Proposal for Sweden's National Implementation Plan for the Baltic Sea Action Plan

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Foreword by the Minister for the Environment

The marine environment is a priority for the Swedish Government. Our regional seas, the Baltic Sea and Skagerrak in the North Sea are of vital importance for our development, economy and well-being. To invest in protecting the ecosystem services provided by the sea is to invest in the future. The Swedish Government has therefore introduced a special budget line for the marine environment in the national budget, totalling more than EUR 100 million since 2006.

The Baltic Sea Action Plan is a timely initiative providing multiple opportunities for synergies with other processes dealing with our regional seas. The EU Marine Strategy Framework Directive and the possibility for the Baltic Sea to become a pilot project, the EU Strategy for the Baltic Sea Region, and the EU Integrated Maritime Policy are examples of such international processes.

By working together, the HELCOM countries should be able to make the Baltic Sea a model and a success story showing how regional cooperation can save our seas.

If we are going to make Baltic Sea a success story, we need to promote and strengthen the cooperation between the countries around it, at all levels. It is not just about cooperation between governments; we depend heavily on the organisations, industries, and individuals who really have to get the job done. Local stakeholders have a crucial role to play if we are to achieve the goals of the BSAP. In recent decades, local farmers, coastal municipalities, industries, and other stakeholders have gradually improved their environmental performance and today hundreds of local initiatives to improve the marine environment are being implemented.

However, historical loads of pollutants and nutrients still have significant a influence on the health of the seas and we need to do more. At the same time new challenges arise, such as increased maritime activities and the impact of climate change, which means that there are no quick fixes; our work to save the seas will need to be sustained over decades to reach our goals.

Sweden has the longest coastline in Europe, the largest sea area in the Baltic Sea, and a progressive marine environmental policy. We are committed to working together with our neighbouring countries and making the Baltic Sea Action Plan a success.

Andreas Carlgren
Minister for the Environment

Conclusions and Executive Summary

The Baltic Sea Action Plan is presently the most complete, internationally agreed rescue plan for the Baltic Sea. The plan is also timely as it has become a substantial pillar of several other international initiatives of relevance for the marine environment that have recently been launched such as the EU Marine Strategy Framework Directive, the EU Strategy for the Baltic Sea Region, and the Baltic Sea Action Summit. Potential synergies between these initiatives are creating an unprecedented momentum for action.

As countries prepare to shift gear from the development phase of the BSAP to the implementation phase by preparing their National Implementation Plans, new opportunities and new challenges will arise. While it is the responsibility of each and every HELCOM party to implement the action plan, the efforts required to restore and protect the marine environment goes beyond the capacity of any individual country. Enhanced and continuous international cooperation is a condition for success.

The need to restore and protect the Baltic Sea environment should be put in the perspective of economic development and well-being. Marine resources and maritime activities are important for the economies of all HELCOM countries. While short-term and medium-term expenses for remedial measures may be significant, these costs should be seen as long-term investments in prosperity.

For Sweden, the Baltic Sea is of particular importance and we bear a great responsibility due to our long coastline and large marine areas. A wide range of authorities and stakeholders have been involved in preparing and commenting on the Swedish implementation plan, A Government Communication on Measures for a Living Sea mainly concerning the implementation of the BSAP was adopted by the Cabinet of Ministers on 6th May 2010 and then presented to Parliament.

With the measures proposed in the Government Communication and this National Implementation Plan, Sweden fullfills the obligations to prepare a National Implementation Plan and has created the conditions to be able to stand by its commitments under all four components of the BSAP.

1. The Baltic Sea Action Plan and its follow up

The Baltic Sea Action Plan (BSAP) was adopted by the ministerial meeting in Krakow, Poland in 2007. Since then, countries have been working on developing National Implementation Plans (NIP) for the more than 150 actions proposed. At the ministerial meeting in Moscow in May 2010, the BSAP will shift gear from the development phase to the implementation phase. The ministerial meeting will assess the environmental status of the Baltic Sea and the individual countries' work to develop National Implementation Plans for the BSAP.

The BSAP has received widespread global attention during its development and has contributed to several international processes. The implementation phase will present new and different challenges, but also great opportunities for the Baltic Sea's recovery.

1.1 The HELCOM process and the role of Sweden

The HELCOM area covers the entire Swedish coastline with the exception of Skagerrak from Gothenburg to the border with Norway. The Swedish west coast and adjacent seas have some of the richest ecosystems in the country regarding biodiversity and have historically been the base for many of Sweden's maritime traditions. The Baltic Sea is unique from many points of view. It is geologically young, shallow, brackish, semi-enclosed and sensitive to human impact. In the HELCOM drainage area, four times as big as the sea area, lives some 90 million people in some of the most developed and strongest economies in the world with the best environmental knowledge, technologies and awareness. The HELCOM region should therefore, in theory, have the best possible potential to be a global example of prosperity based on successful inter-regional cooperation and integrated natural resource management.

The Convention on the Protection of the Marine Environment of the Baltic Sea Area was established in 1974 and revised in 1992 when several new coastal states became independent. For more than 35 years HELCOM has been working to implement the Convention and improve the environmental status of the Baltic Sea. HELCOM is one of the oldest regional seas conventions and often a model at global level for regional cooperation.

Due to enlargement, eight out of the nine riparian countries are now also EU Member States. EU policy related to the marine environment and relevant sectors is becoming increasingly important and overlaps and complements to a certain degree the work of HELCOM. From a regional seas perspective, HELCOM is an important and complementary cooperation forum with Russia.

For Sweden, HELCOM is an important regional cooperation platform due to the fact that Sweden has the longest coastline, the largest maritime area, and the largest drainage area in the Baltic of all riparian states. As a consequence, almost everything that happens on land, in lakes and in rivers in Sweden, may have an impact on the different water basins in the HELCOM area. Integrated approaches to management of land, freshwater, coastal water and the sea are therefore increasingly important.

Although HELCOM works in a traditional way using agreements and recommendations, it is up to the participating countries behind the Convention to make it as powerful and efficient as possible in the long run. Based on the Marine Environment Inquiry[1], the Government in its *Bill 2008/09:170 on a Coherent Swedish Marine Policy (Marine Policy Bill[2])* announces its intention to work towards strengthening HELCOM as an actor for regional work related to the marine environment.

1.2 The status of the Baltic Sea and its importance for economic development

Nearly 90 per cent of the Swedish population lives within 100 kilometres of the coast and a majority of industrial and administrative centres are located on the coast clearly showing the importance of coastal areas for the economy and development. Coastal areas and the archipelago are also major areas for tourism, recreation and the well being of almost every Swedish citizen.

However, due to the critical situation of the marine environment, our economy, development and well-being are at stake. Ecosystem services are being eroded and the sea is on the brink of ecological collapse. The Swedish Environmental Protection Agency (SEPA) has in an initial report[3] shown that out of 24 ecosystem services provided by the Baltic Sea, only 10 are functioning at optimal level and seven are severely threatened. The value of the marine environment was the theme of a conference during the Swedish Presidency of the EU as

[1] En utvecklad havsmiljöförvaltning Statens Offentliga Utredningar SOU 2008:48 (Swedish only), http://regeringen.se/sb/d/108/a/104309; Better Management of the Marine Environment, Swedish Government Official Reports SOU 2008:48 (Partial print in English); http://regeringen.se/sb/d/108/a/107949

[2] Governmental Bill 2008/09:170 "En sammanhållen svensk havspolitik" (Swedish only), http://regeringen.se/sb/d/108

[3] What's in the sea for me? SEPA Report No 5872. http://www.naturvardsverket.se/Documents/publikationer/978-91-620-5872-2.pdf (English) http://www.naturvardsverket.se/Documents/publikationer/978-91-620-5937-8.pdf (Swedish)

well as the high-level meeting "Visions for Biological Diversity beyond 2010 – People, Ecosystem Services and the Climate Crisis" which highlighted the need for investments to protect ecosystem services and to integrate their values in our economical systems, national budgets and strategies for sustainable development.

1.3 BSAP and its relation to international processes

The Swedish Marine Policy Bill stated that the work with BSAP needs to be integrated with relevant EU processes, be a base for designation of the Baltic Sea as a pilot project under the EU: Marine Strategy Framework Directive, to become a priority action for the EU Strategy for the Baltic Sea region and a platform for cooperation with Russia.

The BSAP constitutes the basis for the proposal to designate the Baltic Sea as a pilot project under the Marine Strategy Framework Directive in accordance with the decision by the Environmental Council of 22 December 2009[4]. In implementing the MSFD, much effort is put in harmonising with the BSAP.

During the Swedish Presidency of the EU in 2009, one of the priorities was to conclude the development of the EU Strategy for the Baltic Sea Region[5] which was adopted by the European Council on 28-29 October 2009. The BSAP has been successfully integrated into the strategy and is in fact a cornerstone of the environmental component, several priority actions and flagship project proposals. The BSAP is also reflected in the other components of the strategy.

During the Baltic Sea Action Summit (BSAS), held in Helsinki, Finlandon 10 February 2010, heads of states and governments from the Baltic Sea countries as well as business leaders pledged their commitments to work towards improving the environmental conditions of the Baltic Sea. The BSAP was the basis for the discussions during this high-level meeting which highlighted the urgent need for concrete actions.

2. Sweden's National Implementation Plan for BSAP

This report provides a summary description of Sweden's plan to implement the proposed actions in the BSAP. Joint HELCOM actions or other actions where little or no national implementation measures are required are not included or are only briefly described. For easy reference, the HELCOM Index numbers for BSAP actions are included in the text.

The measures build largely on the agencies' proposal, which describes in more detail the actions and the responsible stakeholders.

2.1 Preparation process

In the Swedish Marine Policy Bill, the Swedish Government states that it will present a National Implementation Plan for BSAP based on a proposal from the agencies and other information.

At the request of the Government, the Swedish Environmental Protection Agency (SEPA) together with other relevant agencies presented on 13 of July 2009 a proposal for fulfilling Sweden's commitments under the Baltic Sea Action Plan (the agencies proposal for the NIP) consisting of an action plan[6] and a socio-economic impact assessment[7]. This cooperative effort by the Environmental Protection Agency, the Board of Agriculture, the Chemicals Inspectorate, the Maritime Administration, the Coast Guard, the Board of Fisheries, the Swedish Energy Agency, the Defence Force, the Forest Agency, the Swedish Meteorological and Hydrological Institute, the Geological Surveys of Sweden, and the Water Basin Authorities in the south Baltic, the north Baltic and the west Coast have reached an inter-agency agreement on a large number of measures relevant to the BSAP.

The agencies' proposal for the NIP was submitted for public consultation until 15 January 2010. The proposal was sent to 84 organisations. Comments from the consultation are summarised in chapter 2.2.

Based on the agencies' proposal for the NIP, and the public consultation, a *Government Communication No 2009/10:213 on Measures for a Living Sea*[8] was adopted by a Cabinet decision 6 May 2010.

[4] Webreference to the Council conclusions
[5] EU Strategy for the Baltic Sea Region and its Action Plan; http://ec.europa.eu/regional_policy/cooperation/baltic/index_en.htm

[6] SEPA Report No. 5985 "Sveriges åtagande i Baltic Sea Action Plan" (Swedish), http://www.naturvardsverket.se/sv/Nedre-meny/Webbokhandeln/ISBN/5900/978-91-620-5985-9/; SEPA Report No. 6318 "Sweden's Commitment under the Baltic Sea action Plan – Proposal for a national action plan" (English); http://www.naturvardsverket.se/Documents/publikationer/978-91-620-6318-4.pdf
[7] SEPA Report No. 5984 "Sveriges åtagande i Baltic Sea Action Plan – Konsekvensanalyser" (Swedish), http://www.naturvardsverket.se/sv/Nedre-meny/Webbokhandeln/ISBN/5900/978-91-620-5984-2-/ . ; SEPA Report No 5989 "Sweden's Commitment under the Baltic Sea Action Plan – Socio-economic impact assessment" (English) http://www.naturvardsverket.se/sv/Nedre-meny/Webbokhandeln/ISBN/5900/978-91-620-5989-7/
[8] Governmental Communication 2009/10:213 "Åtgärder för levande hav" (Swedish only)

This document, is the proposed National Implementation Plan submitted by Sweden for HELCOM's assessment at the ministerial meeting in Moscow on 20 May 2010. The proposal for the Swedish NIP for the BSAP will take into account comments by the Parliament, HELCOM's assessment and the recommendations from the ministerial meeting. During the BSAP implementation phase, the NIP will be a living document and periodically evaluated and updated.

2.2 Consultation process and stakeholder comments

During the consultation process, most bodies were in principal positive to the proposal that Sweden should be at the forefront of efforts to improve the environmental conditions of the Baltic Sea. Several c*ounty boards* highlighted the additional workload for implementing agencies. *WWF* considered the proposal weak and fragmented. Several bodies pointed out the difficulties in distinguishing the link between measures, local priorities, implementing party and financing. *SIDA* emphasised the need for transboundary cooperation at al levels, including project support from the EU. *The Swedish Society for Nature Conservation* highlighted the need to promote marine-related issues in international forum, in particular within the EU framework.

The *county boards in the northern part of Sweden* insisted that the implementation of the BSAP is also needed in the Bothnian Sea and Bothnian Bay, while the *town of Helsingborg* highlighted the special conditions in the Öresund.

Several bodies highlighted the links and potential synergies between programmes of measures to implement the BSAP, the Water Framework Directive, the Marine Directive and the national environmental quality objectives. Many county boards pointed out that several recipients have less than moderate status and should reach good ecological status by 2015 or in some cases 2012. This highlights both a need and incentive for concrete actions. Some bodies requested a better integration between the components of eutrophication and biological diversity and others considered the need for action and considered that the costs related to biological diversity were underestimated.

Several bodies highlighted the need for additional resources to implement proposed measures, and the high costs of the programme of measures is considered as an impediment to implementation. In addition, the financing of the programme of measures is unclear. The need for an overarching agency for marine and water-related issues was mentioned by several respondents. Cost efficiency was discussed by several respondents but the *County Board in Västmanland* pointed out that cost efficiency always needs to be put in the perspective of the legally binding requirements to achieve good ecological status. System wide measures, such as economic incentives were proposed by several bodies, including Swedish Water which proposed a sector-specific trading

system. The *County Boards in Skåne and Kalmar* would like to discuss a fee system included in the programmes of measures.

There is a great deal of interest on the part of local actors to contribute to the implementation of the action plan. Many also consider that awareness and capacity-building activities, such as Focus on Nutrients, can contribute to the implementation at national level. Some bodies such as *the Swedish Society for Nature Conservation and CCB* considered many measures to be oriented towards investigation and the need for concrete actions was highlighted by many, including t*he County Board of Gotland, Municipalities of Trelleborg and Kalmar* which proposed cross-sectoral holistic solutions for the environmental problems. The *Swedish University of Agricultural Sciences* considered the sectoral fragmentation as problematic and *WWF, the Swedish Society for Nature Conservation* and *the Municipality of Trelleborg* considered that efforts to develop an integrated programme have been hindered due to a failure to integrate the participating agencies. Several bodies thought that more far-reaching measures could have been proposed to remedy environmental degradation caused by agriculture, fisheries, wastewater treatment plants and air emissions from shipping.

2.3 Political agreements

The Swedish Parliament has established 16 environmental quality objectives to steer Sweden's environmental efforts. Three of these objectives are of high relevance for the marine environment namely *a balanced marine-environment, flourishing coastal areas, and archipelagos, zero eutrophication,* and *a non-toxic environment*. A revision of the system for environmental objectives was proposed in the *Governmental Bill 2009/10:155 on Environmental Quality Objectives in 2010*".

The environmental quality objectives are well established in Swedish environmental policy and a multitude of agencies, local authorities and stakeholders are working towards achieving the objectives.

The *Bill 2008/09:170 on A coherent Swedish maritime policy* outlined the direction of Swedish maritime policy including an action plan for international cooperation, a new agency responsible for marine and water environmental issues, planning of Swedish marine areas, a competitive and vigorous shipping industry, and sustainable development of coastal and archipelago-based industries. It also included a number of measures and instruments for a better marine environment, including important measures to reduce nutrient load. A tax credit system for conversion of private waste water systems, measures against discharge of toilet wastewater from leisure crafts and passenger ships, limits on spreading of farmyard manure, a ban on phosphates in detergents and cleaning agents and a strengthening of the rural development programme 2007-2013 were presented. A system of governmental grants to local water management initiatives (LOVA) was also introduced and is expected to provide about EUR 10-12 million per year. In the *Budget Bill 2010* a continuous focus on the marine environment was envisaged and the budget line for the marine environment was extended for 2010 at the same level as for 2011, i.e.EUR 28,5 million.

The *Government Communication 2009/10:213 on Measures for a Living Sea*, was adopted by the Cabinet of Ministers on 6th May 2010. The commitments under the Baltic Sea Action Plan and how Sweden is planning to implement the BSAP is the main issue of this communication which is also the basis for the National Implementation Plan.

2.4 Financing requirements and strategy

Ecosystem services provided by the Baltic Sea are public assets which can be capitalised on by the state or municipalities, the private business sector or individual citizens by making use of natural resources and ecosystem services. Degradation of ecosystem services leads to a loss of public assets including their potential financial benefits. In most cases, this loss is not fully compensated for by activities causing the degradation, and is therefore an economic externality. All costs related to protecting and restoring the Baltic Sea environment must bee seen from this perspective.

Assessing the actual costs of implementing the BSAP in Sweden is complicated due to the great uncertainty regarding the measures. The agencies' proposal include an extensive socio-economic impact assessment estimating the total cost for society to be EUR 200-250 million per year for the next 20 years. The majority of these costs relate to measures to reduce eutrophication. The costs for the other segments will amount to about EUR 20 million yearly at least until 2013. Most of these costs are related to protecting biodiversity and sustainable fishery. The implementation of proposed measures, especially within the *eutrophication* segment, also contribute to synergies and the fulfilment of other goals or compliance with other legislation. Therefore implementation costs should not only be accounted for in the Baltic Sea Action Plan.

Proposed and potential measures together with those already implemented may reduce nutrient loads by almost 1 700 tonnes of nitrogen to the Danish Straits at an estimated cost of EUR 10 million a year. As the BSAP reduction requirement is 1 100 tonnes this gives a surplus of almost 600 tonnes.

In the Kattegatt, identified measures has the po-

tential to reduce nitrogen loads by 6 200 tonnes at an estimated cost of EUR 60 million. Measures to reducethe remaining 3 700 tonnes to reach the calculated BSAP requirement of 9 800 tonnes of nitrogen have to be found.

For the Baltic Proper measures proposed may reduce Nitrogen loads by 7 600 tonnes at an estimated cost of EUR84 million per year. Compared to the BSAP reduction requirement of 5 800 tonnes this will lead to a surplus of almost 1 800 tonnes of nitrogen. Measures to reduce Phosphorus may achieve a reduction of 170 tonnes at an estimated cost of EUR 56 million per year. To reach the BSAP requirement of a 290 tonnes reduction, an additional reduction of 100 tonnes needs to be achieved.

The costs of proposed measures in the *biodiversity segment including fisheries* is an estimated EUR 15 million per year for at least another five years. The effects of the measures on socio-economic sectors other than fisheries are not expected to incur any major socio-economic costs. Almost half of the EUR 15 million is dedicated to excess capacity in fisheries and regulating catches. It has proven difficult, especially politically, to find instruments that will lead to the implementation of efficient and cost-effective measures since excess capacity is part of the problem. On the other hand, some of the proposed measures are considered supportive to the sector since public finances will help move the sector towards sustainable fishery. Costs might also need to be added, e.g compensations for restrictions in the use of or for the purchase of land and water areas with a view to protecting or restoring habitats. Restorations can be costly and amount to hundreds of millions of euros.

Most of the measures in *hazardous substances* segment are of an administrative nature. Sweden has already fulfilled the majority of the requirements in the BSAP.

In the *maritime sector* too, most measures are of an administrative nature. Shipping decisions to reduce emissions of NOx will lead to costs- how big these costs are depends on international agreements and on how the instruments are designed. Considering that the state already supports the shipping sector, public finances might be affected by the choice and design of the instruments. Like international flights, international shipping is favoured in many ways compared to other means of transportation. With increasing discussions on how goods are to be transported with as little impact as possible on the environment shipping will hardly loose competitiveness even if environmental demands are increased.

The largest cost for public finances is compensation through the Rural Development Programme for measures within the agriculture sector, half of which are being financed through the EU. The revision of existing permits and the supervision of sewage treatment plants and industries will also place a burden on public finances. Increased costs for the local authorities for the supervision of single-family homes are also foreseen. If any of these measures also include some kind of compensation, this cost will have to be covered by public finances. The economic sectors, as well as individual citizens, will also need to bear some of the costs. Today, marine environmental work is financed in several ways, including:

- state funding, including from the budget line for marine environment established by the Government in 2007;
- state and EU funding from the Rural Development Program and the Fisheries Fund to finance a range of voluntary measures in agriculture and fisheries;
- municipal funding of wastewater treatment plants, for example;
- loans from international financing institutions and commercial banks;
- business community financing environmental measures in their operations;
- NGOs, individuals and private foundations through voluntary work and donations; and
- project grant funding trough different EU mechanisms.

It is expected that the funding for the implementation of the BSAP in Sweden will make use of these existing funding mechanisms, but new priorities and allocations maybe necessary. In reprioritising funding allocations, cost-effective solutions, synergies and win-win situations between the legal obligations under the Water Framework Directive, the Marine Directive, the national environmental quality objectives and the BSAP will be sought. The Government will support and encourage stakeholders' efforts to develop projects and measures to contribute to improving the environmental status of the Baltic.

2.5 Opportunities and challenges

Implementing the Baltic Sea Action Plan poses major challenges but also represents an important opportunity to turn the downward trend in environmental quality. The opportunity is to make use of the cooperative spirit in the riparian countries to take concrete actions, the growing public and political awareness of the problems with the Baltic Sea, the overwhelming scientific knowledge about the need to recover the ecosystems, and the willingness of so many partners and stakeholders to contribute to saving the Baltic Sea. Together, these factors constitute unprecedented momentum.

The successful implementation of the BSAP depends on the acceptance of proposed measures by stakeholders, mainstreaming into sectoral policies and integration into relevant processes at national and international level. The challenges consist of mobilising sufficient political will to take firm and costly decisions and undertake the large-scale remedial actions needed. Funding may be perceived as problematic but several financing institutions and donors are willing to contribute and the order of magnitude of required funding is not unrealistic compared with the financial flows in society today.

3. Eutrophication

The Swedish Government considers it necessary to implement a wide range of new measures to reduce the eutrophication of our surrounding seas, in particular the Baltic Sea. The presented measures shows how Sweden will fulfill its commitments under the Baltic Sea Action Plan, the EU Water Framework Directive and the Marine Strategy Framework Directive. The proposed measures will also contribute to achieving the national environmental quality objectives. The commitments, goals and requirements in the above mentioned processes may, to a great extent, be achieved through common and overlapping measures and incentives. It is therefore important to maximise synergies and coordinate the programmes of measures.

NUTRIENT REDUCTION TARGETS

Since long Sweden has had a *National programme to achieve nutrient reductions (E9)*.

One of the 16 national environmental quality objectives introduced in the 1990s is *zero eutrophication*. The four interim targets set by the Parliament have been regularly evaluated and relate to reduced load of nitrogen and phosphorous to water and the emission of ammonium and nitrogen oxides to air by 2010. The BSAP nutrient reduction targets could be the basis when setting new targets for the environmentally quality objectives.

Since the 1960s, Sweden has gradually been improving phosphorous removal in municipal wastewater treatment plants and the load from the plants today is more than 90 per cent lower. Also the phosphorous load from other point sources has been significantly reduced. The load from diffuse sources such as the agriculture and forestry sector is more difficult to assess, but here too, a significant decrease in leakage has been shown: there was a 25 per cent reduction in the leakage of nitrogen from arable land between 1985 and 1995. See table 1 and 2.

The major challenge in the BSAP is to reduce the load of nutrients based on the *maximum allowable inputs and nutrient reduction requirements (E4, 6,7,8, 14, 15, 16, 18)*. This includes a new approach which, based on the total load the Baltic Sea can take without jeopardising HELCOM's environmental targets, calculates the nutrient reduction targets for each individual country. For Sweden, the BSAP preliminary reduction targets for each sub-basin are as follows:

- Baltic Proper: 8 100 tonnes nitrogen and 290 tonnes phosphorous
- Danish Straits: 1 700 tonnes nitrogen
- Kattegatt: 11 100 tonnes nitrogen

As no further nutrient reduction is needed in the Gulf of Bothnia and the Bay of Bothnia, the preliminary nutrient reduction quota for Sweden is a total of 20 800 tonnes N and 290 tonnes P. Measures should be in place in 2016 aimed at reaching good environmental status by 2021. The preliminary nutrient reduction targets will be periodically revised to match best available knowledge which is of utmost importance for designing matching programmes of measures.

Table 1. Anthropogenic Discharges of Phosphates in 1995 and 2006 by marine sub-basin and sectors.

Sub-basin	Agriculture		Stormwater		WWTP		Industry		Single Family Homes	
	1995	2006	1995	2006	1995	2006	1995	2006	1995	2006
Bay of Botnia	40	30	10	0	30	20	30	40	10	20
Botnian Sea	120	100	10	10	60	60	220	190	40	40
Baltic Proper	220	210	30	30	130	140	90	50	50	60
Öresund	30	30	10	10	40	40	10	0	10	10
Kattegatt	200	180	20	20	170	110	40	30	40	40
Skagerrak	60	70	0	0	10	10	10	0	10	10
Total Sweden	670	620	80	70	440	350	390	310	160	170

Parts of the nutrient reduction targets in Sweden's commitments have already been achieved as the discharge of the load of N and P to water was reduced considerably between 1995 and 2006 (See table 1 and 2). To meet the objectives set by the Parliament, all sectors have to reduce their load. The load of P has been reduced by about 11 per cent mainly in the municipal WWTP and industry, but also in the agricultural sector and single family homes. The load of nitrogen to the Baltic Proper decreased by 22 per cent during the same time period due to measures in municipal WWTP, industry and agriculture. The leakage from arable land (calculated as root-zone leakage) has on a yearly basis decreased with 12 % N and 7 % P mainly due to changes in the area of used agricultural land, more efficient use of nutrients, and by measures taken. The impact of establishment of wetlands and reduced soil cultivation is not included in these figures but are estimated to approximately 490 tonnes N and 9 tonnes P. Further reduction has been reached due to inter alia changes in crop cultivation which has reduced the load of nitrogen and phosphorous to the sea by 380 tonnes respectively 11 tonnes.

Recent calculations also show that anthropogenic load is lower than earlier estimated, although there are still regional problems, and that the reduction potential is limited resulting in difficulties in identifying new measures to reduce load to the different basins. This is particularly true for N load to Kattegat. The nutrient reduction potential for different measures to achieve the BSAP targets in Kattegat, Öresund and the Baltic Proper are described in Annex I together with a cost estimation. Since the budget line for the marine environment was introduced in 2007, the Swedish Environmental Protection Agency has started a number of large pilot projects related to eutrophication. During 2009, SEPA approved about 120 projects with financing from the budget line for the marine environment and LOVA to address among other things, individual household's waste water treatment, the establishment of wetlands and dams, port reception facilities for pleasure crafts, reduced leakage from agriculture, and mussel farming. Some bigger initiatives to reduce eutrophication have also been supported such as information about individual and small-scale wastewater treatment, ditches and sediment traps, coordinated pilot projects between river basin management authorities addressing the impact on the sea, harvest and recirculation of nutrient. Several large-scale projects to address eutrophication such as Baltic Compass, and the Wetlands, Algae and Biogas (WAB) project in Trelleborg have also been supported.

By *including measures in the River Basin Management Plans of the EU Water Framework Directive (E10)* the implementation of BSAP measures provides synergies and opportunities for cost-effective management and measures that will significantly contribute to fulfilling Sweden's commitments to reduce eutrophication.

Many problems in the Baltic Sea originate at land and in freshwater in the drainage areas. Mainstreaming policy development under the WFD with a view to coordinating actions and increasing cost-efficiency for measures relevant to achieving good ecological status in the Baltic Sea is an important implementation tool for the BSAP. The proposed river basin management programmes of measures indicate the need for overarching national guidance and incentives to assist relevant authorities and municipalities to take action in specific water bodies. Improved knowledge is also necessary. Therefore, concrete physical and cost-effective measures to restore water quality in freshwater bodies and coastal areas are to a large extent still lacking in the first generation river-basin management plans and the national BSAP implementation plan is therefore a good complement.

In Sweden, the five river-basin authorities developed and submitted their proposed programmes of measures to the Commission during the second half of 2009.

Table 2. Anthropogenic Discharges of Nitrogen 1995 and 2006 by marine sub-basins and sectors

Sub-basin	Agriculture		Stormwater		WWTP		Industry		Single Family Homes		Atmospheric deposition	
	1995	2006	1995	2006	1995	2006	1995	2006	1995	2006	1995	2006
Bay of Bothnia	500	400	100	0	1400	1400	500	800	100	100	1200	1500
Bothnian Sea	1800	1600	0	0	3500	3800	2200	2400	200	200	2400	2700
Baltic Proper	8900	8600	200	200	9900	5900	1600	700	400	400	2000	2200
Öresund	4100	3100	0	0	1900	1000	200	100	0	0	0	0
Kattegatt	11300	9700	300	300	6400	4500	1300	800	300	300	5500	4200
Skagerrak	900	800	0	0	500	400	100	0	100	100	100	100

The river basin management plans have considered and made reference to the BSAP but further work is needed to increase synergies and mainstreaming. The programme has been estimated to reduce the nutrient load to the Baltic Sea with 2150 tonnes of Nitrogen and 110 tonnes of Phosphorous per year.

PROPOSED MEASURES

Sweden will strengthen measures to reduce the nutrient load to the Baltic Sea to guarantee that the downward trend continues. Measures will be introduced in all relevant sectors such as agriculture, industry, shipping, municipal waste water treatment plants, and single family homes. Measures consist of strengthened regulations and enforcement, voluntary measures, economic incentives and awareness-raising. The involvement of regional and local stakeholders is important.

The following section shows how Sweden is planning to fulfill its commitments under the BSAP. It is expected that the positive downward trend of nutrient load will continue which in combination with proposed measures will fulfil the nutrient reduction commitment by 2016. Table 3 summarises the effect of previous achievements and proposed measures. More detailed information about the potential and costs of measures can be found in SEPA Report No. 5984.

Municipal waste water treatment (E11, 12) is still a cost-effective measure to reduce the nutrient load in Sweden Additional measures need to be implemented to reduce the load of nitrogen and phosphorous from waste water treatment plants contributing to the eutrophication of coastal and marine waters.

Improved N-treatment in municipal wastewater treatment plants for 10 000 person equivalents and above to 80 percent has the potential to reduce the load to the sea by 3000 tonnes per year. The removal of P in WWTP with effluents above 0,2 mg per litre discharging to the Baltic Proper can be improved through the increased use of chemicals and has the potential to reduce the load by 15 tonnes per year. The SEPA will be tasked to suggest how treatment could be improved so that the above reductions of nitrogen and phosphorous compounds can be reached.

Thanks to previous measures in the WWTP and the proposed measures Sweden will be in compliance with HELCOM Recommendation 28E/5.

Technology for *on-site treatment for single family homes, small businesses and scattered settlements (E11,12)* is available and if all single family homes had a wastewater treatment facility in compliance with SEPA regulations for N and P removal (70 per cent P removal as standard, 90 per cent P removal and 50 per cent N removal in sensitive areas) the load from single family homes could be reduced by 180 tonnes N and 33 tonnes P per year.

Table 3: Summary of nutrient reduction measures

Measures and recent achievements	Nitrogen (ton/year)	Phosphorous (ton/year)*
Decrease in load 2000-2006	- 4 200	-10
Previous measures and additional decrease in load after 2006**	> -2 100	> -60
Additional measures		
Wastewater treatment plants	-3 000	-15
Agriculture 2010 - 2016	-3 500 - 6 250	-40
Ban on P in machine washing agents		- 5 (-9)
Measures in industry	-200	-10
Protective zones in forestry	-x	
River basin management programmes***	-2 000	-100
Total decrease	-15000 -17750	-240
Sweden*s commitment under BSAP	20 800	290
To be achieved by 2016	3 050 - 5800	50
Scenario about agricultural load by 2020****	-2 500	-55 (-90)
Revision of BSAP nutrient reduction targets by 2013*****	- x	- x
Remaining after 2016	<550 - 3300	<0

* Only Baltic Proper. In parenthesis the total decrease in load to all sea basins.
** Measures after 2006 which can not be assessed properly but which are estimated to at least 2100 tonnes of nitrogen and 60 tonnes of phosphorous.
*** General measures , probably overlapping with other measures.
**** Scenario for development of Swedish agriculture to 2020 related to the reporting on climate change.
***** Potentially drastic reductions due to reduced emissions to air, and compensation for a rainy reference period.
x = no estimation available

A P reduction of 90 per cent in all coastal areas with no or little retention could reduce the load to the sea by an additional 41 tonnes of P. A tax credit system was introduced in 2009 to facilitate updating on-site wastewater treatment facilities in single family homes. By enforcing existing legislation on wastewater treatment in single family homes, Sweden will be in compliance with HELCOM Recommendation 28E/6.

Apart from the eutrophication in the Baltic Sea, about 1000 lakes in Sweden are eutrophicated. *Substituting phosphorus in laundry detergents and dishwasher detergents (E13)* is a cost-effective measure that will considerably reduce the load in areas with low coverage of municipal waste water treatment plants. Sweden is working for a ban at EU level. In March 2009, Sweden introduced a ban on phosphates in detergents for consumer use, and from 1 July 2011, Sweden will also introduce a ban on phosphates in dishwasher detergents. Sweden will therefore be in compliance with HELCOM Recommendation 28E/7 to substitute phosphates in detergents by 2012. A ban of phosphates in detergents and dishwashing agents would reduce the total load by about 50 tonnes P, including 13 tonnes to the Baltic Proper.

Designating relevant parts of agricultural land as zones vulnerable to nitrogen (E16). The Nitrates Directive is one of the essential EU-legislation concerning the protection of waters against pollution caused by nitrates from agricultural sources and an important tool in the context of the BSAP. Today 60 per cent of the agricultural land in Sweden is designated as vulnerable zones according to the directive. To strengthen the implementation of the nitrate directive, the following measures were introduced the 1st of January 2010:

- *The application of livestock manure may not exceed 170 kg total nitrogen per year. This rule is a complement to the already existing restriction stating that livestock manure and other organic fertiliser may not be applied in greater quantities than 22 kg total phosphorous per hectare.*
- *The application of easily accessible nitrogen in autumn to autumn sown crops may not exceed 60 kg per hectare.*
- *Fertiliser must not be applied to agricultural land closer than two metres to the edge of a watercourse or lake.*
- *Fertiliser must not be applied to agricultural land adjacent to watercourses or lakes or where the slope of the land towards the water exceeds 10 per cent (10/100).*
- *The prohibition of spreading both manure, other organic fertilisers and mineral fertilisers has been prolonged and the spreading is now forbidden between 1 November and 28 February.*
- *The limitations concerning spreading of manure and other organic fertilizers during autumn have been further extended.*

Through the realized changes in the Swedish legislation the nitrogen load to the sea will approximately be reduced by 210 ton N per year.

The amendment of Annex III of the Convention concerning agriculture (E17) included a new recommendation fora maximum of 170 kg N and 25 kg P of manure spread per hectare and year, a demand of permits for large animal installations, and that measures should be implemented based on Best Available Technology (BAT) and Best Environmental Practice (BEP). The amendments of Annex III are covered by existing Swedish legislation.

The Bill on a Coherent Swedish maritime policy included additional measures to reduce leakage of nutrients from agriculture, which have now been introduced. The Bill also described the process initiated to reform the Rural Development Programme 2007-2013, including the modulation of resources to meet the requirements for improved water quality and reduced nutrient losses to the sea. The proposal was approved by the Commission in February 2010 and resources exceeding EUR 80 million per year will be available from 2010 for improved water quality and reduced eutrophication.

Rural Development Programme 2007–2013
A series of strengthening of the Rural Development Programme 2007–2013 were introduced in 2010. The financial resources of the programme now directed to improve water quality correspond to over EUR 80 million per year and have been calculated to reduce the nitrogen load to the sea with 1 400 to 1 900 ton N per year and about 30 ton P per year. The most relevant changes regarding improved the water quality are mentioned below:

- *Further strengthing of the measure skills acquisition, information and dissemination of knowledge in particular regarding water quality activities such as the advisory programme Focus on the Nutrients.*
- *Introduction in of a new specific investment support for farm-based biogas production.*
- *Introduction of further areas where farmers may be granted for payment when cultivating catch crops and/or using spring cultivation. The new objective of these sub measures is 240 000 hectares.*
- *Introduction of further areas where farmers may be granted for payment when planting riparian zones alongside watercourses, lakes or seas. The new objective of the sub-measure is 9000 hectares.*
- *Introduction of a non-productive investment support for controlled drainage. The objective of the measures is 2000 hectare.*
- *Introduction of non-productive investment support for establishment of phosphorous sedimentation ponds. The objective of sub-measure is 200 hectare.*
- *Introduction of payment for buffer zones on erosion sensitive field areas. The objective of this measure is 5 000 hectare.*

In the Rural Development Programme 2007-2013 there are other sub-measures and actions within sub-measures, which have been strengthen and have a positive effect on reducing losses of nutrient from arable land. Examples of such actions are soil mapping including soil analysis, determination of N content in manure, farm-gate nutrient balances, which are parts of the sub-measure Environment protection measures. These actions give farmers useful tools to reduce the nutrient losses from arable land. Other sub-measures, which has been strengthen in the Swedish RDP are the sub-measure Extensive ley management for a better environment and an open landscape and the investment support for wetlands as well as the support for management of wetlands. The introduction of a payment for certified organic ley production will probably also have positive effects on reducing the losses of nutrients. There ought to be possibilities in connection with the mid-term review of the Rural Development Programme 2007-2013 to give priority to specific measures to combat eutrophication and the load of nitrogen and phosphorous to the sea. Together with the decided measures in 2010, it may be possible to reduce the leakage from the agricultural sector to the sea with 3 500 to 6250 tonnes of nitrogen and 40 tonnes of phosphorous.

4. Hazardous Substances

One of the 16 national environmental objectives *a non-toxic environment* states that the environment should be free from substances and metals which have been created or produced in society and which may constitute a threat to human health or biological diversity. Although considerable progress has been made, it has proven difficult to achieve the objective. The Government *Bill 2009/10:155 on Environmental Quality Objectives in* 2010 further describes measures to reduce the use, emission, and spreading of hazardous substances. In the *Bill 2008/09:170 on A coherent Swedish maritime policy*, the Government proposed several measures to reduce the impact of hazardous chemicals in the marine environment i.a. financial support to boat washing facilities to remove fouling. Today a large part of the work to phase out hazardous substances is done at international level and within the EU. Sweden is taking an active part in this work. Theimplementation and development of REACH and in particular linking this work to the MSFD and the BSAP is crucial to reducing the load of hazardous substances to the marine environment. Dioxins and heavy metals are still a problem in the marine

environment andadditional measures are required here. The Swedish EPA has studiesd the vector for dioxin emission to the Baltic Sea and continues to further identify the sources. To live up to the commitments in the BSAP, Sweden will need to improve knowledge and capacity in industries and authorities to work with heavy metals and dioxins, to use BEP and BAT, and to continue its efforts concerning the environmental risks associated with closed landfills.

GREAT PROGRESS IN REDUCING EMISSIONS OF HAZARDOUS SUBSTANCES

Sweden and Germany are lead countries in the HELCOM work to *update the requirements of the HELCOM Strategy for hazardous substances (Recommendation 19/5) (H3)*. The Recommendation describes how HELCOM defines "hazardous substances" and measures as well as strategies to reduce harmful effects of such substances in the Baltic Sea.

Proper handling of waste/landfilling (H3) is important to reduce leakage of hazardous substances to the surrounding environment. Active landfills are not a significant source of hazardous substances in Sweden. The landfills have to comply with Directive 1999/31/EC. However, more knowledge is needed about the long-term risks. The information available about the environmental risks of closed landfills is insufficient. Therefore the Government intends to instruct the Swedish Environmental Protection Agency to gather information about the risks connected to these landfills. Concerning contaminated sites the Government has taken measures to render the responsible organization more efficient. This means that the number of cleaned sites over time can increase.

In Sweden industrial plants are operating with satisfactory environmental technology in accordance with *HELCOM requirements for the iron/steel industry (H3)*. For some plants investigations concerning emissions are carried out. Investments in green technology to further lower emissions will take place mainly when plants are reviewed. Emissions from industry and incineration plants have been curbed and the focus needs to be shifted towards diffuse sources of hazardous substances.

Swedish emissions of heavy metals are low and there are currently no *further requirements for the reduction of heavy metals and other hazardous substances emissions from energy production and industrial combustion plants (H1,2, 4)*. Emissions of dioxins and other hazardous substances are also low.

Regarding the *reduction of dioxins and other hazardous substances from small-scale combustion (H1,2)* the Swedish regulations meet the requirements in recommendation 28E/8. For many years now Sweden has rules concerning energy efficiency and emission limits. However, the actions taken needs to be followed up. The Government has tasked the National Food Administrationand the Board of Fisheries with investigating the dioxin level in fish as part of the analysis of the Swedish exemption from the EU rules on dioxins in fish.

Screening of the occurrence of selected hazardous substances and of sources of selected hazardous substances and the introduction of the Whole Effluent Approach (H9) is carried out within HELCOM. Sweden is contributing to this work with information from national monitoring activities. The Swedish Chemicals Agency and the Swedish EPA are partners to the COHIBA project. Together with other Member States, the Swedish EPA has developed methodology for whole effluent assessment and this work is now being carried out within HELCOM.

PHASING OUT HAZARDOUS PRODUCTS

Hazardous chemicals in products has gained more attention in recent years. When produced, transported, used and disposed, products can release hazardous chemicals. Consumers can be exposed to such chemicals when they use the product. Sweden has therefore addressed this problem in international fora and in the EU.

Since the end of the 1970s Sweden has had a *chemical products register (H10, 11)* for all products imported to or produced in Sweden in amounts exceeding 100 kg per year. Today the register contains over 120 000 chemical products and biotechnical organisms reported by 2500 companies. The register is an important source of information.

Perfluorooctane sulfonate (PFOS), nonylphenol/nonylphenolethoxylates (NP/NPEs), short-chain chlorinated paraffins (SCCPs) (H14) as well as *endosulfan, pentabromodiphenylether (pentaBDE) and octabromodiphenylether (octaBDE) (H13)* are banned in the EU. Sweden is of the opinion that the ban for NP/NPEs should also cover products imported from outside the EU.

Regarding the *introduction of use restrictions and substitutions if relevant assessments show the need to initiate adequate measures for medium-chain chlorinated paraffins (MCCPs), octylphenols (OP)/Octylphenol ethoxylates (OPE), perfluorooctanoic acid (PFOA), decabromodiphenyl ether (decaBDE) and hexabromocyclododecane (HBCDD) (H12)*, Sweden takes an active part in the EU, as

well as within OSPAR and OECD, in efforts to restrict or ban hazardous substances. DecaBDE is banned in electrical products through the RoHS-Directive, which covers about 80 per cent of usage.

In Sweden it is prohibit to offer mineral fertilizers for sale containing 100 g or more *cadmium per ton phosphorus in fertilisers (H15)*. The Government has instructed the Swedish Chemicals Agency to asses the risks for humans, animals and the environment with cadmium and , if necessary, to propose a lower national limit for cadmium in mineral fertilizers. In 2009, Sweden introduced a *complete ban on mercury (H16)* with the exception of those uses regulated in the EU.

SUPPORTING GLOBAL WORK TO REDUCE HAZARDOUS SUBSTANCES

Since chemicals are spread long distance by the atmosphere, water and products it is important that the world's countries develop and agree on internationally binding rules on hazardous chemicals. Sweden is a leading part in the international arena. Actions at international level is not only about preventing and reducing the spread of chemicals but also about having better handling of chemicals in the developing countries.

Application of the same requirements concerning hazardous substances for products marketed globally as in the internal European market (H16). Sweden plays an active role in multilateral environmental agreements, for example in SAICM (Strategic Approach to International Chemicals Management) for the development of globally binding rules for chemicals. Sweden will also host the first meeting for negotiation on a new convention for mercury that will contain global rules for mercury throughout its life cycle.

The Globally Harmonised System (GHS) on classification and labelling of chemicals and taking into account guidelines for preparing safety data sheets (H18) is implemented in the EU through Ordinance 1272/2008/EC.

HELCOM provides input to international forums to influence work on hazardous substances (H19). Sweden plays an active part in SAICM, the Stockholm Convention, the Basel Convention, the Rotterdam Convention, the Montreal Protocol, the Cartagena Protocol and other multilateral environmental agreements as well as in the EU for the preparation of this international work.

Sweden has ratified *the Convention and CLRTAP Aarhus Protocol and the Stockholm POPs Convention (H21, 22)*. Sweden is continuously working to identify and promote new candidate substances for the Stockholm Convention.

Better handling of chemicals, reduction of risks and information on hazardous substances in products are important areas in SAICM. Sweden takes an active role *in the SAICM implementation process (H22)* and provides financial support to developing countries wishing to take part in the process and implement agreed decisions.

Sweden takes part, for example, in the BONUS project on the *Biological Effects (H23)* of Anthropogenic Chemical Stress Tools for Assessment of Ecosystem Health (BEAST) with the goal of developing a toolbox to monitor effects on organisms in the Baltic Sea.

Regarding *HELCOM's work concerning radioactivity, including monitoring of discharges, emissions from nuclear power plants as well as their effects on the marine environment in order to reach the targets for radioactivity (H24)*, Sweden follows HELCOM Recommendation 26/3 regarding sampling, analysis and reporting. Sweden is also actively working to restrict discharges at source, both at nuclear and non-nuclear plants.

5. Biodiversity

For the Swedish Government protecting the marine biodiversity is a high priority. The measures presented below shows how Sweden will live up to the commitments under the Baltic Sea Action Plan. The use and protection of marine biodiversity is regulated in national regulations, EU legislation and global agreements. The national environmental quality objectives *a balanced marine environment, flourishing coastal areas, and archipelagos* and *flourishing lakes and streams*, the species and habitat directives, WFD, MSFD and the CFP and CBD are of particular relevance.

GOALS, COMMITMENTS AND CONDITIONS FOR ECOSYSTEM-BASED MANAGEMENT

Skagerrak, Kattegat and the Baltic Sea have been subject to major human impact. A long time ago, hunting reduced the populations of seal and harbour porpoise and more recently the discharge of nutrients and other pollutants as well as overfishing, have seriously impacted on the marine ecosystems. The use of marine resources must be based on the ecosystem approach, the precautionary principle and best available data. The goal is that the ecosystem structure and function should reflect the natural conditions of species and habitats.

Further research about the ecosystem structures and function is necessary for understanding the ecological

links in the sea between species, between geographical areas or basins, and between biological and non-biological components. The research should be carried out so that the human impact caused by nutrients and hazardous substances on fish and predators can be evaluated. Sweden has carried out a number of fundamental research projects in support of management decisions for HELCOM, such as the Baltic Nest Institute project which formed the basisof the BSAP nutrient reduction scheme. Other large-scale research projects regarding nutrient release from oxygen-free sea floors and reduction fishing on sprat have been supported and financed by the Government. These contributes, among other things, to the *research on developing methods for assessing and reporting on impacts of fisheries on biodiversity (B 7).*

The implementation of Swedish maritime policy requires appropriate *Marine Spatial Planning (MSP) (B1, 2, 3).* Protecting and improving the marine environment through applying the ecosystem approach should be the basis for a new planning model. The planning of marine areas should be further developed and cooperation between land-use planning and maritime spatial planning should be strengthened.

Planning of marine areas is currently unsatisfactory and causes problems for the business sector, the public and the environment. The Government will protect and improve the marine environment but also promote business and public interest in marine areas. A coherent view of the wide range and increasing number of activities in the exclusive economic zone is needed for the sustainable use of marine resources and areas. Planning at state level is therefore needed complemented by a strong role for coastal municipalities. An inquiry into planning in Swedish waters (ToR 2009:109) has been appointed to propose new legislation and will report to the Government by December 2010. Responsibility for planning the territorial sea will probably be shared by the state and municipalities, while a new agency will be given the responsibility for planning the exclusive economic zone.

Increased cooperation at Nordic, European and global level is desirable regarding marine spatial planning. The environment ministers of the Nordic Council of Ministers decided on 4 September 2008 to deepen their cooperation and established an ad hoc working group under Swedish chairmanship to develop proposals for the development and coordination of initiatives for the planning, protection and management of their marine areas covering the Baltic Sea, The group proposed continued work on, among other things, the following areas:

a) contribute to a coherent ecosystem-based marine management system;
b) work actively to develop maritime planning ;
c) work towards pilot- and collaboration projects on management and planning of the sea.

Detailed marine landscape maps (B7) are important background information for planning and decisions regarding the use and protection of marine areas. Phy-

sical information regarding geology and hydrography are important and can be used for modeling in absence of biological information to assess the potential location of habitats and species. This work will continue until 2012 in the scale 1:100,000 in line with the EUNIS.

New and existing data is collected in a database (MarTrans) which is compatible with the database of the SMHI and accessible nationally.

Identification and mapping of potential and actual habitats of habitat-forming species (bladder wrack, eelgrass, blue mussel, stonewords) (B 7) are also important for marine spatial planning and the protection of marine biodiversity. Mapping of important biotopes for habitat-forming species is done for the Swedish coast based on GIS models. These maps are important for planning and the cost-effective protection of marine biodiversity as coastal fish species use these environments. Models and tools will be developed for a comprehensive approach to decrease negative impact by 2015.

NATIONAL PLAN FOR RESTORATION

The long-term goal for the national plan for restoration is to achieve marine landscapes as close as possible to their natural conditions by 2021. A new agency will be tasked with developing an overall national restoration plan for coastal areas taking into account the special conditions for each drainage area. Potential measures to be considered are to reinstate migratory waterways, restoration of physical environments, oxygenisation, dredging and restocking.

The Board of Fisheries will carry out a *classification and inventory of suitable rivers and streams (B17)* for salmon, trout and eel during 2009 2011.

The situation for the Baltic salmon stock is developing positively and the ban on floating nets introduced in 2008 will potentially further improve the situation. However, problems remain with weak wild salmon stocks in rivers. Also, the stocks of trout in the Bay of Bothnia are low Sweden will actively participate in the revision of the Baltic Salmon Action Plan which has been initiated by the EU and ICES and is expected to be presented in 2010. The goal is that each wild salmon river should reach 75 per cent of its production potential by 2020 and that special measures will be put in place in the weakest salmon rivers.

The work will focus on assessing present stocks, the potential for migration and *breeding and restocking practices for salmon and sea trout (B13)*. The Board of Fisheries programme to recover rivers with wild populations of salmon and the work on well functioning index rivers will be prioritised. This include *development of restoration plans to reinstate migratory fish species (B17)* and the recovery of spawning and nursery areas in the bigger rivers (Vindelälven, Piteälven, and Kalixälven) as well as smaller rivers in the northern part of Sweden with good potential for producing wild salmon and offering recreational fishing. This contributes to HELCOM's goal of *conserving at least ten wild salmon rivers (B17)*.

Reintroduction will be evaluated based on the national programme for salmon. In four rivers (Kågeälven, Moälven, Testeboån,and Helge å) reintroduction will be carried out and an evaluation of management and factors influencing the weak populations in Rickleån, Öreälven and Emån should be carried out.

The eel has previously been one of the most widesperead and common fish in Europe, but its numbers are currently so low that it has been included in the Swedish red list of species in danger of extinction since 2005. It was included in 2007 in the IUCN Red List. Sweden submitted in December 2008 *the national management plan for eel (B15)* which was approved in October 2009 by the Commission. The plan includes new regulations for fisheries, increased control, increased release of eel and measures to reduce mortality in freshwater. According to the plan fisheries will be reduced with 20 per cent the first year and 50 per cent by 2013. Accordingly, there are no possibilities foro increasing this fishery. During 2010, the regulations for eel fisheries will be reviewed in accordance with the plan, which probably will probably lead to even more restricted fisheries. The national eel plan will be reviewed in 2012 and every 3 years after that.

NETWORK OF MARINE PROTECTED AREAS

The environmental quality objective *a balanced marine environment, flourishing coastal areas, and archipelagos* has a sub-objective concerning the protection of at least 50 per cent of valuable marine environments and the long-term protection by 2010 of 70 per cent of coastal and archipelago areas with high natural and cultural values. Government *Bill 2009/10:155 on Environmental Quality Objectives in 2010* further describes measures related to protected areas.

In 2009 Sweden reported seven new areas to *HELCOM Baltic Sea Protected Areas (BSPAs) (B-4)*, and now protects about 4.9 per cent of its marine HELCOM area in terms of 28 BSPAs amounting to 122,627 ha in size. In total they make up the largest area protected under HELCOM compared to the other countries. Sweden also has the largest part of its EEZ area protected. Due to the big size of the Swedish EEZ, however, this accounts for

only 3.9 per cent of the respective area. The total BSPA area covers 73 per cent of the Swedish marine Natura 2000 sites.

The environmental quality objective *a balanced marine environment, flourishing coastal areas, and archipelagos* also required *designation of additional permanent closures (B13)*. The Board of Fisheries has been tasked by the Government with proposing 6 new areas for permanent closure by 2010. The first permanently closed area was established off Gotska Sandön in 2006. In 2009 an offshore area in Kattegat was closed in a joint project with Denmark, and three additional coastal areas have been designated, two on the west coast (Havstensfjord and Buskär/Tannerskär) and one on the east coast (Gålö). Two additional offshore areas will be designated as soon as the discussions with bordering countries have been concluded.

Regarding the *assessment of the ecological coherence of the BSPA/MPA network (B 5)*, the Governmental *Bill 2009/10:214 on Sustainable Protection of Natural Environments* highlighted the need to further develop management practices for the protection and use of larger, valuable marine and coastal areas. In some areas it may be neither suitable nor necessary to introduce full protection status to the whole area and there is a need based on the ecosystem approach to develop new working methods taking into account local participation but at the same time comply with HELCOM and OSPAR requirements on management plans.

Finalisation and implementation of management plans for Baltic Sea Protected Areas (B 5) is an ongoing process. For 15 officially designated BSPAs a management plan exists or is in force. For five BSPAs a plan is in preparation and one BSPA does not yet have management plan. Swedish nature reserves and Natura 2000 areas have management plans. However, a few large, proposed areas do not have management plans and in four such areas a three-year pilot project has been initiated to develop management plans based on the ecosystem approach, local ownership, participation and cooperation. The work will be completed during 2010.

The national environmental objective *a balanced marine environment, flourishing coastal areas, and archipelagos* included an interim target to reduce noise and other nuisance from recreational boating. In 2009, seven areas of consideration with restricted boating activities had been established and four additional areas are expected during 2010. The public acceptance is in general high for these measures as they have been based on voluntary agreements instead of regulations and are mainly implemented in association with established marine protected areas.

NO INTRODUCTION OF ALIEN INVASIVE SPECIES BY SHIPS

In November 2009 Sweden became the third EU country to *ratify the Ballast Water Management Convention (M 37)*. Due to the potentially extremely negative impact of invasive species on the ecosystems and the economy, the Government considers it important that this Convention enter into force. Additional development of technology for ballast water treatment is necessary as are new control measures. The Government has instructed the Swedish Transport Agency to investigate by 1 December 2010 investigate the need for a ban against ballast water exchange in certain areas. The task also include to investigate the potential spreading of invasive alien species by biofouling, i.e. species which are spread by ship's hulls.

THREATENED NON-COMMERCIAL SPECIES

The work to protect threatened populations and assess *the conservation status of non-commercial fish species (B 7)* will continue, as will the work to restore extinct populations and species. Based on a first test of data provided by Sweden and Finland, HELCOM is *updating a complete classification system for Baltic Sea marine habitats/biotopes (B 7)* compatible with the EU EUNIS system.

Sweden is actively participating in the work to *update the HELCOM Red lists of Baltic habitats/biotopes and biotope complexes (B 7)*. To maximise the impact of this work, the list should be distributed to the general public, food industry, restaurants, fishermen and hunters by 2011. Sweden will look into the possibilities of *reintroducing Baltic sturgeon (B18)*.

MARINE MAMMALS

By the end of the 19th century the numbers of seals and harbour porpoise amounted to almost half a million and they had an important influence on the ecosystem and fish populations. Around 1960, the populations were so small that they had little ecological significance, but in recent years the populations have increased to about 40,000 seals and 25,000 harbour porpoises (on the Swedish west and south coast). A small, genetically isolated population of around 200 harbour porpoise exists in the Baltic Sea. It is considered to be one of the world's most threatened populations of whales.

Management plans for seals are developed by SEPA in cooperation with the Board of Fisheries. The goals are to re-establish viable populations within their natural distribution range. By-catch in fishing gear is a problem both for the mammals and the fishing sector. The national environmental objective *a balanced marine*

environment, flourishing coastal areas, and archipelagos included a sub-goal to reduce the by-catch of marine mammals and birds.

As part of *technical measures to minimise by-catch of harbour porpoises and to introduce adequate new technologies and measures (B7)* the Board of Fisheries has implemented an observer programme on some bigger fishing vessels and nets from large vessels have sound devices to keep mammals away, known as pingers. A video system to monitor by-catch on smaller fishing boats was tested in 2008, and during 2009 a wider test of the same system on the west coast was developed. Test to replace nets with cod traps are also carried out to reduce by-catch.

Regarding the *development of a coordinated reporting system and database on harbour porpoise sightings, by-catches and strandings (B7)*, Sweden is working actively for a coordinated reporting system between ASCOBANS and HELCOM, including a shared data base. The Museum of Natural History is responsible for the national reporting system.

National management plans for seals (B9) have been developed by SEPA in cooperation with the Board of Fisheries. The goal for the management plans is to restore viable populations within previous distribution areas. Today, the increase in the seal population has eventually leveled out which might indicate that the population has reached its carrying capacity. Several *non-lethal mitigations measures for seals-fisheries interactions (B 9)* have been tested. Examples of other measures are management plans, monitoring of populations, research on by-caught and shot seals and protection of recruitment and resting areas. Older salmon traps have been replaced with new gear, which can also trap seals alive. This type of trap therefore selectively catches the seals that harm the fisheries. Other gear are being made of seal-proof materials. Hunting of about 280 seals is allowed in the northern Baltic Sea and the western coast of Sweden to protect the fisheries from damages on catch and fishing gear. The authorities will be tasked with developing a long-term management plan for future development of the populations of seals and cormorants in different coastal areas.

Knowledge of by-catch of birds is presently very limited. *Development and implementation of effective monitoring and reporting systems for by-caught birds (B 7)* would require intensified data collection. Digital cameras on fishing vessels could be suitable for this data collection.

FISHERIES

The national environmental objective *a balanced marine environment, flourishing coastal areas, and archipelagos* included a sub-goal on sustainable exploitation of commercial fish stocks which could not be reached by the target year of 2008 mainly due to the difficult situation for cod stocks although the situation has improved since 2009.

Fisheries for most commercial species are covered by the EU Common Fisheries Policy (CFP) which means that all EU countries need to adhere to the same rules. This means that a member state cannot have national regulations that are not in conformity with the CFP. A member state may, however, have national regulations to to complete or to execute EU regulations. This document will not review the CFP in detail, but focus on the areas related to national fisheries management. The Fisheries Fund is used for financing fisheries measures in support of sustainable fisheries. The national resources to the fund should clearly focus on measures leading to the fulfillment of the commitments under the BSAP. An additional EUR1,5 million will be allocated during 2011 and 2012 and the SEPA may in the future further increase this contribution

In October 2007, an inquire was initiated which in 2010 will propose new national fisheries legislation (ToR 2007: 125) to provide the foundations for the implementation of a sustainable use of fisheries resources and to favour the fisheries sector, recreational fishing and the biodiversity. Future fisheries regulation should be based on the ecosystem approach and the precautionary principle. This contributes to the BSAP approach that the *Baltic Sea shall become a model of good management of human activities; all fisheries management should be developed and implemented based on the Ecosystem Approach (B10, 11).*

The BSAP recommends *that the competent fisheries authorities to take all the necessary measures to ensure that populations of all commercially exploited fish species are within safe biological limits, reach Maximum Sustainable Yield, and are distributed through their natural range, and contain full size/age range (B 12).*

In 2008, the Council of Ministers adopted a new *recovery plan for cod (B14)* in Kattegat, Skagerrak and the North Sea as the previous plan was not sufficient to recover the stocks. Sweden and Denmark have introduced a closed area in the southeast Kattegat and the Board of Fisheries will closely monitor the results.

In the Baltic Sea a long-term recovery plan was approved in 2007 which reduces the fisheries on the western and eastern stocks to a sustainable level with a fishing mortality of less than 0,6 and 0,3 respectively so the stocks can recover. The TACs should not normally change by more than 15 per cent annually. The implementation of the recovery plan together with more efficient control and good recruitment conditions has contributed to a positive development of the stocks. Continuous strict implementation of the recovery plan, development of new gear, and the elimination of discard could further improve the stocks. The recovery plan for cod in the Baltic Sea will be evaluated in 2010

Regarding the *development of long-term management plans for commercially exploited fish species (pelagic species and flatfish) (B 13).* The Commission has initiated the work with a management plan for herring and sprat. Sweden will actively participate in this work. Sweden,

together with ICES will host a workshop on flatfish during the second half of 2010. There is also a need for analysis and exchange of data regarding Norway Lobster in order to develop a management plan.

At an informal meeting in Saltsjöbaden during the Swedish Presidency of the EU in 2009, the Ministers responsible for fisheries signed a declaration to phase out discards in the Baltic Sea, and as a consequence the Fisheries Council in October agreed on a road map to *phase out discard (B13)* by 2012.

The use of *spatial and/or temporal closures (B13)* is common practice in Swedish fisheries management. Areas can be closed for fishing to protect or restorestocks, or bottom trawling can be banned to protect sensitive ecosystems as long as it is in line with regulations of the Common Fisheries Policy. Along the west coast a trawling line limits how close the coast trawlers can operate. Coastal species are also protected during the spawning period. The Board of Fisheries is working on an evaluation of seasonal closures ordered by the Commission and the ICES.

To *eliminate illegal, unregulated and unreported (IUU) fisheries and further development of landing control (B14)*, the Board of Fisheries has doubled the number of inspectors and methods for landing control have been developed. The Board, together with the Coast Guard, has agreed on a national action plan for fisheries control 2008-2011. The system for enforcement has been improved and the introduction of AIS transponders will improve the control and reduce illegal fisheries.

Fisheries management measures inside marine protected areas (B 8) have recently received attention. The Swedish Environmental Protection Agency and the Board of Fisheries have agreed to establish a working group together with county administrative boards to develop a proposal on how the work to protect fish and fisheries management should be carried out within marine protected areas. Six pilot areas have been selected In this work CFP-regulations will be considered and the ministries of Environment and Agriculture will be continuously informed about plans and progress

6. Maritime activities

Sweden has one of the longest coastlines in Europe and has a broad port network. Shipping accounts for the great bulk of transport for foreign trade. In the future, shipping will have to continue to maintain a high quality and high standard with regard to the environment and safety, while being an attractive option for different kinds of transport.

While a range of measures have been taken to reduce the environmental impact from commercial shipping, little has been done to address the environmental impact of recreational boating. Although the impact most of the time is marginal, there are areas where recreational boating can contribute to reaching the environmental objectives. The government will task relevant agencies with developing an action plan to reduce the environmental impact from recreational boating focusing on innovation, a cleaner marine environment and the impact on biodiversity.

Within the environmental quality objective *a balanced marine environment, flourishing coastal areas, and archipelagos*, the Government has worked within two interim targets namely reducing noise and other nuisances from recreational boating and reducing discharges of oil and chemical substances. Thanks to improved legislation and enforcement, the number of illegal discharges have been reduced significantly and it seems that the goal will be accomplished by the target year 2010. The goal for noise difficulties unlikely to be reached by 2010.

INTERNATIONAL CONVENTIONS TO REDUCE POLLUTION FROM SHIPS

Additional measures are needed to phase out harmful antifouling paint. Sweden has *ratified the 2001 International Convention on the Control of Harmful Anti-fouling System on Ships (AFS) (M3)* in 2003 and is implementing EU Regulation 782/2003 banning organic tin-based components in antifouling paints. From 1 January 2008, there is a total ban on TBT on ships.

To *enforce the AFS convention (M4, 6,)*, ships are inspected in accordance with the procedures laid down in *the Paris Memorandum of Understanding on Port State Control (M12)* and the EU Directive 2009/16/EC on Port State Control. Since 2003, about 3000 inspections including antifouling system have been carried out. In order to promote the development of effective, *environmentally friendly TBT-free antifouling systems on ships (M 5)*, the Marine Paint research programme at the University of Gothenburg and Chalmers Technical High School is developing new hull paints with minimal environmental impact. During 2008 and 2009 the Swedish EPA supported the Keep Sweden Tidy campaign to increase the use of boat washing facilities. Through the new LOVA system up to 50 per cent of the costs can be paid by the state grants.

MINIMUM AIR POLLUTION FROM SHIPS

Air emissions of sulphur oxides (SOx) and nitrogen oxides (NOx) from shipping have been discussed in the Swedish environmental quality objective *only natural*

acidification. While the overall goal regarding sulphur emission was reached about 5 years in advance of the target year 2010 and new measures will further reduce SOx from international shipping, the emissions of nitrogen oxides from shipping are expected to increase significantly and exceed land-based air emissions in a near future. The Government is working to reduce air pollution from shipping and is also supporting regional initiatives in this field such as the project concept Green Ships which will work on alternative fuels for ferries on some of the most important ferry lines from Sweden to Germany and Poland.

Sweden *has ratified Annex VI (M7)* of the International Convention for the Prevention of Pollution from Ships (MARPOL 73/78). Since 19 May 2006, the Baltic Sea is a SOx Emission Control Area with stricter emissions regulation for sulphur. In 2008, the rules for SOx emissions at global level, as well as in emission control areas, were strengthened and a lower sulphur content in marine fuels will gradually be introduced. HELCOM is working on a joint submission to the IMO to also create a NOx emission control area in the Baltic Sea.

To *encourage the development and use of innovative and cost-effective, integrated pollution surveillance systems (M13)* Chalmers Technical High School, the Coast Guard, the Maritime Agency, VINNOVA and the Environmental Protection Agency have developed an airborne monitoring system for controlling air emission from ships. A Swedish Coast Guard surveillance planes has been equipped with apparatus to measure and monitor emissions from ships.

The Swedish Maritime Administration has identified a number of potential *economic incentives which can be used to reduce air emissions from ships (M38)*. These include differentiated port and fairway dues, emission trading schemes, fees on air emissions (NOx and SOx), state purchase of emission rights combined with investment subsidies, environmentally differentiated subsidies to the shipping sector, environmentally-friendly procurement, and tax exemption for land-based electricity in ports.

Some of these measures have been put in place since 1998 such as environmentally differentiated fairways dues applied to ships using low Sulphur fuel and about 35 ships with certified NOx treatment. Procurement requirements of low sulphur content in fuel was used in the public procurement of maritime traffic to the island of Gotland and the private sector havea great responsibility in developing greener procurement. Land-based electricity in ports is being used by about 20 ships.

SEPA has estimated that the *contribution of NOx emissions from shipping to eutrophication (M40)* in Sweden (based on bunkered fuel) amount to about 151 000 tonnes per year. While NOx-emission from land-based sources are steadily decreasing, emissions from shipping are expected to increase.

In October 2009, the Swedish Maritime Administration produced a proposal for an action plan to reduce NOx emissions from ships. According to the report, the NOx emissions from shipping in the Baltic Sea area total about 370 000 tonnes per year, compared to Sweden's land-based emissions of 165000 tonnes. According to a report from the International Institute for Applied System Analysis in 2006, the NOx emissions from shipping around Europe will amount to 3,7 million tones within 10-15 years, equaling the total land-based air emissions in the EU 27.

PORT RECEPTION FACILITIES FOR SHIP-GENERATED WASTE

Implementing the MARPOL Convention also requires ports to provide adequate reception facilities for ship-generated waste. Most Swedish ports have *introduced the no special fee system (M11)* for port reception facilities which means that fees for waste reception are included in port charges. The implementation of the no special fee system and the EG Directive 200/59/EG differs between EU Member States, causing difficulties for the shipping sector. For this system to work, it is necessary that all ports participate so as to avoid unreasonable use of reception facilities in a few ports.

HELCOM has made a joint submission to the 2010 IMO Marine Environmental Protection Committee (MEPC 60) meeting regarding the possibilities to ban sewage discharge from passenger ships and ferries under Annex IV of MARPOL. The Government has also asked the Swedish Transport Agency to carry out an assessment regarding the conditions for and consequences of the expansion of the ban on sewage discharge to other commercial ships which will be reported in April 2012.

Pleasure crafts are not covered by the MARPOL Convention. Although there is a HELCOM recommendation to ban sewage, this has not been introduced in Sweden. While sewage from pleasure crafts is not a major source of nutrients, the localized load in popular coastal spots during the tourism season can cause severe nuisance and even health risks associated with swimming. In May 2009, the Government requested the Swedish Transport Agency to propose how a ban on sewage discharge from pleasure boats could be developed. The proposal was presented in December 2009 and was composed of three parts: a) a general ban on sewage

discharge from pleasure boats, b) construction requirements, and c) reception facilities in recreational ports. During 2009, LOVA provided state grants to about 20 projects dealing with reception facilities.

There are *voluntary agreements to dispose sewage to the port reception facilities (M34)* between the Swedish Maritime Agency and several shipowners, mainly the ferry traffic between Sweden and Finland.

HELCOM has recommended the *extension of no-special-fee to also cover waste caught in fishing nets (M10)*. The problem is that if fishermen have to pay for waste delivery in the ports, they will dump litter back into the sea. In Sweden, fishermen are using a number of fishing ports with different waste management solutions.

SEPA has financed a shore cleaning program *removing litter from the coastal and marine environment (M9)* on the Swedish west Coast.

REDUCING THE NUMBERS AND IMPACT OF OIL SPILLS

Within the environmental quality objective *a balanced marine environment, flourishing coastal areas, and archipelagos*, the Government has worked with an interim target to reduced discharges of oil and chemical substances by 2015 compared with the 2007 level. Thanks to improved legislation and enforcement, *including harmonized aerial and satellite surveillance in the whole Baltic Sea (M8)* the number of illegal discharges has been reduced significantly and the goal is likely to be accomplished by the target year 2010. Since April 2007, coordinated satellite surveillance has been carried out within HELCOM with financing from EMSA.

Work on *HELCOM Recommendation 28E/12 on strengthening of sub-regional cooperation in response field, including building adequate emergency and response resources based on a) sub-regional risk assessments; b) identification of gaps in resources, including shoreline response; and c) preparation of plans how to fill the gaps (M21, 22)* has started with Denmark as lead country. The Swedish Coast Guard is participating. In 2009–2010 the Swedish Coast Guard will employ three new environmental protection vessels suitable for emergency towing of ships up to 150 000 tonnes, fire fighting and oil spill combatment. Four new combination vessels will be employed in 2010–2014.

Oiled wildlife response and integration into contingency planning (M32) is being taken into consideration in municipal oil spill planning but the resources to take care of oiled birds are small and unevenly distributed through the country. The Swedish Civil Contingencies Agency and the EPA are looking into the possibilities in order to assess what response system would be suitable for Sweden. The Swedish Civil Contingencies Agency is also working with coastal municipalities to provide training to respond locally, regionally, nationally, and

internationally in collaboration with the Coast Guard. To *develop best practices for shoreline response and integration into national contingency plans (M31)* the national resources should, according to the "Programme for Oil Spills 2010" have response capability for spills up to 10,000 tonnes by 2010. The Coast Guard carried out a study on a sub-project to *develop and agree on a decision support system for the use of dispersants (M 29)* which was also presented to EMSA in 2009 but this work must continue.

The work to *develop and implement a mutual plan for places of refuge (M25, 26)* is being carried out within HELCOM Maritime and Response Groups. The Swedish Coast Guard is taking the lead in a correspondence group and is also responsible for *promoting the development and use of technology to respond to accidents (difficult weather conditions, heavy oil, hazardous substances) (M30)* which is carried out in HELCOM Response. Regarding *HELCOM Recommendation 28E/11 on measures to improve the safety of navigation in ice conditions, in particular trained crew and voluntary pilotage (M 15)*. Sweden is working for ice-breaking to be considered a core service. This would mean access to free satellite photos from the European Space Agency financed by Global Monitoring for Environmental and Security Cooperation. There are several courses for navigation in ice and a special home page www.baltice.org has been developed.

7. Assessment, awareness building and financing

Sweden is working actively to produce *reliable estimation and assessment of nutrient load from diffuse sources (D1)* which is important for reviewing and monitoring progress towards the nutrient reduction targets.

The HELCOM Project on the thematic assessment of eutrophication (EUTRO-PRO) (D2) has been used for the HOLAS project. While the classification of the environmental status is somewhat different from previous classifications of coastal waters in Sweden due to different geographical borders and scale, the HOLAS assessment contains the most accurate information on the state of the Baltic Sea environment available today.

Regarding the *efficient use of analytical tools, such as models to support management decisions, cooperation and optimization in the development and the use of ecosystem models to optimise limited resources for the scientific community (D3, 4)*, Sweden has supported the Baltic Nest Institute (BNI) in further developing their modeling capability and also making necessary linkages to other models, such as the coastal models hosted by the SMHI, and the Board of Fisheries with regard to model components related to biochemical circulation, food webs, fisheries statistics, economic impact, and other effects in the marine environment.

The Baltic Nest Institute, together with institutions in Finland, Denmark and Germany are involved in the work to *further develop information provision from ecosystem models to develop targets for good ecological status, indicators for assessing ecological status and to re-evaluate future allowable nutrient inputs (D5)*.

The Chemical Inspectorate *carries out capacity building activities with authorities and industries on the identification and implementation of requirements concerning hazardous substances (P2, 3)*. Their target group is mainly producers and distributors of chemicals. Potential new fields for information campaigns include how to choose textiles to avoid perflourinated substances and how to replace toxic antifouling paint for pleasure crafts.

Several other *public awareness programmes (P4, 5, 6, 7)* are ongoing. The general public can report illegal oil discharges from ships to the Coast Guard, Keep Sweden Tidy and the WWF are among the organizations spreading awareness about marine litter. The Swedish Transport Agency is responsible for implementation of regulations concerning ship-generated waste, and the Swedish Maritime Administration is promoting more environmentally friendly recreational boating. A ban on sewage discharge from pleasure crafts will be proposed.

Sweden, together with Finland has contributed significantly to establishing a Technical Assistance Fund to prepare projects and *make better use of available funding for the financing of the implementation of the HELCOM Baltic Sea Action Plan (F6)*. The Swedish contribution totalled EUR 9 million.

Sweden is considering arranging a *financing seminar (F10)* for BSAP as part of its Chairmanship of HELCOM which would not only focus on pledging monetary resources, but also give priority to solving bottlenecks through concrete actions.

Regarding *Cost of no-action*, the SEPA has published a report entitled *What's in the Sea for me?* describing the status and values of ecosystem services provided by the Baltic Sea and Skagerrak. The SEPA is continuing its work on socio-economic aspects of the marine environment including support to the BalticSTERN project, and co-chairing a MSFD working group on this topic.

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