have been given to Finnish ships to use these formats.

Recommendation 4/2 - The use of new forms of IOPP-certificates and oil record books as contained in MEPC/Circ.99. These forms will be used for national purposes.

3. COMBATTING SPILLAGES OF OIL AND OTHER HARMFUL SUBSTANCES

3.1 General

The responsibility for developing national ability to combat spillages of oil lay within the National Board of Navigation from 1970 to 30 September 1983.

16 governmental depots for oil combatting equipment have been established, two of which are situated in Saimaa inland lake area, and **14** on the coastline. **17** workboats (length 10-14 metres), three OILI-type independent oil collecting vessels (length 19 m) and one oil combatting base vessel HYLJE (length 50 m) have been added to the fleet of specialized oil combatting vessels. Co-operation between different governmental agencies has been intensified and the district organization of the National Board of Navigation has been reinforced for environmental protection purposes.

On the municipal side more and better equipment has constantly been acquired, mainly because a special governmental fund has been established for economical compensation.

Oil combatting under ice conditions is a special problem which has in practice been encountered a few times. Literature studies, model experiments and full scale tests will be carried out to further study this problem.

A governmental working group has been set up to study the question of using dispersants for oil combatting.

A few sunken wrecks have been and will be further investigated for possible oil spills.

The responsibility for combatting oil spills has been transferred as of 1 October 1983 from the National Board of Navigation to the Ministry of the Environment.

3.2 HELCOM Recommendations related to combatting spillages of oil and other harmful substances

Recommendation 1/7 - Development of National Ability to Combat Spillages of Oil has fully been acknowledged and has greatly influenced the resources allocated for oil combatting.

Recommendation 1/8 - Minimization of the Use of Dispersants, Sinking Agents and Absorbents is fully acknowledged since mechanical means form the basis of Finnish oil combatting strategy.

Recommendation 1/9 - Facilitation of Border Passage has been investigated and generally found to be in order concerning customs formalities.

Recommendation 1/10 - Position Reporting-System.
The Finnish Position Reporting Centre has been in operation since 1 July 1981 and Finnish ships have been encouraged to join the system. Finnish ships have generally numerously taken part in the experiment.

Recommendation 2/7 - Delimitation of Response Regions.
A Bilateral Agreement between Finland and Sweden has been in force since 1 August 1961. Negotiations with the USSR for a similar bilateral agreement are well under way.

Recommendation 3/5 - Financial impact of assistance rendered will be fully considered together with other financial matters in case assistance is given to other Contracting Parties.

Recommendation 4/3 - Development of National Ability to Deal with Spillages of Harmful Substances Other than Oil. The development called for by the Recommendation has to a great extent been achieved and some basic studies have been made.

4. PREVENTION OF POLLUTION FROM LAND-BASED SOURCES

4.1 General

During the last ten years prevention of water pollution has received increasing attention and been subject to systematical development in Finland.

In 1974 a programme concerning the principles of water pollution control up to 1985 was completed. Since then the world economics have encountered drawbacks influencing also the speed of carrying out water pollution control measures. Bearing this in mind the programme is a good background document for studying the progress achieved in preventing water pollution. Although available statistical information does not exactly cover the time between the signing of the Helsinki Convention and today, it gives information relevant in this context. It may also be stated that coastal areas and direct discharges have not been separated from the overall information since most discharges will eventually reach the Baltic Sea and since the coastal areas have, in general, the same water pollution control requirements as the inland.

Table 1 summarizes some essential figures describing the progress of municipal sewerage and sewage treatment. As can be noticed, municipal sewage

treatment has developed almost in accordance with set goals. The methods of sewage treatment have been upgraded from septic tanks or primary and/or secondary treatment to simultaneous precipitation by ferrous sulphate which is the prevailing sewage treatment method today. Post precipitation is used in some cases. Plain chemical precipitation has been accepted in cases where considerable amounts of organic matter are already discharged into the recipient.

Table 1. Figures on municipal sewage in Finland

	1972	1981	Goals*) 1980/1985
Total population (mil.)	4.64	4.79	
Percentage served by sewers	56	70	
Percentage connected to sewage works	37	67	
Number of sewage works**)	357	563	
Percentage of chemical sewage treatment	2	18	
Percentage of biological-chemical sewage treatment	10	76	
Crude BOD ₇ -load (t/d)	244	298	
Discharged BOD ₇ -load (t/d)	126	68	60/45
Crude total phosphorus-load (t/d)	7.9	11.5	
Discharged total phosphorus-load (t/d)	5.7	2.2	3/2.3

*) Referring to the first programme adopted in 1974

***) Including works mostly in excess of 200 inhabitants

Industrial waste water treatment and waste discharges have developed in a much more complex way due to fluctuations of the national economy and especially internal process modifications as well as external treatment measures. This is true especially of pulp and paper industry which has reduced its BOD₇

discharges from 1330 t/d in 1972 to 685 t/d in 1981, and total phosphorus discharges from 1.8 to 1.6 t/d, respectively. During the same time the production of sulphite pulp has diminished by 40 % and the production of fiberboard and flutingboard has decreased to some extent. However, the production of bleached sulphate pulp, paper and cardboard has increased 1.3 - 2.7 fold. External waste water treatment is mainly based on mechanical sedimentation, although chemical and biological treatment has also been investigated. In 1980 the goals for BOD₇ discharges were exceeded by 15 % and suspended solids discharges by 40 %.

Discharges from other industry not connected to municipal sewers have, expressed in terms of BOD₇, diminished from 82 t/d in 1972 to 27 t/d in 1981 and total phosphorus from 1.5 t/d to 0.6 t/d, respectively. Effective measures leading to a significant decrease of discharges of mercury had been taken already before the signing of the Helsinki Convention. Different industrial branches have different approaches to water pollution control, such as internal process modifications, closed water circulation in the process chains, pre-treatment before discharging wastes into municipal sewers and all modern alternatives of physical, chemical and biological treatment processes. However, the achieved results have not always met the set goals of the programme.

Utilization of sewage sludge in agriculture has increased due to instructions issued by health and water authorities. New instructions dealing with manure utilization have been established leading to more stringent requirements on storage and spreading. Also instructions concerning problems caused by silage liquor are being processed.

Authorities have participated actively in regional planning concerning the use and protection of waters as well as waste management.

The principles of water pollution control are presently being updated and revised. In the future even more attention will be paid to discharges from pulp and paper industry as well as to toxic substances in general.

Solid waste management has been improved by waste management legislation and consequently issued instructions on waste disposal. Recycling or utilization of many materials, earlier considered as wastes, has started and greatly diminished solid waste disposal problems. Due to the recently started construction of a treatment plant for problem waste (cf. pp 20-21) many producers of such waste are storing them instead of dumping them on landfills. Since landfills have become under closer supervision than before their water pollution effects can be controlled much better and reduced successfully.

Emissions of particulates into the air have been reduced by more than 50 % in the 1970s due to many air pollution control measures. Sulphur dioxide emissions were in the same order of magnitude in the beginning as well as at the end of the decade, although there was a peak in 1973. Emissions of other substances have followed the trends of industrial activities and traffic.

4.2 Restrictions and preparations concerning certain substances

PCBs

In the 1960s PCBs were used by the Finnish industry in the manufacture of capacitors, transformers, ship paints, varnishes, glues, seaming materials and copy papers. In the beginning of the 1970s the industry voluntarily stopped using PCBs in open systems. In electrical equipment PCBs were used until 1979.

The number of existing PCB capacitors and transformers as well as their PCB contents (1750 t) were estimated in 1982. Obsolete capacitors and transformers have been either stored or sent abroad for treatment. Treatment in Finland will be possible at the end of 1984 when the treatment plant for hazardous waste starts operating.

After the adoption of the HELCOM Recommendation 3/1 regarding the limitation of the use of PCBs a committee established by the Ministry of the Interior has submitted its report on the basis of which preparations are under way to implement measures which mainly include:

- immediate banning of new uses, and imports and manufacture for the Finnish market of PCB substances and equipment:
- **stepwise** elimination of existing PCB capacitors and transformers by the end of 1994;
- marking and locating of existing PCB equipment;
- regulations concerning the collection and treatment of PCB waste;
- development of methods and analytics for environmental monitoring of PCBs.

DDT

In the 1970s the use of DDT was already greatly restricted in Finland. Since 1971 its use as pesticide in agriculture and forestry was permitted only in the treatment of conifer seedlings in nurseries. Since 1 January 1977 the sale and use of DDT as a pesticide in agriculture was totally prohibited by a decision of the Ministry of Agriculture and Forestry.

Medical use of DDT is allowed. Industrial use, e.g. to protect timber, is possible, but does not occur. Industrial use could be prohibited by a decree within the existing legislation, if necessary, to comply with the HELCOM Recommendation 3/2 regarding the elimination of discharges of DDT.

DDT has been substituted by organic phosphorus compounds (e.g. malathione, demethoate), pyrethrin, diazinon and lindane. Demethoate is now the most commonly used insecticide.

Cadmium

The Ministry of Social Affairs and Health requested the Advisory Board on Poisonous Substances to study the need and possibilities of restricting the use of cadmium in Finland. In its report the Advisory Board recommended restrictions for cadmium contents in foodstuffs, fertilizers and galvanized piping. It also recommended a ban on the use of cadmium in common consumer goods, and proposed the marking and collection of cadmium batteries. To limit atmospheric emissions, specifications by the provincial offices were called for, as well as a re-examination of effluent discharge permits as to cadmium.

The report was sent by the Ministry to the authorities concerned for consideration and implementation.

Lead

In February 1983 the Government gave regulations limiting the maximum content of lead compounds in petrol to 0.15 g/l, from 1 January 1985 in low octane petrol and from 1 January 1986 in high octane petrol. (Consequently the permitted maximum content of benzene will be 5 % from 1 January 1985).

Oil

As the Lead Country for the preparation of guidelines concerning oil discharges Finland submitted at the 9th and 10th meetings of the Scientific-Technological Committee of the Helsinki Commission proposals aiming at the reduction of oil discharges from refineries and into storm-water sewers. The Scientific-Technological Committee at its 10th meeting considered the draft recommendations and after some modifications, decided to present them to the Commission for adoption. On the basis of a questionnaire on oil discharges from steel-rolling mills Finland will prepare a draft recommendation for the 7th meeting of the ad hoc Working Group on criteria and standards for discharges of harmful substances into the Baltic Sea Area of the Helsinki Commission.

Nutrients

Finland has offered to prepare a background document on steps needed for diminishing the discharges of nutrients to the Baltic Sea. The objective is to formulate a Helsinki Commission Recommendation on the reduction of nutrient discharges. The work has been initiated by a questionnaire clarifying the relative importance of different nutrient sources.

The work has proceeded after reception of replies from the other Baltic Sea states.

5. THE STATE OF THE MARINE ENVIRONMENT OF THE BALTIC SEA

5.1 Monitoring

Open sea

Finland, like the other Baltic Sea states, has long traditions in studying the state of the Baltic Sea; there are continuous series of hydrographical observations since the beginning of the century. The station grid covers the whole Baltic Sea, but the most frequently studied areas are the Gulf of Bothnia and the Gulf of Finland. About 120 biological and **80** chemical stations are visited annually in the open sea area, some of them several times a year. The number of parameters has increased in the course of the years. In addition to the Baltic Monitoring Programme of the Helsinki Commission (BMP), some other chemical and biological parameters are measured regularly. The BMP Guidelines are used for most measurements. In order to ensure the comparability of the results, Finland takes part in international intercalibrations organized by the International Council for the Exploration of the Sea (ICES) or by the Baltic Sea states under the auspices of the Helsinki Commission. In the reports to the Commission only results of the BMP stations are included.

Finland has an active role in developing sedimentological methods for monitoring purposes under the auspices of ICES. However, the outcome of that work will certainly be of benefit for the work of the Helsinki Commission.

Sediment studies have also been carried out regularly by Finland.

Nitrogen fixation studies in relation to nitrogen loading will be continued in the Baltic Sea. Analytical methods for new contaminants are under continuous development in Finland.

Coastal waters

The coastal waters have been regularly monitored since the mid 1960s. The coastal monitoring programme was revised in 1979. This programme is carried out by applying as far as possible the BMP Guidelines and includes nearly 100 stations, extending the Baltic open sea monitoring grid towards the coast. The samples taken at least four times a year are analyzed for a great number of physical, chemical and biological parameters.

In addition, the quality of the waters is controlled in the sea areas off population centres and industrial plants. The costs of such recipient control programmes are paid by the polluters. The programmes vary depending on the quality and quantity of discharges and the local conditions.

A special study is co-ordinated by Finland concerning the causes for and effects of the detected changes in the littoral algal communities of the Baltic Sea.

Following the recommendation by the Helsinki Commission, a national report on the state of the coastal waters will be completed by Finland in 1984.

Biological studies will gain more importance at five

stations where the programme for coastal monitoring has recently been intensified to 15 - 20 samplings a year.

The capacity for the retention of nutrients and organic matter by the coastal sea area will be studied. Research and follow-up of pollution-induced fish diseases is under development.

Bilateral co-operation

The sea areas around Finland are also studied bilaterally. The Finnish-Soviet Working Group on the Protection of the Gulf of Finland and the Finnish-Swedish Committee for the Gulf of Bothnia have been established for co-operation relating to the pollution of those sea areas. The work includes co-ordination of monitoring activities. The station grid in the bilateral work is denser than in the Baltic Monitoring Programme of the Helsinki Commission. A four season frequency has been achieved by this kind of co-operation.

Air quality monitoring

Air quality monitoring in Finland is performed both in polluted and remote areas. Municipality and industry, separately or jointly, usually run the control monitoring. Results are used mostly by health authorities and for municipal planning and control.

Air quality monitoring remote from sources is performed in order to get information of e.g. long-term changes in air quality, long-range transport of pollutants and the atmospheric load on the sea. Background air quality is monitored in Finland by the Finnish Meteorological Institute at four coastal or island stations and six inland stations. Nutrients, heavy

metals and acidifying compounds are studied from gas, particle and deposition samples. The National Board of Waters runs also about 30 stations, where nutrients and acidifying compounds are followed in deposition.

Special experiments on the Baltic Sea with larger pilot programmes are carried out occasionally. Attention is then also paid to the comparability of the methods used in Finland with methods used by other Baltic Sea States.

5.2 Marine mammals

The Helsinki Commission issued in 1982 a recommendation concerning protection of seals in the Baltic Sea Area (HELCOM Recommendation 3/3).

The hunting of seals in Finland is limited to the open season of March 20 to June 10. This concerns only the ringed seal, as the grey seal is totally protected. These provisions are in force to the end of 1984.

A proposal for establishing seal sanctuaries in the outermost archipelago is in progress.

As to the numbers of grey seals in summer time in the Gulf of Finland and in the Archipelago Sea, more than 500 individuals were observed during the aerial and boat censuses in June 1983. This figure is by far the highest since 1975 when regular censuses were started.

5.3 Assessment of the state of the Baltic Sea

Finnish scientists, together with scientists from all the other Baltic Sea states, participated intensively in compiling the first assessment of the effects of pollution on the natural resources of the Baltic Sea,

accomplished jointly by the Helsinki Commission and ICES.*) Finland also takes actively part in the present assessment work of the Helsinki Commission.

Trend calculations have been made of the hydrochemical situation in the Gulf of Bothnia and the Gulf of Finland. The vertical profiles in the Gulf of Finland show that the content of phosphorus and nitrogen has increased during the years 1962-1978 in the surface layer while only nitrogen shows an increasing trend in the bottom layer. In the Gulf of Bothnia a clear increase in total nitrogen has been found, and only a slight and uncertain increase in phosphorus concentration. Regional differences have also been observed. The trace metal contents in herring muscle in the Gulf of Bothnia do not differ significantly from those in the Gulf of Finland. Diminishing trends of PCB- and especially DDT-compounds in fish and sediments have been detected.

The water quality of the coastal sea areas corresponds in general to that of the open sea. However, estuaries and water areas in the vicinity of big population centres and industrial plants are polluted. The increase in salinity and nitrogen content is the most distinct change to have taken place in the 1970s. A slight decrease was observed in the 1970s in the quantities of organic matter and phosphorus discharged by rivers. The nitrogen contents in river discharges remained constant. However, on the southern coast of

*) Assessment of the Effects of Pollution on the Natural Resources of the Baltic Sea, 1980. Baltic Sea Environment Proceedings No. 5A and 5B. Editor: Terttu Melvasalo; Editorial Board: Janet Pawlak (Editorial Secretary), Klaus Grasshoff, Lars Thorell and Alla Tsiban

Finland the bioavailability of nutrients (originating from the Baltic bottom waters) has increased, as can be concluded from the increased production of littoral algae.

GERMAN DEMOCRATIC REPUBLIC

NATIONAL STATEMENT CONCERNING IMPLEMENTATION OF THE OBJECTIVES OF THE CONVENTION ON THE PROTECTION OF THE MARINE ENVIRONMENT OF THE BALTIC SEA AREA

The Convention on the Protection of the Marine Environment of the Baltic Sea Area is a significant document of international law supporting peaceful and constructive co-operation of the Baltic coastal states in protection of nature and reasonable utilization of their resources in the Baltic Sea area.

As recreation centre, trading area for ships, fishing area as well as for exploitation of mineral raw material and utilization of water the Baltic Sea is of immense importance for the German Democratic Republic.

The share of the German Democratic Republic in the total catchment area is about 24.000 km², which discharge into the Baltic Sea. Said catchment area covers nearly the area of the three northern counties, viz. Rostock, Schwerin, and Neubrandenburg. The share in the total catchment area is about 1.5 %.

Considering a coastline of 340 km, the share of the German Democratic Republic is about 1.7 %.

Legislation

The Convention signed by the Baltic coastal states on March 22nd, 1974 was ratified by the Staatsrat of

the German Democratic Republic on November 5th, 1976. On January 6th, 1977 the ratification document was deposited with the government of Finland being the depositary of the Convention. It was published in the Gesetzblatt (Law) of the German Democratic Republic on February 16th, 1977.

The progress made in the activities to protect marine environment of the Baltic Sea area was backed by legislation, when the Water Act was passed on July 2nd, 1982 by parliament of the German Democratic Republic, the People's Chamber. Said Water Act including all its implementing regulations defining the general conditions governs all activities in connection with utilization of the water resources in national economy as well as in the private sphere of the citizens. These legal regulations replaced the Water Act, which was adopted on April 13th, 1963. The a.m. Act is regulating all water managing tasks, e.g. preparation of long-term conceptions, preservation of waters, protection from flood and protection of the coastline.

Said law, which is binding on the whole German Democratic Republic, is also applicable, in full effect, to the catchment area of the Baltic Sea including inland waters and territorial waters. All requirements raised to use of water and waters as well as to protection of water - and which are in line with the modern state of science - are fixed in said comprehensive legal instrument to be binding on all.

Under para 2 of above Act water and waters are to be protected from influences, which may affect utilization, endanger life and health of citizens, and harm national

economy, flora and fauna or lead to other adverse consequences. Therefore, the principle is applicable that, if use of waters may lead to adverse consequences, a consent will be needed.

Under the protection requirements fixed in para 24 of the above Act it is a general legal obligation to deal with solid matters, liquids or gases in such manner that water of water supply plants as well as waters will not be exposed to adverse consequences.

Under the Water Act the polluter is compelled to combat spillages of noxious substances caused by him. To increase effectiveness of the regulations referring to protection of water and waters dealing with noxious substances, which may be highly hazardous to water, as well as projects for establishment of long-distant pipelines for carriage of any kind of noxious substances must be announced under para 26 of above Act. As from a definite quantity, which is different depending on the degree of noxiousness of the substances, storage of poisons as well as of mineral oils and their products must be announced to the National Water Inspection Board.

The legal powers of the National Water Inspection Board were much extended, in order to ensure that noxious substances stored will not harm water. The National Water Inspection Board is now empowered to check observance of the legal obligations requesting harmless dealing with noxious substances. For the purpose of water protection the Board is empowered to impose injunctions.

Since sewage discharged may endanger or affect the

waters in many respects, section V of above Act defines the necessary provisions to fix and apply limit values.

The tested regulation will further rule as main principle that sewage is allowed to be discharged only within the scope of the limit values fixed by the National Water Inspection Board. Under this provision it is ensured that the influences on the waters will be minimized to the acceptable degree or to an unavoidable quantity and will not lead to adverse consequences.

The limit values fixed for the ingredients of sewage are defined as maximum values. By this provision shall be ensured strict observance of these values at any time, otherwise material responsibility will apply. The enterprises are forced by law to make any efforts not to exceed these limit values.

A further progress was made when the regulation to combat spillages of noxious substances in the Baltic Sea was adopted on March 11th, **1982**. By this regulation the necessary activities are fixed, which are to be conducted by authorities and competent establishments to combat spillages of noxious substances in the Baltic Sea. The preamble of the Act explicitly refers to the Baltic Sea Convention. Under the Act a commanding centre with the Board of Navigation of the German Democratic Republic had to be arranged to combat spillages of noxious substances in the Baltic Sea, where members from all relevant organizations are represented to co-ordinate the work. Two marine bases forming the material basis for combatting operations are established at Rostock and Sassnitz. Those marine bases will be able to observe

the time period requested for conducting the combatting operations in the coastal area of the German Democratic Republic. Above regulation forms the legal basis for conducting more effective combatting activities.

For prevention of pollution from ships legal regulations were adopted.

On December 9th, 1982 the Council of Ministers of the German Democratic Republic passed the new pilotage service regulation. The main purpose among others is to prevent casualties and protect the sea waters from pollution.

In connection with the MARPOL-Convention, which entered into force on October 2nd, 1982, a new complex of legal regulations to prevent pollution from vessels is under preparation, where, in particular, the provisions under the Helsinki Convention will be taken into consideration.

As from **1st** of January 1980 the Annex "Protection of Environment" to the official regulations for the fleet was put into force. The particular provisions of the Helsinki Convention were reflected in these official regulations.

They contain, inter alia, provisions to prevent pollution

- by oil from tankers, bilges of engine rooms and from other tanks
- by sewage
- by garbage
- by noxious substances in packages and
- by noxious liquids in bulk.

Besides they contain provisions as to conduct in case of spillages of noxious substances as well as way of acting in case marine pollution was detected (observed).

National results in protection of marine environment

Administrative measures to implement the legal regulations are taken by the National Water Inspection Board for many years. This national body is charged with regulating use of water and checking observance of the legal regulations referring to use and protection of waters and water. They enjoy extended legal powers to give binding orders for use of water as well as use and protection of waters. Those orders may be enforced by sanctions.

The duties of the National Water Inspection Board are being executed by the Directorate of Water Management - Coast. In consequence of a profound checking activity the quantities of noxious substances including those from land bases discharged into the waters and thus into the Baltic Sea could be continuously decreased.

The provisions of the Baltic Sea Convention are executed in the German Democratic Republic by means of the existing programme for keeping the Baltic Sea clean. The time period, for which said programme is devised and accounted for, is five years. This period is identical with the time period of the Five-Years-Plans.

Besides a number of measures referring to supervision and reduction of land-based pollution this programme

includes specific requirements for prevention of pollution of the Baltic Sea area from vessels trading there.

By establishing sewage treatment plants in areas of increased discharges into waters significant improvement of purification of municipal, industrial and agricultural sewage could be attained.

Reduction of sewage load during the period from 1976-1980 - also due to the measures taken at the Oder and Neisse rivers as well as aboard the vessels and at the ports - is about 540 thousand population equivalents, i.e. reduction of sewage load is about 168.

A total amount of about 270 million marks was spent to implement above measures.

Above results were, inter alia, achieved by establishing sewage treatment plants at Sassnitz, Barth, Wismar, Bützow, Schwerin, Neubrandenburg, and Pasewalk.

As to the catchment area of Oder/Neisse the planned activities were continued at Eberswalde, Zittau, and Görlitz.

In the field of shipping and port activities the bilge and ballast water treatment plant was put into operation at the Rostock sea port. This measure was the major prerequisite to improve disposal of oily water.

In connection with technological implementation of the results obtained during research and development activities as to treatment of oily waste water from ships nearly 177.000 t of such waste water were treated by the bilge and ballast water treatment plant at Rostock during 1980 and 1981 and more than 14.000 t of oil were recovered.

When port cleaning boats were put into operation at the Rostock and Wismar ports as well as at the Volkswerft at Stralsund oil and other pollutants discharged into the port waters could be removed.

To be in line with the provisions of the Helsinki Convention as far as shipping is concerned, the necessary facilities were arranged aboard the vessels as well as at the sea ports.

Equipment of the ships shall comply with the criterions as to discharges fixed in the Convention.

The vessels discharge at ports to land-based as well as floating facilities. Vehicles and water crafts are at their disposal. At the Rostock sea port treatment of oily water is ensured by plants working effectively and economically. The duty of the Baltic coastal countries to combat oil spillages at sea is executed by the two sea-bases existing at Rostock and Sassnitz. They undertake that any eventual operation area, for which the German Democratic Republic will be responsible, is to be reached by the first combatting units within 6 hours. These bases will be developed in compliance with the provisions of the HELCOM-Recommendation 1/7.

Furthermore, should be mentioned that standard regulations were devised and implemented for classifying quality of water from the surface.

- Standard **22764** "Classification of quality of water from flowing waters", binding as from March 1st, **1982** as well as instructions for **application of Standard 22764**, binding as from April 1st, 1983.
- Standard 27885/01 "Classification - standing inland waters", binding as from January 1st, 1983.
- Instructions by the Directorate of Watermanagement - Coast for classification of quality of sea water of the German Democratic Republic, binding as from April 1st, 1983.

When classifying the surface waters a profound total picture of the quality of water is obtained by means of comparative assessments of the different criterions in graded intervals of concentration. Simultaneously, the basis is formed hereby to measure protection of waters and improvement of their quality. One objective, which is to be achieved in this respect, is to reduce discharges of noxious substances of high priority, e.g. copper, lead, mercury, zinc, cadmium, and oil.

Likewise, should be referred to a catalogue published by the Institute of Water Management in Berlin in 1975, which is specifying noxious substances of water.

The arrangements made in the Convention as well as in the Recommendations are being adapted to nationally binding regulations, which are co-ordinated and evaluated by a standing working group named "Baltic Sea Convention", which was formed as result of

a resolution adopted by the Council of Ministers. Representatives of all ministries, which finally are competent for initiating activities for reducing load of the Baltic Sea, are members to the central standing working group headed by the Ministry of Protection of Environment and of Water Management. Said working group is exclusively dealing with problems of keeping the Baltic Sea clean and of its protection. They co-ordinate programmes of research and development in relation to problems of how to keep the Baltic Sea clean and to protect it as well as to planning and major investment activities, e.g. construction and development of sewage treatment plants or activities conducted to additionally equip the vessels of the merchant fleet of the German Democratic Republic with waste water treatment plants and garbage incineration plants.

After each three months the standing working group is holding discussions at alternate places for checking progress made in the planned work and visiting projects, which are of special importance for that respective place.

Implementation of HELCOM-Recommendations

The German Democratic Republic implemented the HELCOM-Recommendations as stated below:

HELCOM-Recommendation 1/1

Referring to ensured disposal of reception facilities for waste from ships.

The present regulation for charges levied for services to be rendered to ships at the ports of the German Democratic Republic is not yet in line with the idea

of this Recommendation. As from **1984** a regulation is to be expected, which will be in conformity with Recommendation 1/1.

HELCOM-Recommendation 1/2

Referring to application of international test specifications for oil-water-separators and oil content meters (IMCO-Resolution A. 393 X)

The G.D.R. Inspection and Classification of Ships, the competent inspection body for technical safety of ships, is dealing in full conformity with said recommendation.

HELCOM-Recommendation 1/3

Referring to application of the international Code for carriage of dangerous goods in sea traffic.

Said Recommendation is implemented. As from December 1st, 1981 the IMDG-Code became binding on the German Democratic Republic.

HELCOM-Recommendation 1/4

Referring to international standards and instructions for tests of sewage treatment plants.

HELCOM-Recommendation 1/5

Referring to application of instructions for tests of sewage treatment systems.

The Recommendations 1/4 and 1/5 are implemented.

HELCOM-Recommendation 1/6

Referring to application of international conventions on safety of ships and prevention of pollution.

In general, above recommendation is implemented. Membership of the International Convention on Prevention of Pollution from Ships 1973/78 is outstanding, only. The German Democratic Republic will, however, become member to this convention still this year.

HELCOM-Recommendation 1/7

Referring to development of national forces and means for combatting spillages of oil at sea.

We continuously work on implementation of above recommendation (marine bases at Rostock and Sassnitz).

HELCOM-Recommendation 1/8

Referring to minimizing application of dispersants during oil combatting operations at the Baltic Sea.

The marine bases are arranged, in the main, for combatting oil spillages by mechanical means. Above recommendation is implemented.

HELCOM-Recommendation 1/9

Referring to facilitation of formalities for crossing the border granted to other Baltic coastal states, when assistance in combatting oil spillages has been requested.

Above recommendation is implemented.

HELCOM-Recommendation 1/10

Referring to position reporting system for ships trading in the Baltic Sea area.

Above recommendation was fully implemented by the German Democratic Republic.

HELCOM Recommendation 1/11

Referring to application of MEPC-instructions for disposal of appropriate reception facilities for waste from ships at ports.

In general, this recommendation is implemented. Reception of residues of noxious liquid substances is not yet ensured.

HELCOM Recommendation 1/12

Referring to fitting the ships out with standardized discharge flanges in line with the MARPOL-requirements.

Recommendation is implemented.

HELCOM Recommendation 2/1

Referring to addition to Rule 5 of Annex IV of the Helsinki Convention covering the provisions for carriage of chemicals in bulk.

Presently, preparations are made for acting in line with Rule 5 of Annex IV as from July 1st, **1984**.

HELCOM Recommendation 2/2

Referring to application of international conventions on safety of ships and prevention of pollution.

In general, above recommendation is implemented. It may be expected that the German Democratic Republic will join the International Convention on Prevention of Pollution from Ships 1973/78 still this year. Ratification of the Convention on Search and Rescue **1979** (SAR **1979**) is under preparation.

HELCOM Recommendation 2/3

Referring to application of specifications for supplementary devices to existing oil-water-separators.

G.D.R. Inspection and Classification of Ships is acting in full compliance with above recommendation.

HELCOM Recommendation 2/4

Referring to establishment of an early-warning system for incidents of pollution.

Above recommendation is implemented.

HELCOM-Recommendation 2/5

Referring to structure of commands for joint pollution combatting operations.

The regulation for combatting spillages of noxious substances was drafted to consider the purpose of this recommendation.

HELCOM-Recommendation 2/6

Referring to radio connection during joint pollution combatting operations.

The equipment for combatting oil spillages, which is continuously under development, is based on the requirements of radio connection in line with above recommendation.

HELCOM-Recommendation 2/7

Referring to demarcation of responsibility areas for combatting pollution at the Baltic Sea.

Above recommendation is not yet implemented.

HELCOM Recommendation 3/4

Referring to application of IPICO-form to report on insufficient reception facilities for oily residues at ports as well as to a Helsinki Convention form to report on insufficient reception facilities for waste water and garbage from ships.

The provisions of this recommendation are not yet implemented by the fleet in a satisfying way. Said situation is still to be improved.

HELCOM Recommendation 3/5

Referring to regulation of costs accrued from services rendered during combatting pollution.

The principles fixed in above recommendation were approved by the German Democratic Republic.

HELCOM Recommendation 4/2

Referring to application and adoption of the revised form of the International Oil Pollution Prevention Certificate (IOPP) and of the oil journal of the IMO.

G.D.R. Inspection and Classification of Ships started to issue the IOPP-certificate on behalf of the government of the German Democratic Republic.

To accelerate application of the oil certificate recommended by IMO the Ministry of Traffic is preparing a new arrangement of the journal, which will enter into force still this year. Print of new copies of oil journal is already under preparation.

HELCOM Recommendation 4/3

Referring to development of national forces and means for combatting spillages of other noxious substances than oil.

The purpose of this recommendation was approved and will be taken into account, if possible, when further forces and means will be developed for combatting oil spillages. Definite results are not yet available.

Construction and equipment of the ships of the German Democratic Republic carrying chemicals in bulk are in line with the requirements issued by IMO.

HELCOM Recommendation 4/4

Referring to application of the Manual for co-operation in combatting pollution at the Baltic Sea.

Should the occasion arise, the German Democratic Republic will act in line with the Manual.

HELCOM Recommendation 3/1

Referring to limitation of application of PCB's.

Implementation of this recommendation is under preparation.

HELCOM Recommendation 3/2

Referring to elimination of DDT-discharges.

Above recommendation is implemented in the German Democratic Republic.

Application of DDT is prohibited in the German Democratic Republic.

HELCOM Recommendation 3/3

Referring to protection of seals at the Baltic Sea.

For the German Democratic Republic said problem is not of any importance. The necessary protecting

activities were approved by the German Democratic Republic.

HELCOM Recommendation 4/1

Referring to the addition to Annex I of the Convention.

The German Democratic Republic agreed to include PCT into Annex I of the Convention.

Research and development activities

Research activities in the fields of monitoring and assessment of the state are mainly conducted by the Academy of Sciences of the German Democratic Republic - Institute of Marine Research - as well as by institutions of the Wilhelm-Pieck-University at Rostock, Ernst-Moritz-Arndt-University at Greifswald, and Karl-Marx-University at Leipzig and by the Directorate of Water Management - Coast. The Institute of Marine Research of the Academy of Sciences is operating monitoring cruises in the Baltic Sea area (4-5 cruises per year) and is engaged in long-term research programmes to study e.g. exchange of water above the Darss threshold (Bay of Mecklenburg ..., Arcona-Sea), characteristic interactions of wind and surface wind drift offshore the German Democratic Republic as well as problems of air-sea-interactions.

Special attention is paid to study long-term trends of oceanological parameters in the Baltic Sea area. Besides the classic oceanological parameters those trends are being studied, which refer to nutritious substances and their biological consequences. The chemical research activities were further extended to study distribution of potential noxious marine

substances (major substances: heavy metals, oils and persistent chlorinated hydrocarbons).

After having started use of adequate sampling instruments and techniques as well as of necessary analytic methods it was possible - partly in co-operation with other scientific institutions of the German Democratic Republic - to prepare first assessments of concentrations and budgets of noxious substances of the Baltic Sea water and of its load in relation to the North Sea and the North Atlantic.

The results achieved in 1980, **1981** and 1963 during a complex of field investigations executed in the Baltic Sea and in its adjacent sea waters formed the basis for this subject. In this connection different compartments of marine environment (water, suspended matter, organisms, surface micro-layer, aerosols) were included. Growing importance is also attached to the role of sediment as sink and/or source of noxious substances. For this purpose joint investigations were started together with the Institute for Marine Research in Helsinki and proposals were vividly supported to perform intercalibration activities covering noxious substances, which are present in the sediment. Other joint activities were executed on the basis of contracts together with Sweden, U.S.S.R., and People's Republic of Poland, while co-operation with Denmark and the Federal Republic of Germany is mainly conducted on the level of the relevant SCOR- and ICES-activities.

These research activities covering the open Baltic Sea area are consistently supplemented by long-term

intensive studies of the cycle of matter and energy as well as of interactions of sediment and water mass taking place in territorial and inland sea waters of the German Democratic Republic.

Scientists, who are preferably members of the above mentioned institutions will join preparation of the next assessment of the state prevailing in the Baltic Sea.

Other research and development activities are conducted, in particular, by ministries of industries. Those activities are dedicated to preparation of water protection technologies and to development of a suitable technique for treatment of waste water from ships and for incineration of waste therefrom.

Research and development activities are also conducted in the field of oil content measuring. In this connection oil content is determined (emission control) by using the method of differential pressure.

When continuously developing the marine bases for combatting spillages of noxious substances in the Baltic Sea main stress is laid on combatting oil and oily water by mechanical means. In this respect conventional means, e.g. snake-shaped oil barriers and oil skimmers, enjoy priority. Therefore, development of a marine oil barrier is planned, which will be produced in the German Democratic Republic.

To support above scientific activities below events were organized by the German Democratic Republic:

- 1st biological methods intercalibration of the Baltic

coastal states, held at Stralsund from August 26th - September 1st, 1979

- 6th meeting of the expert group working on combatting operations, held at Rostock from October 11th - 15th, 1982
- 6th meeting of the ad hoc working group on criterions and standards for limitation of emissions of noxious substances into the Baltic Sea area, held at Neubrandenburg from May 30th - June 3rd, 1983.

FEDERAL REPUBLIC OF GERMANY

IMPLEMENTATION OF THE HELSINKI CONVENTION

The Federal Republic of Germany attaches particular importance to the protection of the marine environment in the Baltic Sea Area. Since the latter is connected to oceans only by narrow straits and, thus, water exchange is possible only to a limited extent, environmental pollution has a particularly strong and immediate impact there. Moreover, this maritime region is particularly threatened on account of the high degree of industrialization in the coastal states and on account of the intensive exploitation of the Baltic Sea.

Therefore, all possible efforts to protect it must be made so as to

- maintain its ecological balance and to protect its fauna and flora,
- be able to use the nutritious substances provided by the Baltic Sea on a long-term and environmentally sound basis,
- preserve its coasts as recreation areas.

The Convention of **22** March **1974** on the Protection of the Marine Environment of the Baltic Sea Area (Helsinki Convention) is considered an effective legal instrument for achieving these objectives. Following the

promulgation of the required act giving the consent of the competent legislative bodies, the Federal Republic of Germany ratified the Convention on 3 March 1980. The first two amendments made in the meantime to the Annexes to the Convention were put into effect through the issue of ordinances having force of law. The entry into force of the third amendment, too, has meanwhile been prepared and is to follow soon.

In addition to ensuring compliance with the provisions of the Convention proper, the Government of the Federal Republic of Germany has been encouraging the application of pertinent recommendations made by the Helsinki Commission when implementing the Convention. These recommendations have been embodied in relevant national statutory instruments or do provide guidance to Government action, anyhow.

The particular importance of the Convention lies in the fact that, for the first time, an international set of regulations has been created to protect a maritime region against the various forms of pollution. It thus realizes at the regional level the conclusion that effective protection of the marine environment will not be possible if measures are directed only against individual sources of marine pollution while other sources are not taken into account. The Convention has been considered trend-setting also because it contains provisions differentiating pollutants from pollution sources.

The measures taken by the Federal Republic of Germany to implement the Helsinki Convention are based on the following principles of environmental policy:

- In conformity with the principle of anticipatory action, environmental problems and damage are sought to be prevented from the outset.
- In accordance with the "polluter pays" principle, those responsible for the development of environmental pollution are sought to be called upon to remedy it.
- According to the principle of co-operation, there is a requirement for close co-operation among all those responsible - particularly from industry, public administration, and the scientific community - in order to achieve an effective solution of environmental problems which, in most cases, are of a very complex nature.

Measures taken for the application of these principles include the following:

1. Hazardous substances (Article 5 of the Helsinki Convention)

Vigorous action is taken against the introduction of hazardous substances into the Baltic Sea Area. Trading in DDT is prohibited by law in the Federal Republic of Germany. PCBs may now be used only in closed systems. PCTs are not produced in the Federal Republic of Germany. With the exception of a few applications (mainly involving their use in some closed systems) it is prohibited to put PCTs on the market. The Federal Government is preparing a draft ordinance designed to achieve even further restrictions on PCTs.

2. Prevention of land-based pollution (Article 6 Of the Helsinki Convention)

2.1 Water protection

National water protection measures by the Federal Republic of Germany focus on the prevention of land-based pollution.

The most important basis for such measures is the Federal Water Act; one of its objectives is to prescribe emission standards designed to keep the quantity and noxiousness of waste water as low as possible when applying the appropriate methods in accordance with the generally accepted rules of technology. The established minimum standards must be complied with irrespective of the given water quality. Stricter standards will be imposed on a case-by-case basis if required in view of the water quality of the receiving body of water.

Under the Waste Water Charges Act, charges will be levied on those who pollute waters by the discharge of waste water. The amount of the charges depends on the concentrations of pollutants contained in the waste water.

Other legal regulations deal with the requirements concerning the environmental compatibility of washing and cleansing agents and with the controlled disposal of used oil.

In addition to legal provisions, investment aids and low-interest credits are granted for specific wastewater treatment measures by public authorities, while measures by industry are supported in the framework of the EC subsidy scheme. In this way, an important incentive is given to engage in practical water protection activities. Thus, 27 billion DM have

been invested by local governments alone in the construction of purification plants and sewerage systems in the Federal Republic of Germany since 1975.

The last decade or so has seen an enormous growth of the volume of sewage collected and purified in all parts of the Baltic Sea catchment area of the Federal Republic of Germany. As a result, only purified sewage is discharged all along the Baltic coastline of Schleswig-Holstein. The limiting values to be observed for harmful substances are the same as in all other parts of the country. In order to keep to these values, it was necessary to build sewage purification plants operating on the principle of fully biological treatment; these plants reduce BOD_5 by as much as 95 per cent. Over the past ten years, the overall BOD_5 immission into the Baltic Sea could be cut down by about 70 per cent, by means of extending drainage networks and increasing the number and capacity of purification plants. There is a regular control of prescribed limiting values in the course of purification processes as well as of the quality of coastal waters.

Finally, it should be noted that water protection measures are accompanied with intensive research activities which are realized in a large number of individual projects.

2.2 Airborne pollution

The Federal Immission Control Act provides an effective and comprehensive tool for counteracting air pollution, for example, by providing for the imposition of certain restrictions or quality requirements when granting immission permits.

This also contributes to minimizing the pollution of the Baltic Sea Area by airborne harmful substances.

3. Prevention of pollution from ships
(Articles 7 and 8 of the Helsinki Convention)

With regard to measures for the prevention of pollution from ships, the Federal Republic of Germany is confronted with the problem that ships flying her flag are operating not only in the Baltic Sea but on the oceans all around the world. So, in order to avoid competitive distortions, it is necessary to see to it that relevant requirements will not only pertain to ships from Baltic coastal states but will rather apply world-wide. Consequently, the Government of the Federal Republic of Germany has been making great efforts aiming at the insertion - wherever possible - into universal international conventions of the pertinent rules and regulations for the Baltic Sea Area (except for those provisions that have been especially made to take into account the specific circumstances prevailing there). Logically, the Government of this country attaches great importance to the conformity between the contents and the application of relevant provisions of the Helsinki Convention and of the MARPOL Convention (for which the International Maritime Organization is responsible).

This Government's view is that the international co-operation under the Helsinki Convention has two equally important aspects: for one thing, the Baltic coastal states will join in common efforts to promote at IMO what they deem necessary for the Baltic Sea Area; for another thing, they will each

take over rules and regulations adopted at IMO and will implement these in the whole of the Baltic Sea Area in a harmonized and efficient way. Action by the Government of the Federal Republic of Germany with a view to implementing relevant rules and regulations for the prevention of pollution from ships includes the following:

3.1 Co-operation for more safety of maritime traffic

In order to help prevent the pollution of the Baltic Sea Area from ships, the Government of the Federal Republic of Germany has been engaged in intensive co-operation with regard to IMO-adopted measures for more safety of maritime traffic.

The following international instruments have been adopted in accordance with relevant recommendations by the Helsinki Commission:

- the International Convention for the Prevention of Pollution from Ships, **1973**, as modified by the Protocol of 1978 relating thereto (**MARPOL 73/78**);
- the International Convention for the Safety of Life at Sea, 1974, and the 1978 Protocol relating thereto (**SOLAS 74/78**);
- the 1975 Amendments to the International Convention on Load Lines, 1966;
- the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, 1978 (STCW 1978); and
- the International Convention on Maritime Search and Rescue, 1979 (SAR 1979).

Performing the duties of the Secretariat of the Baltic Pilotage Authorities Commission, this

Government has been making major contributions towards a set of measures for the improvement of deep-sea pilotage services in the Baltic, including the adoption of IMO Resolution A.480 (XII).

This country is also participating in the trial phase of the BAREP System. As far as the reporting centre at Kiel is concerned, however, it is a pity that it must be said that ships do very seldom forward reports, the System operating on a voluntary basis.

3.2 Identification of contraventions and administrative action against those contravening

In the fields of identification of contraventions of bans on pollution and of administrative action against those contravening, the Government of the Federal Republic of Germany has been advocating a closer co-operation between the Baltic coastal states. In this country's coastal shelf area a large number of vessels (belonging to the Federal Waterways and Shipping Administration, to the Federal Border Police, or to the Federal Customs) are operating an intensive surveillance service.

In order to ensure that contraventions - in particular, oil pollution incidents - are detected and possibly combatted, an additional airborne surveillance service operating in all kinds of visibility and covering the continental shelf area of the Federal Republic of Germany in the Baltic and the North Sea is maintained in co-operation with the Netherlands. When a pollution incident is detected, water samples will be drawn by vessel or by helicopter; these

samples will be analyzed by the Deutsches Hydrographisches Institut, using a combination of gas chromatography and mass spectrometry, and comparing them with oil samples taken from aboard the suspected causer of pollution. A first series of eventually successful investigations have proved the effectiveness of this method of identification.

Systematic airborne surveillance of the coastal areas of the Federal Republic of Germany will be intensified in the future. It is envisaged to introduce in **1985** an independent airborne surveillance service for operation in all kinds of visibility. Preparations are already well underway both on the technical and the organizational level.

3.3 Oil

National legislation, which is in line with relevant MARPOL regulations, requires that ships entitled to fly the flag of the Federal Republic of Germany must not discharge oil or oily mixtures (as specified in the Helsinki Convention). Contraventions of such legislation constitute either a criminal or an administrative offence, as the case may be. For the control of discharges of oil and oily mixtures from machinery spaces as well as of sewage and garbage, the See-berufsgenossenschaft, being the national ship safety authority, has issued "Requirements for Structural Measures on Seagoing Vessels for the Prevention of Marine Pollution by Oil, Sewage, and Refuse".

Now that the MARPOL Convention has entered into force, the construction and equipment requirements contained in Annex 1 will now be applied. Following

a pertinent recommendation by the Helsinki Commission, the Federal Republic of Germany has meanwhile introduced the revised forms of the International Oil Pollution Prevention Certificate and of the Oil Record Book as agreed by IMO. When oily-water separating equipment and oil content meters are approved for use, the relevant IMO-adopted Performance and Test Specifications as well as the "Specifications for Process Units intended for Attachment to existing Oily-Water Separating Equipment" will be applied.

Reception facilities for oily residues are available in the Baltic ports of the Federal Republic of Germany.

3.4 Noxious liquid substances in bulk

Preparations have been made in the Federal Republic of Germany in view of the implementation, of the Helsinki Convention rules applying to noxious liquid substances in bulk. One of the prerequisites for effective implementation is, however, that relevant procedures will be drawn up at IMO in good time, taking Annex II to the MARPOL Convention into due account. So far, there has been no need yet for reception facilities in the Baltic ports of the Federal Republic of Germany, as noxious liquid substances in bulk have not been loaded or discharged there.

3.5 Harmful substances in packaged forms

The Government of the Federal Republic of Germany has introduced the International Maritime Dangerous Goods Code as a national set of statutory provisions. Anyway, ships carrying certain dangerous goods must report to the competent Waterways and Shipping Office in good time prior to entering a navigable waterway.

3.6 Sewage and garbage from ships

On the basis of the "International Effluent Standards and Guidelines for Performance Tests for Sewage Treatment Plants", a set of technical specifications aiming at the prevention of illicit disposal at sea of sewage and garbage are being issued, and their observance verified, by the See-Eerufsgenossenschaft. Reception facilities for sewage and garbage from ships are available in the Baltic ports of the Federal Republic of Germany. In view of ensuring equal treatment for ships, and also in view of avoiding competitive distortions, the Government of the Federal Republic of Germany attaches great importance to the earliest possible entry into force, under international law, of the optional Annexes IV and V to the MARPOL Convention. Only then may be expected that the entire international shipping community will observe all the pertinent provisions.

3.7 Pleasure yachting

In close co-operation with pleasure yachting associations the Government of the Federal Republic of Germany has been making efforts to abate the harmful effects of pleasure yachting on the marine environment of the Baltic Sea Area. In addition to the development of special technical appliances for pleasure craft and to the provision of sufficient reception facilities in yacht marinas, large-scale information campaigns have been conducted to enhance the awareness of pleasure yachtsmen for the importance of a sound environment.

3.8 Reporting alleged inadequacy of reception facilities

The Government of the Federal Republic of Germany has adopted the format recommended by the Helsinki

Commission for reporting alleged inadequacies of reception facilities for oily waste, sewage, and garbage and has issued a relevant Notice to Seafarers. However, no reports have been received so far.

4. Prevention of dumping (Article 9 of the Helsinki Convention)

As far as the Federal Republic of Germany is involved, waste disposal on the High Seas is subject to the following legal conditions:

A dumping permit shall only be granted by the Deutsches Hydrographisches Institut

- if substances are intended to be dumped or discharged that cannot be disposed of ashore without detriment to the common weal, or that can only be disposed of at an excessively high cost; and
- if the intended dumping or discharge is unlikely - as far as current scientific knowledge goes - to cause any detrimental change in the quality of the sea water.

Applying these legal conditions to the Baltic Sea means, in practice, that no dumping permits will be granted because there is always a likelihood of detrimental changes.

5. Exploration and exploitation of the sea-bed and its subsoil (Article 10 of the Helsinki Convention)

The Federal Mining Act contains the relevant provisions to ensure that all appropriate measures are taken in order to prevent pollution of the

marine environment of the Baltic Sea Area resulting from exploration or **exploitation** of the Federal Republic of Germany's part of the sea-bed and its subsoil or from any associated activity thereon. Exploration and exploitation projects will only be permitted upon a number of conditions, including the prerequisite that no unreasonable harmful effects on the marine environment may be expected.

6. Co-operation in combatting marine pollution
(Article 11 of the Helsinki Convention)

A programme has been developed in the Federal Republic of Germany for combatting oil pollution of the sea and the coastal waters. This programme covers not only the Baltic Sea Area but also the North Sea Area (as far as the latter is concerned, the Bonn Convention of 1969 forms the legal basis for international co-operation) and takes the pertinent recommendations of the Helsinki Commission into due account.

6.1 Administrative measures

A reporting centre for oil pollution incidents has been established at Cuxhaven. The service of this centre is available round the clock both at the national and the international level. In case of an actual oil spill situation, the reporting centre would call on a command group. Details have been laid down in a national contingency plan.

An agreement between the Federal Government and the Lander of Bremen, Hamburg, Niedersachsen, and Schleswig-Holstein provides for the necessary co-operation between the competent authorities in the coastal regions. An expert committee of these

parties has been established to consider and propose further measures, in particular, the acquisition of equipment to deal with pollution.

Amongst others, the following further arrangements should be mentioned:

- In 1981 an agreement has been concluded with German **tankship** owners for the purpose of co-operation and the procurement of tank capacity for lightering operations.
- In 1982 the Governments of Denmark and of the Federal Republic of Germany have adopted a joint contingency plan ("DANGER Plan") spelling out arrangements for co-operation in combatting pollution in the relevant areas of the Baltic and the North Sea.

6.2 Response Measures

In addition to Government-owned service vessels, special oil combatting equipment is available.

A short-term investment programme comprising the purchase of specialized vessels and other equipment worth about 15 million Deutschmark was realized between 1978 and 1981. This programme included the acquisition of the oil-skimming catamaran ÖSK 1 for service in coastal and harbour waters plus the purchase of the sea-going oil pollution combatting vessel SCHARHÖRN. Two emergency off-loading systems are available to facilitate lightering operations alongside a grounded or damaged tanker. Additional equipment of high-sea booms and various oil-skimming systems complete these combatting resources.

A long-term investment programme worth about 85 million Deutschmark is now being implemented; it includes the purchase, respectively, the conversion, of six ships for operation on the High Seas and of twelve smaller vessels for combatting action near the coast, in the estuaries, and in harbour waters. This programme also includes the acquisition of a remote sensing system for reconnaissance, combatting and surveillance purposes. Since, for technical reasons, the installation of such a system needs some time, the Netherlands remote sensing system has temporarily been made available for those purposes (cf. Item 3.2 above).

The long-term investment programme is also accompanied by research and development activities of the relevant Federal agency. These activities have, amongst others, resulted in the development of a twin-hulled oil recovery ship embodying a new skimming concept for oil recovery.

6.3 Other harmful substances

With regard to combatting activities in respect of harmful substances other than oil, a special study on the seaborne transportation of such substances has been commissioned by the Federal Ministry of Research and Technology. Further studies on potential combatting technologies in this field are to follow. The Federal Government and the Länder of Bremen, Hamburg, Niedersachsen, and Schleswig-Holstein have initiated talks on whether, and possibly how, to organize such combatting activities.

7. Scientific and technical co-operation
(Article 16 of the Helsinki Convention)

The Government of the Federal Republic of Germany attaches special importance to scientific and technological co-operation for the prevention of pollution of the Baltic Sea Area. Consequently, relevant institutions of this country have been taking an active part in the work of the pertinent bodies established under the Helsinki Convention as well as in that of other international organizations.

7.1 Sea water monitoring

hs far as the Federal Republic of Germany is involved, sea water monitoring in the area of the High Seas is mainly the concern of the Deutsches Hydrographisches Institut (DHI). Regular monitoring programmes have been carried out by this institution in order to identify changes in given areas and/or over a given period of time. Such programmes have included tests and studies on the following substances:

(a) Oxygen, hydrogen sulphide, and nutritious substances

A regular monitoring programme to identify the respective levels of oxygen, hydrogen sulphide, and nutritious substances in the Western Baltic and in certain places of the Central Baltic **was** commenced as early as in 1975. That programme was slightly modified in 1979 so as to take into account the relevant requirements of the Baltic Monitoring Programme (BMP). The DHI programme includes visits to twenty-three measuring stations to be made in the third quarter of each

year so as to enable scientists to obtain a good picture of the situation in the Western Baltic for the most critical period of the year, namely, the months of August and September.

(b) Chlorinated hydrocarbons

Since **1974**, the Deutsches Hydrographisches Institut has been conducting regular tests and studies on the occurrence in the Western Baltic of chlorinated hydrocarbons (in particular, of DDT and its pure derivatives DDD and DDE as well as of the PCB family). The DHI has one of the very few laboratories possessing reliable data series on the occurrence of said substances in the water of the Baltic Sea. DHI tests and studies also cover other persistent chlorinated hydrocarbons.

(c) Heavy metals

Endeavours had been made as early as in **1973** to identify the level of heavy metals in the water of the Baltic Sea. Relevant tests and studies have later been made on a regular basis so that it is meanwhile possible to obtain a correct and reliable picture of the occurrence in the Western Baltic of mercury, cadmium, copper, nickel, manganese, and iron. As a supplementary measure, sediments sampled from the bottom of the Western Baltic have been analyzed to ascertain their content of mercury, cadmium, lead, copper, zinc, manganese, and iron.

(d) Petroleum hydrocarbons

In **1975** the beginning was made in the development of methods for monitoring sea water for its level of petroleum hydrocarbons. For regular monitoring, use is meanwhile being made of a comprehensive summary method which is planned to be applied by all Contracting Parties during the second stage of the Baltic Monitoring Programme.

(e) Radioactive substances

The level of ^{137}Cs , ^{90}Sr , and $^{238/239}\text{Pu}$ in the water of the Baltic Sea has been monitored since **1975**.

7.2 Other research activities

Other research activities have been conducted mainly by the Institute of Oceanology of Kiel University. Such activities have included fundamental research on the general condition of the Baltic Sea as well as on the nature and extent of pollution there, including research work on the paths of pollution, its main points of attack, and the hazards involved. To give an example, the Institute organized the two Intercalibration Workshops on nutritious substances (**1977**) and on petroleum hydrocarbons (**1981**), which were preparatory to the Baltic Monitoring Programme. Until **1982**, the Institute also conducted pertinent biological monitoring activities, for which the Federal Fishery Research Institute and the Biologische Anstalt Helgoland have meanwhile taken over the responsibility, preliminarily until **1984**. Talks are currently underway to clarify the question of final competence.

The Federal Fishery Research Institute has been dealing with the density and areas of occurrence of commercial fish in the Western Baltic. Tests and studies made by the Institute cover residues found in fish and the relation between such residues and fish diseases and include histological research on codfish suffering from modifications of their epiderm and/or pseudo tumours of their bronchial tubes. The Institute's research activities also include tests and studies on the relation between

the level of residues and the population of fry, quality analyses of spawn and, since 1982, the sampling from plankton of embryonic fish for their exploration as to anomalies.

Between 1974 and 1982, research vessels flying the flag of the Federal Republic of Germany have made more than 200 cruises in the Baltic during which their research programmes included various aspects of marine environment protection.

The relevant institutions of the Federal Republic of Germany make their best efforts to co-operate with the other Contracting Parties in the Helsinki Commission and its subordinate bodies. The Government of the Federal Republic of Germany feels that these bodies do not only have the task of working towards the effective implementation of the Convention but it rather expects that the close co-operation prevailing in these bodies will produce an impulse for new scientific findings as well as for the further development of legal and technical measures in the field of marine environment protection. Its efforts are also directed towards making available the experience that has been, and will be, gathered in the Baltic Sea Area to institutions dealing with environmental protection in other maritime regions.

Generally speaking, the Government of the Federal Republic of Germany thinks that, over the past few years, the Helsinki Convention has proven to be an effective tool for checking pollution of the Baltic Sea Area. In the long run, however, the success of the Convention will depend upon two major elements:

for one thing, the Convention must be implemented with all due vigour in the future as it was in the past; for another thing, the Convention must be continually adapted to new developments. In the latter respect, the entry into force of the relevant rules for the carriage of noxious liquid substances in bulk will constitute another important landmark. Further measures are bound to follow, especially with a view to further reducing pollution from land-based sources.

POLISH PEOPLE'S REPUBLIC

REPORT ON IMPLEMENTATION OF OBLIGATIONS ARISING FROM
THE PROVISIONS OF THE CONVENTION ON THE PROTECTION OF
THE MARINE ENVIRONMENT OF THE BALTIC SEA AREA IN THE
PERIOD **1974 - 1983**

Elaborated in accordance with the decision of the 4th
Meeting of the Helsinki Commission

I. LEGISLATION INITIATED IN RESULT OF THE SIGNING AND ENTERING INTO FORCE OF THE HELSINKI CONVENTION

The signing by the Polish People's Republic of the Convention on the Protection of the Marine Environment of the Baltic Sea Area, and especially its ratification by the Council of State has initiated a gradual introduction of alterations in the legal regulations on the marine environment protection aimed at their adaptation to the requirements provided in the Helsinki Convention. The first act which involved the mentioned above requirements is the Decree by the Council of Ministers of Nov. 29, 1975 on classification of waters, criteria and standards for waste water as well as fines for violation of those regulations.

The relevant provisions of that Decree determine the conditions for waste water discharged into the surface waters in the range according to the assessment of the waste water impact on the coastal sea waters. Taking into account the recommendations

of Annex I to the Helsinki Convention the total ban on discharging into the surface waters of the waste water containing the PCB and DDT substances has been introduced. Just before the ratification of the Helsinki Convention by the Council of State, the Decision No 47/77 of April 29, 1977 by the Presidium of the Government of Poland had been taken.

That Decision determined the substantial range of actions to be taken by the Polish Contracting Party for adaptation of the environment protection conditions in the country to the requirements of the Helsinki Convention. On the basis of the Decision No 47/77 the following activities have been under implementation:

- investment activities in the sphere of water and sewage management improvement in the coastal zone,
- investment and organization activities connected with the Baltic Sea marine environment protection against pollution from the sea ports and ships as well as elimination of incidental pollution effects,
- scientific and research works within the program "the Protection of the Marine Environment of Baltic Sea Area".

The next legal act connected with the entering into force of the Helsinki Convention is the Regulation by the Minister of Agriculture of Nov. 8, 1977 on disposal of sewage from ships.

At present, drafts of further legal acts connected with the protection of the Baltic Sea marine environment are under elaboration, viz:

- a) Decree on establishing of marine service for combatting catastrophic oil spillages at sea,
- b) Decree on tasks and organization of the marine service for combatting catastrophic oil spillages at sea.

Those acts shall regulate, inter alia, the territorial competence sea - land between the marine and land services, organization of the land bases and specialistic oil combatting strike teams as well as the co-operation in the sphere of mobilization, in case of need, of all means and human forces from the land and sea.

In the sphere of the technical preparation of the Polish merchant marine to the requirements of the Helsinki Convention the Polish Register of Ships has issued the Regulations on prevention of pollution of the sea by ships. Those Regulations deal with the principles, supervision, ships survey, requirements for construction and equipment of ships, in particular the equipment for prevention of pollution of the sea by oil, sewage, garbage, and furthermore the rules for issuing certificates provided for in the Helsinki Convention.

Apart from the legislation presented above for its further amendment and development the following legal acts shall be passed in the near future:

- 1) Act on the protection of the marine environment against pollution in result of utilization of the sea, inclusive executive regulations (drafts have been prepared),
- 2) Concluding of the three-party agreement: the Polish

People's Republic - the German Democratic Republic - the Union of Soviet Socialist Republics on co-operation in the sphere of the marine environment protection of the Southern Baltic Sea, inclusive combatting catastrophic oil spillages impacts,

3) Concluding of an agreement with Sweden and Denmark on delimitation of the supervision regions on the Baltic Sea (open sea) and co-operation in combatting of oil spillages.

II. NATIONAL ADMINISTRATION CONCERNED WITH THE MARINE ENVIRONMENT PROTECTION AND MEASURES TAKEN IN THE RECENT PERIOD FOR IMPLEMENTATION OF THE REQUIREMENTS OF THE HELSINKI COMMISSION, AS WELL AS ACTIONS PLANNED FOR THE NEAR FUTURE

Analogically with the process of adaptation of the national legislation on the marine environment protection to the requirements of the Helsinki Convention, presented in Item I, the structure of the national administration is also under development for more complete implementation of the environment protection tasks, inclusive the tasks arising from the decisions taken by the Helsinki Commission. The principal body of the national administration responsible for implementation of the provisions of the Helsinki Convention, 1974 is the Agency for Environmental Protection and Water Management.

The Agency is responsible for the matters connected with the environmental protection against pollution as well as for co-ordination of the activities of the national administrations bodies, co-operative and social organizations, aimed at ensuring the implementation of the regulations on the environment protection, inclusive the protection of the nature.

landscape, forests, soil, greens, marine environment and water management.

The National Inspection for Environmental Protection is the central inspection body in the range of the environment protection and it is subordinated to the Minister-Head of the Agency for Environmental Protection and Water Management.

The co-ordination of the tasks connected with implementation of the obligations arising from the provisions of the Helsinki Convention has been carried out by the National Inspection for Environmental Protection, and specifically by the Secretariat for the Helsinki Convention established in 1982.

The Minister-Head of the Agency for Marine Management with the assistance of the Marine Boards is responsible for implementation of the tasks specified in relevant regulations and concerning the compliance with the requirements of the Helsinki Convention, 1974, and in particular the task of the marine environment protection connected with the utilization of the sea.

The Directors of the Marine Boards in the area of their territorial competence are simultaneously the plenipotentiaries of the Minister-Head of the Agency for Marine Management for the matters of prevention and liquidation of incidental and catastrophic effects of oil spillages and other pollutions. The Marine Boards are especially responsible for organization and management of the operations for liquidation of the effects of pollutions caused by ships.

The problems of implementation of the provisions of the Helsinki Convention have been attributed a special rank by including the sphere of problems of the Baltic Sea marine environment protection in the works of the Body recently established, viz.: the National Council for Environmental Protection as the consultative body to the President of the Council of Ministers /Act of Jan. 31, **1980** on protection and development of the natural environment/. The sphere of problems of the Baltic Sea marine environment protection have been treated as the priority tasks in the works of the National Council for Environmental Protection. For implementation of the recommendations of the Helsinki Convention, 1974 concerning oil spillages and other hazardous substances, in the framework of the National Inspection for Environmental Protection the Working Group for prevention of extreme hazards for the Environment was established in 1982 which has initiated a system of combatting oil spillages from the land side.

Simultaneously, the operational functions in the range of combatting oil spillages at sea, apart from other tasks, have been carried out by the Polish Salvage Company subordinated to the Agency for Marine Management.

III. STATE OF IMPLEMENTATION OF THE RECOMMENDATIONS
OF THE HELSINKI COMMISSION

Group 1

Recommendations concerning standards approved by IMO or its Working Group MEPC:

Recom. 1/2 on approval for application of the IMO Resolution No A 393/X concerning standards for testing

and issuing certificates for oil separators of the control-measuring equipment.

The requirements of IMO have been applied in practice by the authorized body in the country - the Polish Register of Ships.

Recom. 1/4 on approval for application of the Resolution of MEPC/2/VI concerning the conditions for wastes discharge from ships and guidelines for carrying out tests for foul sewage treatment plants as well as adaptation of the certificate format for approval of the sewage treatment plant type.

Implementation has been carried out by the Polish Register of Ships.

Recom. 1/5 on approval of the decisions by the MEPC concerning amendments to the uniform procedure for testing and approval of foul sewage treatment system on shipboards.

Implementation has been carried out by the Polish Register of Ships.

Recom. 1/11 on approval for application of the guidelines of IMO concerning the technical specifications for the harbour reception facilities for oil residues, residues from mixtures containing harmful liquid chemical substances, foul sewage and lubricants in the aspect of servicing various types of ships.

The regulations as above have been taken into account when constructing the ballast water treatment plant in the Northern Harbour of Gdansk. The intensity of stevedoring in the Polish ports enables the implementation of the tasks concerning reception of pollutions by the Maritime Service Enterprise by means

of the equipment disposed of without undue delay. Further improvement shall be achieved in connection with the solutions for legal and financial regulations in that sphere, which are under preparation.

Recom. 2/3 on approval for application of the Resolution IMO - A. 444/VI/ concerning construction and equipment of the existing installations for separation of oil from waste water, method of testing those installations, keeping the certificate format as well as mutual approval of the certificate. The provisions as above have been implemented by the Polish Register of Ships and the Maritime Administration on the basis of the technical requirements specified in the Convention MARPOL 73/78.

Recom. 3/4 on approval for application of the report on hindrances at the reception of oily waste water, foul sewage and garbage /MEPC/60/.

The national shipowners have been instructed to report on those hindrances to the maritime administration. Due to the fact that the harbour administrations in the western ports have possibilities of influencing the shipmasters - no reports have been submitted so far.

Recom. 4/2 on application and approval of the international certificate format for prevention of oil pollutions /IOPP/ as well as Oil Report Register /MEPC/93/.

The mentioned above formats shall enter into force in the 3rd quarter of 1983.

Recom. 4/4 on application by the ships of the Contracting Parties of the hand-book on combatting

pollutions of the Baltic Sea by ships.

When the copies of the hand-book have been received, it shall be in the number of ship's documents.

Group 2

Recommendations concerning approval for application of the international legal regulations.

Recom. 1/3 on approval for application of the International maritime dangerous goods code (IMDG).

The shipowners and harbours have been employing those regulations in practice, however, the relevant national regulations have not been introduced, yet. Appropriate measures for the ratification of the International Code and introducing amendments to the Code as well as issuing the national regulations have been taken.

Recom. 1/6 and 2/2 on participation in the international agreements dealing with prevention of the marine environment pollution.

MARPOL - 73/78 a proposal for ratification of the Convention is under consideration;

SOLAS - 74/78 as above

SAR **1979** as above

Amendments of 1975 to ICLL - the task has been implemented.

STCW 1978 - ratified.

Recom. 1/12 on introduction for application on shipboards of the Baltic Sea States of the uniform installation pipe connections for disposal of bilge water and oily ballast water.

The requirements are taken into account in the course of construction of new ships and modernization of the systems on the existing ships.

Recom. 3/1 on restrictions on the use of PCB substances. PCB substances are not used in Poland.

Recom. 3/2 on the use of DDT substances.

In accordance with the decree of the Council of Ministers dated Nov. 29, 1975 on waters classification, criteria and standards for waste water discharges as well as fines for violation of those requirements, the discharges of waste water containing DDT and PCB substances have been prohibited in Poland.

Group 3

Recommendations concerning amendments and modifications of the provisions of the Helsinki Convention.

Recom. 1/13 on adaptation of the list of chemical substances which, owing to their noxiousness, should be transported in containers for the purpose of Annex IV para B item 6 of the Convention, and contained in the document MEPC 78 of Sept. 19, 1979. No measures for formal adaptation of the list of the mentioned above substances have been taken.

Recom. 1/14 on amendment of provision 4 B in Annex IV concerning the adoption by MEPC of the amendment to provision 10 of Annex I to MARPOL-73, and concerning inter alia reduction of oil concentration in bilge water to 15 ppm during its disposal in the special area.

The amendment formally entered into force on Dec. 1, 1980, however, appropriate modification of the national legislation is missing. It is expected that the amendment shall be taken into account in the executory regulations to the Act on the marine environment protection.

Recom. 1/15 on assignation of the range of equipment for new ships for protection of the sea against pollution by foul sewage and fixing the date of entering into force of those regulations for the ships under exploitation. The program of modernization of the merchant vessels under exploitation is taking into account those provisions.

Recom. 2/1 on adoption of the amendment to provision 5 in Annex IV fixing the date of entering into force of the provisions on the waste water containing residues of harmful bulk cargoes. The fixed date July **1984** is ahead of the IMO regulations by 2 years. However, the handling **of** that sort of substances is relatively small /Kat. A and B/ it will require location and equipment of permanent handling bases in the harbours as well as providing the reception of post-cargo washings by the importer of that sort of substances for further disposal.

Preparations for establishing an organization structure for reception of washings have been undertaken and the system of inspection of chemical tankers has been under elaboration by the harbour administration.

Recom. 2/8 on taking note of the report on the state of living resources of the Baltic Sea "Assessment of the Effects of Pollution on the Natural Resources of the Baltic Sea", and taking measures for the protection of those resources.

The implementation of that task is connected with the activity within the Gdansk Convention and the statutory activity of the Agency for Environment Protection and Water Management and the Agency for Marine Management. Complete and practical activities shall be carried out when the Act on the marine environment protection has been enforced.

Recom. 3/3 on protection the Baltic Sea seals.

In the area of the Polish Contracting Party interest the problem of the seals protection does not occur.

Recom. 4/4 on amendment of Annex I to the Helsinki Convention.

The Polish proposal on the amendment has been submitted.

Group 4

Recommendations concerning the co-operation in prevention and combatting of the pollutions at sea.

Recom. 1/1 on establishing a system stimulating the ships crews on disposal of pollutions into the harbour reception facilities.

The system has been under elaboration according to the recommendations of the Maritime Committee of the Helsinki Commission.

Recom. 1/7 on development of the national potential for combatting oil spillages at open sea.

At present the Polish Salvage Company /PRO/ has been dealing with combatting of oil spillages at sea. The national system for combatting oil spillages at sea shall be established on the basis of the provisions specified in the Act on the marine environment protection.

Recom. 1/8 on limitation to minimum of chemical agents for removal of oil patchiness.

The problem shall be dealt with in the Act on the marine environment protection.

It is expected that chemical agents for removal of oil patchiness shall not be used in greater quantities;

possibly only harmless agents for removal of residual pathciness may be used.

Recom._1/9 on frontier facilitations for forces and means called for assistance.

The system has been functioning analogically to the system "Life-Saving at Sea".

Recom._1/10 on application of the experiment for reporting on ships traffic hazardous in the Baltic Sea area.

Poland has been participating in the experiment.

Recom._2/4 on experiment within the system of warning and reporting information on spillages.

Poland has been participating in the experiment, which has been extended for another 2 years.

Recom._2/5 on command structure in joint operations for removal of spillages at sea.

The routine recommendations shall be applied in practice.

Recom._2/6 on establishing radio connection system between ships participating in a joint operation for removal of spillages. Implementation as above.

Recom._2/7 on concluding agreements by the adjoining States concerning delimitation of boundaries, the so called responsibility regions.

The Recommendation shall be implemented within the three-party agreement /PPR-GDR-USSR/, and the bilateral agreements with Denmark and Sweden.

Recom._4/3 on national potential for combatting

spillages other than oil spillages - harmful chemical substances.

The Polish Salvage Company has been implementing the system of combatting catastrophic oil spillages at sea on the basis of the decision by the Agency for Marine Management.

IV. PARTICIPATION OF THE POLISH PEOPLE'S
REPUBLIC IN IMPLEMENTATION OF THE BALTIC SEA
MONITORING PROGRAM

The history of the monitoring equivalent to the Baltic Sea Monitoring Program has its tradition in Poland. Namely by the end of **1947** systematic investigations in the sphere of basic hydrological criteria (temperature, salinity and oxygenation of water in vertical profile) as well as zooplankton (macro- and mesoplankton) were initiated. Those investigations involved a number of stations located in particular water bodies of the Southern Baltic Sea, viz.: the Depth of Gdansk, southern part of the Gotland Depth, the Gully of Słupsk, the Bornholm Depth and the Arcona Depth. In the course of years the program of investigations has gradually been extended by other environmental criteria (nutrients, hydrogen sulphide, carbon dioxide etc.) and biological criteria (chlorophyll a, primary production, phytoplankton and zoobenthos).

In the years **1971 - 1976** Poland carried out extensive investigations which involved, in principle, the whole of problems of the contemporary monitoring inclusive a number of pollution parameters (petroleum hydrocarbons, chlorinated hydrocarbons, selected heavy metals).

Those were expeditionary investigations, carried out once or twice a year, which covered the whole Baltic proper inclusive the Danish Straits (from the Gulf of Finland to Skagerrak). The advantage of those investigations was the fact that they were carried out in the period preceding the division of the Baltic Sea into particular economic zones, thus it was possible to have obtained a uniform material from such a great sea area, and in that way the inaccuracies resulting from the application of diverse equipment and instruments as well as diversified techniques of sampling and sample preparation were avoided.

For securing financial means to subsidize the investigations of the Baltic Sea Monitoring a problem oriented program has been established, which has been coordinated by the Institute for Environmental Development.

Since **1979** Poland has been participating in the investigations within the Baltic Sea International Monitoring Program carried out by all the Baltic Sea States. In the years **1979 - 1980** an extended research program was realized. That program covered not only the southern Baltic international stations, but the whole Polish economic zone inclusive the Haff of Szczecin, the Vistula Lagoon and the coastal waters. The investigations were carried out in that time on 61 monitoring stations.

Poland was the country initiating the organization of the uniform ecological monitoring of the Baltic Sea within the Helsinki Convention. That initiation was expressed by organization of the "Meeting of

Experts on the Marine Environment of the Baltic Sea" held in Szczecin on October 17 - 21, **1977**.

The outcome of that Meeting was the detailed range of the Baltic Sea Monitoring Program, stage I for the years 1979 - 1983 (and optionally 1978), including the substantial range, location of stations and frequency of investigations.

The Meeting also pointed out the need of organizing a number of further meetings of experts for detailed co-ordination of research methods as well as their intercalibration.

The Polish experts have been participating in preparation of the summary report on the results of the Baltic Sea Monitoring Program, stage I, specifically in the works of ad hoc Group of Experts on Assessment of the State of the Marine Environment of the Baltic Sea (GEA).

The final effect of that Group activity shall be: The First Periodic Assessment of the State of the Marine Environment of the Baltic Sea Area.

The National Inspection for Environmental Protection has initiated the publication of reports on the problems of the state of the marine environment. The report shall present complex elaborations of the results of scientific investigations.

A Report on the state of pollution of the Gulf of Gdansk has already been published, and the next report on the state of pollution of the Haff of Szczecin is under preparation.

Investigations and Progress in Technology
of Water Protection in Poland

The research activity and the resulting progress in the sphere of water protection against pollution in the recent decade concentrated on the following problems:

- regional pollution,
- management of liquid manure from industrial farms,
- water management and protection of water resources in agricultural and industrial systems,
- high-efficiency methods of sewage treatment,
- water restoration (water recovery from waste water).

The regional pollutions i.e. the pollutions transported from the catchment area into the surface waters in normal hydrological cycle indicate the growing tendencies. That occurs owing to the intensification of agriculture by the enhancement of fertilization and chemical protection of plants, irrigation, mechanization of cultivation as well as the increase of general pollution of the natural environment by industry and power engineering. A significant share of regional pollutions in pollution loads transported by rivers flowing into the Baltic Sea has become the reason for undertaking an extensive front of investigations. On 12 rivers 22 fragmentary catchments have been selected for which separate effluents of biogenic substances have been allocated. Taking into account the mode of management of the catchment area, intensity of fertilization and chemical protection of plants as well as hydrometeorological conditions a regressive mathematical model of regional pollutions has been elaborated.

The elaborated empirical model, but simplified, turn out to be more applicable and easier for utilization than the known physical models which operate with a considerable number of coefficients difficult to be determined. At present, the models are verified in other, than before catchment areas.

The research activity described above is aimed at the reduction of biogenic and chemical effluents into the surface waters by determining and reducing the losses of substances applied in agriculture.

The other separate problem, however, comprised in the limits of the definition of regional pollutions, which has also been devoted a considerable research interest, is the utilization of liquid manure from industrial farms. A significant development of that form of animal breeding in Poland, especially hog raising required elaboration of principles for location and management of liquid manure, safe for the environment.

On the basis of many years investigations, guidelines for agricultural management of liquid manure to be used as a fertilizer in various cultures, when maintaining the requirements of the environment purity, have been elaborated. Technologies for initial preparation and stabilization of liquid manure for fertilization of limited acreage in relation to the requirements of optimum conditions have also been elaborated and experimented. The outcomes of the scientific and research works and experimentation elaborations were presented at the International Seminar in Wroclaw in 1982, organized under the auspices of the Helsinki Commission.

A number of investigations on water management in systems agricultural catchment areas, mining basins and industrial centres for optimalization of water management and water resources protection against pollution have been initiated. The outcomes of those works and their further continuation in form of forecasts and operational programs contribute to a considerable degree to the reduction of pollution penetration into the aquatic environment.

A significant concentration of investigations has occurred in the problem of high-efficiency methods of waste water treatment.

In the sphere of technologies for municipal sewage and for farming and foodstuff industry waste water, methods of complete biological treatment including elimination of biogenic substances have been initiated.

A great number of the results of research works have been utilized with positive effects in technical objects. A technical concept of typical series "Combined Biological Waste Water Treatment Plants" has been elaborated. The advantage of that concept is the possibility of application both in small settlement units and manufacture shops **as** well as in great settlement units and industrial plants.

A number of treatment plants are under construction or in the phase of designing, e.g. five waste water treatment **plants** in the region of the Gulf of Gdańsk (Gdańsk, Gdynia, Swarzewo, Krynica Morska, Jastarnia).

The investigations on technologies for industrial waste water treatment comprise much greater variety

of treatment methods and of the effects obtained. The investigations and the technical progress are aimed at employing manufacture methods abating the quantity of waste water produced as well as at reduction of pollution loads, recovery of valuable substances from wastes, and finally separation or decomposition of pollutions by means of physical, chemical or biological methods. The technologies and processes described above are the basis for technical solutions. Among the more interesting recent investment objects in that sphere only in the region of the impact on the Baltic Sea waters, the following ones should be mentioned: the municipal-industrial treatment plant in Bydgoszcz, industrial waste water treatment plants for pharmaceutical works in Starogard Gdański, pulp and paper works in Kwidzyń, refining works in Gdańsk and for ballast waters in the Northern Harbour of Gdańsk. The restoration of water for industrial purposes from municipal sewage has been the investigation and design trend intensively developed.

Those solutions appropriate for the areas with water shortage have been investigated, propagated and implemented in the south-west industrial regions of the country, and they have undoubtedly their share in reduction of the pollution quantities discharged into the surface waters.

The progress in the field of technology of water protection against pollutions may also be presented by means of the number of waste water treatment plants constructed recently. In the years **1973 - 1982** **907** new waste water treatment plants of the total capacity - 4.740.7 thousand cu m/d were constructed.

The control-measurement activity has indicated the growing share of air-borne pollutions into the Baltic Sea. Within the past 5 years industrial plants for manufacture of atmospheric air protection equipment have been established. In result of installation of the mentioned above appliances the abatement of the increase of the dust pollutions emitted into the atmosphere, despite the production power development, has been noted.

MEASURES OF PROTECTION AGAINST POLLUTIONS FROM SHIPS

Manufacture of oil separators and foul sewage treatment plants

The whole generation of oil separators of the capacity 1 to 25 cu m/h has been manufactured in Poland. Those oil separators meet the technical requirements elaborated by the International Maritime Organization (IMO) and approved by the Helsinki Commission. The quantity of oil separators manufactured in Poland meets the demand of the shipbuilding industry and of the shipowners for modernization of the oil separating installations on the existing ships. It is planned that in the near future a mass-production of oil separators of small overall dimensions and low capacity to be provided for small units shall be initiated.

The other group of technical appliances aimed at the reduction of the marine environment pollution are the foul sewage treatment plants. The typical series of sewage treatment plants manufactured in Poland have been attested with type approval certificates of various classification companies.

Participation in the Joint Field Experiment for Tagging Oil Residues in Tankers (WGTO)

The 2nd Meeting of the Interim Commission of the Helsinki Convention (December 1975) approved the Swedish proposal concerning the participation of the other Baltic Sea States in the investigations on tagging oil residues in tankers. A special working group (WGTO) was established which in the course of several meetings elaborated administrative and technical assumptions concerning the tagging of oil residues in tankers in the Baltic Sea area. Poland has carried out investigations on the possibility of identification of oil patchiness on the basis of the analysis of the chemical composition of the tag having used for that purpose the tanker m/t Tatry. In the course of works on tagging oil residues in tankers Poland has elaborated own, original analytical method for determining the chemical composition of the tag separated from the oil patchiness having utilized for that purpose differences of magnetic properties of the tag components.

COMBATTING OF OIL SPILLAGES AND OTHER HAZARDOUS SUBSTANCES

Participation in the Joint Experiment of the Baltic Ships Position Reporting System "BAREP"

In accordance with the recommendation of the Helsinki Commission of May 1980, Poland joined the "BAREP" system aimed at the supervision of ships traffic and sea transport of cargoes of hazardous properties for the marine environment. Within that system the National Center for Reporting Ships Position (PRC) located at the Marine Board in Gdynia has been established.

The information concerning the ships traffic are received during 24 hours, whereas the transmission of "reports" to other PRC's is accomplished within the office hours.

The Polish PRC received in the periods from August 1, 1981 to August 1, **1982** and from January 26, 1983 to August 1, 1983, 89 and 50 reports respectively.

For developing a higher efficiency of the supervision system covering all the ships transporting hazardous cargoes to - and from the Polish harbours including the ports of Swinoujście and Szczecin, Poland has submitted a proposal to the Helsinki Commission concerning the shifting of the "reporting line" from the meridian 15°E to 14°E .

Despite the fact that the experience gained hitherto indicates a positive functioning of the system "BAREP", however, it is necessary to point out that both the Polish ships as well as foreign ones take too small interest in the system. That observation has a general character - i.e. it refers also to other PRC's what has found its reflection in the decision on extending the date of completing the experiment by another 2 years' period.

Increasing Navigation Safety - Proposal of Route "D"

The continuous development of the co-ordination systems and ships traffic supervision in the area of the Polish jurisdiction had contributed to the elaboration in 1980 of the experimental route recommended to the Polish ships and tankers transporting hazardous cargoes from the western

Baltic Sea to the harbours located in the area of the Gulf of Gdańsk. The route "D" enables a safe navigation of ships of the draught up to 13 m when simultaneously avoiding the areas of especially high traffic of ships transporting cargoes to - and from the harbours in Gdańsk and Gdynia.

The new route shall be the extension of the existing deepwater route in the Danish Straits (so called route "T"). The route "D" corresponds with the separating zones on the Polish territorial waters in the area of the Gulf of Gdańsk, established in 1980.

Simultaneously Poland has submitted a proposal on admission of the international character to the route "D" both on the forum of the Helsinki Commission as well as the IMO. It is expected that the last objections raised with reference to the proposed route shall be smoothed away soon, since the solution variants elaborated recently contain the shifting of the route "D" by approx. 7 Mm to the North from Bornholm as well as the mode of connection with the route "T".

Despite the fact the route "D" has not been approved by the international decisions, it has been utilized by the Polish ships. In 1980 the Marine Board issued the relevant recommendation for using the route "D" by the Polish ships on the way from the western Baltic Sea to the harbours in the area of the Gulf of Gdańsk.

Registration System for Marine Incidents and Prophylactic Activity

The task of keeping a register of marine incidents and prophylactic activity had been entrusted to the

Center of Expertise and Registration of Marine Incidents at the Maritime Chamber of Appeal established in 1977.

In the years 1978 - 1982 the Center elaborated and then developed the System comprising the analysis of marine incidents of the Polish ships in the water bodies covered by the Helsinki Convention as well as of the foreign ships on the Polish territorial waters and internal waters. Eoth the System itself as well as the multidirectional prophylactic activity find their reflection in the reduced trend of marine incidents, i.e. in 1979- 42 incidents, in 1980- 21 incidents, and in 1982- 18 incidents.

SWEDEN

STATEMENT RELATED TO THE ACHIEVEMENTS IN IMPLEMENTING
THE GOALS OF THE CONVENTION ON THE PROTECTION OF THE
MARINE ENVIRONMENT OF THE BALTIC SEA AREA

1. INTRODUCTION

Sweden has a total area of about 450 000 km² and 8.2 million inhabitants, i.e., 18 inhabitants per square kilometre. 80 per cent of the population live in urban areas.

Sweden is an industrialized country. Pulp and paper, machinery and chemical engineering are among the most important industries in Sweden. Twenty per cent of the working population are employed in this sector.

Earlier the environmental situation in Sweden was considered less critical than in other countries of higher population density. Certain environmental problems, however, have been aggravated by climatic and other natural conditions. This applies, e.g. to acidification where conditions are deteriorating, due to such factors as Sweden's geographical position in relation to prevailing winds from industrial countries of western Europe, sensitive soil conditions and large domestic consumption of oil. Another example is the sensitivity of the Baltic Sea to toxic influences owing to its brackish water and to the climate.

Environmental policy of Sweden have been focusing on

these problems during the last decade. Ratification of the Convention on Long-Range Transboundary Air Pollution and of the Convention on the Protection of the Marine Environment of the Baltic Sea Area have been important elements in this policy. But environment protection has not only been directed towards reduction of emissions into water and the atmosphere, it has also included national planning of the utilization of natural resources and protecting and caring for areas of importance to nature conservation and recreation.

The main instruments in this work of environmental protection have been effective legislation, a smoothly functioning administration, successful research and positive technological development and last, but not least, heavy investments.

2. LEGISLATION

Sweden ratified the Helsinki Convention on 30 June 1976.

As for Swedish legislation concerning the prevention of pollution from land-based sources no changes in the Swedish legislation to the requirements of the Convention was necessary.

The purpose of the Swedish Environment Protection Act and the Environment Protection Ordinance is to prevent interferences with the environment in the form of emissions of pollutants into water and air, noise pollution and disturbance by light, vibrations etc. from land, buildings or installations. It is assumed that it is not possible to avoid altogether phenomena which interfere with the environment but any adverse effects should be prevented as far as possible.

The overall principle is that anyone who undertakes activities hazardous to the environment is subject to accept the protective measures and limitations on the activities which the environmental authorities deem necessary to counteract nuisances. A permit must be sought to undertake activities which are likely to involve an impact on the environment.

The authorities will chiefly take into account what is technically possible in order to prevent or rectify disturbances and the cost and other economic effects of the required protective action. In addition public and private interests will be taken into consideration.

There are no general, binding emission standards. Thus both the examination for applications for permissions and the supervision are individual. However, for certain frequent types of activities, the National Environment Protection Board has adopted guidelines regarding emissions. These guidelines are used both in the examination of applications for permissions and in the work of supervision. The major advantage of assessments in casu, is that they do not, like fixed standards of immission or emission, tie the terms of permits to technologies and values that may soon become outdated. This has been particularly relevant for water quality problems in industry, where frequent changes in production techniques require new permits. The procedure has also made it possible to utilize the developments in waste-water treatment technology. The in casu assessment procedure has made it possible for new technologies in this field to be applied promptly, thus greatly accelerating the development.

Amendments in the Environment Protection Act concerning i.a. examination procedures, supervision and sanctions came into force in July **1981**. The amendments imply i.a. a reinforcement of the system of sanctions by introducing payment of charges (a fee for environment protection). The aim of such a fee is to eliminate the economic advantages that can be gained by violations of the law.

Swedish legislation concerning the prevention of pollution from ships was adapted to the requirements of the Helsinki Convention at an early stage. Swedish legislation reflecting the provisions of Annex IV to the Convention was enacted **1976** and entered into force in the beginning of **1977**, i.e. more than three years before the entry into force of the Convention on 3 May 1980 and more than four years before the provisions of Annex IV started to be implemented by all the Baltic Sea States, i.e. on 3 May 1981. The legislation is applicable in the Baltic Sea Area to Swedish ships and ships flying the flag of another Baltic Sea State. It is also applicable in Swedish waters to ships of all nationalities outside the Baltic Sea Area.

Since 1976, the Swedish legislation concerning the prevention of pollution from ships has undergone major developments. Whereas the legislation of 1976 was specifically directed to the Baltic Sea Area and Swedish waters outside that Area while the provisions based on the International Convention for the Prevention of Pollution by Oil, 1954, as amended (OILPOL 1954), remained in legislation enacted in 1972. In 1980 new legislation was promulgated into which were incorporated provisions based on all relevant

international instruments dealing with measures against pollution from ships. This new legislation was in the beginning of 1983 updated on account of the entry into force on 30 March 1983 of the Protocol Relating to Intervention on the High Seas in Cases of Marine Pollution by Substances Other than Oil, 1973, and the entry into force on 2 October 1983 of the International Convention for the Prevention of Pollution from Ships, as modified by the Protocol of 1978 Relating Thereto (MARPOL 73/78). The revised legislation also includes the basic provisions necessary for the implementation of Regulation 5 of Annex IV to the Helsinki Convention on noxious liquid substances carried in bulk, which Regulation is due to enter into force on 1 July 1984.

In respect of reception facilities the Swedish legislation since 1976 contains requirements for the provision of reception facilities for oily ballast waters, tank washings and other oily residues, for sewage and for garbage, in accordance with the provisions of Annex IV to the Helsinki Convention. In addition hereto, it is required by the Swedish legislation that oily ballast water and tank washings from tankers be received free of charge by the port or terminal where the tanker is to be loaded. This requirement has been in existence since 1976 and a requirement for the reception of sewage and garbage from ships without a special fee since 1980. As from March 1 1983, there is also a requirement for other oily residues from ships and residues of harmful substances carried in packaged form to be received without a special fee being charged to the ship. It is believed that the prohibition to charge fees or special fees for the reception of wastes from ships eliminates one of the main disincentives for

shipowners and shipmasters to make use of the reception facilities provided in ports and terminals.

Another element of the Swedish legislation concerning the prevention of pollution from ships which is not based on the Helsinki Convention but which is entirely in line with the aims of the Convention, is the water pollution charge which was recently introduced and which will be applied as from 1 January 1984. The water pollution charge is an administrative fee which will be imposed on the shipowner or the person operating the ship for a discharge of oil from the ship in contravention of applicable rules and regulations, irrespective of whether or not the discharge can be attributed to the shipmaster or somebody else on board the ship as a criminal offence. The water pollution charge can, depending on the quantity of oil discharged and gross tonnage range from 5.000 SEK to over 500.000 SEK. In cases where the pollution has been insignificant and in cases of accidents where all measures to limit the extent of the discharge have been taken, no water pollution charge will be imposed.

The charge will be imposed by the Swedish Coast Guard.

3. NATIONAL ADMINISTRATION

The Swedish Civil Service is characterized by comparatively small ministries and traditionally often considerably larger, independent administrative boards. The principal tasks of the ministries are to give the general guidelines, i.a. through the legislative and budgetary work, and to serve as highest court of appeal in certain cases. The administrative boards exercise executive authority and are responsible for executing the decisions of Parliament and the cabinet.

The responsibility as regards questions of environment protection at the government level rests mainly with the Ministry of Agriculture. However, a number of other ministries are concerned with environmental questions. Thus, for example, the responsibility for matters related to pollution from ships rests with the Ministry of Transport and Communications and matters related to combatting spills of oil and chemicals at sea rests with the Ministry of Defence.

The National Environment Protection Board is the central administrative authority in the environmental field, i.e. the authority which has to execute the decisions of Parliament and the Cabinet in this field. The Board has also to watch over developments and to suggest any necessary measures to the Government. In some fields of environment protection, the Board has a direct decisionmaking function, while in others it functions as an expert or advisor.

The National Administration of Shipping and Navigation is the authority which is responsible for the implementation of the legislation on measures against marine pollution from ships. In this task it is assisted by other authorities, e.g. the Swedish Coast Guard which beside its responsibility for surveillance and law enforcement at sea also is responsible for combatting spills of oil and chemicals at sea, in coastal waters and the lakes Vänern and **Mälaren**.

A special Government commission has been established with the task to consider - and to formulate, as a matter of urgency - proposals regarding the organizational aspects of a possible amalgamation of

the National Administration of Shipping and Navigation and the Coast Guard. The latter organization forms today part of the Swedish Customs. An amalgamation of the two bodies aims at securing a better use of available resources.

4. IMPLEMENTATION OF HELCOM RECOMMENDATIONS

Sweden has implemented all HELCOM Recommendations pertaining to the prevention of ship-based pollution of the marine environment of the Baltic Sea Area and related matters (1/1, 1/2, 1/3, 1/4, 1/5, 1/6, 1/11, 1/12, 1/13, 2/1, 2/2, 2/3, 3/4, 4/2).

National Ability to Combat Spillages of Oil

(Recommendation 1/7)

A programme for improving Sweden's ability to combat oil spills has been progressing through several years. Now the work is beginning to come to the end and will probably be finished in the next two years. The programme consists of purchase of hardware and training of personnel. Today most of the planned oil combatting ships have been acquired and delivered, but some shortage remains still in the capacity to store recovered oil at sea. The training level of the personnel is good and the possibility to reach the various parts of Sweden's response area in stipulated time must be considered good for the moment.

Minimization of the Use of Dispersants, Sinking Agents and Absorbents in Oil Combatting Operations in the Baltic Sea Area (Recommendation 1/8)

The use of dispersants is limited to a few occasions every year. The dispersants have to be approved by the Swedish Product Control Board. They are used in each individual **case** by Swedish Coast Guard units

under supervision of an On-Scene Commander who is authorized to decide from case to case on whether to use dispersants. Such a decision is taken in co-operation with the Operational Command ashore. General guidelines as a background for the decision have been worked out by the environmental agencies in co-operation with the Coast Guard.

Sinking agents are not used at all.

Absorbents are used only occasionally, when they are considered to facilitate the recovery or reduce the harmfulness of the oil.

Facilitation of Border Passage in Case of Call for Assistance According to Regulation 8 of Annex VI to the Helsinki Convention (Recommendation 1/9)

Sweden has revised the legislation concerning border passages in case of assistance mentioned above. The conditions for border passages are the following:

- Assistance must be required from responsible Swedish agency, i.e. the Swedish Coast Guard.
- The necessity of assistance in Swedish territorial waters will be judged by the Swedish Coast Guard.
- The units exceeding Swedish territorial borders shall be under tactical command by a Swedish Supreme On-Scene Commander.

Permission must be sought from the Government via the Coast Guard.

A Position Reporting System for Ships in the Baltic Sea Area (Recommendation 1/10)

The Swedish Position Report Centre is located at Malmoe.

It is in operation day and night and is manned by the Coast Guard. Number of position reports of different kinds show decreasing figures. Most of the reports are complete and of great value for the Coast Guard's operational planning and work. The contacts with other Position Report Centres are good and have on some occasions speeded up the emergency response after collisions and groundings.

An Early Warning Reporting System for Pollution Incidents (Recommendation 2/4)

The Coast Guard Service is the responsible agency for monitoring and combatting marine pollution. All reports of suspected or confirmed spills at sea are conveyed to the Coast Guard regional offices. Information on all spills of importance is forwarded to the Coast Guard H.Q. If there is a need for a POLWARN it is worked out and delivered by the Coast Guard H.Q. Also incoming POLWARNs are handled by the Coast Guard H.Q. on a 24 hours' basis. The procedure is tested with good results during alert exercises and on some occasions also in real pollution incidents.

The Command Structure for Joint Combatting Operations (Recommendation 2/5)

Sweden has not yet participated in any joint combatting operation under HELCOM. However there are good experience from other similar agreements to which Sweden is a party. The command structure is very similar to that used by the Coast Guard in national combatting operations. The command structure recommended by IIELCOM should have good possibilities to work well during joint operations.

Radio Communications in Joint Combatting Operations

(Recommendation 2/6)

The present situation is the same as for the command structure in joint operations. All necessary agreements are made with the National Telecommunications Administration. Several exercises and operations with oil spills and Search and Rescue operations have proved that the recommended scheme will operate well.

The Delimitation of Response Regions for Combatting

Marine Pollution (Recommendation 2/7)

So called Flight Information Regions (FIR) are already established for SAR operations in the Baltic Sea for missing aircraft. It should be of great value to delimitate similar regions for response to marine pollution and the matter is under consideration within the Swedish Ministry concerned.

The Development of a National Ability to Deal with

Spillages of Harmful Substances Other than Oil

(Recommendation 4/3)

The national ability to respond to chemical spills has gradually been improved by the following measures:

- The Coast Guard Headquarters has established an information centre with data on hazardous materials and possible response methods.
- The Coast Guard personnel is educated and trained in courses on hazardous materials.
- The **Coast** Guard has aquired qualified personnel and safety equipment for use in response actions.
- The Coast Guard aircraft have been equipped with instruments which can monitor oil as well as many floating chemicals.

- An underwater TV has been constructed that can to some extent monitor chemicals and other materials on the sea bottom.
- Initial studies have been made on special equipment for retrieving chemicals from the sea bottom.

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, 1974

(Recommendation 4/4)

The HELCOM manual is today in operational use in the Coast Guard. It has become an important resource for the staff in Baltic pollution matters.

Recommendation regarding the limitation of the use of PCB's (Recommendation 3/1)

The import and use of PCB was strongly restricted by the Law and Ordinance on PCE 1971/72. Only use of PCB intrasformers and capacitors larger than 2 kVAR was allowed by special permits. After 1978 no permits have been granted. Transformers and capacitors larger than 2 kVAR already in use are allowed. The Ordinance on Hazardous waste **(1975)** regulates transport, export and final disposal of PCB-waste. In 1984 Sweden will have facilities to incinerate pumpable PCB waste.

Recommendation regarding the elimination of discharges of DDT (Recommendation 3/2)

The use of DDT in Sweden was prohibited in 1975. Transport, export and final disposal of DDT-waste is subject to the rules of the Ordinance on Hazardous Waste (1975).

Recommendation concerning amendment of Annex I of the Helsinki Convention (Recommendation 4/1)

PCT has not been used in Sweden since 1974.

Recommendation concerning protection of Seals in the Baltic Sea Area (Recommendation 3/3)

In Sweden all seals are protected by the law since 1974. However, according to a special clause in the legislation for hunting (jaktlagen **14 § 2** mom) seals may be killed by professional fishermen if the seals are encountered while the fishermen are working. This exception is 'very seldom used. The Coast Guard enforces the Swedish hunting laws and collects dead seals for examination of the cause of death.

5. RESEARCH AND DEVELOPMENT

5.1 Monitoring and assessment

Environmental Monitoring Programme (the PMK)

The programme was established in 1978. The programme will include a variety of projects for nationwide monitoring of the atmospheric, terrestrial and aquatic environments. The principal aims of the programme are to detect long-term changes in the environmental quality, to collect reference data on the environment far from local pollution sources, and to map the long-range transport of pollutants.

Monitoring of the water quality in the Baltic area is carried out as a part of the international undertaking within the Convention on the Protection of the Marine Environment of the Baltic Sea Area. The Swedish studies of the Baltic follow closely the guidelines for the Baltic Monitoring Programme.

Physical and chemical properties of the water are monitored at **37** stations in the open sea and at 15 stations in the Swedish coastal zone.

In addition to this, biological monitoring is carried out in order to further investigate the distribution of nutrients in the sea and the consequences of changes in loading. The abundance and biomass of phyto- and zooplankton **as** well as chlorophyll a and the primary production are also measured. In addition to this, the bottom fauna is sampled and its species composition determined at about 200 stations in the Baltic and 53 in the Kattegat-Skagerrak area.

Long-term changes in the load of harmful substances are monitored through annual sampling and analysis of a number of specimens of certain selected animal species in the aquatic environment. Flounder, herring, pike or perch and *Mytilus* collected in a few relatively unpolluted coastal areas - mainly in archipelagos - for the annual monitoring of toxic substances. 50-100 specimens are taken of each species.

The program for sampling reference materials in these areas is more extensive, including 4 species of birds and the invertebrates *Mytilius edeulis* and *Pontoporeia affinis* in addition to flounder and pike/perch. About twenty sampling areas have been chosen along the coast.

Seven fishing grounds in the open sea are visited each year. Here, cod and herring are caught and analysed for toxic substances.

The marine coastal zone programme

In 1979 the Research Committee of the National Swedish Environment Protection Board initiated a research program - the Marine Coastal Zone - a Basis for Planning. This research programme was designed to give necessary knowledge for assessing the effects of various actions on the marine ecosystem. The program is planned to be concluded during 1984.

The main areas dealt with in this research programme are: the effect of using the sea as a recipient, effects of civil engineering and minerals abstraction works and the effects of fishing and aquaculture.

The following projects and assessments are or have been carried out within this programme:

"Coastal zone - open sea flushing" The project is concerned with internal and external flushing processes.

"The importance of different types of shallow inshore areas as spawning grounds and nursery areas for fish and for the production of fish and fish food organisms".

"Production loss of demersal fish and other benthic organisms in connection with seabed mineral working".

"The effects of dredging and dumping".

"Environmental effects of small boats and small boat harbours".

"Environmental survey methods suited for local authority planning for coastal zones".

Swedish Remote Sensing System for Oil Spill
Surveillance at Sea

The Swedish Coast Guard has equipped three aircraft

with remote sensing systems which are fully operational and used in regular field service for oil spill surveillance. The systems are also used in general maritime surveillance (fishery inspection, search and rescue etc.)

Two small Cessna 337 aircraft carry each a Side Looking Airborne Radar (SLAR) system, a camera system and data recording and presentation equipment. One Cessna 402C carries the same equipment but also an Infrared/Ultraviolet (IR/UV) Scanner System. In the latter aircraft the SLAR and IR/UV systems are integrated to facilitate simple handling of the systems. A prototype of a microwave radiometer is under construction and expected to be in operation during 1984 and will make it possible to present more detailed information on the thickness of an oil spill.

Sampling and Chemical Analysis of Oil Spills

The Coast Guard units take samples of all discovered oil spills which are thick enough to be sampled. The Coast Guard has developed an oil sampling kit, which is used to some extent also by other Nordic countries. Related to the kit, an oil sampling procedure has been elaborated. Special sample containers are used and careful postal routine is applied when sending the samples for analysis.

The oil samples are examined and analysed by the Customs Central Laboratory in Stockholm. The methods of examination, pre-treatment and chemical analysis of the samples have been worked out in co-operation with the other Nordic countries.

Eutrophication in the Marine Environment

For a long time problems of eutrophication of marine waters have been a matter of deep concern. Therefore the Research Committee of the Environment Protection Board has set up a new programme of research work devoted to "Eutrophication in the marine environment", starting 1983. Within this project-area two main problems will be dealt with.

1. In what way does eutrophication change the ecosystem?

Changes in the structure and energy flow

- changes in the watermass
- " " hard bottoms
- " " soft bottoms
- " " fishery and fish community
- " " relationship plankton-bottom
 organisms-fish

2. How can eutrophication be slowed down or lessened?

A. Degree of eutrophication

B. Causes of eutrophication

- nutrients that limit production
- what regulates nutrient availability
- nutrient budget in concerned areas.

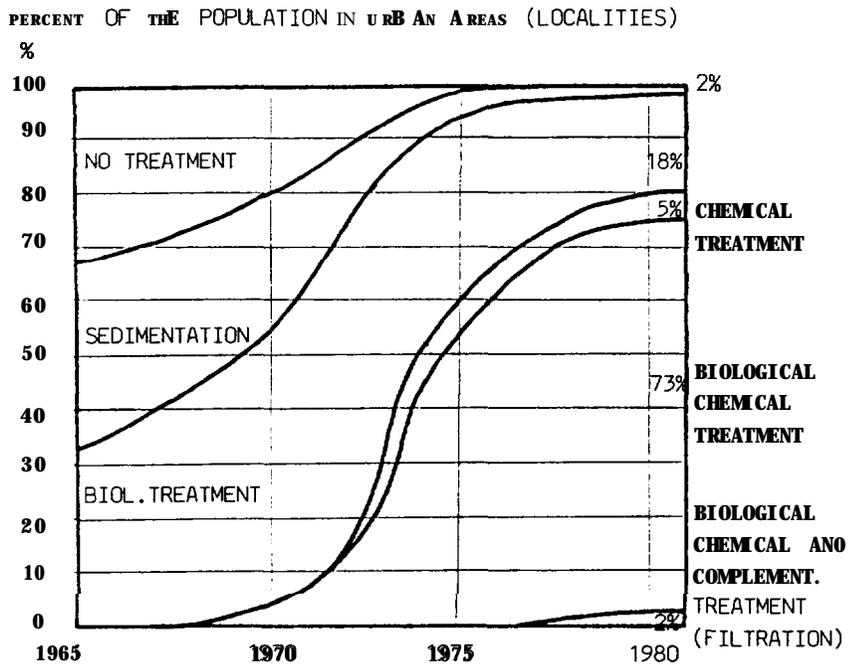
5.2 Water Protection Technology

Treatment of waste from municipalities

There are about 1.300 municipal wastewater treatment plants in Sweden, treating a total of 1.500 million m³ annually. This corresponds to a waste load of 9.4 million persons equivalents (pe), of which 2.2 million are of industrial origin. Outside urban areas there are an additional 600 public treatment plants treating 0.3 million pe. Approximately 1 million persons have their own sewage facilities.

Currently 75 per cent of the urban population are served by advanced treatment plants equipped with biological treatment and chemical precipitation - 2 per cent of these plants also have a final filtration unit. 2 per cent of the population is served by plants equipped merely with primary clarifiers. Aluminium is the principal chemical used for phosphorus removal, but many large facilities have changed to iron salts. The use of lime is also increasing.

Municipal waste water treatment in Sweden 1965-1981



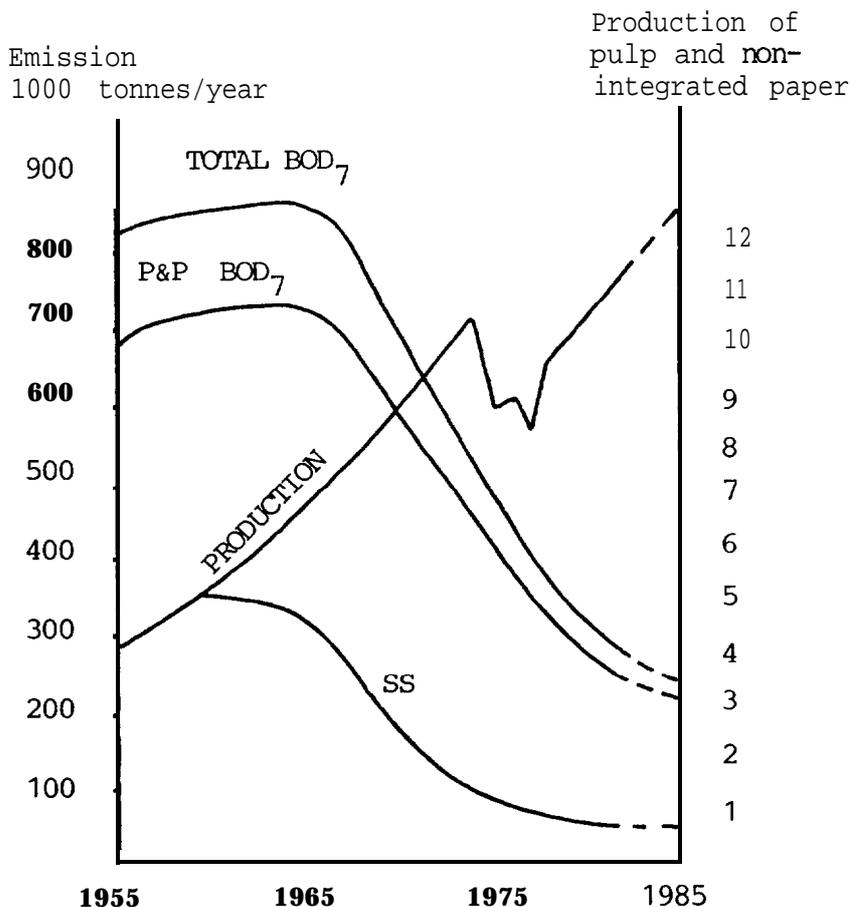
In 1980 the total capital investment amounted to SEK 360 million in municipal treatment plants.

Today Sweden has some 70 000 km wastewater pipes, 47 per cent of which are for sewage collection, 39 per cent for storm water collection and 14 per cent for combined water. Annually another 1 700 km are constructed: 60 per cent for sewage water collection and 40 per cent for storm water collection.

The Sewage Works Evaluation Project (SWEP) (collaboration between the Environment Protection Board and the Swedish water and Sewage Works Association). The primary goal of the project is to present proposals for optimal operation procedures for municipal sewage treatment plants employing biological-chemical treatment, with attention to the amount of pollutants discharged and to operating costs. Another purpose of the project is to study the occurrence of specific pollutants in municipal sewage as well as how these pollutants affect and are affected by the biological and chemical treatment processes.

Treatment of waste from pulp and paper industries

Development within the Swedish pulp and paper industry of production and discharges to receiving waters as biochemical oxygen demand, BOD₇ and suspended solids, SS is shown below. Total BOD₇ refers to the sum of emissions from communities and all types of industries together.



In 1982 a research programme started called "Environment/Cellulose - biological effects of cellulose industry discharges". The programme is planned to run until 1986 (5 million SEK). The research programme was designed to answer the following questions:

- if chlorinated substances are distributed widely in the recipient,
- if fish fauna composition and production capacity is affected by forestry industry discharges,
- if toxic substances originating from chlorine bleaching are accumulated in the food chains,
- if discharges from chlorine bleaching have a toxic effect on fish food organisms,
- if there is a connection between forestry industry discharges and damage and diseases in fish.

5.3 Preventive Measures for Vessel-Based Pollution

Sweden has been engaged in the formulation of a ship safety and pollution prevention programme (SSPP-programme) aiming at improving the protection of the marine environment against pollution from ships, by

- a) increasing safety of navigation;
- b) improving ship safety and pollution prevention not directly connected with safety of navigation;
- c) intensifying the control of ships.

Other projects carried out by Sweden to further the aims of the Helsinki Convention, as far as the prevention of marine pollution from ships is concerned, are:

- research and development in respect of methods for tagging of oil residues in ships, primarily tagging

- of oil residues in cargo tanks of oil tankers;
- a study pertaining to the development of a standard test procedure for evaluating engine room cleaning agents with regard to their effect on the performance of bilge water purification equipment;
 - a study on problems related to the reception of residues and mixtures containing noxious liquid substances from ships in Swedish ports, in preparation of the coming into effect of the Convention requirements in respect of such substances:
 - the development of an emergency cargo transfer system on board oil tankers, including a full scale test, of a concept for the prevention of the escape of oil from a cargo tank having been damaged as a result of a grounding;
 - a study on the keeping of oil record books on board ships and the development of instructions for the keeping of such books.

5.4 Combatting Oil and Other Harmful Substances

Research and Development Programme for Oil Spill Combat and Clean-up Techniques

The government has instructed the National Swedish board for Technical Development (STU) to elaborate a comprehensive research and development programme for new technology in this field. The programme which is codenamed TOBOS 85 has the following aims:

- to make analyses for the requirements for different methods and technology to combat oil spills more efficiently
- to develop products to meet these requirements if such products are currently lacking on the market

- to supplement and improve existing systems if so required.

TOBOS 85 is now running for a five year period with a budget of 30 million SEK. It is intended to generate technical specifications and/or prototypes. The responsible authorities participating in TOBOS 85 have in addition their own annual subsidies (exceeding the total TOBOS 85 budget) for the purchase of available products.

Development of Stationary and Mobile
Environmental Protection Stores

In order to store and transport different kinds of oil spill combatting equipment the Coast Guard has built a storage and maintenance system consisting of:

- regional main bases with storages and manned maintenance facilities
- small storehouses located in large harbours and other strategic places
- mobile stores in standardized containers specially designed to store oil spill combatting equipment and to be carried on lorries
- a mobile maintenance base, consisting of a number of standardized containers, specially designed and equipped for maintenance work, storing personal protection equipment etc. One container is designed as a Coordination and Communication Center for the Supply Base Commander or - when needed - for the On-Scene Commander.

Establishment of a Chemical Spill
Response Organization which is
Co-Ordinated with the Fire Service

In Sweden a proposal is now considered which briefly implies the following:

- the Coast Guard's chemical response resources will in cases of emergency be reinforced with special response teams established by certain fire brigades
- the teams will be capable to carry out response actions within six hours, if necessary after air transportation
- the teams will be subordinated to the Coast Guard's command
- a special joint consultation group will be established at a central agency level.

Development of Special Environmental Protection
Ships, Catamaran Multi-Purpose Vessel and
Beach Cleaning Boats

During the last years the Coast Guard has developed the following specialized vessels for response to marine pollution.

Special environmental protection ships. Seven Sea Trucks (length **28-33** m) have been built with large deck areas and hydraulic cranes. A storage, a transferpump-room and tanks for collected oil (**120-180 m³**) are located under the deck area.

Multy-purpose catamaran. One prototype (length **28** m, speed **28** knots) has been built and designed as a patrol vessel. It has a storage in each hull and

a large deck area in the aft with hydraulic cranes. Oil recovery equipment can be deployed through a hatch in the middle of the deck between the hulls.

Beach cleaning boats. One prototype has been built and nine are under construction (length 9 m). They are designed as mini sea trucks which can be carried on ordinary lorries. They can work in very shallow waters.

UNION OF SOVIET SOCIALIST REPUBLICS

NATIONAL REPORT FOR THE REVIEW MEETING OF THE
COMMISSION FOR PROTECTION OF THE MARINE
ENVIRONMENT OF THE BALTIC SEA AREA

Protection of human environment and rational use of natural resources are treated in the Soviet Union on the same level as the major national objectives. Article **18** of the USSR Constitution reads that "Proper steps are being taken in the USSR in the interests of the present and future generations to ensure the protection and scientifically valid, rational use of the land and subsoil, of water resources, plants and animals, to keep the air and water clean, to guarantee the reproduction of natural resources and improve man's environment".

Protection of environment, including the seas which wash the shores of the USSR, is regarded in the Soviet Union not as a problem sprung upon man, or an unforeseen consequence of the growth of productive forces, but rather as a normal basis for social advancement, as part of a system of measures put through by the Soviet State. The Soviet people treat nature conservation not only as an essential condition for the existence of man as a species, but also as a prerequisite for attaining harmony between man and nature, which should be inherent in a highly developed human society.

From the first years of the Soviet State, being guided by this principle, the Soviet Union has been consistently and purposefully pursuing the comprehensively grounded policy of preservation, restoration and improvement of natural environment to make it favourable for the life of people, for development of industry and culture under the conditions of the existing progress in science and technology.

LEGISLATION ON PREVENTION OF MARINE POLLUTION

The shores of the Soviet Union are washed by 14 seas and one ocean, their total length exceeding 50 thousand kilometres. Hundreds of big and small rivers crossing the country's territory carry their waters to the seas around the USSR, thus largely determining the sea water condition, as well as the forms and scale of required water conservation developments.

In the recent years alone, the Central Committee of the Communist Party of the Soviet Union, the Presidium of the USSR Supreme Soviet, and the USSR Council of Ministers passed over 10 different legislative acts and resolutions on the prevention of pollution and rational use of sea waters. These acts and resolutions contain concrete tasks to ministries and departments for taking urgent measures to ensure untreated wastewater discharges into rivers and other water bodies of the sea basins to be stopped in the next few years.

Back in February 1974, the Soviet Government passed a special resolution "On strengthening measures against sea pollution by substances harmful for people's health or for living marine resources", and

the Presidium of the USSR Supreme Soviet issued a special decree on increasing the amenability for pollution.

In compliance with these resolutions of the Soviet Government, the ministries, departments and ship-owning organizations of the USSR are taking steps to prevent sea pollution by oil, oil products and other substances, harmful for people's health or living resources of the sea, discharged or lost by ships and other vessels; a special list has been drawn for substances the discharges of which in the inland seas and territorial waters of the USSR are forbidden or strictly controlled.

Aiming to implement the provisions of the Helsinki Convention on the Protection of the Marine Environment of the Baltic Sea Area, the USSR Council of Ministers passed in **1976** the resolution "On measures for increasing the protection of the Baltic Sea Basin against pollution". This resolution charges the industrial enterprises and other establishments, which discharge wastewaters into rivers and other water bodies of the Baltic Sea Basin, with the task of carrying out appropriate measures and completely stopping the discharges of untreated wastewaters by the year **1985**.

The main way of combatting the pollution of the marine environment is the reduction of water consumption by industrial enterprises through a change-over to water recycling systems, improvement of technological processes with adoption of low-water and wasteless technologies, as well as through construction of treatment facilities. In 1975 through 1982, more than

2500 treatment plants were built to treat over 4 mill. cubic metres of wastewater per day. About 1 bill. roubles were spent to attain these objectives, including 500 mill. roubles for construction of treatment facilities for Leningrad alone together with its suburbs. All the treatment structures were designed with allowance for the maximum permissible concentrations of pollutants in water bodies, valid in the USSR. As a rule, municipal treatment facilities will provide biological treatment of wastewater and, wherever necessary, chemical after-treatment with regard to the requirements of receiving water bodies. The final effluents discharged directly into the sea are diverted via deep-water outfalls to a distance of no less than 2 km off the shore.

Large-scale construction of treatment facilities is under way in Leningrad. The city's sewerage system will comprise three major treatment plants - the Southern, Northern, and South-Western - where some 4.5 mill. cubic metres of wastewater will be subjected daily to biological treatment. The Southern Treatment Plant reaching 1.5 mill. cubic metres per day in capacity is put into service on the Belyi Island. The construction of the Northern Plant is ongoing now. Eighteen out of the planned twenty-eight major factories have built and commissioned local treatment facilities with total capacity of 100 thou. cubic metres per day. Implementation of water protection measures has markedly improved the sanitary condition of the Neva River and Neva Inlet. Thus, in 1976 the BOD_5 in the Neva Inlet was 3 to 4 times in excess of the pertinent standards, whereas in 1982 the measured BOD_5 values were always below the permissible level. The same tendency is observed for oil products,

detergents and other harmful substances. Fish catches have perceptibly increased in Neva River.

Much work has been done in the Baltic Soviet Socialist Republics. So, Tallin authorities (Estonian SSR) have constructed sewage-collecting tunnels, a central pumping station, filters and sedimentation structures, a 3 km deep-water outfall diverting wastewater to a depth of 26 m, into the zone of intensive mixing. Chemical and biological treatment plants are planned to be put into operation in the next few years. Water conservation measures have substantially improved the quality of water in the Tallin Bay. The town beach in Pirita - Tallin suburb - has been expanded. The sanitary water characteristics in water use areas stay within the admissible limits.

The construction of a regional sewerage system with biological after-treatment of wastewater and its diversion through a deep-water outfall to a distance of 2.5 km, is nearing completion in the industrial region of Kohtla-Jarve. Extensive work is being carried out at the Kohtla-Jarve shale processing mill to introduce water recycling, which has permitted considerably (up to 10 times) reducing sea disposal of phenol-containing wastewater. The sea water quality in the town beach zone is in line with the standard requirements.

More than 500 small structures for biological wastewater treatment are built in towns and rural settlements.

During the period of 1976 through 1982, about 1000 sewage treatment plants were constructed in the

Latvian SSR, primarily in rural communities. The pulp mill in the town of Yurmala and the tie impregnation plant in Riga were shut down as major sources of water pollution.

To keep the coastal waters clean, a 1 km wide water protection zone is established along the sea and Gulf of Riga with restricted economic activities.

In the Lithuanian SSR, 322 treatment plants out of 686 built during the years of 1976 to 1982 ensure biological wastewater treatment at a total rate of 217 thou. m³ per day.

The sanitary condition of the Pregol and Neman rivers perceptibly improved, and the pollution load decreased 10 to 20 times during 1976-1982 owing to technological measures, and primarily due to partial treatment of wastewater from pulp and paper mills. Measures were taken to expand the construction of biological treatment plants at the Sovetsk and Neman pulp and paper plants and in Kaliningrad. This resulted in the improvement of the Kursh Bay state, in the inhibition of its eutrophication.

During the 10 years which elapsed since the signing of the Final Act of the Helsinki Diplomatic Conference the Soviet organizations were taking measures to bring the ships, ports and ship repairing yards in line with the requirements of the Helsinki Convention, MARPOL Convention and national regulations. Among the practical results of implementation of the program for prevention of the vessel-based pollution of the sea is the provision of a whole complex of unified facilities for accidental oil spill control,

such as the creation of the special multipurpose large-tonnage ship "Svetlomor". This ship re-equipped from a 10 thou.t tanker was provided with a sill-type oil collection system, and when field-tested showed oil collection efficiency of about 72 %. Being kept in readiness for oil spill control operations, the ship is employed for wasteless cleaning of fuel tanks on other vessels.

Daily cleaning of port water areas on the Baltic Sea is performed by sixteen oil and refuse collectors.

On November 21, 1981, over 16 thou.t of high-viscous fuel oil were spilt in the Baltic port of Klaipeda as a result of an accident on the British tanker "Globe Asimi". This accident was a severe test for the readiness of people and equipment. There are no two spills alike, and each time a new combination of attendant factors is to be dealt with. Under low temperatures, the fuel oil mixed with small trash, carried by storm winds to the Kursh Bay, formed an asphalt-like mass which defied pumping. In that particular instance there was no using the available personnel and facilities to full capacity. More than 9 thou.t of oil, or 53.5 per cent of the spill, were collected in total during the operation, and over 600 thou.t of oil-polluted sand were removed from the shore to a special disposal place. In the world practice of elimination of large oil spills this outcome can be regarded as satisfactory.

As to the servicing of Soviet and foreign ships in ports by taking oil-containing water from them, such large sea ports as Leningrad, Ventspils and Klaipeda have their own treatment facilities with a total

capacity of 100 thou.t per day. Polluted water from ships is taken by eight vessels which collect bilge and black water into 225 m³ tanks. In 1984 a modified collector will come into operation, it will have a fine cleaning separator which will permit handling the oily mixture directly on board the ship.

A package of measures was put through in the port of Ventspils to prevent the sea pollution by harmful chemicals carried by ships. Biological treatment plants were built to take care of 10 thou.m³ of wastewater per day. These structures provide the treatment of wastewater which results from the handling and storage of chemical cargoes, including the wash and ballast water received from ships. By and large, efforts are made to establish such a treatment technology, which would dispense with sea disposal. To fulfil the provisions of Regulation 5, Annex IV, of the Helsinki Convention, the capacity of treatment plants in Ventspils Town will grow three times by the day of its coming into force.

The availability of such technical means made it possible since January 1, 1983 to abolish the charges for using reception facilities for oil-containing bilge water practically in all Soviet ports of the Baltic Sea, thus reducing to a minimum the possibility of oil-polluted water discharges at the approaches to ports.

In 1985 the first construction stage section of the new Tallin sea port will be put into service to provide an integrated solution to the problem of preventing sea pollution from ships and during cargo handling.

All Soviet vessels are equipped with storage tanks and systems for conveyance of oil-containing water to reception facilities, with separators and devices for control over the oil content in the water drained overboard.

"The rules for recording operations with oil, oil products and other substances harmful for people's health and living resources of the sea, as well as with their mixtures produced on ships and other vessels" revised in conformity with the MARPOL 73/78 requirements, came into force in mid-1983.

During the recent decade, over 20 Soviet cities and more than 100 industrial enterprises completely stopped the discharges of untreated wastewater into rivers and other water bodies of the Baltic Sea, while ships and other vessels are no longer discharging oil-containing water or dumping refuse.

In the period of 1976 to 1982, substantial work has been done to reduce the nonpoint load entering the sea from the land or through the atmosphere. The use of DDT and PCB was fully forbidden. The zones of pesticide application were appreciably limited. Storage and use of fertilizers and pesticides became strictly controlled. Agronomical measures substantially reduced the discharges of nutrients, primarily nitrogenous compounds, into rivers and the sea, which helped to reduce eutrophication within smaller areas. Attention was paid to eliminating the discharges of oil products into water bodies with storm- and snow-melt water from urban territories and industrial sites.

Considerable work is being done to reduce the load of pollution caused by gaseous wastes, primarily in industrial centres. Owing to certain technological improvements, the gaseous waste load in industrial regions of Northern Estonia was decreased 5 to 10 times. State control over the observance of the gas cleaning standards has been exercised since 1979.

Improvement of the marine environment was also promoted by the special republican control bodies (inspection boards) for the protection of the Baltic Sea waters, set up in 1977 to 1979 to check the adherence to the water legislation in the coastal zone, as well as to the requirements of the Helsinki Convention. At present, every sea port on the Baltic Sea has its State water inspectors with vessels and hydrochemical laboratories at their disposal. The water inspection service is widely employing aircraft and helicopters to monitor the condition of the open and territorial waters of the USSR on the Baltic Sea.

RESEARCH

In the period marked by the activities of the Interim Commission (1974-1980), the Soviet scientists and technicians took active part in the development of the scientific and technical principles of the Helsinki Convention. After the Convention came into force in 1980, this work was continued and further extended. The studies conducted within the scope of the Scientific-Technological Committee may be characterised as national investigations made by Soviet organizations, and international studies based on bilateral and multilateral cooperation. The research activities fall into two large groups:

- 1) oceanographical studies concerned with the physical, chemical and hydrobiological indicators of the condition of the marine environment; and
- 2) technological and legal studies aimed at the development of criteria and standards for discharge of pollutants into the marine environment, as well as at the optimization of water conservation measures.

A regional scheme for the protection of the natural complex and rational use of the natural resources in the coastal region of the Baltic Sea was drawn up for a period up to the year 2000 in view of the necessity for establishing the scientifically valid, economically and ecologically competent relations between society and nature, and with regard to the unique natural conditions of the Baltic Region, which should be preserved for future generations. The scheme based on a huge amount of systematized data fully agrees with the interests of fishery, navigation and water supply. The formation of the ecological equilibrium of the marine environment and its individual elements was studied in its specific features.

INTERNATIONAL COOPERATION

The Soviet-Finnish cooperation in protecting the Gulf of Finland against pollution, which marked its 15th anniversary in 1983, was one of the cornerstones in the foundation of the Convention for the Protection of the Marine Environment of the Baltic Sea Area. The efforts of primarily Soviet scientists permitted initiating in 1968 the joint studies on the physical, chemical and biological characteristics of the marine environment of the Gulf of Finland,

and conducting intercalibration work. These studies served as a basis for assessing the condition of the marine environment and testing a two-dimensional hydrodynamic model which permitted forecasting the changes in the qualitative characteristics of sea water. Procedures for sea sewage disposal and criteria for wastewater discharge into the sea were worked out.

Since **1970**, joint work has been carried on in compliance with the program for Soviet-Swedish cooperation in protecting the marine environment of the Baltic Sea. During the period of **1976** to 1982, four joint Soviet-Swedish expeditions were undertaken in the Baltic Sea to study the anthropogenic impacts on the marine ecosystems. These investigations were preceded by the work on intercalibration of the physical, chemical and hydrobiological methods.

Soviet scientists actively participated in the elaboration of the program for the First International Monitoring of the Marine Environment of the Baltic Sea. In 1979, joint operations on a network of permanent representative stations in the open sea were launched in conformity with the program for international monitoring of the marine environment. The Soviet participants conducted observations with the help of the research ships "Okeanograf", "Lev Titov" and others. Monitoring at international stations was coordinated with national monitoring in the coastal waters.

Concurrently with the implementation of the monitoring program, the Soviet scientists took part in the compilation of a review describing the state of the marine environment. This work prepared together

with ICES and published in the Proceedings of the Helsinki Convention in 1980, serves as a basic material for further assessment and prediction of changes in the state of the marine environment.

The first experience of international monitoring of the marine environment pointed to the necessity of improving its program. On the initiative of Soviet specialists, an international working meeting of the special expert group was convened in the spring of 1982 in Vilnius, Lithuanian SSR. The meeting arranged to work within the scope of the Convention discussed the supplements and changes in the monitoring program (stage 2) which starts in **1984**.

An international symposium on the biological aspects of sea pollution sponsored by the Helsinki Commission, where the research findings of the recent years were discussed, was held in Riga in the spring of 1983.

Besides, the Soviet scientists and technicians actively participated in the work of ICES, Baltic Oceanographers and Baltic Biologists; so, for instance, using the ship "Ayu-Dag" they took part in the implementation of the international program "BOSEX" on the study of pollutant transfer in the open part of the Baltic Sea. In the spring of 1983, an international symposium on the study of the patchiness of the marine environment was held together with ICES at the Institute of Thermo- and Electrophysics of the Estonian Academy of Sciences in Tallin.

In the field of technological studies, the Soviet scientists were among those who initiated the development of methods for determining the criteria for

harmful substances discharged in the marine environment, based upon the permissible sea water quality and maximum permissible wastewater discharges. Such combined approach was suggested by Soviet scientists at a meeting of the special working group in Tallin in 1978.

Recommendations on the legal aspects of the Baltic Sea protection were developed. The Soviet specialists took the initiative in elaborating new technological schemes for utilization and treatment of fish-processing wastewater. The results of these studies were reported at an international seminar in Tallin in the spring of 1982.

National studies

The signing of the Helsinki Convention entailed more intensive research on the state of marine environment, and development of water conservation measures.

Proceeding from recommendations of the Commission for the Protection of the Marine Environment of the Baltic Sea Area, improvements were made on the national network of stations for observation and control over the sea water quality. In the Soviet Union, the National Service of Environment Observations and Control on the Baltic Sea includes, all in all, over **100** observation stations. The monitoring program envisages primarily thorough and regular control over the water and bottom sediment pollution in recreation and fishery zones, in river mouths and towns. The studies in progress now include the regularities of spatial and temporal changes caused by anthropogenic impacts.

Fundamental research aiming at defining anthropogenic impacts on the marine environment and developing water conservation measures is being carried out by the institutes of the USSR State Committee for Hydrometeorology and Environmental Control, USSR Ministry of Land Reclamation and Water Management and Academies of Sciences of the Baltic republics. A climatic simulation model of the marine ecosystem is being elaborated. The model will be verified through field experiments which will basically consist in the multipurpose exploration of the **sea**, including observations of hydrophysical and chemical fields, and the definition of the relevant governing factors.

The Neva Inlet, Tallin Bay and Gulf of Riga were specially studied to determine the water conservation requirements of the major Baltic cities.

The results of the work carried out on the study and regulation of the quality of water bodies, and specifically of the Baltic Sea, were discussed at the 5th and 6th All-Union symposiums for self-purification of water bodies and water quality regulation, held in Tallinn in **1975** and 1979. The findings of the physical, chemical and biological studies on the Baltic Sea were also considered in Moscow, at the symposium of the Commission for Surface Water Protection of the USSR Academy of Sciences, in 1980.

The ten years which passed since the signing of the Helsinki Convention on the Protection of the Marine Environment of the Baltic Sea Area were the years of intensive activities aimed at securing the purity of the Baltic waters. This work so important from

the viewpoint of nature conservation has also a great political significance as an essential element of implementing the decisions of the Helsinki Meeting on Security and Cooperation in Europe in the Baltic Sea Area.

The experience of joint work carried out by the Baltic countries in the field of the protection of the Baltic Sea waters proves the possibility and practicability for fruitful cooperation of states with different social and political systems in attaining the goal of improved well-being of all the peoples living on the shores of the Baltic Sea.

The measures put through in compliance with the Convention during the past ten years laid the foundation of long-term and large-scale cooperation of the Baltic countries in the interests of preserving the marine resources, and proved to be another concrete step towards consolidation of peace in the Baltic Region. This cooperation is a vivid proof of the viability of the Final Act drawn by the meeting for Security and Cooperation in Europe.

BALTIC SEA ENVIRONMENT PROCEEDINGS

- No. 1 JOINT ACTIVITIES OF THE BALTIC SEA STATES WITHIN THE FRAMEWORK OF THE CONVENTION ON THE PROTECTION OF THE MARINE ENVIRONMENT OF THE BALTIC SEA AREA **1974-1978 (1979) "**
- No. 2 REPORT OF THE INTERIM COMMISSION (IC) TO THE BALTIC MARINE ENVIRONMENT PROTECTION COMMISSION **(1981)**
- No. 3 ACTIVITIES OF THE COMMISSION 1980
- Report on the activities of the Baltic Marine Environment Protection Commission during 1980
- HELCOM Recommendations passed during 1980 **(1981)**
- No. 4 BALTIC MARINE ENVIRONMENT BIBLIOGRAPHY **1970-1979 (1981)**
- No. 5A ASSESSMENT OF THE EFFECTS OF POLLUTION ON THE NATURAL RESOURCES OF THE BALTIC SEA, 1980
PART A-1: OVERALL CONCLUSIONS **(1981)**
- No. 5B ASSESSMENT OF THE EFFECTS OF POLLUTION ON THE NATURAL RESOURCES OF THE BALTIC SEA, 1980
PART A-1: OVERALL CONCLUSIONS
PART A-2: SUMMARY OF RESULTS
PART B: SCIENTIFIC MATERIAL **(1981)**
- No. 6 WORKSHOP ON THE ANALYSIS OF HYDROCARBONS IN SEAWATER
Institut für Meereskunde an der Universität Kiel,
Department of Marine Chemistry, March **23** -
April 3, 1981 **(1982)**
- No. 7 ACTIVITIES OF THE COMMISSION 1981
- Report of the activities of the Baltic Marine Environment Protection Commission during 1981 including the Third Meeting of the Commission held in Helsinki **16-19** February 1982
- HELCOM Recommendations passed during 1981 and 1982 (1982)
- No. 8 ACTIVITIES OF THE COMMISSION 1982
- Report of the activities of the Baltic Marine Environment Protection Commission during 1982 including the Fourth Meeting of the Commission held in Helsinki 1-3 February 1983
- HELCOM Recommendations passed during 1982 and 1983 (1983)

* out of print

No. 9 SECOND BIOLOGICAL INTERCALIBRATION WORKSHOP
Marine Pollution Laboratory and Marine Division
of the National Agency of Environmental Protection,
Denmark, August 17-20, 1982, Rønne, Denmark
(1983)

**Baltic Marine Environment
Protection Commission**
Eteläesplanadi 22 C 43
SF-00130 Helsinki 13

ISSN 0357-2994

Helsinki 1984. Government Printing Centre