

Resolution No. 1

Adoption and Implementation of the Jastarnia and North Sea Plans

Recalling that the 5th International Conference on the Protection of the North Sea (Bergen, Norway, 20-21 March 2002) called for a recovery plan for harbour porpoises in the North Sea to be developed and adopted (Paragraph 30, Bergen Declaration);

Recalling that the declaration of the Joint Ministerial Meeting of the Helsinki and OSPAR Commissions (Bremen, Germany, 25-26 June 2003, 'Bremen Declaration') adopted the common statement "Towards an Ecosystem Approach to the Management of Human Activities" (Paragraph 13), which highlights the need to develop and promote the implementation of a recovery plan for harbour porpoises in the North Sea;

Noting that the available evidence indicates that the Baltic harbour porpoise population is in serious danger and that as a matter of urgency, every effort should be made to reduce bycatches towards zero as quickly as possible;

Noting the requirements of the EU treaty and its subsidiary legislation, in particular in the framework of European Nature Protection and the Common Fisheries Policy;

Emphasizing the need to implement the protection requirements of the harbour porpoise as a species of the Habitats Directive (Council Directive 92/43/EEC Annex IV) and considering this plan as a valuable contribution;

Recalling the EU Articles and Regulations relevant to the Agreement and measures applicable in the waters of EU Member States, including

- Article 2 of Council Regulation (EC) No. 2371/2002 of 20 December 2002 regarding the common fisheries policy;
- Article 12.4 of Council Directive 92/43/EEC which requires States to establish a system to monitor the incidental capture and killing of cetaceans, and in the light of the information gathered to take further research or conservation measures to ensure that incidental capture and killing does not have a significant negative impact on the species concerned;
- EC Regulation 812/2004 which amends Council Regulation 88/98 and was subsequently repealed by Council Regulation 2187/2005, and which makes the use of pingers by vessels >12m mandatory for gillnet fisheries from June 2005 in certain areas of the Baltic and North Sea, and required EU Member States to phase out driftnets in the Baltic Sea by 1 January 2008;

Recalling Resolution No. 1 on a Conservation Plan for Harbour Porpoises in the North Sea adopted by the 5th Meeting of the Parties in 2006;

Recalling the requirement under the Jastarnia Plan to undertake a formal process of re-evaluation and revision of the plan no less than every five years;

Noting, with gratitude, the revision of the Jastarnia plan undertaken by the Jastarnia Group;

Acknowledging with appreciation the efforts undertaken by Parties to date to implement the Jastarnia Plan;

Stressing that further action to implement the Jastarnia Plan will be needed;

Noting, with gratitude, the completion by the Advisory Committee of the Conservation Plan for Harbour Porpoises in the North Sea;

Without prejudice to the exclusive competence of the European Community for the conservation, management and exploitation of living aquatic resources and the “acquis communautaire”;

The Meeting of the Parties to ASCOBANS

1. *Adopts* the revised Recovery Plan for Baltic Harbour Porpoises (the Jastarnia Plan, appended as Annex 1 to this Resolution) and the Conservation Plan for Harbour Porpoises in the North Sea (attached as Annex 2);
2. *Urges* Parties in the Baltic Sea region, to continue and to step up implementation of the Jastarnia Plan and *invites* non-Party Range States also to implement this Plan;
3. *Urges* Parties in the North Sea region to implement the Conservation Plan for Harbour Porpoise in the North Sea ;
4. *Reiterates* that the reduction of fishing effort in relevant fisheries called for in the Jastarnia Plan should continue to be considered with high priority;
5. *Encourages* Parties and non-Party Range States to intensify research on “pingers” and to continue trials of alternative gear and methods, following the guidelines laid down in the Jastarnia Plan;
6. *Encourages* Parties and non-Party Range States to ensure the enforcement of pinger use at sea and the monitoring of its efficiency;
7. *Encourages* Parties and non-Party Range States to re-evaluate pinger use at the latest by early 2010 in the light of current findings (noting Art. 7 of EC Regulation 812/2004);
8. *Encourages* Parties to continue to provide additional funds for the production of information material in the languages of the Baltic Sea region;
9. *Recommends* that the Secretariat cooperate with Parties and others to ensure continuation of the web-based, international database on opportunistic sightings, strandings and bycatch in the Baltic Sea;
10. *Repeals* Resolutions No. 1 and No. 9 of the 5th Meeting of the Parties.

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Recovery Plan for Baltic Harbour Porpoises Jastarnia Plan (2009 Revision)



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Executive Summary

1. Background

The harbour porpoise (*Phocoena phocoena*) is widely distributed in shelf waters of the temperate North Atlantic and North Pacific Oceans and in some semi-enclosed seas (e.g. the Black, Baltic Seas and the inland sea of Japan). Although still numerically abundant as a species, at least in comparison to many other cetaceans, the harbour porpoise has experienced major declines in portions of its range, including and perhaps most notably the Baltic Sea. Whatever other factors may be involved, however, it is very likely that incidental mortality in fishing gear has played a major role in reducing porpoises to a small fraction of their historical abundance in the region, and is now contributing to preventing their recovery.

ASCOBANS has adopted an interim goal of restoring the population of harbour porpoises in the Baltic Sea to at least 80% of its carrying capacity. Scientific analyses for the southern-western Baltic proper (southern tip of Öland to Gulf of Gdańsk) indicate that recovery towards the interim goal of 80% of carrying capacity could only be achieved if the bycatch were reduced to two or fewer porpoises per year.

The need for a Baltic harbour porpoise recovery plan has been recognised for a considerable time not only by ASCOBANS, but also by other relevant international bodies.

The original ASCOBANS Recovery Plan for Baltic Harbour Porpoises ("Jastarnia Plan") was the result of a collaborative effort organised under the auspices of ASCOBANS. It was the culmination of a series of scientific initiatives and meetings over several years, starting in 1997. Since 2005, annual meetings of the so-called Jastarnia Group have been held. This expert working group, composed of representatives from the environment and fisheries sectors of the countries surrounding the Baltic Sea, discusses progress made and further implementation priorities for the Jastarnia Plan and makes recommendations to the ASCOBANS Advisory Committee. The present revised version of the Jastarnia Plan was produced by the Jastarnia Group.

2. Recovery Recommendations

Recovery Recommendations contained in the plan focus on five priority areas of activity: bycatch reduction, research and monitoring, marine protected areas, public awareness and cooperation between ASCOBANS and other relevant regional and international bodies.

a. Bycatch Reduction

Bycatch reduction is the highest priority for Baltic harbour porpoise recovery, and measures to achieve such reduction should begin immediately. Reduction strategies should incorporate multiple approaches as a way of dealing with the uncertainty of outcome associated with any individual measure. Close stakeholder involvement is key to success. Specifically, the following actions are recommended to achieve the aim of bycatch reduction.

- Recommendation 1: Reduce fishing effort in certain fisheries
- Recommendation 2: Involve stakeholders in the work of reducing bycatch of harbour porpoises.
- Recommendation 3: Replace fishing methods known to be associated with high porpoise bycatch (i.e. set nets) and introduce alternative gear that is considered less harmful.
- Recommendation 4: Implement a pinger programme on a short-term basis.

b. Research and Monitoring

Given the uncertainty surrounding the problem of harbour porpoise conservation in the Baltic Sea there is an urgent need for more research and monitoring. However, there is no need to wait for this further research before implementing a bycatch reduction strategy.

High priorities for research and monitoring include:

- Recommendation 5: Analyse stock affinities of harbour porpoises in the “transition zone” between two or more populations of the south-western Baltic;
- Recommendation 6: Develop and apply new techniques (e.g. acoustic monitoring) for assessing trends in abundance;
- Recommendation 7: Develop interactive pingers or pingers using frequencies not audible to seals;
- Recommendation 8: Investigate possible detrimental effects of various types of sound and disturbance (including pinger signals, noise from vessels, wind parks or constructions and seabed exploration, e.g. for oil and gas) on harbour porpoises;
- Recommendation 9: Monitor bycatch in all fisheries known to be harmful to harbour porpoises to be able to estimate bycatch levels;
- Recommendation 10: Further develop sustainable alternative fishing gear with no bycatch of harbour porpoises;
- Recommendation 11: Compile data on fishing effort;
- Recommendation 12: Examine habitat preference of harbour porpoises;
- Recommendation 13: Investigate the prevalence of derelict (“ghost”) gear and the feasibility of its removal.

c. Marine Protected Areas

Marine protected areas in the Baltic have known shortcomings with regard to the protection of the Baltic harbour porpoise but they may nevertheless be beneficial in a number of ways, in particular if they are expanded and their connectivity is improved.

- Recommendation 14: Expand the existing network of protected areas and improve its connectivity, while ensuring the development and implementation of appropriate management plans within protected areas to improve the status of harbour porpoises and/or their critical resources (e.g. prey stocks), without allowing such limited measures to serve as substitutes for the other broader-scale conservation initiatives recommended elsewhere in this recovery plan.

d. Public Awareness

Public awareness is an essential part in supporting a recovery plan. Awareness-raising is also an area where ASCOBANS has an autonomous role to play. An awareness raising campaign should be based on a regional approach to Baltic harbour porpoise conservation. This involves making efforts to enlist the help of the general public and people doing jobs related to the sea in obtaining reports of porpoise observations throughout the Baltic, establishing direct communication links with Baltic fishermen and seeking their assistance, establishing national focal points, Parties are also requested to provide assistance to maintain an interactive Baltic harbour porpoise website for the storage of GIS-based porpoise observation data.

- Recommendation 15: Develop a comprehensive public awareness campaign based on the elements outlined above.

e. ASCOBANS Cooperation with Other Bodies

Although ASCOBANS is the only international body with an explicit mandate to improve the conservation status of harbour porpoises in the Baltic Sea, several other regional and international bodies (in particular HELCOM, the European Union, ICES) also have important roles to play, particularly with regard to improving the quality of the Baltic marine environment and regulating Baltic fisheries.

- Recommendation 16: Strive for close consultation and cooperation between ASCOBANS and other relevant regional and international bodies.

ASCOBANS RECOVERY PLAN FOR HARBOUR PORPOISES IN THE BALTIC SEA (JASTARNIA PLAN)

1. Introduction

The harbour porpoise (*Phocoena phocoena*) is widely distributed in shelf waters of the temperate North Atlantic and North Pacific Oceans and in some semi-enclosed seas (e.g. the Black, Baltic Seas and the inland sea of Japan). Although still numerically abundant as a species, at least in comparison to many other cetaceans (whales, dolphins and porpoises), the harbour porpoise has experienced major declines in portions of its range, including and perhaps most notably the Baltic Sea. The causes of population decline in the Baltic may include the commercial catching of porpoises historically (Kinze 1995), the periodic catastrophic mortality resulting from severe winter ice conditions (Johansen 1929 and Bondesen 1977, both as cited in Teilmann and Lowry 1996; Hanstrom 1960, as cited in Berggren 1994; Lindroth 1962) and habitat degradation of various kinds (e.g. pollution, noise, decrease in prey abundance or quality; cf. Teilmann and Lowry 1996). Whatever other factors may be involved, however, it is very likely that incidental mortality in fishing gear has played a major role in reducing porpoises to a small fraction of their historical abundance in the region, and is now contributing to preventing their recovery. Catches of harbour porpoises in salmon drift nets and bottom-set gillnets (for cod and other demersal species) are known to have occurred in many parts of the Baltic (e.g. Lindroth 1962, Skóra et al. 1988, Christensen 1991, Berggren 1994, Kock and Benke 1996). In Polish fisheries bycatch of harbour porpoises in driftnets which are anchored on one side has been reported since 1990, (Skóra and Kuklik, 2003). These nets have, however, been considered set nets under EU legislation since 2007. Therefore all these types of fishing gear are a focus of concern when considering how to facilitate recovery of harbour porpoises.

ASCOBANS has adopted an interim goal of restoring the population of harbour porpoises in the Baltic Sea to at least 80% of its carrying capacity. Berggren et al. (2002) incorporated this interim objective into a Potential Biological Removal (PBR) model to estimate an annual “mortality limit” of only one or two harbour porpoises in the surveyed portion of the Baltic Sea (cf. Fig. 1). In other words, their analysis indicated that recovery towards the interim goal of 80% of carrying capacity could only be achieved if the bycatch in this part of the Baltic were reduced to two or fewer porpoises per year (compared with the estimated current minimum bycatch of seven, Berggren et al. 2002).

The need for a Baltic harbour porpoise recovery plan has been recognised for a considerable time not only by ASCOBANS, but also by other international bodies such as the Baltic Marine Environment Protection Commission (Helsinki Commission, or HELCOM). and the Scientific Committee of the International Whaling Commission (IWC).

In the latest edition of the Red List produced by IUCN (The International Union for the Conservation of Nature), the harbour porpoise is listed as a “critically endangered” subpopulation (IUCN 2008). The harbour porpoise is also listed in Annex II and IV of EU Council Directive No. 92/43/EEC (the “Habitats Directive”). In the latest report evaluating the implementation of the Directive, the overall conservation status of harbour porpoise in the Baltic Sea was assessed as unfavourable (bad).

This recovery plan is the result of a collaborative effort organised under the auspices of ASCOBANS. It is the culmination of a series of scientific initiatives and meetings over several years, starting in 1997. At the second Meeting of the Parties (MOP 2, Bonn, Germany, 1997) the ASCOBANS Parties adopted a Resolution on Incidental Take of Small Cetaceans that invited parties and Range States to “develop (by 2000) a recovery plan for porpoises in the Baltic Sea, one element of which should be to identify human activities which are potential threats to the recovery of this species in the Baltic”.

This invitation was reiterated in 2000 (MOP 3, Bristol, United Kingdom) and the ASCOBANS Triennium Work Plan for 2001-2003 included the requirement to organise and conduct a workshop to prepare such a plan. Preparatory work included, most notably, the deliberations of the ASCOBANS Baltic Discussion Group (ABDG), whose report (2001) was considered at the 8th Meeting of the Advisory Committee (Nymindgab, Denmark, April 2001). The Nymindgab meeting also provided the terms of reference for the recovery plan workshop, which was held in Jastarnia, Poland, from 9 – 11 January 2002. While the ABDG was a smaller group consisting exclusively of scientists, Jastarnia workshop was attended by 40 individuals from ten countries, representing fishermen, environmental groups, government ministries, international conventions, and public and private institutions in six of the Baltic Range States. The workshop was funded by the Danish government and ASCOBANS. It was hosted by ASCOBANS in cooperation with the Foundation for the Development of the University of Gdańsk (FRUG) and Hel Marine Station. The Swedish Environmental Protection Agency and Swedish Board of Fisheries, with funding from the Nordic Council of Ministers, had organised a preparatory meeting for representatives of environment and fisheries agencies and fishermen's organisations in Denmark, Finland and Sweden, together with invited experts. This meeting took place in Kolmården, Sweden, in October 2001. The final Recovery Plan, now known as the Jastarnia Plan, was welcomed by the ASCOBANS Parties at their 4th Meeting in 2003.

Since 2005, annual meetings of the so-called Jastarnia Group have been held. This expert working group, composed of representatives from the environment and fisheries sectors of the countries surrounding the Baltic Sea, discusses progress made and further implementation priorities for the Jastarnia Plan and makes recommendations to the ASCOBANS Advisory Committee. The present revised version of the Jastarnia Plan was produced by the Jastarnia Group.



Fig. 1. Map showing the Skagerrak, Kattegat, Great Belt and Little Belt Seas, the Kiel and Mecklenburg Bights and the Baltic Sea. The dotted line in the Baltic Sea shows the border of the aerial survey conducted in 1995.

2. Background Information on the Species

As is true of other small populations that inhabit large areas and occur in low densities, scientific assessment of harbour porpoises in the Baltic is extremely challenging. Estimates of abundance and bycatch tend to be imprecise because their precision is dictated primarily by the number of sightings or bycatch observed, in combination with the amount of effort in relation to the size of the area or the fishing fleet. Similarly, the number of tissue samples available dictates the power of genetic analyses of population structure. Uncertainty in the data is an inherent feature of work with small populations and necessitates decision-making in management to be precautionary (Taylor and Gerrodette 1993).

2.1. Population Status

The International Union for Conservation of Nature (IUCN), which in 1996 listed harbour porpoises in the Baltic as a geographical population that is “vulnerable” (IUCN 1996), has listed it as a “critically endangered” subpopulation in the latest edition of its Red List (IUCN 2008).

Pursuant to the Habitats Directive, Member States of the European Union (EU) must report on the implementation of the Directive to the European Commission every six years. The reports must contain, among other things, the results of the monitoring of animal and plant species belonging to Annexes II, IV and V of the Directive. The harbour porpoise belongs to Annex II and IV. The latest report prepared in 2007 covers the period 2001-2006. In this report the overall conservation status of the harbour porpoise in the Baltic Sea was stated to be unfavourable (bad).

<http://biodiversity.eionet.europa.eu/article17/speciessummary/?group=TWFTbWFscw%3D%3D&species=UGhvY29lbmEgcGhvY29lbmE%3D®ion=MBA><http://biodiversity.eionet.europa.eu/article17/speciessummary/?group=TWFTbWFscw%3D%3D&species=UGhvY29lbmEgcGhvY29lbmE%3D®ion=MBAL>

2.2. Population Structure

It is clear from morphometric, genetic and other analyses that the aggregate North Atlantic harbour porpoise population occurs as a series of relatively discrete subpopulations or stocks (e.g. Andersen et al. 2001) at least one of which occurs in the Baltic (e.g. Tiedemann et al. 1996; Wang and Berggren 1997, Börjesson and Berggren 1997). However, relatively few porpoise specimens from the Baltic proper (i.e. east of the Darss and Limhamn underwater ridges; see IWC 2000b) have been collected and studied, and although the animals found there are different from those found in the Skagerrak-Kattegat Seas (Tiedemann et al., 1996; Börjesson and Berggren 1997; Wang and Berggren 1997; Berggren et al., 1999; Huggenberger, 1999), the stock relations of porpoises in the Danish straits, Kiel and Mecklenburg Bights, and the Baltic proper remain uncertain (Palme et al., 2008).

2.3. Abundance

Knowledge of porpoise abundance in the Baltic Proper is deficient and limited to the south-western part of the Baltic. The following abundances have been estimated based on visual aerial surveys: Kiel Bight: 207, (CI 132-331) in 1991 and 87, (CI 46-166) in 1992 (Heide-Jørgensen et al. 1993). Sightings surveys have been limited to Kiel and Mecklenburg Bights in 1995: 980 (CI 360-2880) and in 1996 1830 (CI 960-3840) (Siebert et al. 2006); the waters around Rügen in 1995: 601 (CI 233-2684) (Siebert et al. 2006). In 1995 the ICES subdivisions III24 and III25 – excluding a 22 km wide corridor off the Polish coast were surveyed giving an estimate of 599 porpoises (CI 200-3300) aerial surveys of portions of the southern and western Baltic in 1995 (Hiby and Lovell 1996). and finally 93 porpoises (CI 10-460) in 2002 in most of ICES area III24 and III25 (Berggren et al. 2004),. and a vessel survey (visual

and acoustic) of Polish coastal waters in 2001 (P. Berggren, pers. comm.). Although a large decline in abundance from historic levels is generally acknowledged (e.g. Donovan and Bjørge 1995; IWC 1996, 2000), there is no reliable quantitative estimate of historic abundance.

During the summer seasons of 2001 and 2002 boat-based acoustic and visual transect surveys for harbour porpoises were conducted mostly in German and Polish waters but also including some Swedish and Danish waters during the summer season in order to investigate their distribution and relative abundance of the species (Gillespie *et al.*, 2005). The pattern of acoustic detections in this study indicates a gradient in the density of porpoises falling from the west to the east. The low porpoise detection rate of the entire Baltic Sea block agrees in a broad sense with the low density found in the 1995 aerial survey, with a general detection rate two orders of magnitude lower in the Baltic Sea than in other waters surveyed (Gillespie *et al.*, 2005).

2.4. Distribution

A Static Acoustic Monitoring (SAM) survey took place from August 2002 to December 2005, when the German part of the Baltic Sea (Belt Sea and Pommeranian Bight) was surveyed by means of Porpoise detectors (T-PODs) by Verfuß *et al.* (2007). The analysis of the data of this survey also shows a significant decrease from west to east in the percentage of days with porpoise detections. At most of the measuring positions in the German Baltic Sea, harbour porpoises were detected year-round, with the data displaying a seasonal variation with fewer days of porpoise detections in winter than in summer. However, only infrequent detections were recorded north and east of the island of Rügen, thus confirming a very low density of the harbour porpoise sub-population in the Baltic proper (Verfuß *et al.*, 2007).

In another SAM study, deploying Porpoise Click Loggers (PCL:s) in coastal waters in Southern Sweden between June 2006 and September 2007, only 21 “porpoise positive days” were obtained in 2345 PCL days (Amundin *et al.* 2008). All but one of these detections occurred in the late summer/fall, and all in the western half of the study area (from Falsterbo Reef to South of Öland). Although the methodology was somewhat different from that of the German T-POD study, the overall detection frequencies were similar to that in the German waters along the same longitude.

From 1997-2007, 63 harbour porpoises were tagged with satellite transmitters in Danish and adjacent waters and followed for up to a year. The only major area that was not covered by the tagged animals was the Southern North Sea. In the Baltic Proper, three porpoises which were tagged in the Danish Belts moved to the southern tip of Öland and back on a two week trip during spring. Sixteen high-density areas were identified in Danish waters based on satellite tracking and surveys (Teilmann *et al.* 2008). Three of these (Flensburg Fjord, Fehmarn Belt and Kadet Trench) are located in the western Baltic.

- 1) Eleven (of the 63 tagged) porpoises visited the Flensburg Fjord, the inner part of which had a particularly high density from June to November while the porpoises move to the outer part during the rest of the year. Flensburg Fjord was also important for adult females.
- 2) Tagged animals were present in the Fehmarn Belt in all months of the year except in August and in October. Peak densities were observed in April, June and December. In total, 13 tagged porpoises visited this area, but only 5 of them stayed in the area for more than two days and these only remained for 7 days on average. This suggests that the area is mainly used as an important corridor to the eastern part of the area.
- 3) The Kadet Trench is a deep basin in a relatively shallow area east of the Darss/Gedser underwater ridge. The Kadet Trench is therefore potentially important with regard to the vulnerable Baltic Sea population and the only high density area determined in the Baltic proper (defined as ICES area III d). The 7 porpoises visiting the area were mostly present from September to December and in March.

2.5. Threats

The situation that appears to have arisen in the Baltic is one that can easily lead to circular reasoning. With an extremely low density of porpoises, the animals are rarely seen or caught by fishermen. In the light of their own experience, then, fishermen view themselves as undeserving scapegoats, and they are reluctant to accept the claims by scientists and conservationists that bycatch is a serious threat to the porpoise population. However, if bycatch has been, as many assume, a major contributory factor in the decline of porpoises, there is little prospect of recovery unless the probability of bycatch for individual porpoises is substantially reduced. Therefore, without bycatch mitigation, porpoises will remain scarce (making it difficult to obtain better abundance estimates), the bycatch will remain small (making it difficult to quantify removals), and fishermen will remain incredulous towards the idea that fishery bycatch is a problem for porpoise conservation.

Despite the generally imprecise nature of available data, there is sufficient evidence to conclude that porpoises are now much less common in the Baltic than they were in the past, and that much of the decline occurred from the middle to late 20th century (e.g. Skóra et al. 1988; Berggren and Arrhenius 1995). There is also sufficient evidence to conclude that bycatch in fishing gear has played an important role not only in reducing the abundance of porpoises, but also in preventing their recovery in the Baltic (e.g. Skóra et al. 1988, Berggren 1994, Kock and Benke 1996, Teilmann and Lowry 1996, Berggren et al. 2002). The ASCOBANS Baltic Discussion Group concluded, and the Jastarnia workshop concurred, that: (1) the available evidence (abundance estimates, bycatch levels, stock identity) clearly points to a population that is in serious danger; and (2) as a matter of urgency, every effort should be made to reduce the porpoise bycatch towards zero as quickly as possible. Of the factors potentially contributing to the decline in porpoise abundance in the Baltic, which could include climatic variability, contaminants, and changed ecological conditions, bycatch is probably the only one for which the effect of remedial action would be immediate and unambiguous.

2.6. Legal Status of the Baltic Harbour Porpoise

In addition to the various provisions within the ASCOBANS Agreement text and its Conservation and Management Plan, the Baltic harbour porpoise is covered by protection and management measures of a number of other competent organisations within the Baltic Sea area.

Under European Community law, specific attention is paid to the conservation needs of the Baltic harbour porpoise under Council Directive No 92/43/EEC (the "Habitats Directive"). In particular, Member States are required to establish a system of strict protection under national law for "all species" of cetaceans. Furthermore, the harbour porpoise is listed in Annex II of the Directive and is therefore one of the species for which Member States are to establish Special Areas of Conservation to ultimately contribute towards the creation of a coherent ecological network of protected areas throughout the Community (Natura 2000). Within the framework of the Emerald Network of protected areas, which was established in 1998 and is a de-facto extension of NATURA 2000 to non-EU Parties of the Council of Europe's 1979 Bern Convention, such obligations also apply to non-EU Member States that are, however, Contracting Parties or Observer States to that convention.

Moreover, the Baltic Marine Environmental Protection Commission (HELCOM), has also established a series of protection measures and conservation targets vis-a-vis the Baltic harbour porpoise. In November 2007, the Baltic Sea Action Plan was formally adopted by HELCOM, establishing a co-ordinated programme to restore the good ecological status of the Baltic Sea region by 2021. The Action Plan calls for further development cooperation with ASCOBANS, including through the elaboration of a coordinated reporting system and database on Baltic harbour porpoise sightings, bycatches and strandings. In addition to this, the Baltic Sea Protected Areas (BSAP) programme encourages the Contracting Parties to

establish a system of coastal and marine protected areas, which could include measures to protect the Baltic harbour porpoise. A specific Recommendation, HELCOM Recommendation 17/2 on the protection of the harbour porpoise in the Baltic Sea area was adopted in 1996, recommending that Contracting Parties give “highest priority” to avoiding bycatches of these animals, as well as analysing the status of stocks, considering the establishment of protected areas under the BSAP programme and reporting on a triennial basis on progress made in these respects.

3. Development of the Recovery Plan

As noted above, the conclusion arrived at in the lead-up phase and by the Jastarnia workshop was that bycatch was the primary threat to harbour porpoises and hence that bycatch reduction was the highest priority for the recovery of the species. The objectives and recovery recommendations of the Recovery Plan consequently focus primarily on this aim, without losing sight of the need to address other issues.

3.1. Objectives of the Recovery Plan

ASCOBANS has the interim goal of restoring the population of harbour porpoises in the Baltic Sea to at least 80% of the carrying-capacity. In order to work towards achieving this interim goal and, ultimately, a favourable conservation status for Baltic harbour porpoises, Baltic Range States should, as a matter of urgency, seek to reach the following objectives:

- (1) implement management measures of a precautionary nature to reduce the number of bycaught porpoises in the Baltic towards zero;
- (2) improve knowledge in key subject areas as quickly as possible; and
- (3) develop more refined (quantitative) recovery targets as new information becomes available on population status, bycatch and other threats.

In the short to medium term, further issues should also be addressed as a matter of priority, namely the creation and proper management of marine protected areas for harbour porpoises, public awareness raising and cooperation with other relevant organisations.

4. Recovery Recommendations

The following recommendations constitute the ASCOBANS Recovery Plan for Harbour Porpoises in the Baltic Sea (for a tabular overview of recovery recommendations and related action cf. Appendix 6 below):

4.1. Bycatch Reduction

Both the ASCOBANS Baltic Discussion Group and the Jastarnia workshop concluded that bycatch reduction was the highest priority for Baltic harbour porpoise recovery, and that measures to achieve such reduction should begin immediately. Experience elsewhere has been that bycatch reduction strategies should not rely on a single approach to mitigation, but rather incorporate multiple approaches as a way of dealing with the uncertainty of outcome associated with any individual measure (Read 2000). A key point about all of the following recommendations related to bycatch reduction is that **stakeholders need to be closely involved in the process**. As a priority, fishermen and their representatives should be included routinely in discussions and decision-making that have implications for their livelihoods. Another important proviso is that the entire Baltic Sea is not a homogeneous

system, and therefore the same bycatch reduction measures are unlikely to be appropriate on the same time schedule in all areas. Ignorance about porpoise distribution, movements, relative abundance and habitat use throughout the Baltic, however, is a major obstacle to devising an area- or time-specific approach to bycatch reduction.

It is important to emphasise that although there is no unanimity on the issue of how bycatch should be reduced, there is consensus that porpoises are likely to disappear from the Baltic unless a major effort of some kind is made quickly to achieve bycatch reduction. At one extreme are those who believe that the only effective and environmentally benign way to reduce porpoise bycatch to the PBR level or below is through major reductions in “high-risk” fishing effort, while others believe that, despite their side-effects and associated uncertainties, acoustic deterrents should be used on a short-term basis as part of a bycatch reduction strategy. These viewpoints are both reflected in this Recovery Plan to the extent possible.

4.1.1. Recommendation 1: Reduce fishing effort in certain fisheries

The most effective way to reduce bycatch is to reduce or eliminate fishing effort that involves gear known to cause high porpoise bycatch rates (Read 2000). Therefore, it is recommended that **measures should be taken by the Baltic Range States to reduce the fishing effort of fishing gear known to be harmful to porpoises such as set nets in the Baltic.** Driftnets, defined by the relevant EC legislation as any gillnet held on the sea surface or at a certain distance below it by floating devices, drifting with the current, either independently or with the boat to which it may be attached¹, have been prohibited in the Baltic since 1 January 2008. It is stressed that fishing effort includes both the amount of net deployed and the amount of time that the nets are in the water (soak time). It is also important to emphasise that reductions in catch quotas and/or fishing capacity are not the same as reductions in fishing effort, and therefore it cannot be assumed that reduced fish catch quotas or reduced fleet sizes will necessarily reduce porpoise bycatch. Reductions in fishing effort prompted by concerns about fish stock depletion or other ecosystem considerations should be encouraged, especially if such reductions are applied to fisheries known to kill porpoises (e.g. set nets) and occur in areas known, or thought to be, inhabited by porpoises. It is certainly preferable that effort reductions be targeted at high-risk gear types in areas frequented by porpoises. Although some uncertainty remains in regard both to high-risk gear and porpoise distribution, documented bycatch localities and dates provide a useful starting point for specifying high-risk areas.

4.1.2. Recommendation 2: Involve stakeholders in the work of reducing bycatch of harbour porpoises

Stakeholders such as fishermen, governments and environmental organisations need to work together when trying to reduce bycatch. Fishermen should be involved not only in the implementation but throughout the whole process. A working group including fishermen, governments and environmental organisations should be established to develop guidelines and methods to reduce and monitor bycatch in relevant fisheries. A way to create a positive collaboration with fishermen is to support the environmental certification of fisheries by helping the fishermen to reduce their bycatch, through pingers or alternative fishing gear, or to monitor the bycatch in their fisheries.

¹ Regulation No. 809/2007

4.1.3. Recommendation 3: Replace fishing methods known to be associated with high porpoise bycatch (i.e. set nets) and introduce alternative gear that is considered less harmful

A changeover to gear that is less harmful to porpoises is one way of maintaining a viable fishery while achieving bycatch reduction. It is therefore recommended that **trials using fish traps, fish pots, and longlines be initiated immediately, with the long-term goal of replacing gillnets in the cod fishery, particularly in areas where porpoises are known or expected to occur frequently.** The development and introduction of alternative gear in the Baltic cod fishery should be undertaken as a high priority. Work to develop such gear should be coordinated among the Range States and competent fishery authorities should be involved in order to ensure that there is consistency between measures envisaged in the framework of this recover plan and any measures that are being considered or taken by those authorities. Implementation should begin immediately when cost-effectiveness as well as the ecological sustainability of such fishing have been demonstrated. An important consideration in defining cost-effectiveness is that catch levels may be reduced compared to common fishing methods, but counterbalanced by improved quality (and thus market value), particularly when fish are taken in traps or pots rather than set nets.

4.1.4. Recommendation 4: Implement a pinger programme on a short-term basis

Pingers (acoustic alarms or deterrents) have been shown to be effective in reducing porpoise bycatch in set net fisheries outside the Baltic and, as noted by Read (2000)¹², no further trials are necessary before they are used in at least bottom-set gillnet fisheries within the ASCOBANS area. Despite the suitability of pingers as a short-term interim solution the relevant recommendation in the 2002 Jastarnia Plan was not implemented by Parties, leading to a loss of several years of effective bycatch mitigation.

Recognising that there may be a lag of several years before the necessary reductions in fishing effort and changeover to lower-risk gear (above) are fully implemented, it is recommended that **pinger use should now immediately be made mandatory in probable high-risk areas and fisheries associated with bycatch of harbour porpoises on a short-term basis (no more than 3 years) irrespective of vessel size.** In areas where pinger use leads to increased seal-fisheries conflict or seal bycatch, pingers not audible to seals should be used. It should be noted, however, that these pingers are not yet available on the market and therefore immediate research is necessary to develop functional pingers. A key element of any pinger implementation will be educating fishermen on their proper use.

In reaching this recommendation, a number of positive and negative issues had to be considered, summarised below:

- 1) One of the drawbacks of relying upon pingers is that their use does not ensure zero bycatch. However, since it is clear that the Baltic Range States will not accept immediate closure of the set net fisheries, or be able to achieve an immediate changeover to alternative gear, any reduction in bycatch that can be accomplished during the next few years through the rapid implementation of pingers will be better than no reduction;
- 2) A second problem is that the cost of an independent on-board observer scheme of sufficient scale (given the large number of small boats in the Baltic that are unable to carry observers) to monitor the programme's effectiveness (generally considered a required component of pinger programmes; IWC 2000, Read 2000) may be exorbitant, particularly given that it would likely be competing for funds with programmes to develop alternative gear, etc. (see point 5 below). The absence of such an observer scheme would mean that effectiveness could not be formally evaluated. Although it may be possible for enforcement vessels (e.g., Coast Guard) to use click detectors to monitor compliance with pinger-use regulations, or to check pingers in the harbours, the problem of evaluating effectiveness can only be addressed through a costly, large-scale on-board observer programme or the implementation of onboard video surveillance systems or

other technical means of monitoring bycatch;

- 3) A third concern is that widespread pinger use may displace porpoises from important habitat (IWC 2000)¹⁵. This issue cannot be rigorously addressed on present evidence and therefore must be viewed in much the same way as the non-zero bycatch (Point 1, above). In other words, the unknown risk of displacement must be weighed against the known risk of entanglement in nets without pingers. Experimental studies outside the Baltic have shown that porpoises quickly return to an area from which they have been displaced after pingers are removed or rendered inactive (Lockyer et al. 2001; Teilmann et al 2007);
- 4) The use of pingers can increase the seal and fisheries conflict, which includes an increase in damaged catch and fishing gear but also an increase of entangled and thereby bycaught seals. In many countries along the Baltic Sea coast, seals are causing great economic losses in the small-scale coastal fisheries and the conflict is at present spreading from north to south with the increasing seal population. This bycatch is equally unacceptable. This problem may be solved by using interactive pingers, since their infrequent pinging will not make them useful as “dinner bells” for the seals;
- 5) Finally, full implementation of a mandatory pinger programme would represent a major investment of resources, possibly precluding investments in long-term solutions to the bycatch problem (above), important research (below), and public awareness initiatives (below). It is therefore essential that management authorities and the fishing industry be encouraged to engage in multiple approaches to the bycatch-reduction problem simultaneously and to move ahead with the longer-term strategies outlined elsewhere in this recovery plan.

Taking into account the above considerations, the following process is recommended:

- It is essential that any implementation of a pinger programme be accompanied by measures to verify that pingers are being used properly at sea;
- The importance of independent on-board observation at an appropriate sampling level to obtain reliable data on cetacean bycatch is well documented. In view of the associated difficulties with high fishing effort and low bycatch rates a high coverage of the fishing effort needs to be monitored to obtain reliable bycatch estimates. Therefore alternative ways to monitor bycatch should be considered. Despite the associated difficulties with high fishing effort and low bycatch rates, bycatch monitoring needs to be made an integral part of any pinger implementation programme;
- The concern that pingers might exclude porpoises from large areas of critical habitat should be addressed in view of the urgency of implementation and the limited time span of the pinger programme. Hence, for the Baltic situation an analysis similar to that conducted previously for the North Sea (Larsen and Hansen, 2000) should be conducted within the first year of active pinger use, and considered sufficient to estimate the potential extent of habitat exclusion for the Baltic;
- Implementation of a pinger programme should be short-term and therefore should be reconsidered after a maximum duration of 3 years, with the expectation that pinger use will be replaced by longer-term mitigation measures at that time;
- The rapid development of medium and long-term approaches to mitigation (e.g. reduced fishing effort in high-risk areas, conversion to fishing gear and practices that are much less likely to result in porpoise bycatch) is crucial and should not be compromised. This work should be initiated immediately and in parallel with the identification of high-risk areas and targeted pinger implementation efforts.

4.2. Research and Monitoring

As discussed earlier in this document, the problem of harbour porpoise conservation in the Baltic Sea is marked by scientific uncertainty, and this situation is likely to prevail far into the future. While recognising the need for more research and monitoring, the ASCOBANS Baltic Discussion Group and the Jastarnia workshop strongly emphasised that there was no need to wait for further research before implementing a bycatch reduction strategy – therefore, none of the recommendations in this section of the recovery plan should be viewed as a higher priority than the bycatch reduction initiatives outlined above.

There is considerable uncertainty to what degree contaminants (e.g. organochlorines, organotins, and heavy metals), ecological perturbations (e.g. ice winters, trophic shifts affecting porpoise prey consumption; see MacKenzie et al. 2002), and other factors have contributed to the decline of the harbour porpoise in the Baltic, and its failure to recover. However, it is of eminent importance to elucidate the impact of these factors in order to determine whether harbour porpoises are able to repopulate the region previously occupied by them in the Baltic. Further research is needed not only to provide information on bycatch mitigation and on monitoring of possible recovery but also to guide decisions concerning such things as waste management, pesticide use, marine construction, industrial (e.g. extractive) use of the seabed, and the impact of fisheries in a broader sense in order to convince fishermen, decision-makers, and the general public of the need for a recovery strategy.

Based on the research and monitoring needs identified by the Jastarnia workshop (2002) and the subsequent meetings of the Jastarnia Group, the following priority actions are recommended:

4.2.1. Recommendation 5: Analyse stock affinities of harbour porpoises in the “transition zone” of the south-western Baltic

Two populations living in the Baltic have been identified: the Baltic proper and the Western Baltic stock. However the genetic evidence that these are two distinct populations is under discussion and a more thorough investigation of the pattern of genetic sub-structuring of the harbour porpoises of this region is urgently needed (Palme et al. 2008). Various types of evidence already available need to be considered in an integrated analysis, taking account of new acoustic, tracking, and genetic data. There should also be a strong initiative to obtain and analyse additional tissue samples from the Baltic proper (e.g. historical samples in museums and new samples from stranded or bycaught animals). Effort and protocols for data collection from stranded or incidentally caught individuals should be improved. This involves making concerted efforts to locate such animals and to perform comprehensive necropsies on them.

4.2.2. Recommendation 6: Develop and apply new techniques (e.g. acoustic monitoring) for assessing trends in abundance

Given the apparently low-density occurrence of porpoises in the central Baltic, standard line transect sampling methods are unlikely to provide adequate statistical power to detect trends. New approaches have to be developed, such as passive/static acoustic monitoring methods, which may provide better estimates of harbour porpoise abundance and also detect possible trends in abundance.

4.2.3. Recommendation 7: Develop interactive pingers or pingers using frequencies not audible to seals

Interactive pingers or pingers not audible to seals could be used to decrease the level of acoustic pollution caused by pingers or for use in areas where there is a seal-fisheries conflict. In addition to causing increased levels of acoustic pollution, acoustic alarms might thus be detrimental to harbour porpoise conservation via habitat exclusion or their efficiency might be impaired by habituation. Addressing the problem mentioned above, interactive pingers, deterrent devices that only emit sound when triggered by the sonar clicks of an oncoming porpoise, should be considered (Amundin *et al.*, 2002; Poulsen, 2004). However, their efficiency and any habituation or habitat exclusion effects must be investigated further. An analysis similar to that reported for the North Sea in 2000 by Hansen and Larsen should be initiated for the Baltic.

Pingers increase the level of acoustic pollution, and by acting as “dinner bells” they increase the seal-fisheries conflict which is a serious problem in the Baltic. Interactive pingers were previously considered a possible solution to these problems. This kind of pinger, however, is only at a prototype stage. Also, its efficiency in reducing bycatch must be verified. Therefore a more realistic alternative to reduce the seal-fisheries conflict in the Baltic is to use pingers emitting deterrent sounds not audible to seals. Promising tests with such pingers have been carried out by Kastelein *et al.* (2008).

4.2.4. Recommendation 8: Investigate possible detrimental effects of various types of sound and disturbance (including pinger signals, noise from vessels, wind parks or constructions and seabed exploration for oil and gas) on harbour porpoises

Such investigations may be better conducted in areas other than the Baltic, where the harbour porpoise is more abundant and it might be easier to develop and apply a proper experimental design.

4.2.5. Recommendation 9: Monitor bycatch in fisheries known to be harmful to harbour porpoises to be able to estimate bycatch levels

Estimations of bycatch levels in certain areas and fisheries are urgently needed and monitoring bycatch through observer schemes should be conducted in probable high risk areas and in fisheries associated with bycatch, including recreational and small-scale fisheries. However, bearing in mind that observer schemes are very expensive and possible only on larger fishing vessels, alternative methods, based on onboard video surveillance systems should be regarded as an option.

4.2.6. Recommendation 10: Further develop sustainable alternative fishing gear with no bycatch of harbour porpoises

Alternative gear types such as long lines or pots are known to have insignificant bycatch of harbour porpoises and could therefore be regarded as a possible alternative to gillnets in the Baltic. Even though long lines and pots are basically simple devices, their setup and rigging can vary greatly. The catch rates in these fisheries depend strongly on bait species, hook shape and size, lines, trap shapes, fishing time, fishing depth, bottom type fishing practice and a wide range of biotic and abiotic factors. All these factors will affect fishing success and whether fishing can be commercially profitable.

Even though both long line and pot fishery have been shown to be cost effective in other areas, the fishing procedures cannot be directly implemented in the Baltic due to the differences between these areas. Therefore, trials optimizing and developing the pot and line fishery for Baltic conditions need to be undertaken before these gear types can be approved as a realistic alternative to gillnets.

4.2.7. Recommendation 11: Compile Data on Fishing Effort

While any reduction in fishing effort of set nets within the areas utilised by porpoises would be expected to provide some benefit in terms of reduced bycatch, it is preferable that effort reductions (and other forms of bycatch mitigation) be implemented in probable “high risk” areas. **Identification of such areas depends at least partly on the amount of effort placed in a given area** and the bycatch of harbour porpoises in this area. An initial assessment should be made immediately to determine sources of relevant data and identify individuals or the national focal points in the Range States whose cooperation is needed and who can deliver the relevant data. When relevant fishing effort data has been collected a working group should be established to evaluate the available data and thereafter compile data on fishing effort.

4.2.8. Recommendation 12: Examine habitat preference of harbour porpoises

Little is currently known of the habitat preferences of harbour porpoises. Presumably, it is linked to distribution of prey, however the spatial links between porpoises and their prey have not been analysed due to lack of data. It is proposed to make a spatial model on preferred habitats in waters adjacent to the Baltic Sea. By linking physical and biological variables to the presence of satellite tracked porpoises and/or survey data in e.g. the Belt Sea and the western Baltic and consequently extending this model into the Baltic Sea it will be possible to predict where the suitable habitats for porpoises in the Baltic proper would be. The presence of porpoises in these areas could be verified by static acoustic monitoring throughout the year. Furthermore the areas could be compared with fishing effort in the Baltic and thereby identify high risk areas.

4.2.9. Recommendation 13: Investigate the prevalence of derelict (“ghost”) gear and the feasibility of its removal

“Ghost nets” form a component of effective fishing effort in the Baltic. Therefore clearance of “ghost nets” would represent a reduction in fishing effort (and hence potential harbour porpoise bycatch) without affecting fishing yield, and should be seriously considered.

4.3. Marine Protected Areas

Available data on porpoise distribution and habitat use within the Baltic are currently inadequate for identifying specific areas that should be designated for special protection. Furthermore, results of satellite tagging of harbour porpoises (see Read and Westgate 1997; Larsen et al. 2000; Teilmann et al. 2008) suggest that animals (in particular juveniles and males) are highly mobile, with important implications for protected area scale and design. Existing and proposed protected areas in the Baltic, established under the Habitats Directive of the European Union or as part of the HELCOM Baltic Sea Protected Area network, are generally considered either too small or inappropriately designed to provide significant benefits to harbour porpoises. Moreover, especially in low-density areas, MPAs do not have the potential for significant conservation benefits.

Despite these shortcomings, **authorities should be encouraged to expand the network and improve its connectivity, while ensuring the development and implementation of appropriate management plans within protected areas to improve the status of harbour porpoises and/or their critical resources (e.g. prey stocks).** However, such limited measures should not be allowed to serve as substitutes for the other broader-scale conservation initiatives recommended elsewhere in this recovery plan.

Besides the management of marine resources in protected areas, they can also be effective tools for awareness raising among the public. **Management plans for MPAs should therefore include information and education work to engage the wider public in protection of harbour porpoises.**

4.3.1. Recommendation 14: Expand the network of protected areas in the Baltic Sea and improve its connectivity and ensure the development of appropriate harbour porpoise management plans for these areas.

4.4. Public Awareness

Public awareness is an essential part in supporting a recovery plan. People need to be aware that harbour porpoises are an integral part of the fauna of their local waters and are worth saving. Whereas other elements of the plan depend largely on the decision-making processes of national or international governmental agencies and international and supra-national regulatory bodies, public awareness is an area in which ASCOBANS has an autonomous role to play. Parties to ASCOBANS have ongoing responsibilities and commitments to disseminate reliable information about Baltic harbour porpoises, to support the favourable conservation status of the species and to actively promote its protection and recovery.

Baltic fishermen are among those people most likely to interact most directly and most frequently with harbour porpoises. Baltic fishermen need to be viewed as a key target group. At the same time, it is also important to approach members of the general public. They are consumers of fishery products and the ultimate arbiters of public policy. Public awareness work has to be objective, attendant to and respectful towards cultural and linguistic differences, and candid about scientific uncertainty.

4.4.1. Recommendation 15: Develop a comprehensive public awareness campaign, based on the elements outlined below:²

- 1) While acknowledging national programmes in raising public awareness, ASCOBANS should **develop and promote a regional approach to Baltic harbour porpoise conservation.**
- 2) Explicit efforts should be made to **enlist the help of the general public and people related to the sea in obtaining reports of porpoise observations** throughout the Baltic. This can be expected to improve understanding of porpoise distribution and relative abundance, while at the same time enhancing public support for recovery efforts. However, it is important that opportunistic reports by untrained observers be interpreted cautiously, and that the need for documentary evidence (e.g. photographs, tissue samples in the case of strandings) be stressed when soliciting such reports.
- 3) The ASCOBANS Secretariat should **establish direct communications links with Baltic fishermen and seek their assistance** in determining how to reach fishing communities more effectively, e.g. via newsletters, tabloids, displays at fishing exhibitions, etc.
- 4) The Baltic Range States should **establish national focal points**, with responsibility for coordinating public awareness efforts. These focal points would be responsible for establishing and maintaining working relationships with fishing communities and other target groups.
- 5) Parties are requested to provide assistance to maintain an **interactive Baltic harbour**

² Compare also Appendix 3 of AC 9 Doc 7 (S)

porpoise website for the storage of GIS-based porpoise observation data. This web page should incorporate other existing possibilities to report sightings of harbour porpoises. The page should be designed for use throughout the Baltic region.³ This website may provide further opportunities for collaboration with relevant bodies such as HELCOM.

4.5. ASCOBANS Cooperation with Other Bodies

Although ASCOBANS is the only international body with an explicit mandate to improve the conservation status of harbour porpoises in the Baltic Sea, several other regional and international bodies also have important roles to play, particularly with regard to improving the quality of the Baltic marine environment and regulating Baltic fisheries **There is a need for close consultation and cooperation between ASCOBANS and these other bodies.**

The most relevant other body is HELCOM, which deals with environmental protection of the marine area of the Baltic Sea. HELCOM has a strong interest in porpoise recovery. In 1996 HELCOM adopted the Recommendation on protection of harbour porpoises in the Baltic Sea (Recommendation 17/2). The recommendation specifically promotes bycatch reduction, relevant research and consideration of porpoise habitat requirements in the design and management of marine protected areas. HELCOM Baltic Sea Action Plan adopted by a Ministerial Meeting in Kraków, Poland in November 2007 aims to ensure viable populations of the species e.g. by developing cooperation with ASCOBANS on a coordinated reporting system and database on Baltic harbour porpoise sightings, bycatches and strandings and developing and implementing effective monitoring and reporting systems for bycaught mammals. The Action Plan urges competent fisheries authorities in co-operation with the Baltic RAC and HELCOM to urgently adopt measures to minimise bycatch of non-target species by 2012 and to evaluate the effectiveness of existing technical measures by 2008 to minimise bycatch of harbour porpoises and to introduce adequate new technologies and measures. Within HELCOM the HELCOM SEAL expert group and the HABITAT group are the relevant bodies dealing with harbour porpoises.

The European Union adopts its fishery legislation within the framework of the Common Fisheries Policy. The Baltic Sea Regional Advisory Committee (RAC) provides advice on the management of Baltic Sea fisheries⁴. It is expected that a review of the Common Fisheries Policy will deal with issues related to interactions between fisheries and ecosystems. The European Commission has, in recent years, indicated to Member States its intention to deal with the problem of cetacean bycatch. Individual states in the region may also adopt national regulatory measures that only apply to their national fishing fleets.

The EU Council Directive 92/43/EEC (Habitats & Species Directive) lists the harbour porpoise in Annexes II and IV, the former identifying species whose conservation requires the designation of special conservation areas (subject to certain conditions being met), and the latter identifying species in need of strict protection. Article 12.4 of this directive requires EU Member States to “establish a system to monitor the incidental capture and killing of ... species listed in Annex IV...” and in light of the information obtained, to “take further research and conservation measures as required to ensure that incidental capture and killing does not have a significant negative effect on the species concerned.”

The International Council for the Exploration of the Sea (ICES) provides scientific advice relevant to the management of fish stocks and other species, including marine mammals.

³ Existing examples are www.balticseaporpoise.org; www.gsm-ev.de; www.habitatmare.de

⁴ The creation of Regional Advisory Councils (RACs) was one of the pillars of the reform of the Common Fisheries Policy (2002), as a response to calls from stakeholders in the fisheries sector who wanted to be more involved in the way fisheries are managed in the EU. The Baltic Sea RAC was set up in March 2006.

The Scientific Committee of the International Whaling Commission (IWC) has provided an important forum for assessing the status of small cetaceans, including harbour porpoises.

4.5.1. Recommendation 16: Strive for close consultation and cooperation between ASCOBANS and other relevant regional and international bodies.

In this context, the revised Jastarnia Plan should be sent to the EU Commission, HELCOM and other relevant bodies with an appropriate cover letter informing them of the revision of the Plan and outlining what is expected of them.

5. Implementation and Re-evaluation of the Recovery Plan

This revised recovery plan is adopted without prejudice to the exclusive competence of the European Community for the conservation, management and exploitation of living aquatic resources. Upon adoption, the revised Plan will supersede the original Jastarnia Plan of 2002. It is important that the revised plan and the recommendations outlined within it be implemented without delay, and that ASCOBANS undertake a formal re-evaluation and revision of the plan at least every five years. **The next review should occur three years after the adoption of the revised plan.** It is also suggested that Baltic Range States (ASCOBANS members and non-members alike) be asked to supply ASCOBANS with updated information, on an annual basis, concerning progress in implementation.

The actual implementation of this plan falls within the remit of the Parties. The Jastarnia Group should continue its work and act as a Steering Group for the Jastarnia Process, evaluating progress in the implementation of the Plan, establishing further implementation priorities and making appropriate recommendations, and carrying out the periodic reviews of the Plan. The full terms of Reference of the Jastarnia Group are included in Appendix 5.

6. References

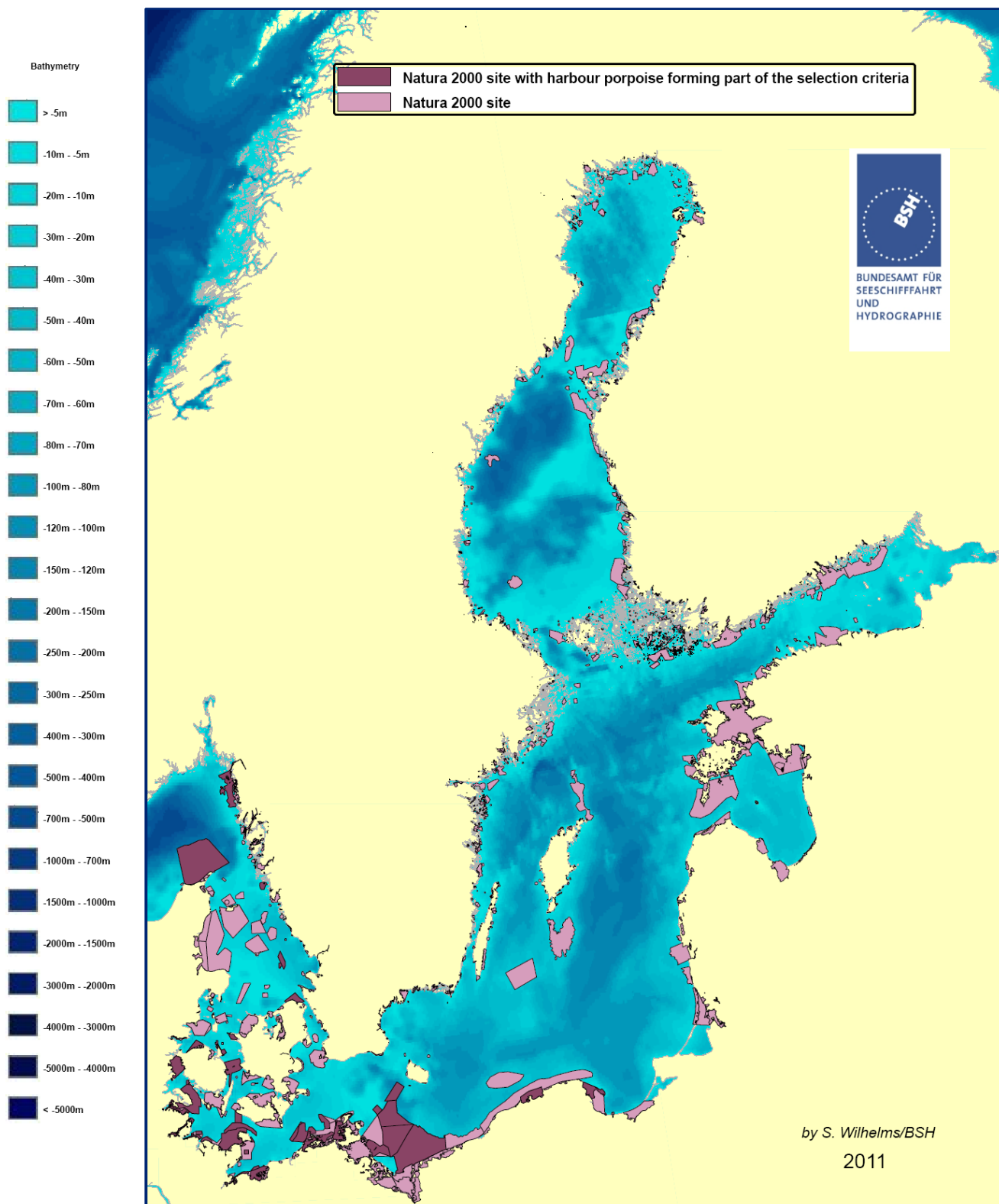
- Aarefjord, H., A. Bjørge, C.C. Kinze and I. Lindsted. 1995. Diet of the harbour porpoise (*Phocoena phocoena*) in Scandinavian waters. *Report of the International Whaling Commission* (Special Issue) 16: 211-222.
- Amundin, M., Desportes, G., Goodson, A. D. 2002. Only squawking at factual porpoises: is that possible? Poster presented at the annual ECS conference in Liège, Belgium.
- Amundin, M., Wennerberg, D., Berglind, M., Hagberg, J, Konigson, S. and Lunneryd, S.-G. (2008): Undersökning av tumlarnärvaro i Skånes och Blekinges farvatten med hjälp av passiva akustiska tumlardetektorer och i samarbete med lokala yrkesfiskare (Study of the presence of harbour porpoises in southern Swedish coastal waters, as detected by passive acoustic loggers and in cooperation with local fishermen). Report to the Swedish Board of Fisheries.
- Andersen, L. W., D. E. Ruzzante, M. Walton, P. Berggren, A. Bjørge, and C. Lockyer. 2001. Conservation genetics of harbour porpoises, *Phocoena phocoena*, in eastern and central North Atlantic. *Conservation Genetics* 2:309-324.
- ASCOBANS Baltic Discussion Group (ABDG). 2001. Report of the ASCOBANS Baltic Discussion Group (ABDG). Available from ASCOBANS Secretariat, Bonn. 17 pp. typescript.
- Berggren, P., and F. Arrhenius. 1995. Sightings of harbour porpoises (*Phocoena phocoena*) in Swedish waters before 1990. *Report of the International Whaling Commission* (Special Issue 16): 99-107.
- Berggren, P., P.R. Wade, J. Carlström, and A.J. Read. 2002. Potential limits to anthropogenic mortality for harbour porpoises in the Baltic region. *Biological Conservation* 103:313-322.
- Berggren, P. 1994. Bycatches of the harbour porpoise (*Phocoena phocoena*) in the Swedish Skagerrak, Kattegat and Baltic seas; 1973-1993. *Report of the International Whaling Commission* (Special Issue 15): 211-215.
- Börjesson, P., and P. Berggren 1997. Morphometric comparisons of skulls of harbour porpoises (*Phocoena phocoena*) from the Baltic, Kattegat, and Skagerrak seas. *Canadian Journal of Zoology* 75:280-287.
- Carwadine M. 1995. Whales, Dolphins and Porpoises. Dorling Kindersley, London, UK. 257 pp.
- Christensen, O. 1991. Bycatches in the salmon drift net fishery in the Baltic Sea. *International Council for the Exploration of the Sea, Anadromous and Catadromous Fish Committee, C.M.* 1991/M: 26, Ref. J+N. 9 pp. typescript.
- Cox T.M, Read A.J., Solow A. and N. Tregenza. 2001. Will harbour porpoises (*Phocoena phocoena*) habituate to pingers? *Journal of Cetacean Research and Management* 3(1): 81-86.
- Culik B.M. Illustrations by M. Wurtz. 2004. Review of Small Cetaceans, Distribution, Behaviour, Migration and Threats. *Marine Mammal Action Plan/Regional Seas Reports and Studies no. 177*. CMS Secretariat, Bonn, Germany. 343 pp.
- Donovan, G. P. and A. Bjørge. 1995. Harbour porpoises in the North Atlantic: edited extract from the report of the IWC Scientific Committee, Dublin 1995. *Report of the International Whaling Commission* (Special Issue 16): 3-25.
- European Commission, 2007, Guidelines for the establishment of the Natura 2000 network in the marine environment. Application of the Habitats and Birds Directives.
- Final report of EPIC, Elimination of Harbour Porpoise Incidental Catches. EU Project DG XIV 97/0006, 249pp.

- Gillespie D., Berggren P., Brown S., Kuklik I., Lacey C., Lewis T., Matthews J., McLanaghan R., Moscrop A. and N. Tregenza. 2005. Relative abundance of harbour porpoises (*Phocoena phocoena*) from acoustic and visual surveys of the Baltic Sea and adjacent waters during 2001 and 2002. *Journal of Cetacean Research and Management* 7(1):51-57.
- Heide-Jørgensen, M. P., A. Mosbach, J., Teilmann, H. Benke, and W. Schulz, 1992. Harbour porpoise (*Phocoena phocoena*) densities obtained during aerial surveys north of Fyn and in the Bay of Kiel. *Ophelia* 31: 133 -146.
- Heide-Jørgensen, M.-P., J. Teilmann, H., Benke, and J., Wulf, 1993: Abundance and distribution of harbour porpoise *Phocoena phocoena* in selected areas of the western Baltic and the North Sea. *Helgol. Meeresunters.* 47: 335 -346.
- HELCOM. 2005. Guidelines for HELCOM Recommendation 15/5: Guidelines for Management of Baltic Sea Protected Areas (BSPAs).
- Hiby, L. and P. Lovell. 1996. Baltic/North Sea aerial surveys - final report. 11 pp.
- Huggenberger, S., H. Benke, and C.C. Kinze, (2000). Geographical variations of the harbour porpoise (*Phocoena phocoena* L.) populations in the North and Baltic Seas using morphometric comparisons. *European Research on Cetaceans* 13: 262 - 266.
- ICES. 2007. Report of the Working Group on Marine Mammal Ecology (WGMME), 27–30 March 2007, Vilm, Germany. *ICES CM 2007/ACE:03*. 61 pp.
- IUCN. 1996. *1996 Red List of Threatened Animals*. IUCN, Gland, Switzerland.
- IWC. 1996. Annex H. Report of the Sub-committee on Small Cetaceans. *Report of the International Whaling Commission* 46: 160-179.
- IWC. 1997. Report of the Scientific Committee. *Report of the International Whaling Commission* 47: 57-258.
- IWC. 1998. Report of the Scientific Committee. *Report of the International Whaling Commission* 48: 53-302.
- IWC. 2000a. Report of the Sub-committee on Small Cetaceans. *Journal of Cetacean Research and Management* (Supplement) 2: 235-263.
- IWC. 2000b. Report of the IWC-ASCOBANS Working Group on Harbour Porpoises. *Journal of Cetacean Research and Management* (Supplement) 2: 297-305.
- Kastelein, R.A., Jennings Verboom, N., De Haan, D. Van der Heul, S., The influence of 70 and 120 kHz tonal signals on the behavior of harbor porpoises, *Marine Environmental Research* 66 (2008), 319 -326.
- Kinze, C. C. 1995. Exploitation of harbour porpoises (*Phocoena phocoena*) in Danish waters: a historical review. *Report of the International Whaling Commission* (Special Issue 16): 141-153.
- Kock, K.-H., and H. Benke. 1996. On the bycatch of harbour porpoise (*Phocoena phocoena*) in German fisheries in the Baltic and the North Sea. *Archive of Fishery and Marine Research* 44(1/2): 95-114.
- Koschinski S., Culik B.M., Trippel E.A. & Ginzkey L., 2006. Behavioral reactions of free-ranging harbour porpoises *Phocoena phocoena* encountering standard nylon and BaSO₄ mesh gillnets and warning sound. *MEPS Vol. 313*, 285 – 294.
- Larsen, F., Eigaard, O. R. & Tougaard, J., 2007: Reduction of harbour porpoise (*Phocoena phocoena*) bycatch by iron-oxide gillnets. *Fisheries Research* Vol. 85, pp. 270-278.
- Larsen, F. and J.R. Hansen, 2000. On the potential effects of widespread use of pingers in the North Sea. Paper presented to the Scientific Committee of the International Whaling Commission, Adelaide, June 2000, SC/52/SM 28. 12pp.

- Larsen, F., Eigaard, O.R. & Tougaard, J. 2002. Reduction of harbour porpoise bycatch in the North Sea by high-density gillnets. *Paper SC/54/SM30, IWC Scientific Committee*. 13 pp.
- Larsen, F., J. Teilmann and G. Desportes. 2000. Satellite tracking of harbour porpoises (*Phocoena phocoena*) in Danish waters. Pp. 61-85 in J. Teilmann, ed. "The Behaviour and Sensory Abilities of Harbour Porpoises (*Phocoena phocoena*) in Relation to Bycatch in Gillnet Fishery". Ph.D. thesis, Center for Sound Communication, Institute of Biology, University of Southern Denmark, Odense.
- Leeney R.H. and N.J.C. Tregenza. 2006. Proceedings of the workshop - Static Acoustic Monitoring of Cetaceans. *ECS Newsletter No. 46 - Special Issue*.
- Lindroth, A. 1962. Baltic salmon fluctuations 2: porpoise and salmon. *Report of the Institute for Freshwater Research Drottningholm* 44: 105-112.
- Lockyer, C., M. Amundin, -G. Desportes and A.D. Goodson. 2001. The tail of EPIC.
- MacKenzie, B.R., J. Alheit, D.J. Conley, P. Holm and C.C. Kinze, 2002. Ecological hypotheses for a historical reconstruction of upper trophic level biomass in the Baltic Sea and Skagerrak. *Canadian Journal of Fisheries and Aquatic Sciences*.
- Palmé, A., Laikre, L., Utter, F., Ryman, N. Conservation genetics without knowing what to conserve - the case of the Baltic harbour porpoise. *Oryx*, No. 42, pp. 305-308.
- Poulsen, L. R. 2004. *The efficiency of an interactive pinger (activated by biosonar) in displacing wild harbour porpoises, Phocoena phocoena*. Master thesis at the University of Aarhus, Denmark. 43 pp.
- Read, A.J. 2000. -Potential mitigation measures for reducing the bycatches of small cetaceans in ASCOBANS waters. Report to ASCOBANS, December 2000. 34 pp. + appendices.
- Read, A.J. and A.J. Westgate. 1997. Monitoring the movements of harbour porpoises (*Phocoena phocoena*) with satellite telemetry. *Marine Biology* 130:315-322.
- Skóra, K. E. 1991. Notes on cetacea observed in the Polish Baltic Sea: 1979-1990. *Aquatic Mammals* 17: 67-70.
- Skóra, K. E., I. Pawliczka, and M. Klinowska. 1988. Observations of the harbour porpoise (*Phocoena phocoena*) on the Polish Baltic coast. *Aquatic Mammals* 14(3): 113-119.
- Taylor, B.L., and T. Gerrodette. 1993. The uses of statistical power in conservation biology: the vaquita and northern spotted owl. *Conservation Biology* 7:489-500.
- Teilmann et al. 2008. Will be published in February 2009.
- Teilmann, J., and N. Lowry. 1996. Status of the harbour porpoise (*Phocoena phocoena*) in Danish waters. *Report of the International Whaling Commission* 46: 619-625.
- Tiedemann, R., J. Harder, C., Gmeiner, and E. Haase. 1996. Mitochondrial DNA sequence patterns of harbour porpoises (*Phocoena phocoena*) from the North and the Baltic Sea. *Zeitschrift für Säugetierkunde* 61: 104-111.
- Verfuß U.K., Honnef C.G., Meding A., Dähne M., Mundry R. and H. Benke. 2007. Geographical and seasonal variation of harbour porpoise (*Phocoena phocoena*) presence in the German Baltic Sea revealed by passive acoustic monitoring. *Journal of the Marine Biological Association of the United Kingdom*, 87, 165 -176.
- Wang, J. Y., and P. Berggren. 1997. Mitochondrial DNA analysis of harbour porpoises (*Phocoena phocoena*) in the Baltic Sea, the Kattegat-Skagerrak Seas and off the west coast of Norway. *Marine Biology* 127: 531-537.

Appendix 1: Map of the Baltic Sea Area

Natura 2000 Sites for the Harbour Porpoise in the Baltic Sea Area



Source: European Environmental Agency, March 2010

Appendix 2a: Outline Example for Fishing Effort Data to be collected by each ASCOBANS Party

Description of fishing gear	Gillnet meshsize	ICES Fishing Area 24, ICES rectangle 3958							ICES Fishing Area 24, ICES rectangle 3959							ICES Fishing Area 24, ICES rectangle 3960							→ etc.
		Net km.hour/ number of fishing vessels							Net km.hour							Net km.hour → etc for relevant ICES rectangles							
		Jan	Feb	Mar	Apr	May	→ etc.	Jan	Feb	Mar	Apr	May	→ etc.	Jan	Feb	Mar	Apr	May	→ etc.				
(Salmon) driftnets/ gillnets > 10m boats																							
(Salmon) driftnets/gillnets < 10m boats																							
(Cod) Bottom-set gillnets > 10m boats/ 8m boats																							
(Cod) Bottom-set gillnets < 10m boats/ 8m boats																							
(Flatfish)Bottom-set gillnets																							
Etc. →																							

Appendix 2b: Outline Example for Fishing Effort Data

Year (provide separately for most recent 3 available)	ICES Fishing Area 24						ICES Fishing Area 25						ICES Fishing Area 26						→etc.
	Net km.hour						Net km.hour						Net km.hour						
	Jan	Feb	Mar	Apr	May	→etc.	Jan	Feb	Mar	Apr	May	→etc.	Jan	Feb	Mar	Apr	May	→etc.	
(Salmon) driftnets > 10m boats																			
Denmark																			
Estonia																			
Finland																			
Germany																			
Latvia																			
Lithuania																			
Poland																			
Russian Federation																			
Sweden																			
(Salmon) driftnets < 10m boats																			
Denmark																			
Estonia																			
Finland																			
Germany																			
Latvia																			
Lithuania																			
Poland																			
Russian Federation																			

Sweden																			
(Cod) Bottom-set Gillnets > 10m boats																			
Denmark																			
Estonia																			
Finland																			
Germany																			
Latvia																			
Lithuania																			
Poland																			
Russian Federation																			
Sweden																			
etc.																			

Appendix 3: Draft Terms of Reference for the Steering Group for the ASCOBANS Recovery Plan for Baltic Harbour Porpoises (“Jastarnia Group”)

1. Introduction

The need for a Baltic harbour porpoise recovery plan was recognised for a considerable time not only by ASCOBANS, but also by other international bodies. In 2002, a recovery plan was elaborated under the auspices of ASCOBANS in a collaborative effort involving scientists, managers and stakeholders. This recovery plan is the culmination of a series of scientific initiatives and meetings. The Recovery Plan, now known as the Jastarnia Plan, was welcomed by the 4th Meeting of the parties to ASCOBANS in Esbjerg, Denmark, in 2003. It calls for periodic reviews of the plan. The present revised plan is the result of the first such review.

Since 2005, annual meetings of the so-called Jastarnia Group have been held. This expert working group, composed of representatives from the environment and fisheries sectors of the countries surrounding the Baltic Sea, discusses progress made and further implementation priorities for the Jastarnia Plan and makes recommendations to the ASCOBANS Advisory Committee.

In the process of reviewing the Jastarnia Plan, it was agreed that the Jastarnia Group should continue its work and act as a Steering Group for the Jastarnia Process, in accordance with the Terms of Reference below.

2. Terms of Reference

The Jastarnia Group is a working group of the ASCOBANS Advisory Committee within the meaning of Article 5.4 of the ASCOBANS Agreement. It is the Steering Group for the ASCOBANS Recovery Plan for Baltic Harbour Porpoises.

a) Tasks

The Jastarnia Group has the following tasks:

- Evaluate progress in the implementation of the Plan,
- Establish further implementation priorities;
- Promote the implementation of the Recovery Plan;
- Carry out the periodic reviews of the Plan.

b) Composition

The Group consists of representatives of all states bordering the Baltic Sea (“Baltic Sea States”), irrespective of their status as ASCOBANS Parties or Non-Party Range States, as well as Baltic Sea environmental non-governmental organisations and Baltic Sea fisheries organisations (hereinafter referred to as “Jastarnia Group Members”). Each Baltic Sea State shall be entitled to appoint two Jastarnia Group Members, one of whom shall represent the environmental sector, the other the fisheries sector and such Advisers as the Party may deem necessary. Baltic Sea environmental non-governmental organisations and Baltic Sea fisheries organisations shall be entitled to appoint one Jastarnia Group Member and such Advisers as they may deem necessary. The Jastarnia Group may, as appropriate, invite representatives of any other body or any individual qualified in cetacean conservation and management to participate in a meeting in the capacity of “Invited Experts”.

c) Meetings

The Jastarnia Group meets at least once annually.

d) Rules of Procedure

Pursuant to Rule 19 of the Rules of Procedure of the ASCOBANS Advisory Committee, those Rules shall apply *mutatis mutandis* to the proceedings of the Jastarnia Group insofar as they are applicable.

Appendix 4: Recommendation Summary Sheets

RECOMMENDATION 1: Reduce fishing effort in certain fisheries

Cf. p. 16 above

OVERALL OBJECTIVE

Bycatch mitigation

SPECIFIC OBJECTIVES

Reduction or elimination of fishing effort involving gear known to cause high porpoise bycatch rates

RATIONALE

Reduction or elimination of fishing effort involving gear causing high porpoise bycatch rates is the most effective way to reduce bycatch. Relevant EC legislation does not cover all vessel types, types of fisheries and gear types concerned.

ACTION REQUIRED

- Provision of incentives to fishermen to reduce fishing effort
- Possibly: national legislation
- Possibly: EU legislation

ACTORS

Responsible for coordination: Baltic Parties/Range States

Stakeholders: legislators, competent ministries, fisheries authorities, fishermen, EU

TIMELINE

Implementation to begin immediately

EVALUATION OF IMPLEMENTATION

- Jastarnia Group
- Advisory Committee

PRIORITY

High

RECOMMENDATION 2: Involve stakeholders in the work of reducing bycatch of harbour porpoises

Cf. p. 17 above

OVERALL OBJECTIVE

Bycatch mitigation

SPECIFIC OBJECTIVES

- Enhancement of cooperation between various stakeholders (governments, fishermen, environmental organisations)
- Increased involvement of fishermen throughout the process of bycatch mitigation (from planning to implementation)

RATIONALE

Only the involvement of all stakeholders ensures that solutions found are practicable, equitable and meet with the acceptance from fishermen. Acceptance by fishermen is needed to ensure consistent and efficient implementation of mitigation measures.

ACTION REQUIRED

- Establishment of a working group consisting of government representatives, environmental organisations and fishermen to develop guidelines and methods for reducing and monitoring bycatch in the relevant fisheries
- Facilitation of environmental certification of fisheries

ACTORS

Responsible for coordination: Baltic Parties/Range States, ASCOBANS Secretariat

Stakeholders: competent ministries, fisheries authorities, environmental organisations, fishermen

TIMELINE

Implementation to begin immediately

EVALUATION OF IMPLEMENTATION

- Jastarnia Group
- Advisory Committee

PRIORITY

High

RECOMMENDATION 3: Replace fishing methods known to be associated with high porpoise bycatch (i.e. set nets) and introduce alternative gear that is considered less harmful

Cf. p. 17 above

OVERALL OBJECTIVE

Bycatch mitigation

SPECIFIC OBJECTIVES

Changeover to gear that is less harmful to porpoises

RATIONALE

The changeover to less harmful gear enables bycatch reduction while maintaining viable fisheries

ACTION REQUIRED

- Work to demonstrate cost effectiveness and environmental sustainability of alternative gear
- Development of alternative gear
- Involvement of competent fisheries authorities to ensure consistency of action
- Introduction of gear in Baltic cod fishery

ACTORS

Responsible for coordination: Baltic Parties/Range States

Stakeholders: competent ministries, fisheries authorities, fishermen, scientists

TIMELINE

Implementation to begin immediately once cost effectiveness and ecological sustainability have been demonstrated

RECOMMENDATION EVALUATION

- Jastarnia Group
- Advisory Committee

PRIORITY

High

RECOMMENDATION 4: Implement a pinger programme on a short-term basis

Cf. p. 18 above

OVERALL OBJECTIVE

Bycatch mitigation

SPECIFIC OBJECTIVES

Mandatory pinger use in probable high-risk areas and fisheries associated with bycatch of harbour porpoises on a short-term basis (no more than 3 years) irrespective of vessel size

RATIONALE

The rapid introduction of pingers, which have been effective in reducing porpoise bycatch in set net fisheries outside the Baltic and whose use is already mandatory under EU legislation for bottom-set gillnets, entangling nets or drift nets deployed by vessels > 12m in length can lead to a reduction in bycatch in the next few years whereas there will likely be a lag of some years in implementing reductions in fishing effort and a changeover to lower-risk gear. In light of the problems associated with pingers, it is, however, essential that they be used on a short-term basis and that management authorities and fishing industry simultaneously engage in multiple approaches to bycatch reduction and move ahead with longer-term strategies.

ACTION REQUIRED

- Introduction of mandatory use of pingers on set-netting vessels of all sizes in high-risk areas
- Instruction of fishermen in proper use of pingers
- Implementation of accompanying measures to verify that pingers are used properly at sea;
- Implementation of independent observer schemes
- Simultaneous rapid development of medium and long-term approaches to mitigation
- Re-evaluation of pinger use after three years

ACTORS

Responsible for coordination: Baltic Parties/Range States

Stakeholders: legislators, competent ministries, fisheries authorities, scientists, fishermen

TIMELINE

Duration: 3 years. Implementation to begin immediately

EVALUATION OF IMPLEMENTATION

- Jastarnia Group
- Advisory Committee

PRIORITY

High

RECOMMENDATION 5: Analyse stock affinities of harbour porpoises in the “transition zone” of the south-western Baltic

Cf. p. 20 above

OVERALL OBJECTIVE

Reduction of scientific uncertainty surrounding harbour porpoise conservation in the Baltic

SPECIFIC OBJECTIVES

Clarification, by means of genetic evidence, of stock relations between porpoises in the Danish straits, Kiel and Mecklenburg Bights on the one hand, and the Baltic proper on the other

RATIONALE

A clear definition of population(s) is essential to determining their conservation status and developing necessary management measures

ACTION REQUIRED

- Integrated analysis of available genetic and morphological evidence, taking account of new acoustic, tracking, and genetic data
- Broad initiative to obtain and analyse additional tissue samples from the Baltic proper
- Enhancement of efforts to locate stranded and bycaught animals and to obtain samples from these individuals

ACTORS

Responsible for coordination: Baltic Parties/Range States, ASCOBANS Secretariat

Stakeholders: scientists

TIMELINE

Ongoing, to be continued

EVALUATION OF IMPLEMENTATION

- Jastarnia Group
- Advisory Committee

PRIORITY

High

RECOMMENDATION 6: Develop and apply new techniques (e.g. acoustic monitoring) for assessing trends in abundance

Cf. p. 20 above

OVERALL OBJECTIVE

Reduction of scientific uncertainty surrounding harbour porpoise conservation in the Baltic

SPECIFIC OBJECTIVES

Development of new approaches for assessing trends in abundance such as passive/static acoustic monitoring methods in order to obtain better estimates of and detect possible trends in harbour porpoise abundance

RATIONALE

Due to low density of harbour porpoises in the Central Baltic, standard line transect sampling methods are unlikely to provide adequate statistical power to detect trends. This information is, however, relevant to developing appropriate management measures.

ACTION REQUIRED

None specified

ACTORS

Responsible for coordination: Baltic Parties/Range States

Stakeholders: scientists

TIMELINE

Ongoing, to be continued

EVALUATION OF IMPLEMENTATION

- Jastarnia Group
- Advisory Committee

PRIORITY

Medium

RECOMMENDATION 7: Develop interactive pingers or pingers using frequencies not audible to seals

Cf. p. 21 above

OVERALL OBJECTIVE

Reduction of acoustic pollution caused by pingers, avoidance of possible habitat exclusion and habituation with respect to porpoises and facilitation of pinger use in areas where there is a seal-fisheries conflict.

SPECIFIC OBJECTIVES

Development and marketing of functional interactive pingers

RATIONALE

“Traditional” pingers, which continuously emit signals, contribute to marine acoustic pollution. Moreover, they may displace porpoises from important habitat and have a “dinner bell effect” on seals. These shortcomings can be alleviated or avoided by using interactive pingers.

ACTION REQUIRED

Further investigation of efficiency and habituation or habitat exclusion effects of interactive pingers

ACTORS

Responsible for coordination: Baltic Parties/Range States

Stakeholders: scientists, pinger industry

TIMELINE

Ongoing, to be continued

EVALUATION OF IMPLEMENTATION

- Jastarnia Group
- Advisory Committee

PRIORITY

High

RECOMMENDATION 8: Investigate possible detrimental effects of various types of sound and disturbance (including pinger signals, noise from vessels, wind parks, gravel extraction or constructions and seabed exploration for oil and gas) on harbour porpoises

Cf. p. 21 above

OVERALL OBJECTIVE

Mitigating acoustic pollution

SPECIFIC OBJECTIVES

Obtaining high quality data on the acoustic capabilities of harbour porpoises and the effects of various types of anthropogenic sounds on this species

RATIONALE

Information on the potential and actual effects of underwater noise on harbour porpoises is still insufficient, but important to developing appropriate mitigation measures

ACTION REQUIRED

None specified for the Baltic Sea region

ACTORS

Responsible for coordination: ASCOBANS Parties, ASCOBANS Secretariat

Stakeholders: scientists, relevant industries

TIMELINE

Ongoing, to be continued

EVALUATION OF IMPLEMENTATION

- Jastarnia Group
- Advisory Committee

PRIORITY

Medium

RECOMMENDATION 9: Monitor bycatch of fisheries known to be harmful to harbour porpoises to be able to estimate bycatch levels

Cf. p. 21 above

OVERALL OBJECTIVE

Bycatch mitigation

SPECIFIC OBJECTIVES

Obtaining reliable estimates of bycatch levels in key areas and fisheries

RATIONALE

This information is essential to developing and implementing effective mitigation measures and to assessing the effectiveness of mitigation measures already being undertaken

ACTION REQUIRED

None specified

ACTORS

Responsible for coordination: Baltic Parties/Range States

Stakeholders: competent ministries, fisheries authorities, international fishery bodies, fishermen, scientists

TIMELINE

Implementation (insofar as not ongoing) to begin immediately

EVALUATION OF IMPLEMENTATION

- Jastarnia Group
- Advisory Committee

PRIORITY

High

RECOMMENDATION 10: Further develop sustainable alternative fishing gear with no bycatch of harbour porpoises

Cf. p. 21 above

OVERALL OBJECTIVE

Bycatch mitigation

SPECIFIC OBJECTIVES

Development of long lines and pots optimised for Baltic conditions

RATIONALE

Long lines and pots can serve as possible alternatives to gillnets in the Baltic. Their setup and rigging can vary greatly and a number of factors determine the commercial viability of their use. Prior to their successful use in the Baltic, these gear types must therefore be adapted to the specific conditions in the region.

ACTION REQUIRED

Trials to optimise the pot and line fishery for Baltic conditions and subsequent development of appropriate gear

ACTORS

Responsible for coordination: Baltic Parties/Range States

Stakeholders: competent ministries, fisheries authorities, fishermen, fishing gear industry

TIMELINE

Implementation to begin immediately insofar as not ongoing

EVALUATION OF IMPLEMENTATION

- Jastarnia Group
- Advisory Committee

PRIORITY

High

RECOMMENDATION 11: Compile data on fishing effort

Cf. p. 22 above

OVERALL OBJECTIVE

Bycatch mitigation

SPECIFIC OBJECTIVES

Identification of high-risk areas for harbour porpoise bycatch in order to target effort reduction to such areas

RATIONALE

Effort reductions are likely to provide the greatest benefit in terms of bycatch reduction if they are implemented in high risk areas

ACTION REQUIRED

- Initial assessment to determine sources of relevant data and identify individuals or national focal points whose cooperation is needed and who can deliver the relevant data
- Establishment of a working group to evaluate available data and thereafter compile data on fishing effort

ACTORS

Responsible for coordination: ASCOBANS Secretariat, Jastarnia Group

Stakeholders: Jastarnia Group, scientists, fisheries authorities

TIMELINE

Implementation to begin immediately

EVALUATION OF IMPLEMENTATION

- Jastarnia Group
- Advisory Committee

PRIORITY

Medium

RECOMMENDATION 12: Examine habitat preference of harbour porpoises

Cf. p. 22 above

OVERALL OBJECTIVE

Reduction of scientific uncertainty surrounding harbour porpoise conservation in the Baltic

SPECIFIC OBJECTIVES

Prediction of suitable habitats for harbour porpoises in the Baltic proper and verification of findings by acoustic monitoring

RATIONALE

Knowledge about habitat preference of harbour porpoises is currently scarce due to lack of data. Among other things, this knowledge is highly relevant as it could contribute to identifying high risk areas.

ACTION REQUIRED

- Development of a spatial model of preferred habitats in waters adjacent to the Baltic Sea and extend this model into the Baltic Sea
- Verification of the presence of porpoises in areas concerned by year-round static acoustic monitoring
- Comparing of findings with fishing effort data for the Baltic to identify high risk areas

ACTORS

Responsible for coordination: Baltic Parties/Range States, ASCOBANS Secretariat

Stakeholders: Scientists

TIMELINE

Implementation to begin as soon as possible

EVALUATION OF IMPLEMENTATION

- Jastarnia Group
- Advisory Committee

PRIORITY

Medium

RECOMMENDATION 13: Examine prevalence of derelict (“ghost”) gear and the feasibility of its removal

Cf. p. 22 above

OVERALL OBJECTIVE

Bycatch mitigation

SPECIFIC OBJECTIVES

Reduction of fishing effort and hence of potential harbour porpoise bycatch by clearance of “ghost nets”

RATIONALE

“Ghost nets” contribute to effective fishing effort in the Baltic. Their clearance would constitute a reduction in fishing effort that would not affect fishing yield

ACTION REQUIRED

None specified

ACTORS

Responsible for coordination: Baltic Parties/Range States

Stakeholders: fisheries authorities, fishermen, possibly NGOs

TIMELINE

Implementation to begin immediately insofar as not ongoing

EVALUATION OF IMPLEMENTATION

- Jastarnia Group
- Advisory Committee

PRIORITY

High

RECOMMENDATION 14: Expand the network of protected areas in the Baltic Sea and improve its connectivity and ensure the development of appropriate harbour porpoise management plans for these areas

Cf. p. 23 above

OVERALL OBJECTIVE

Habitat conservation

SPECIFIC OBJECTIVES

Establishment of a network of protected areas that will provide benefits for harbour porpoises

RATIONALE

Existing and proposed protected areas are generally considered either too small or inappropriately designed to provide significant benefits to harbour porpoises. These shortcomings could be alleviated by creating an expanded network of connected protected areas endowed with management plans to improve the status of harbour porpoises and/or their critical resources.

ACTION REQUIRED

Identification and designation of suitable, additional protected areas

ACTORS

Responsible for coordination: Baltic Parties/Range States, Secretariat

Stakeholders: Baltic Parties/Range States, EU, HELCOM, Bern Convention

TIMELINE

Ongoing and to be continued

EVALUATION OF IMPLEMENTATION

- Jastarnia Group
- Advisory Committee

PRIORITY

Medium

RECOMMENDATION 15: Develop a comprehensive public awareness campaign

Cf. p. 23 above

OVERALL OBJECTIVE

SPECIFIC OBJECTIVES

Enhance awareness among the general public and persons with jobs related to the sea, in particular fishermen, of the threats faced by Baltic harbour porpoises, the need to take action to conserve the species and the options for action.

RATIONALE

Public awareness plays an essential part in supporting any recovery plan

ACTION REQUIRED

- Further development and promotion of a regional approach to Baltic harbour porpoise conservation
- Enlisting of the support of the general public and people related to the sea in obtaining reports of porpoise observations
- Establishment of direct communication links with Baltic fishermen and seeking their assistance in determining how to reach fishing communities more effectively
- Establishment of national focal points for public awareness activities within the Baltic Parties/Range States
- Provision of assistance to maintain an interactive Baltic harbour porpoise website

ACTORS

Responsible for coordination: Baltic Parties/Range States, ASCOBANS Secretariat

Stakeholders: National ministries, nature conservation and fisheries authorities, ASCOBANS Secretariat, NGOs, Fisheries organisations, scientific institutions, media

TIMELINE

Ongoing and to be continued

EVALUATION OF IMPLEMENTATION

- Jastarnia Group
- Advisory Committee

PRIORITY

High

RECOMMENDATION 16: Strive for close consultation and cooperation between ASCOBANS and other relevant regional and international bodies

Cf. p. 25 above

OVERALL OBJECTIVE

Leveraging of synergies between competent international organisations, avoidance of duplication of effort

SPECIFIC OBJECTIVES

Regular consultations between ASCOBANS Secretariat and Secretariats of other relevant organisations, mutual representation at meetings, continuous exchange of information

RATIONALE

Cooperation between ASCOBANS and other relevant regional and international players can contribute to achieving synergies, avoiding duplication of effort and promote more efficient and results-oriented use of available resources.

ACTION REQUIRED

- Sending of revised Recovery Plan and explanatory note to relevant bodies
- Cf. specific objectives above

ACTORS

Responsible for coordination: ASCOBANS Secretariat

Stakeholders: ASCOBANS Secretariat and other Agreement bodies, EU Commission, Secretariats and other bodies of relevant organisations

TIMELINE

Ongoing, to be continued

EVALUATION OF RECOMMENDATION

- Jastarnia Group
- Advisory Committee

PRIORITY

High

ASCOBANS
Conservation Plan
for Harbour Porpoises
(*Phocoena phocoena* L.)
in the North Sea



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1 INTRODUCTION

Harbour porpoises (*Phocoena phocoena*, Linnaeus 1758) are widely distributed in shelf waters of the temperate North Atlantic and of the North Pacific Oceans and in some semi-enclosed seas, such as the Black and Baltic Seas. The North Sea is an important habitat for harbour porpoises in the North East Atlantic. Harbour porpoises are exposed to a number of anthropogenic pressures (e.g. Bjørge & Donovan 1995) and are listed as threatened or endangered in several international conservation instruments (e.g. EC Habitats and Species Directive 1992 (92/43/EEC), Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention), Convention on Migratory Species (Bonn Convention), IUCN Red List of Threatened Species).

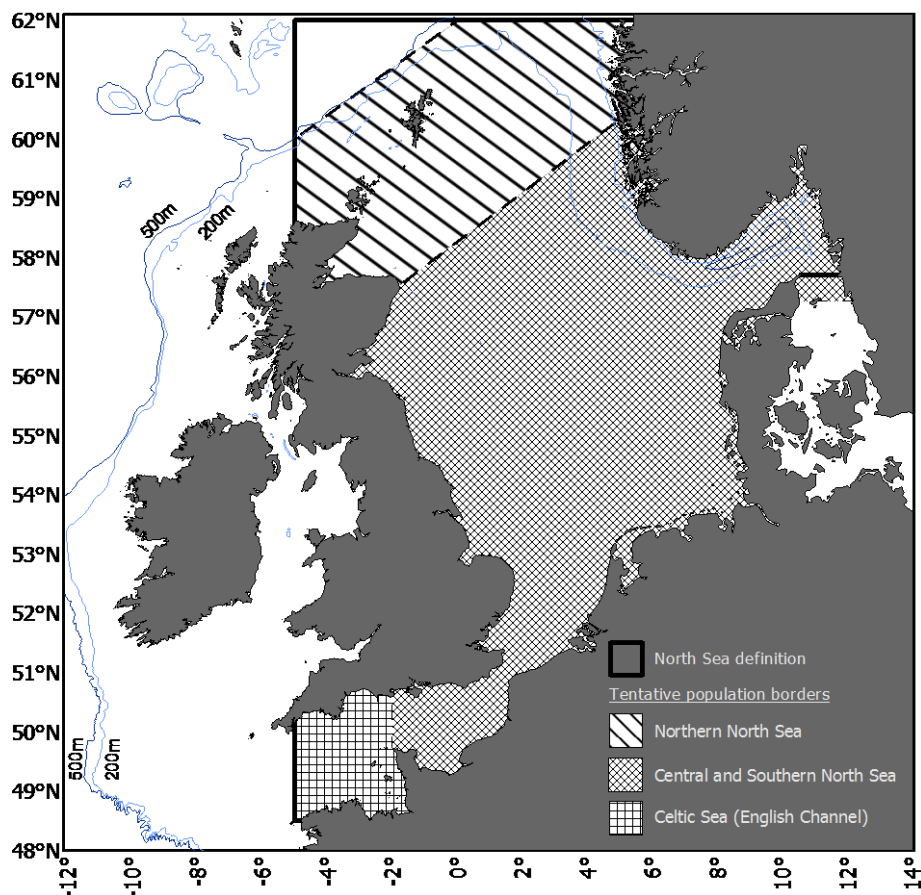


Figure 1: Map of the North Sea as defined at the 5th International Conference on the Protection of the North Sea in Bergen, Norway, 20 – 21 March 2002, showing the tentative harbour porpoise population borders. Note that the ASCOBANS agreement area does not cover all of the North Sea.

The 5th International Conference for the Protection of the North Sea (Bergen, Norway, 20-21 March 2002) called for a recovery plan for harbour porpoises in the North Sea to be developed and adopted (Paragraph 30, Bergen Declaration). Germany volunteered in 2003 to draft a recovery plan¹ within the framework of ASCOBANS and in association with Range State Norway.

¹ Due to data from SCANS-I, SCANS-II and national surveys on harbour porpoise abundance and distribution in the North Sea, ASCOBANS considered it more appropriate to call this document *Conservation Plan* rather than a Recovery Plan.

This document builds upon considerable work by a number of people. It summarises the current state of knowledge about North Sea harbour porpoises and the risk factors affecting them; detailed information is given in Eisfeld & Kock (2006). The Conservation Plan aims at achieving and maintaining a favourable conservation status, specifically by suggesting a series of priority actions.

2 BACKGROUND INFORMATION ON THE SPECIES

2.1 POPULATION STRUCTURE, ABUNDANCE AND DISTRIBUTION

Harbour porpoises occur throughout the North Sea and adjacent waters. They are highly mobile. Various lines of evidence suggest that there is stock structure within the North Sea (for details see Eisfeld & Kock, 2006) but the information is not sufficient to define strict or permanent boundaries between any (sub-) populations. IWC/ASCOBANS (2000) divided harbour porpoises occurring in the North Sea for practical management purposes into a Northern North Sea stock, a Central and southern North Sea stock and an additional one occurring in the western Channel (figure 1, table 1).

There are 'open' borders to the north, northwest, Kattegat and south west shelf seas. The implications of these open borders are that additional management actions may be needed outside the boundaries of the North Sea (as defined in this document) in order to achieve objectives within the North Sea. For instance, it is believed that harbour porpoises in the western Channel and the Celtic Sea are part of the same population.

The distribution of harbour porpoises is not static in space or time. For instance, in records from 1979-1997, sighting rates in the south eastern North Sea, the southern Bight and the northern English Channel were substantially lower than in areas further north (Evans *et al.* 2003; Reid *et al.* 2003). More recent surveys reported higher sighting (Scheidat *et al.*, 2003; 2004; Brasseur *et al.*, 2004) and strandings rates (Haelters *et al.*, 2002; Jauniaux *et al.*, 2002; Kiska *et al.*, 2004; Camphuysen, 2004) in the southern North Sea and southern Bight. This increase in both sighting and stranding rates in these southern parts of the North Sea over a relatively short period of time suggests a redistribution of animals from other areas in recent years rather than a sudden and rapid increase in population growth in the southern North Sea. Results from the SCANS II survey (SCANS-II, 2008) confirm that densities in the southern parts of the North Sea have increased while densities in more northerly regions have declined between 1994 and 2005 (Table 1 and Fig 2). Encouragingly, the results suggest that abundance in the North Sea as a whole has not changed significantly.

3 DEVELOPMENT OF THE CONSERVATION PLAN

This plan follows the general process used in the development of the Conservation Plan proposal for the bottlenose dolphin in the Spanish Mediterranean (Donovan *et al.* 2008).

3.1 OBJECTIVES

The development of this Conservation Plan was the result of a call by the 5th International Conference for the Protection of the North Sea. Similarly, the geographical boundaries of the Plan were set following those indicated at that Conference (Fig.1), rather than as a result of an evaluation of harbour porpoise stock structure. Consideration of the effect of the boundaries is a key component of the Conservation Plan. Similarly, the objectives of the Conservation Plan were defined by the 5th North Sea Conference and reflect Article 1 of the EU Habitats Directive.

These are:

“This Plan aims to restore and/or maintain North Sea harbour porpoises at a favourable conservation status, whereby

- population dynamics data suggest that harbour porpoises are maintaining themselves at a level enabling their long-term survival as a viable component of the marine ecosystem;
- the range of harbour porpoises is neither reduced, nor is it likely to be reduced in the foreseeable future;
- habitat of favourable quality is and will be available to maintain harbour porpoises on a long term basis; and
- the distribution and abundance of harbour porpoises in the North Sea are returned to historic coverage and levels wherever biologically feasible.”

These objectives incorporate the ASCOBANS goal of restoring and/or maintaining populations at 80% or more of the carrying capacity (ASCOBANS, 1997).

Currently it will be difficult to demonstrate the full achievement of these (long-term) goals as insufficient knowledge exists on past harbour porpoise distribution and abundance. The ability to predict the future is also difficult and will need to be based on modelling with assumptions for which we have limited data. However, in the shorter-term a pragmatic minimum objective is to at least maintain the present situation and, if possible, improve it. In any event, it is essential that an appropriate modelling framework is developed that will enable an evaluation of management goals. Progress has been made within the SCANSII project (SCANS-II 2008) building upon the work undertaken by the joint IWC/ASCOBANS working group (IWC, 2000).

Table 1: Abundance and densities of harbour porpoises in the North Sea and adjacent waters during SCANS I as estimated by Hammond et al., 1995 and SCANS II as estimated by SCANS-II, 2008. Figures in round brackets are coefficients of variation; figures in square brackets are 95% confidence intervals.

	SCANS I			SCANS II		
Greater Region	SCANS block	Abundance [no. of animals]	Densities [animals/km ²]	SCANS block	Abundance [no. of animals]	Densities [animals/km ²]
Northern North Sea	E	31,419 (0.49)	0.29	T	23,766 (0.33)	0.18
	D	37,144 (0.25)	0.36	Q*	10,002 (1.24)	0.07
	M	5,666 (0.27)	0.45	M	3,948 (0.38)	0.31
	J	24,335 (0.34)	0.78	J	10,254 (0.36)	0.27
Subtotal (northern North Sea)		98,564 [66,679-145,697]			47,970	n.a.
Central & southern North Sea	C	16,939 (0.18)	0.39	/*	/	/
	F	92,340 (0.25)	0.78	V	47,131 (0.37)	
	G	38,616 (0.34)	0.34	U	88,143 (0.23)	0.56
	H	4,211 (0.29)	0.10	H*	3,891 (0.45)	0.36
	L	11,870 (0.47)	0.64	L	11,575 (0.43)	0.56
	Y	5,912 (0.27)	0.81	Y	1,473 (0.47)	0.13
Subtotal (central & southern North Sea)		169,888 [124,121 - 232,530]			152,213	n.a.
English Channel (mostly)	B	0,000	0.000	B	40,927 (0.38)	0.33
Celtic Shelf	A	36,280 (0.57)	0.18	P*	80,613 (0.50)	0.41
TOTAL		341,000 (0.14)			321,723 (0.15)	

*these areas differed slightly in shape and size between SCANS and SCANS-II

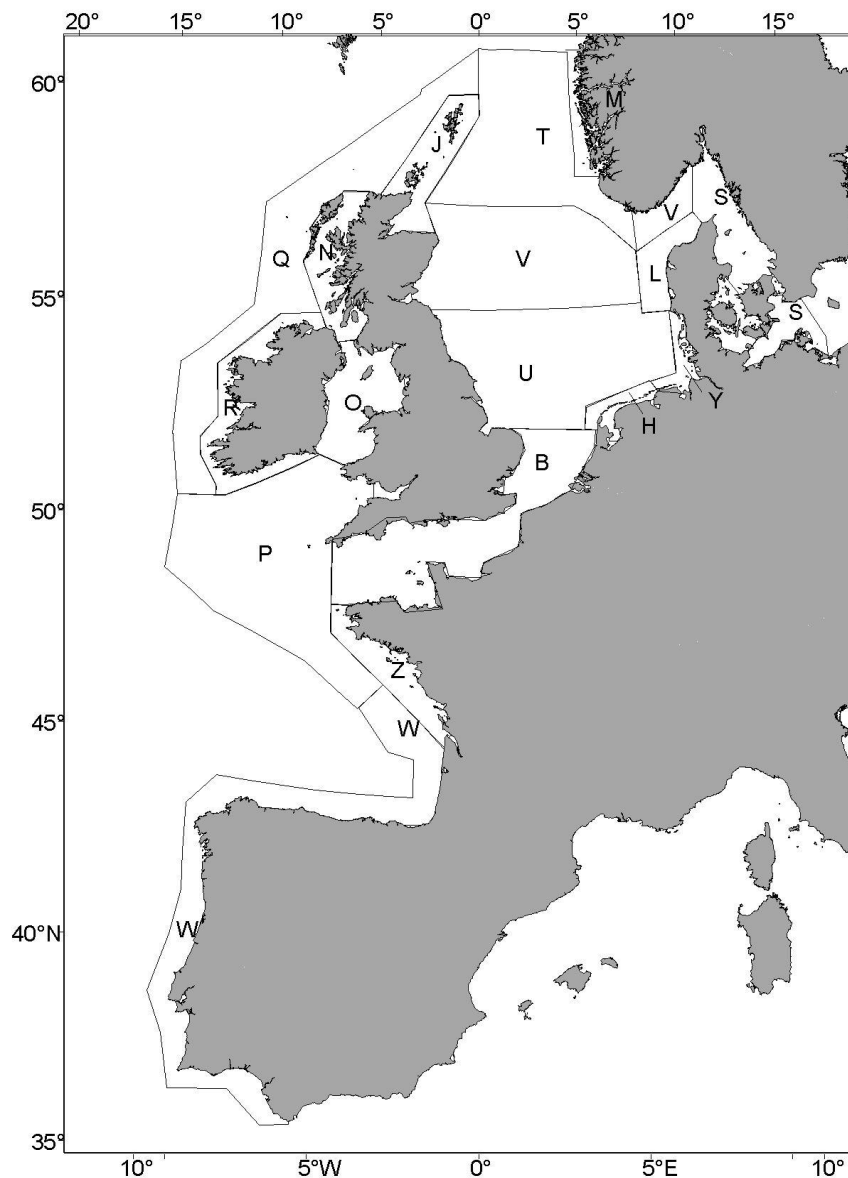


Figure 2: Survey blocks defined for the SCANS-II surveys. Those surveyed by ship were S, T, V, U, Q, P and W. The remaining blocks were surveyed from aircraft.

3.2 ACTUAL AND POTENTIAL ANTHROPOGENIC THREATS

In developing the Conservation Plan, it is important to evaluate the main threats that affect or could potentially affect harbour porpoises in the North Sea area (Fig.1, table 2). These were reviewed in for this Conservation Plan.

The primary focus of the Plan is on those threats that affect the status of the population, noting legitimate concerns that there may also be threats on the welfare of the individual animals.

It should be noted that some human activities (Table 2) may act cumulatively, and some threats may be caused by several human activities (alone or in combination).

Table 2: Approximate distribution and scale of human uses in the North Sea in relation to the notional harbour porpoise sub-populations

+++ = major use, ++ = medium use, + = minor use.

	Northern North Sea	Central & southern North Sea	Western English Channel
Fishing	+++	+++	+++
Contaminant discharge	+	++	+
Shipping	+	+++	+++
Hydrocarbon exploration	+++	+++	
Sewage discharge	+	+++	+
Construction	+	+++	
Aquaculture	++	+	
Mineral extraction		++	
Recreation	+	+++	++
Military	+	+	+

Table 3 is a summary of the various threats to harbour porpoises in the North Sea, the evidence for them and a qualitative categorisation of the threat, along with some comments on mitigation measures. This information was then used to determine a series of actions (and their priority/time-frame) under the Conservation Plan.

While there is inevitably some overlap, the actions can be categorised as follows:

- (1) Research related to determining whether conservation objectives are being met (e.g. stock structure and distribution, abundance and trends, population modelling);
- (2) Research related to the scale of potential threats (this will include research on the biology/ecology of the animals as well as collection of information on the nature and extent of relevant anthropogenic activities, including underwater noise);
- (3) Assessing and monitoring levels of known threats (primarily bycatch in fishing gear)
- (4) Implementation of mitigation measures for known threats, including monitoring the implementation and collecting data to assess efficacy;
- (5) Evaluation of existing and development of new mitigation measures for identified threats.

Table 3: Summary of information of actual and potential threats to harbour porpoises in the North Sea area

Actual/ Potential Threat	Anthropogenic activity/ies	Evidence	Possible impact (in many cases an educated guess)	Prioritisation for action	Actual/potential mitigation measures
Bycatch	Commercial and recreational gillnets, wreck nets, tangle nets, bottom trawls	Strong. Based on observer programmes, stranded animals. See estimates in Table 4	Potentially high especially in some areas, depends on scale of fishing activity	High (implementation of mitigation measures, collection of data, incorporation into modelling framework, improved knowledge of stock structure and movements)	In short-term at least, pingers are effective for certain fisheries but adequate monitoring of implementation and effectiveness essential. Further research is needed into their medium-long-term efficacy and ways to improve them, and provide time to develop better methods
Serious injury/death (not bycatch)	Ship strikes from commercial and recreational vessels	Weak. Indications could be obtained from strandings programmes, photographs	Not believed to be high but possibly localised e.g. in areas with a relative high calve percentage	Low (effort should be directed at research to determine extent in targeted areas)	Shipping lanes, speed restrictions and/or protected areas may be effective if need established and good information on geographical and temporal distribution known
Mechanical destruction of habitat	Bottom trawls, infrastructure construction, oil and gas development, gravel extraction	Known that damage is caused.	Direct effect on harbour porpoises probably v. low but see 'prey depletion'	Low	Restrict activities and/or change methods based on EIAs
Prey depletion	Overfishing, habitat degradation due to pollution, climate change	Many fish stocks depleted due to factors such as overfishing, habitat damage, and possibly climate change(but unknown)	Potentially a problem but insufficient knowledge of harbour porpoise feeding ecology or fish dynamics	Medium (effort directed at research on feeding ecology; co-operation with fishery biologists)	Effective fishery regulations based on good science

Actual/ Potential Threat	Anthropogenic activity/ies	Evidence	Possible impact (in many cases an educated guess)	Prioritisation for action	Actual/potential mitigation measures
Acoustic pollution/harassment	Fishing vessels, general maritime traffic, acoustic harassment devices at fish farms, pingers, military activities, infrastructure construction, oil and gas development (including seismic surveys, explosions) recreational activities	Clear evidence that noise pollution is high and has increased in recent times due to a wide variety of human activity	Potentially a problem (could impede communication, affect distribution and hence feeding/reproduction) but lack of direct evidence of long-term impact on harbour porpoises	Medium (effort should be directed at better assessment of impact of various noise sources on harbour porpoises)	A number of mitigation measures have been proposed (e.g. for mitigating noise from pile driving for windfarms, seismic survey guidelines) but efficacy, especially for harbour porpoises unknown and needs evaluation. Cover in EIAs.
Chemical pollution	Terrestrial industrial development, terrestrial run-off harbours, ships, aquaculture, sewer discharges, aerial transport.	Clear evidence of chemical pollution within the North Sea	Some evidence certain pollutants may affect health status of harbour porpoises (increased susceptibility to infectious diseases). Quantitative evaluation not available	Medium (further effort at examining cause- effect relationships in a population dynamics framework)	A number of conventions deal with aspects of chemical pollution. Irrespective of scientific knowledge on effects on harbour porpoises, these must be implemented and efficacy monitored
Climate change	The global climate change is likely to increase the temperature of the North sea	Time series document increasing trend in North Sea temperature. Monitoring programs show increase of southern cetacean species	Increase d occurrence of new cetacean species can be unfavourable to porpoise due to competition for food or aggressive behaviour	Low (further effort to monitor northward shifts in distribution of cetaceans from warm temperate Atlantic)	A number of international and intergovernmental organisations and conventions are dealing with climate change and efforts to reduce increase in global temperature.

Table 4: Summary of bycatch information for harbour porpoises. Figures in square brackets are 95% confidence intervals.

* Extrapolated from bycatch rates determined from observers 1987 – 2001. First estimate is based on fleet effort, second is based on landings as used by Vinther (1999). Bycatch is probably overestimated due to use of pingers in cod wreck fishery not being accounted for.

Greater Region	ICES area	Country	Main gear type	Target species	Size of fisheries	Estimation method	Year	Total reported bycatch	Estimated annual bycatch	Seasonal peaks	Source
Norwegian coastal North Sea waters	Vla	Norway	Bottom-set gillnets	Angler fish, cod, mixed fisheries		observed	2006	4	Not yet available		Bjørge 2007
Norwegian Skagerrak	IIIa	Norway	Bottom-set gillnets	Angler fish, cod, mixed fisheries		observed	2006	10	Not yet available		Bjørge 2007
Kat./IDW/ German Baltic	IIIa	Sweden	bottom trawls			fishermen interviews	2001	-	80	-	ASCOBANS 2004
			pelagic trawls	herring				1	11		
			trammel nets	lumpfish				1	8		Lunneryd <i>et al.</i> , 2004
			gillnets	sole, cod, crab				6	70		
Skagerrak	IIIa	Sweden	gillnets, trammel nets, pelagic trawls	cod		fishermen interviews	2001	-	20	-	ASCOBANS, 2004
			bottom trawls					2	25	-	Lunneryd <i>et al.</i> , 2004
North Sea	IV	UK	set nets	cod, skate, turbot, sole, monkfish, dogfish			1995 - 2002	-	439 [371-640]	-	ASCOBANS, 2004

Greater Region	ICES area	Country	Main gear type	Target species	Size of fisheries	Estimation method	Year	Total reported bycatch	Estimated annual bycatch	Seasonal peaks	Source
Central & Southern North Sea	IV	Denmark	wreck nets, gillnets	cod, hake, turbot, plaice, sole	very large	observer program	1987 - 2002	-	5,817/ 5,591*	-	Vinther & Larsen, 2002
	IV b	Germany	gillnets	cod, turbot, sole, other demersal fish	small	observer program	2002 - 2003	-	25-30	-	Flores & Kock, 2003
	IVc	Belgium	gillnets gill + trammel nets	sole, plaice, cod		strandings	2003-2007	90		32 (2006)	ASCOBANS, 2004; Haelters & Kerckhof 2005, Haelters & Camphuysen 2009
	IVc	Netherlands	gillnets	unknown	unknown	strandings	2003 & 2004	-	100	-	Reijnders, 2005; García Hartman, <i>et al.</i> , 2004
Celtic Shelf (incl. Channel)	VII e, f	UK	gillnets	hake	medium	Observer program	August 1992 – March 1994	28	740 [383-1097]	March - May	Tregenza <i>et al.</i> , 1997
			tangle nets wreck nets gill + tangle nets	hake and other white fish			2005 / 2006	1 0	453 / 728		ICES, 2008
	VII g, h, j, k	Ireland	gillnets, wreck and tangle nets gill + tangle nets		Big		2005-2007	14 -	1497 [566-2428] 350		ICES, 2008
	VII e, h	France	Gillnets, tangle nets, trammel nets	Monkfish			1992 – 1993	0		-	Morizur <i>et al.</i> , 1996

4 SUMMARY OF ACTIONS

In addition to some specific actions, there are some important general considerations that require elucidation.

4.1.1 DEALING WITH INADEQUATE DATA

Ideally, all conservation plans and associated management actions should be based on full and adequate scientific data. However, there are occasions when the potential conservation consequences of waiting for confirmatory scientific evidence may mean that it is better to take action immediately whilst collecting the necessary information. This has become known as following the “Precautionary Principle”. However, application of the precautionary principle must be carefully considered and adequately justified.

One of the main challenges encountered in the process of developing this initial version of the Conservation Plan has been that a lack of data, both with respect to:

- (1) the target species (e.g. stock structure, movements and feeding ecology); and
- (2) human activities and their actual/potential impact at different levels (e.g. adequate data on “effort / scale” of certain human activities; adequate data on the effect(s) on the species).

An important part of the development of this Conservation Plan has been to identify the major information gaps that need to be filled in order to improve recommended conservation measures. Consequently, the actions include a number of research and monitoring actions aimed at obtaining the necessary baseline information for the establishment of adequate scientifically-based management actions.

4.1.2 MONITORING

Establishing the necessary baseline information as a scientific reference for conservation actions is only the first step towards effective conservation. Once this is achieved, monitoring (of the species concerned, threats due to human activities, implementation of mitigation measures and effectiveness of those measures) **must** be seen as an integral and essential part of management, not an optional extra (as stressed by e.g. Donovan, 2005). Monitoring is required in order to obtain information on trends in the conservation status of harbour porpoises and to examine the effectiveness of the management actions and if necessary adjust them to achieve our established conservation aims. As stated by the European Union’s Habitats Directive (Article 12(4): “Member States shall establish a system to monitor the incidental capture and killing of the animal species listed in Annex IV (a). In the light of the information gathered, Member States shall take further research or conservation measures as required to ensure that incidental capture and killing does not have a significant negative impact on the species concerned”.

4.1.3 LIFE OF THE CONSERVATION PLAN

No conservation plan should be regarded as a definitive and unalterable document. It is rather a document that covers a temporal phase within the framework of the efforts for the conservation of a species, and therefore needs to be reviewed periodically to adjust the actions to the diverse changes that can occur, either in response to the results of the monitoring of the conservation plan actions themselves or to changing external factors.

4.1.4 IMPLEMENTATION OF THE CONSERVATION PLAN; CO-ORDINATION, INVOLVEMENT OF STAKEHOLDERS

Experience has shown that in order to be effective, Conservation Plans must have a recognised, full-time co-ordinator. This is particularly true where effective conservation requires action (including legislative action) by a number of stakeholders including: intergovernmental and national authorities, scientist from several disciplines, representatives from industry, local communities, and interested NGOs. The scale of work required by this Plan exceeds the resources available within the (part-time) ASCOBANS Secretariat. Ideally, the co-ordinator should have a scientific and management background and be an effective communicator to the various stakeholders. The importance of actively involving stakeholders, especially those whose livelihoods may be affected (e.g. fishermen), cannot be overemphasised. The co-ordinator should report to a Steering Committee appointed with close collaboration between ASCOBANS, the North Sea RAC (Regional Advisory Council), the EU, Norway and other appropriate authorities.

While measures to control and reduce pressures and impacts on the marine environment do exist on a national and European level, they have been developed in a sector by sector approach resulting in a patchwork of policies, legislation, programmes and actions plans at national, regional, EU and international level. It is necessary to encourage North Sea Member States to harmonise their national efforts to ensure that the Conservation Plan is implemented.

Amongst other things, the Co-ordinator/Steering Committee would be asked to:

- promote and coordinate the implementation of the Conservation Plan (including investigating funding) with particular attention paid to affected stakeholders;
- gather information on its implementation, the results obtained, the objectives reached, and the difficulties encountered;
- communicate this information to the general public through regular reporting in an accessible format;
- appoint a group of experts to evaluate the effectiveness of the Conservation Plan every three years and to update it. The conclusions of this group should be made public.

Finally, it has to be stressed that a Conservation Plan will be useless if sufficient funding is not found. At the very least, sufficient funds must be made available for the appointment of a co-ordinator and the functioning of the Steering Group at the earliest opportunity.

4.1.5 EXECUTIVE SUMMARY OF THE ACTIONS

As noted above, the Conservation Plan will be useless without appropriate co-ordination and support. This is the focus of

Action 1 implementation of the Conservation Plan: co-ordinator and Steering Committee.

Table 3 summarises the present state of knowledge of actual and potential threats to harbour porpoises in the North Sea. It is clear from that table that the highest priority must be given to the question of **bycatch**. For that reason the majority of Actions focus on aspects of that problem ranging from:

Management (and related monitoring) actions

Action 2: implementation of existing regulations on bycatch of cetaceans;

Action 3: establishment of bycatch observation programmes on small vessel (<15m) and recreational fisheries;

Action 4: regular evaluation of all relevant fisheries with respect to extent of porpoise bycatch;

Action 9: collection of incidental catch data through stranding networks in the region;

Mitigation measure research Action

Action 5: review of current pingers, development of alternative pingers and gear modifications;

Scientific actions essential for providing adequate management advice

Action 6: finalise a management procedure approach for determining maximum allowable anthropogenic removals in the region;

Action 7: monitoring trends in distribution and abundance of harbour porpoises in the region;

Action 8: review of the stock structure of harbour porpoises in the region;

Of course, Actions 6-8 are relevant to all anthropogenic activities.

As shown in Table 3, our level of knowledge on the effects of **other anthropogenic activities** on harbour porpoises is limited. Before discussing specific actions aimed at improving our knowledge of these, it is worth emphasising that for certain potential threats, it is clear that at best the activities will be neutral and more likely negative; in such cases there is no reason for management action not to be taken before our knowledge of effects on harbour porpoises improves. It is therefore **strongly recommended** that existing legislation and agreements with respect to e.g. chemical pollution and climate change are implemented effectively. It is also clear that effective fisheries management based on sound science is essential.

That being said, there are a number of research actions aimed at improving our understanding of potential threats to harbour porpoises within the region:

Action 10: investigation of the health, nutritional status and diet of harbour porpoises in the region;

Action 11: investigation of the effects of anthropogenic sounds on harbour porpoises

Action 12: collection and archiving of data on anthropogenic activities and development of a North Sea-wide GIS based database

5 ACTIONS

The Actions are provided below, with each action beginning on a new page. At present no costs are associated with these actions but they will undoubtedly be expensive. One of the first tasks for the Co-ordinator/Steering Committee will be to develop detailed specifications for each action and where appropriate, assign costings and likely sources of funding

ACTION 1: IMPLEMENTATION OF THE CONSERVATION PLAN: CO-ORDINATOR AND STEERING COMMITTEE

Management Action

Priority: HIGH

SPECIFIC OBJECTIVES

To ensure that timely progress is made with respect to the overall implementation of the Conservation Plan and the specific actions included therein, and to provide progress reports for appropriate bodies including ASCOBANS, the North Sea RAC (Regional Advisory Council) and the EU.

RATIONALE

This Conservation Plan is complex and for it to be effective it will require considerable co-ordination and the development of detailed workplans for the individual Actions. In particular, its success is dependent on a large number of stakeholders and a broad range of areas of expertise. Without a full-time co-ordinator to support a larger Steering Committee it is highly unlikely that the Conservation Plan will be successfully implemented.

TARGET

Appointment of a Steering Committee for the Conservation Plan and the appointment of a suitably qualified full-time co-ordinator (needs a conservation science background) for the Conservation Plan (with an appropriate budget)

TASKS

- Document and collate existing international and national regulations and guidelines that are relevant to the conservation and management of harbour porpoises in the North Sea and to provide this collation to all stakeholders.
- To promote and explain the Conservation Plan to relevant stakeholders, including:
 - International and supranational bodies
 - Range states
 - Appropriate industry representatives incl. fisheries, hydrocarbon exploration, shipping etc
 - Appropriate local authorities
 - NGOs
- To develop mechanisms to ensure that the Actions given in the Conservation Plan are implemented including the organisation of scientific workshops
- To make a recommendation for the evolution of some EU fishery regulations: data collection regulation, electronic logbooks, etc. in order to get the most appropriate data from effective fishing effort
- To co-ordinate the collection of and collation of appropriate data on anthropogenic activities in a format that will facilitate its use in a GIS context
- To manage the Conservation Plan Fund
- To develop progress reports on the implementation
- To arrange for periodic reviews of the Conservation Plan

ACTORS

- **responsible for co-ordination of the Action:** ASCOBANS, with the North Sea RAC (Regional Advisory Council) and the EU, to appoint the Steering Committee for the Conservation Plan; the Steering Committee to appoint the co-ordinator
- **stakeholders:** as listed above under 'Tasks'

ACTION EVALUATION

- ASCOBANS, with the North Sea RAC (Regional Advisory Council) and the EU
- Regular (e.g. biennial or triennial) meetings open to stakeholders

PRIORITY

- Importance: essential
- Feasibility: high if political will is there

ACTION 2: IMPLEMENTATION OF EXISTING REGULATIONS ON BYCATCH OF CETACEANS

Management Action

Priority: HIGH

SHORT DESCRIPTION OF ACTION

- **specific objective:** implementing existing regulations appropriately (e.g. Habitats Directive, EU Regulation 812/2004)
- **specific threats to be mitigated:** bycatch
- **rationale:** while legislation exists (EU Fisheries Regulations) the overall level of implementation and effectiveness is unclear
- **target:** to ensure that existing regulations with respect to bycatch reduction measures are being effectively implemented and to collect data on their efficacy in reducing bycatch
- **method:**
 - through a scientifically designed and flexible observer scheme and review of existing schemes, and development and testing of reliable mitigation devices/methods.

It is apparent that Regulation 812/2004 is not fully serving its purpose in certain areas/fisheries. A flexible implementation with the objective of minimising small cetacean bycatch would better serve harbour porpoise conservation.
 - consider how certification schemes could enhance the commercial value of fish caught with techniques that avoid harbour porpoise bycatch.
- **implementation-timeline:** immediate

ACTORS

- **responsible for co-ordination of action:** Parties to ASCOBANS/ Range States; EU
- **stakeholders:** Affected fishing fleets; co-ordinator/steering committee of CP

ACTION EVALUATION

- Co-ordinator/Steering Committee of Conservation Plan
- analyses by the ASCOBANS Advisory Committee (AC) of Parties' reporting to EU

PRIORITY

- importance: high
- feasibility: high

ACTION 3: ESTABLISHMENT OF BYCATCH OBSERVATION PROGRAMMES ON SMALL VESSEL (<15M) AND RECREATIONAL FISHERIES

Management Action

Priority: HIGH

DESCRIPTION OF ACTION

- **specific objective:** address bycatch in fisheries in small vessel fisheries
- **specific threats to be mitigated:** bycatch
- **rationale:** while some aspects of EU Regulation 812/2004 applies to small vessel fisheries in the North Sea, there are particular difficulties in observing operations and applying any necessary mitigation in these fisheries. Similar difficulties are associated with “recreational fisheries”.
- **target:** to further develop methods to observe and mitigate bycatch (including implementation monitoring) in small vessel fisheries.
- **method:**
 - further develop and implement a scientifically robust system for remote monitoring on vessels where placing onboard of observers is not feasible
 - develop a system involving small vessel fishermen to maximise the reporting/delivery of bycaught porpoises
 - collect effort data on recreational fisheries (e.g. number, length, soak time of nets), seek information on bycatch, and determine and apply appropriate mitigation techniques
- **implementation-timeline:** 2008-2010

ACTORS

- **responsible for co-ordination of action:** Range States/Parties to ASCOBANS (will need scientific and legal advice; consultation with fishermen)
- **stakeholders:** affected Fishing Fleets; co-ordinator/steering committee of CP

ACTION EVALUATION

- Co-ordinator/Steering Committee of Conservation Plan
- analyses by the ASCOBANS Advisory Committee (AC) of Parties’ reporting to EU

PRIORITY

- importance: high
- feasibility: high

ACTION 4: REGULAR EVALUATION OF ALL FISHERIES WITH RESPECT TO EXTENT OF HARBOUR PORPOISE BYCATCH

Management Action

Priority: HIGH

DESCRIPTION OF ACTION

- **specific objective:** evaluate bycatch levels in all relevant fisheries
- **specific threats to be mitigated:** bycatch
- **rationale:** although mitigation measures are in place for some fisheries, it is essential to assess, at regular intervals, whether those measures are achieving the desired goals or require adjustment
- **target:** to estimate levels of bycatch of harbour porpoises in the North Sea at regular intervals to enable mitigation measures to be reviewed and if necessary modified
- **method:** analyse data provided by Range States/Parties from observer schemes and elsewhere (e.g. from strandings, see Action 9) on bycatch and fishery data and incorporate this into a population dynamics modelling framework
- **implementation-timeline:** immediate, and at intervals of 3-5 years

ACTORS

- **responsible for co-ordination of action:** Range States/Parties to ASCOBANS (will need scientific advice)
- **stakeholders:** affected fishing fleets; fishery bodies; co-ordinator/steering committee of CP

ACTION EVALUATION

- Co-ordinator/Steering Committee of Conservation Plan
- analyses by the ASCOBANS Advisory Committee (AC) of Parties' reporting to EU

PRIORITY

- importance: high
- feasibility: high/medium

**ACTION 5: REVIEW OF CURRENT PINGERS, DEVELOPMENT OF
ALTERNATIVE PINGERS AND GEAR MODIFICATIONS**

Research Action

Priority: HIGH

DESCRIPTION OF ACTION

- **specific objective:**
 - review and as appropriate address uncertainties on (long term) efficacy and potential impact of conventional pingers on porpoises
 - develop new fishing gear and/or practices less likely to resulting in porpoise bycatch
- **specific threats to be mitigated:**

potential adverse effects of conventional pingers on porpoises (including exclusion from habitat, habituation)
- **rationale:**
 - concerns have been expressed about the long-term effectiveness of existing pingers to reduce bycatch and their potential effects on the animals themselves and their habitat
 - concerns have also been expressed by the industry as to costs
 - it is timely to review the available data on pingers which are now widely used and to consider modifications as appropriate (including economic considerations)
 - other mitigation measures such as changes in fishing gear and practices should be investigated
- **target:** more universal acceptance by all stakeholders (and hence better implementation) of mitigation measures to reduce harbour porpoise bycatch
- **method:**
 - a full review of the use of existing information (from the viewpoint of reducing bycatch, effects on animals and practicality and cost to fishermen) initially via a specialist workshop including biologists, gear technologists and appropriate stakeholders
 - development and research evaluation of new pinger-related technology and deployment (e.g. interactive pingers, less pingers per length of net) and alternative porpoise alerting passive and active devices
 - further development and research evaluation of changes in fishing practices and/or fishing gear to reduce harbour porpoise bycatch
 - development and undertaking of appropriate field trials
 - recommendations for implementation where appropriate
- **implementation-timeline:** workshop in early 2010, research programmes ongoing

ACTORS

- **responsible for co-ordination of action:** co-ordinator/steering committee of CP, Parties to ASCOBANS/other Range States, EU-member States (will need input from biologists, gear technologists and other specialists)
- **stakeholders:** fishing industry, fisheries authorities, research institutes, legislators

ACTION EVALUATION

- Co-ordinator/Steering Committee of Conservation Plan
- analyses by the ASCOBANS Advisory Committee (AC)

PRIORITY

- importance: high
- feasibility: medium

ACTION 6: FINALISE A MANAGEMENT PROCEDURE APPROACH FOR DETERMINING MAXIMUM ALLOWABLE BYCATCH LIMITS IN THE REGION

Research and Management Action

Priority: HIGH

SHORT DESCRIPTION OF ACTION

- **specific objective:** to meet the agreed objectives of ASCOBANS in relation to bycatch (Resolution 5, MoP5)
- **specific threats to be mitigated:** bycatch
- **rationale:** it is important that the conservation goals for the harbour porpoise are examined in the context of a management procedure context that takes uncertainty into account
- **target:** to finalise a population dynamics modelling framework for evaluating the effect of bycatches (and other anthropogenic activities) on harbour porpoises in the North Sea that anthropogenic activities do not prevent agreed conservation goals being met
- **method:** building upon the advances made by the IWC/ASCOBANS working group, the ICES/SGBYC and the SCANS II project and the recommendations therein and other Actions (2, 3, 4, 7) of this plan including: agreement of operational management objectives by policymakers; finalisation and scientific implementation of a management procedure by scientists; agreement by policymakers to develop and implement management advice based on the results of the management procedure
- **implementation-timeline:** begin immediately with aim for completion by 2010

ACTORS

- **responsible for co-ordination of action:** Range States/Parties to ASCOBANS/EU
- **stakeholders:** policymakers; co-ordinator/steering committee of CP; scientists incl. joint ASCOBANS/IWC Scientific working group

ACTION EVALUATION

- Co-ordinator/Steering Committee of Conservation Plan
- joint ASCOBANS/IWC Scientific working group

PRIORITY

- importance: high
- feasibility: high

ACTION 7: MONITORING TRENDS IN DISTRIBUTION AND ABUNDANCE OF HARBOUR PORPOISES IN THE REGION

Research Action

Priority: HIGH

SHORT DESCRIPTION OF ACTION

- **specific objective:** to monitor whether the management actions of the Conservation Plan are meeting the management objectives with respect to abundance and distribution
- **specific threats to be mitigated:** the combined effects of anthropogenic activities
- **rationale:** without monitoring it is impossible to evaluate the success or otherwise of the Conservation Plan and to determine whether modifications are needed
- **target:** to provide regular information on the abundance and distribution of harbour porpoises in the region as input into the management procedure approach discussed under Action 6 , to provide information relevant to evaluating mitigation measures including a comparison of the relative distribution of animals with anthropogenic activity (see Action 7)
- **method:** build upon the advances made by the SCANS II project and the recommendations therein to develop an agreed monitoring programme (involving one or more scientific workshops) and to implement it
- **implementation-timeline:** begin immediately with aim for completion of the design of the programme by 2010 after which it is implemented

ACTORS

- **responsible for co-ordination of action:** Range States/Parties to ASCOBANS
- **stakeholders:** scientists especially those involved in the monitoring component of SCANS II, policymakers; co-ordinator/steering committee of CP

ACTION EVALUATION

- Co-ordinator/Steering Committee of Conservation Plan
- ASCOBANS scientific working group

PRIORITY

- importance: high
- feasibility: high

ACTION 8: REVIEW OF THE STOCK STRUCTURE OF HARBOUR PORPOISES IN THE REGION

Research Action

Priority: HIGH

SHORT DESCRIPTION OF ACTION

- **specific objective:** to review stock structure and movements of harbour porpoises in the region
- **specific threats to be mitigated:** essential information to be able to evaluate threats caused by anthropogenic activities
- **rationale:** such information is fundamental to the management procedure approach outlines in Action 6
- **target:** to provide information on the stock structure and movements of harbour porpoises in the region that can be used in the management procedure
- **method:** to fully review the available data (from a suite of techniques including, genetics, telemetry, distribution, bycatches) and to provide appropriate information on plausible hypotheses for use in the management procedure and, if needed, to suggest research to reduce uncertainty (via a scientific workshop)
- **implementation-timeline:** to be completed in time for use by scientists in the management procedure

ACTORS

- **responsible for co-ordination of action:** Range States/Parties to ASCOBANS; Co-ordinator/Steering Committee of Conservation Plan
- **stakeholders:** scientists

ACTION EVALUATION

- Co-ordinator/Steering Committee of Conservation Plan
- ASCOBANS scientific working group

PRIORITY

- importance: high
- feasibility: high

ACTION 9: COLLECTION OF INCIDENTAL PORPOISE CATCH DATA THROUGH STRANDING NETWORKS

Research Action

Priority: MEDIUM

DESCRIPTION OF ACTION

- **specific objective:** evaluate bycatch levels in all fisheries
- **specific threats to be mitigated:** bycatch
- **rationale:** stranded animals can provide, *inter alia*, an important additional source of information (to observer schemes) to investigate whether porpoise bycatch occurs as well as other forms of anthropogenic mortality (see Action 11)
- **target:** provide qualitative information on bycatch occurrence and an assessment of minimum number of annually bycaught porpoises
- **method:** regularly carry out full necropsies on all stranded porpoises for evidence of bycatch, ideally using an agreed protocol; in addition: data gathered along North Sea shores should be put together (n^o of strandings/month/area, n^o of bycatches/month/area)
- **implementation-timeline:** immediate and ongoing, with input into the regular reviews of the incidence of bycatch given under Action 4

ACTORS

- **responsible for co-ordination of action:** co-ordinator/steering committee of CP, Range States/Parties to ASCOBANS (will need scientific , especially veterinary, advice)
- **stakeholders:** fisheries authorities, experienced pathologists

ACTION EVALUATION

- Co-ordinator/Steering Committee of Conservation Plan
- analyses by the ASCOBANS Advisory Committee (AC)

PRIORITY

- importance: medium
- feasibility: high

ACTION 10: INVESTIGATION OF THE HEALTH, NUTRITIONAL STATUS AND DIET OF HARBOUR PORPOISES IN THE REGION

Research Action

Priority: MEDIUM

DESCRIPTION OF ACTION

- **specific objectives:** to collect fundamental information the question of of human activities (other than bycatch) including contaminants, sewage and debris discharge, noise, presence, fishing (via competition for resources) for input into population dynamics modelling
- **specific threats to be mitigated:** this addresses one aspect of to contribute to our ability to avoid cumulative and synergistic adverse effects of human activities on the health and nutritional status of porpoises and thus the viability of harbour porpoises in the region
- **rationale:** Our knowledge of the qualitative and quantitative effects on porpoises of a range of human activities is incomplete. This action is designed to improve this situation by collecting information on health status (by toxicological and pathological investigations) and nutritional status (by examining their diet)
- **target:** to obtain good quality data on health parameters and the diet of porpoise populations in the area of application of the CP
- **method:** retrieving stranded and bycaught porpoises and:
 - performing full necropsies and general pathology to assess general health (incl. condition) of a representative sample (sex, age) of the retrieved animals
 - collecting inner ears and assessing acoustic trauma in connection with tissue examination for acoustic impact (see Jepson *et al.* 2002, for methodology)
note: this matter proves to be very complex and results are not promising; however, it is still worthwhile to be pursued
 - collecting, archiving and analysing representative samples of porpoise tissues for relevant contaminants (including concentrations and biomarkers for exposure and effect); for methods see IWC-POLLUTION2000+ Programme (Reijnders *et al.* 1999).
 - collecting stomach and intestine contents, and tissue samples for fatty acid and stable isotope analyses, to investigate diet
 - collecting tissue samples for further analyses on immune- and bacteriological parameters
 - assessing parasitic infestation
- **implementation-timeline:** ongoing with a regular (every 3-5 years) review of results

ACTORS

- **responsible for co-ordination of action:** co-ordinator/steering committee of CP, Range States/Parties to ASCOBANS (will need scientific input)

- **stakeholders:** scientists from research institutes with experience in tissue and data collection from stranded and bycaught porpoises, scientists with experience in marine mammal toxicological, pathological (incl. acoustical), immunological, parasitological, bacteriological examinations and diet analyses on marine mammals.

ACTION EVALUATION

- Co-ordinator/Steering Committee of Conservation Plan
- analyses by the ASCOBANS Advisory Committee (AC)
- regular reporting by the relevant research institutes/strandings schemes

PRIORITY

- importance: medium
- feasibility: medium

ACTION 11: INVESTIGATION OF THE EFFECTS OF ANTHROPOGENIC SOUNDS ON HARBOUR PORPOISES

Research Action

Priority: MEDIUM

DESCRIPTION OF ACTION

- **specific objectives:** to collect fundamental information on the effects of anthropogenic sounds on harbour porpoises
- **specific threats to be mitigated:** acoustic pollution
- **rationale:** a wide variety of anthropogenic activities introduce sound into the marine environment (e.g. vessels of all kinds, construction and operation of windfarms, general construction works, hydrocarbon exploration, military activities, pingers, acoustic harassment devices) yet we are still unsure of the actual or potential effects of such sounds on harbour porpoises in the short-term or long-term; it is essential to obtain a
- **target:** to obtain good quality data on the acoustic capabilities of harbour porpoises and relate this to 1) the acoustic properties of anthropogenic sounds (also see Action 12), and 2) the most relevant information on the effects of noise on porpoises
- **method:**
 - review/collect data on the acoustic properties of the variety of anthropogenic sound sources in the North Sea
 - review and if necessary obtain further data on the acoustic capabilities of harbour porpoises (incl. playback experiments where appropriate)
 - review work on the 'dose-based approach' to examining the effects of sound on cetaceans (including how to compute and how to interpret)
 - review effectiveness or otherwise of potential mitigation measures for various anthropogenic sound sources
- **implementation-timeline:** ongoing with a regular (every 3-5 years) review of results

ACTORS

- **responsible for co-ordination of action:** co-ordinator/steering committee of CP,
- **stakeholders:** harbour porpoise scientists; acoustics experts from industry

ACTION EVALUATION

- Co-ordinator/Steering Committee of Conservation Plan
- analyses by the ASCOBANS Advisory Committee (AC)

PRIORITY

- importance: medium
- feasibility: medium

ACTION 12: COLLECTION AND ARCHIVING OF DATA ON ANTHROPOGENIC ACTIVITIES AND DEVELOPMENT OF A GIS

Research action

Priority: MEDIUM

DESCRIPTION OF ACTION

- **specific objectives:** to collect fundamental information on anthropogenic activities that may affect harbour porpoises in the region
- **specific threats to be mitigated:** will provide information relevant to all actual and potential threats
- **rationale:** a wide variety of anthropogenic activities occur in the North Sea region that may potentially affect harbour porpoises; it is necessary to be able to determine the occurrence and temporal/geographical distribution of these and any changes over time to be able to (a) compare these with the distribution of the animals to determine potential problem areas; (b) to have baseline information to compare if changes in harbour porpoise abundance and distribution are observed via Action 7
- **target:** to obtain data on relevant anthropogenic activities in the North Sea over time in a format suitable for incorporating into a GIS (along with data from Action 7)
- **method:**
 - review available sources of data on anthropogenic activities and determine their suitability for incorporation into a database or meta-database and GIS
 - identify information important gaps and possible ways to fill them
- **implementation-timeline:** ongoing

ACTORS

- **responsible for co-ordination of action:** co-ordinator/steering committee of CP,
- **stakeholders:** relevant stakeholders with information on anthropogenic activities

ACTION EVALUATION

- Co-ordinator/Steering Committee of Conservation Plan
- analyses by the ASCOBANS Advisory Committee (AC)

PRIORITY

- importance: medium
- feasibility: medium

6 REFERENCES

- ASCOBANS (1992). Agreement on the Conservation of Small Cetaceans of the Baltic and North Seas. New York.
- ASCOBANS (1997). MOP 2: Resolution on Incidental Take of Small Cetaceans. Bonn.
- ASCOBANS (2000). Proceedings of the third meeting of parties to ASCOBANS. Bristol, UK. 26. – 28. July 2000. 108 pp.
- ASCOBANS (2004). Annual national reports submitted to the Secretariat as of 27 April 2004 (Belgium, Germany, Sweden, UK). Document AC11/Doc. 30(S) presented at the 11th Advisory Committee meeting to ASCOBANS, Jastrzebia Góra, Poland, 27 – 29 April, 2004.
- Brasseur, S., Reijnders, P.J.H., Henriksen, O.D., Carstensen, J., Tougaard, J., Teilmann, J., Leopold, M.F., Camphuysen, C.J. & Gordon, J.C.D. (2004) Baseline data on the harbour porpoise, *Phocoena phocoena*, in relation to the intended windfarm site NSW, in the Netherlands. Report No. 1043, Alterra, Wageningen.
- Camphuysen, C. J. (2004). The return of the harbour porpoise (*Phocoena phocoena*) in Dutch coastal waters. *Lutra*. 47 (2): 113 - 122.
- Clausen, B. & Andersen, S. (1988). Evaluation of bycatch and health status of the harbour porpoise (*Phocoena phocoena*) in Danish waters. *Danish Review of Game Biology*. 13(5): 1 – 20.
- Donovan, G.P., Cañadas, A. & Hammond, P.S. (2008). Towards the development of effective conservation plans for cetaceans. Paper SC/60/O17 presented to the Scientific Committee of the International Whaling Commission, Santiago, Chile. May 2008. (unpublished). 15 pp.
- Eisfeld, S. M. & Kock, K.-H. (2006). Expert Paper to the ASCOBANS Conservation Plan for Harbour Porpoises (*Phocoena phocoena* L.) in the North Sea. 93 pp.
- Evans, P. G. H., Anderwald, P. & Baines, M. E. (2003). UK Cetacean status Review. Report to English Nature and Countryside Council for Wales. Sea Watch Foundation, Oxford, UK. 160 pp.
- Flores, H. & Kock, K.-H. (2003). Fang und Beifang in der deutschen Stellnetzfisherei in der Nordsee. Projektbericht and das Bundesministerium für Verbraucherschutz, Ernährung und Landwirtschaft. 52 pp.
- García Hartmann, M., Smeenk, C., Fichtel, L. & Addink, M. (2004). The diagnosis of bycatch: examining harbour porpoise *Phocoena phocoena* stranded on the Dutch coast from 1990 to 2000. Report to the National Museum of Natural History, Leiden, The Netherlands / Zoo Duisburg, Germany. 23 pp.
- Haelters, J. & Kerckhof, F. (2005). De bescherming van de bruinvis: een brug tussen het Europese visserij- en milieubeleid. *Argus Milieumagazine* 3(1): 4-7.
- Haelters, J. & Camphuysen, C.J. (2009). The harbour porpoise (*Phocoena phocoena* L.) in the southern North Sea: abundance, threats, research and management proposals. Report of the Royal Belgium Institute of Natural Sciences (RBINS/MUMM) and the Royal Netherlands Institute for Sea Research (NIOZ); project funded by the International Fund for Animal Welfare (IFAW) - Germany.
- Haelters, J., Jauniaux, T. & van Gompel, J. (2002). Increased number of harbour porpoise strandings in Belgium between 1990 and 2001. Poster presented at the 16th Annual Conference of the European Cetacean Society, Liège, Belgium.
- Hammond, P. S., Benke, H., Berggren, P., Borchers, D. L., Buckland, S. T., Collet, A., Heide-Jørgensen, M. P., Heimlich-Boran, S., Hiby, A. R., Leopold, M. F., Øien, N. (1995).

- Distribution and abundance of the harbour porpoise and other small cetaceans in the North Sea and adjacent waters (SCANS)*. EU-Project LIFE 92-2/UK/027. Final Report. 240 pp.
- Hammond, P. S. & Mcleod, K. (2006). Progress report on the SCANS-II project. Paper prepared for the 13th Advisory Committee to ASCOBANS, Tampere, Finland, 25 – 27 April. 6pp.
- ICES (2001). Report on the ICES Advisory Committee on Ecosystems. *ICES Cooperative Research Report*. 249. 75 pp.
- ICES (2008). Report of the Working Group on Marine Mammal Ecology (WGMME), February 25–29 2008, St. Andrews, UK. ICES CM 2008/ACOM: 44. 86 pp.
- IWC (2000). Annex O, Report of the IWC-ASCOBANS Working Group on harbour porpoises. *Journal of Cetacean Research and Management*. 2 (Suppl.): 297 – 305.
- Jauniaux, T., Petitjean, D., Brenez, C., Borrens, M., Brosens, L., Haelters, J., Tavernier, T. & Coignoul, F. (2002). Post-mortem findings and causes of death of harbour porpoises (*Phocoena phocoena*) stranded from 1990 to 2000 along the coastlines of Belgium and northern France. *Journal of Comparative Pathology*. 126: 243 – 253.
- Jepson, P.D., Baker, J.R., Kuiken, T., Simpson, V.R., Kennedy, S. & Bennett, P.M. (2000). Pulmonary pathology of harbour porpoises stranded in England and Wales between 1990 and 1996. *Veterinary Record*. 146: 721-728.
- Jepson, P.D., Bennett, P.M., Deaville, R., Allchin, C.R., Baker J.R. & Law, R.J. (2005). Relationships between PCBs and health status in UK-stranded harbour porpoises (*Phocoena phocoena*). *Environmental Toxicology and Chemistry* 24: 238–248.
- Kaschner, K. (2003). Review of small cetacean bycatch in the ASCOBANS area and adjacent waters – current status and suggested future actions. MOP4/Doc21 (s) presented at the 4th Meeting of the Parties to ASCOBANS, Esbjerg, Denmark. 122 pp.
- Kinze, C. C. (1994). Incidental catches of harbour porpoises (*Phocoena phocoena*) in Danish waters, 1986 – 1989. In: *Special Issue 15: Gillnets and Cetaceans*. W. F. Perrin, G. P. Donovan and J. Barlow (eds.). Reports of the International Whaling Commission. Cambridge, UK. pp. 183 – 187.
- Kiszka, J. J., Haelters, J. & Jauniaux, T. (2004). The harbour porpoise (*Phocoena phocoena*) in the southern North Sea: a come-back in northern French and Belgian waters? Document AC11/Doc.24(P/R) presented at the 11th Advisory Committee Meeting to ASCOBANS, Jastrzebia Góra, Poland, 27 – 29 April, 2004. 4 pp.
- Lunneryd, S.-G., Königson, S. & Sjöberg, N. B. (2004). Bifångst av säl, tumlare och fåglar i det svenska yrkesfisket. Bycatch of seals, harbour porpoises and birds in Swedish commercial fisheries. *Finno, Fiskeriverket*. 2004: 8.
- Morizur, Y., Pouvreau, S. & Guenole, A., (1996). Les rejets dans la pêche artisanale française de Manche occidentale. Editions IFREMER, France. 127 pp.
- Northridge, S., P. & Hammond, P. S. (1999). Estimation of the porpoise mortality in UK gill and tangle net fisheries in the North Sea and west of Scotland. Paper SC/51/SM42 presented to the Scientific Committee of the International Whaling Commission. Grenada, WI. (unpublished). 19 pp.
- Northridge, S., P., Sanderson, D., Mackay, A. & Hammond, P. (2003). Analysis and mitigation of cetacean bycatch in UK fisheries. Final contract report to DEFRA. Project No. MF0726. November 2003.

- Reid, J. B., Evans, P. G. H. & Northridge, S. P. (2003). *Atlas of cetacean distribution in north-west European waters*. Joint Nature Conservation Committee, Peterborough. 76 pp.
- Reijnders, P.J.H. (2005) Netherlands Progress Report on Cetacean Research, May 2004 to May 2005, with statistical data for the calendar year 2004. SC/56/Prog. Rep. Netherlands presented to the Scientific Committee of the International Whaling Commission. Ulsan, Korea, June 2005.
- Reijnders, P. J. H., Aguilar, A. & Donovan, G. P. (1999). Chemical Pollutants and Cetaceans. The Journal of Cetacean Research and Management. Special Issue 1. 273 pp.
- SCANS-II (2008). Small Cetaceans in the European Atlantic and North Sea. Final Report submitted to the European Commission under project LIFE04NAT/GB/000245. Available from SMRU, Gatty Marine Laboratory, University of St Andrews, St Andrews, Fife, KY16 8LB, UK.
- Scheidat, M. & Siebert, U. (2003). Aktueller Wissensstand zur Bewertung von anthropogenen Einflüssen auf Schweinwale in der deutschen Nordsee. *Seevögel*. 24(3): 50 – 60.
- Scheidat, M., Gilles, A., Kock, K.-H. & Siebert, U. (2004). Harbour porpoise summer abundance and distribution in the German North and Baltic Seas. Working paper AC11/Doc. 8(P) Revision 1 presented to ASCOBANS. Jastrzebia Góra, Poland. 10 pp.
- Siebert, U., Wünschmann, A., Weiss, R., Frank, H., Benke, H. & Frese, K. (2001). Post-mortem findings in harbour porpoises (*Phocoena phocoena*) from the German North and Baltic Seas. *Journal of Comparative Pathology*. 124: 102 – 114.
- Tregenza, N. J. C., Berrow, S. D., Hammond, P. S. & Leaper, R. (1997). Harbour porpoise (*Phocoena phocoena* L.) bycatch in set gillnets in the Celtic Sea. *ICES Journal of Marine Science*. 54: 896 – 904.
- Vinther, M. (1999). Bycatches of harbour porpoises (*Phocoena phocoena*) in Danish set-net fisheries. *Journal of Cetacean Research and Management*. 1: 123 – 135.
- Vinther, M. & Larsen, F. (2002). Updated estimates of harbour porpoise bycatch in the Danish North Sea bottom set gillnet fishery. Paper SC/54/SM31 presented to the Scientific Committee of the International Whaling Commission, Shimonoseki. May 2002. (unpublished). 16 pp.