

ASCOBANS

**Recovery Plan for
Baltic Harbour Porpoises
(Jastarnia Plan)**

Bonn, July 2002

ASCOBANS

Note from the Secretariat

The ASCOBANS workshop aimed at drafting a recovery plan for Baltic harbour porpoises took place in Jastarnia, Poland, from 9 - 11 January 2002. Based on the outcome of this workshop and the subsequent email discussions, the facilitator and chairman, Dr. Randall R. Reeves, produced a draft that was submitted to the 9th meeting of the Advisory Committee (Hindås, Sweden, 10 - 12 June 2002). AC 9 finalised the recovery plan.

In line with the recommendations of the 9th meeting of the Advisory Committee, the present, final, version of the Jastarnia Plan no longer contains Appendices 2 - 4 (reports of the working groups established during the Jastarnia workshop) of the Draft Recovery Plan submitted to the above meeting. This draft (DDoc 7 (S)), containing the complete appendices, is, however, obtainable from the Secretariat and will be available on the ASCOBANS website: www.ascobans.org.

ASCOBANS RECOVERY PLAN FOR HARBOUR PORPOISES IN THE BALTIC SEA

(JASTARNIA PLAN)

1. The Problem

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 and Baltic Seas). 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 helping to prevent 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, Skóra 1991, Berggren 1994, Kock and Benke 1996), and therefore these types of fishing gear are a focus of concern when considering how to facilitate recovery of harbour porpoises.

2. Objectives

ASCOBANS has an interim goal of restoring the population of harbour porpoises in the Baltic Sea to at least 80% of its carrying-capacity level. 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 (see section 4, below). 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). Therefore, the objectives of this recovery plan are to: (1) implement precautionary management measures immediately to reduce the bycatch rate to two or fewer porpoises per year in the portion of the Baltic that was surveyed in 1995, (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.

3. Background

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. The ASCOBANS Parties adopted a Resolution on Incidental Take of Small Cetaceans in 1997 (MOP2, Bonn) 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 (MOP3, Bristol) and the ASCOBANS Triennium Workplan 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 (ABDG 2001) was considered at the 8th Meeting of the ASCOBANS Advisory Committee (Nymindegab, Denmark, April 2001). The Nymindegab meeting also provided the terms of reference for the recovery plan workshop, which was held in Jastarnia, Poland, 9-11 January 2002. While the ABDG was a smaller group consisting exclusively of scientists, the 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 (Danish Cooperation for Environment in Eastern Europe, DANCEE) and ASCOBANS. It was hosted by ASCOBANS in cooperation with the Foundation for the Development of the University of Gdańsk (Fundacja Roswoju Uniwersytetu Gdańskiego, 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 fishery agencies and fishermen’s organisations in Denmark, Finland and Sweden, together with invited experts. That meeting took place in Kolmården, Sweden, in October 2001.

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. Although constrained from giving management advice regarding small cetaceans, the Scientific Committee of the International Whaling Commission (IWC) has repeatedly noted that the Baltic “stock” of harbour porpoises is depleted and under threat, and that more and better information is needed on bycatch, abundance and stock identity (Donovan and Bjørge 1995, IWC 1996, 1997, 1998). In 1996 the World Conservation Union (IUCN) listed harbour porpoises in the Baltic as a geographical population that is “vulnerable”, meaning that it is judged to be facing a high risk of extinction in the medium-term future (IUCN 1996). In March 1998 the Baltic Marine Environment Protection Commission (Helsinki Commission, or HELCOM) recommended that contracting parties accord “highest priority” to porpoise bycatch avoidance, improve the state of knowledge concerning porpoises in the Baltic, and consider the establishment of protected areas for porpoises. HELCOM has also actively promoted the concept of a Baltic harbour porpoise recovery plan (e.g. letter from chairman of HELCOM to chairman of International Baltic Sea Fishery Commission, 15 December 1999, Outcome of Second HELCOM HABITAT Group, 21 - 25 May 2001, Sigulda, Latvia, cf. Minutes 6.17 and Annex 7).

4. Status of the Population(s)

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 bycatches 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).

It is clear from morphologic, 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 (cf. map at Appendix 2).

Sightings surveys have been limited to aerial surveys of portions of the southern and western Baltic in 1995 (Heide-Jørgensen et al., 1992, 1993; Hiby and Lovell 1996) 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 (probably at least several thousands). The only estimates of current abundance are from the 1995 aerial surveys by Hiby and Lovell (1996), as follows: 599, CV=0.57, 95%CI 200-3,300, for a 43,000km² area corresponding to ICES Sub-divisions 24 and 25 but excluding a 22 km wide corridor off the Polish coast; and 817, CV=0.48, 95%CI 300-2,400, for Kiel and Mecklenburg Bights in the western Baltic. The lack of an independent observer programme on fishing vessels, and of coherent and comprehensive data on fishing effort, has made rigorous estimation of bycatch levels impossible.

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 poor quality 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.

5. Recovery Recommendations

The following recommendations constitute the ASCOBANS recovery plan for harbour porpoises in the Baltic Sea:

A. 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 **fishermen and their representatives need to be closely involved in the implementation 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 at the other extreme are those who 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 the recovery plan to the extent possible.

i. 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 driftnet and bottom-set gillnet fisheries in the Baltic**. 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. driftnets and bottom-set gillnets) 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 (see section 5A iii) provide a useful starting point for specifying high-risk circumstances.

Derelict (“ghost”) gear forms 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.

ii. Change fishing methods away from gear known to be associated with high porpoise bycatch (i.e. driftnets and bottom-set gillnets) and towards alternative gear that is considered less harmful

A changeover to gear that is less harmful to porpoises is one way of maintaining a fishery while achieving bycatch reduction. It is therefore recommended that **trials of 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 replacement gear in the Baltic cod fishery should be undertaken as a high priority. Development work should be coordinated among the range states and implementation should begin immediately when cost-effectiveness has been demonstrated. An important consideration in defining cost-effectiveness is that catch levels may be less, but quality (and thus unit value) greater, particularly when fish are taken in traps or pots rather than gillnets.

Ancillary to this initiative in the cod fishery, it should be feasible to replace salmon driftnetting with longlining or other alternative fishing methods. The United Nations introduced a global ban on large-scale high-seas driftnetting beginning in 1992, and as of January 2002 the EU phased out all driftnets for most pelagic species. However, regulations in the Baltic Sea still allow the use of driftnets.

A changeover from driftnets to less high-risk gear would almost certainly benefit porpoises, and it is therefore recommended that **serious consideration should be given to replacing driftnets in areas where porpoise bycatch is known or likely to occur**. Any such replacement or changeover would need to be considered in coordination with the competent fisheries management authorities. It is also important to emphasise that any change in fishing gear to benefit porpoises (e.g. replacement of driftnets with longlines) needs to be considered in the light of possible undesirable effects on the target fish (e.g. taking undersized salmon) or other biota (e.g. seabirds).

iii. Compile standardised data on fishing effort

While any reduction in fishing effort (driftnets and bottom-set gillnets) within the areas used by porpoises would be expected to have some benefit in terms of reduced bycatch, it is preferable that effort reductions (and other forms of bycatch mitigation) be targeted on “high-risk” areas. Identification of such areas depends at least partly on knowing where, when, and how much fishing takes place. Therefore, it is recommended that **ASCOBANS should commission, or persuade others to commission, a contract study to compile data on fishing effort in the Baltic**, with the following terms of reference:

- a. An initial assessment should be made immediately to determine sources of relevant data and identify individuals in the range states whose cooperation is needed.
- b. An appropriately qualified fishery expert should be contracted to carry out the study, to be completed within six months of contract signing.
- c. Data as specified in Appendix 1 should be compiled for all driftnet and bottom-set gillnet fisheries (including any wreck or trammel net fisheries), with particular attention given to ICES Fishing Areas 24, 25 and 26.
- d. It is essential that all effort data be given in standard units (e.g. net km.hr), recognising that this will mean that the contractor needs to make appropriate conversions.
- e. Data for the most recent three years should be included in the report.
- f. The Report should be completed if possible by the end of calendar 2002.

Some of the relevant data will not be available, particularly for smaller vessels (<10 m long), for non-commercial fishermen who fish near shore, and for the anchored, floating gillnets used to catch salmon in some areas (e.g. Puck Bay). Therefore, a series of follow-up studies, country-by-country and involving individuals who are familiar with the fisheries in question, will be needed to obtain these data. However, it is important to emphasise that neither the contract study itself, nor these follow-up studies, should be used as a reason for delaying implementation of other recommendations in the recovery plan (see 5Aiv).

Placement of this recommendation under “Bycatch Mitigation” rather than “Research and Monitoring” is deliberate, intended to emphasise that there should be a direct and immediate link between the effort data and ongoing bycatch mitigation measures.

A corollary item that should be prepared immediately and made available through ASCOBANS is **a concise summary of where and when porpoise bycatches have been documented in the Baltic Sea.**

iv. 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 gillnet fisheries outside the Baltic and, as noted by Read (2000), no further trials are necessary before they are used in at least bottom-set gillnet fisheries within the ASCOBANS area. 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 be made mandatory in specific high-risk areas and fisheries, on a short-term basis (2 - 3 years).**

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

- a. One of the drawbacks of relying upon pingers is that their use does not ensure a zero bycatch, and there is no guarantee that it will bring bycatch down to the estimated target of two or fewer animals per year. However, since it is clear that the Baltic Range States will not accept immediate closure of the driftnet and gillnet fisheries, or achieve an immediate changeover to alternative gear, any reduction in bycatch that can be accomplished during the next few years through the rapid deployment of pingers will be better than no reduction.
- b. A second problem is that the cost of an independent on-board observer scheme of sufficient scale to monitor the programme's effectiveness (generally considered a required component of pinger programmes; IWC 2000a, Read 2000) may be exorbitant, particularly given that it would likely be competing for funds with programmes to develop alternative gear, etc. (see *d*, 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, the problem of evaluating effectiveness can only be addressed through a costly, large-scale on-board observer programme.
- c. A third concern is that widespread pinger use may displace porpoises from important habitat (IWC 2000a). 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 *a*, 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).
- d. 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). Moreover, pinger manufacturers are likely to use the large number of new orders as a stimulus for expanding their production capacity, thereby acquiring a strong incentive to promote pinger use beyond the “short term” of two or three years. In other words, the inertia of “short-term” pinger programmes could be difficult to overcome with alternative approaches once the procedures and capital investments of the pinger programmes are in place. 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:

- Before introducing pingers to the Baltic environment, a simple modelling exercise should be conducted to confirm that they will function there essentially as they do elsewhere. Sound propagation measurements from a series of selected sites, water depths and times should be undertaken immediately.
- Cost-effectiveness and efficiency will be best served if pinger implementation is targeted on those areas/times considered most likely to have overlap between ‘high’ porpoise densities and intensive driftnet and/or bottom-set gillnet fishing. Those high-risk areas that can be identified, based on available information on by-catches and fishing effort, are the Swedish driftnet fishery for salmon and bottom-set gillnet fishery for cod in ICES rectangles 3958, 4059, 4159 and 4160; and the Polish driftnet fishery for salmon in Puck Bay.¹ Short-term implementation in these areas should occur immediately.
- Identification of further high-risk areas must also be undertaken immediately. This requires compilation of the recommended data on fishing effort and on the timing and location of porpoise by-catches (both historical and recent cf. above, 5Aiii) and data on porpoise distribution (sightings, strandings etc.). This work had been stressed by the ASCOBANS Baltic Discussion Group in 2001 and must be given extremely high priority.
- It is essential that any pinger implementation be accompanied by an observer programme 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 by-catch is well documented. Despite the associated difficulties with high fishing effort and low by-catch rates, by-catch monitoring should be made an integral part of any pinger implementation programme where feasible, and especially in the high-risk areas identified above.

¹The choice of ICES rectangles reflects the fact that 71% of the reported harbour porpoise bycatch in Swedish Baltic waters between 1985 and 1998 occurred there. Moreover 81% of the total Swedish driftnet effort and 53% of the bottom-set gillnet effort in the Baltic in 1977 occurred there. The choice of Puck Bay reflects the fact that during the last decade, over 50% of the total reported bycatch in Poland was from this area, which constitutes 1.1% of Polish Baltic waters. More than 70% of the reported bycatch in this region has been in driftnets.

- The concern that pingers might exclude porpoises from large areas of critical habitat should be addressed before pinger use becomes widespread in the Baltic. As an initial approach, an analysis similar to that conducted previously for the North Sea (Larsen and Hansen, 2000) should be conducted to estimate the potential extent of habitat exclusion for the Baltic.
- Implementation of pingers should be short-term and therefore should be reconsidered within 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 by-catch) 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.

B. 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 genuine uncertainty about the possible roles of 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 in the decline, and failure to recover, of harbour porpoises in the Baltic. In the long term, these other factors could prove decisive in determining whether the animals are able to repopulate the region. Therefore, further research is needed not only to supply information related to bycatch mitigation and recovery monitoring, but also to guide decisions concerning such things as waste management, pesticide use, energy development, and fisheries (in a broader sense than only bycatch), and to convince fishermen, decision-makers, and the general public of the need for a recovery strategy (see D, below).

Research and monitoring needs have been identified and justified in the report of the ASCOBANS Baltic Discussion Group (ABDG 2001) and in Appendix 2 of AC9/DDoc. 7. The highest priorities identified at the Jastarnia workshop (in addition to items noted under “Bycatch Mitigation” above) were as follows:

- **Analyse stock affinities of harbour porpoises in the “transition zone” of the southwestern Baltic.** 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).

- **Develop and apply new techniques (e.g. acoustic monitoring) for assessing trends in abundance.** Given the apparently low-density occurrence of porpoises in the Baltic, standard distance sampling is unlikely to provide adequate statistical power to detect trends. Therefore, new approaches, such as acoustic monitoring, will be essential for assessing effectiveness of recovery efforts.
- **Investigate the effects of various types of sound and disturbance (including pinger signals, noise from vessels and wind parks) on harbour porpoises.** Such investigations should be conducted somewhere other than in the Baltic, in areas with higher porpoise density where proper experimental design can be applied.

C. 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. Existing and proposed protected areas in the Baltic are generally considered either too small or inappropriately designed to provide significant benefits to harbour porpoises. There is a danger that protected area designations will be viewed by the public, and used by authorities, as feel-good gestures, providing a false sense of accomplishment. Considering the results of satellite tagging of harbour porpoises (see Read and Westgate 1997; Larsen et al. 2000), these animals are highly mobile, and this has important implications for protected area scale and design. Although **authorities should be encouraged to implement management measures within protected areas to benefit porpoises and/or their critical resources (e.g. prey stocks), such limited measures should not be allowed 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 of this recovery plan. Unless people are convinced that porpoises are present in their local waters, that these creatures are worth saving, and that the animals' existence is threatened, they are not likely to support recovery efforts. Whereas other elements of the plan depend largely on the decision-making processes of national or supranational governmental agencies and international 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 and to actively promote their protection and recovery.

Because they are among the people likely to interact most directly and most frequently with harbour porpoises, Baltic fishermen must be viewed as a key audience. At the same time, it is important to reach members of the general public, as they are consumers of fishery products and the ultimate arbiters of public policy (via the democratic process). It is vital that public awareness

efforts be objective, attendant to and respectful towards cultural and linguistic differences, and candid about scientific uncertainty. In fact, one of the greatest challenges to implementation of this recovery plan is the uncertainty surrounding the porpoise population's status and the nature and level of threats to its existence.

The elements of a comprehensive public awareness campaign are outlined in Appendix 3 of AC 9 DDoc 7 (S). The four principal recommendations are listed below:

- While acknowledging the proven value of national programmes in raising public awareness, ASCOBANS should **develop and promote a regional approach to Baltic harbour porpoise conservation**, possibly using as a model the Danish programme “Look Out for Whales and Dolphins in Danish Waters”.
- In relation to the preceding recommendation, explicit efforts should be made to **enlist the help of the general public in obtaining reports of porpoise observations** throughout the Baltic. This can be expected to improve understanding of porpoise distribution, relative abundance, and bycatch, 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.
- 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.
- 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.

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 also have important roles to play, particularly in 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 bodies are HELCOM, which deals with environmental protection, and the International Baltic Sea Fisheries Commission (IBSFC), which is the competent international fishery management organisation for the region. 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. The Scientific Committee of the International Whaling Commission (IWC) has provided an important forum for assessing the status of small cetaceans, including harbour porpoises.

HELCOM has already indicated a strong interest in porpoise recovery, specifically by promoting bycatch reduction, relevant research, and consideration of porpoise habitat requirements in the design and management of marine protected areas. IBSFC has championed an “ecosystem approach” to marine conservation, which must implicitly take into account not only bycatch, but also the functional role of porpoises in the Baltic ecosystem. It is the responsibility of the contracting parties to IBSFC to implement management recommendations in national legislation. In the European Union, which is the contracting member of IBSFC on behalf of its member states in the Baltic region (Finland, Denmark, Sweden, and Germany), fishery legislation is adopted within the framework of the Common Fisheries Policy. Individual states in the region may also adopt national regulatory measures that only apply to their national fishing fleets.

The European Union’s Council Directive 92/43/EEC (Habitats & Species Directive) lists the harbour porpoise on 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.” It is expected that the impending 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.

F. Re-evaluation of this Recovery Plan

It is important that this recovery plan and the actions outlined within it be implemented without delay, and that ASCOBANS undertake a formal process of re-evaluation and revision of the plan no less often than every five years. **The first review should occur three years after the first implementation of pingers.** 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.

G. Implementation

An initial attempt to outline steps for implementation of this plan was made at AC 9 in June 2002. These steps are given below as Appendix 3.

6. References Cited

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Appendix 1: Outline Example for Fishing Effort Data

Year (provide separately for most recent 3 available)	ICES Fishing Area 24 Net km.hour						ICES Fishing Area 25 Net km.hour						ICES Fishing Area 26 Net km.hour						→etc.
	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 2:

Map of the Baltic Region



Appendix 3:

Important Steps for the Implementation of the Jastarnia Plan

The 9th Meeting of Advisory Committee (Hindås, Sweden, 10 -12 June 2002) identified the following steps for the implementation of the Jastarnia Plan, in order of importance²:

***1. Establish an Advisory Group to oversee the process of identifying high-risk areas for bycatch mitigation. This group will have responsibility for further development of the Terms of Reference for needed studies, choosing consultants (or other individuals) to carry out the studies, and generally to carry forward the relevant recommendations in the Recovery Plan.

1a. Collation of data on the distribution and timing of porpoise bycatches in the Baltic, and on the distribution and timing of porpoise observations (including strandings) in the Baltic, over approximately the past 50 years.

It was agreed that this work should be conducted by a cetacean expert who is familiar with the Baltic literature. Preferably, this should be a scientist who is sponsored by an agency in one of the ASCOBANS Parties. Estimated time required : 1 month.

1b. Collation of data on fishing effort, following the terms of reference and example data sheet in the Recovery Plan.

It was agreed that this work should be conducted by someone with an intimate knowledge of Baltic fisheries and with a high degree of competence in dealing with fishery statistics. As part of this project, a steering group should be identified consisting of one contact person in each Baltic Range State who can help direct the contractor to relevant sources of data. Estimated time required: 4-6 months. Cost: up to 70,000 Euros.

***2. Model pinger function in Baltic conditions. The simple modelling exercise called for in the Recovery Plan should be conducted to determine whether hydrographic conditions in the Baltic are sufficiently different to dramatically compromise pinger efficacy. It was agreed that Håkan Westerberg and Peter Evans would take responsibility for ensuring that this exercise is carried out independently in Sweden and the UK, with Peter first obtaining necessary hydrographic data from Håkan. Cost: none foreseen.

***3. Send the Recovery Plan (and this "implementation plan") to IBSFC, HELCOM, and other relevant bodies, with an appropriate cover letter outlining what is expected from them. It is particularly urgent that the transmittal to IBSFC take place without delay, and that every effort be made to ensure that the Recovery Plan is on the agenda of IBSFC's September meeting this year and that a representative of the ASCOBANS Advisory Committee is present at the meeting to present the Plan in person. The responsibility for ensuring that this item is carried out should jointly fall upon the Secretariat and the Chairman-Vice-Chairman.

***4. Initiate a review of all experiments to date with alternative gear and fishing practices that might be used to replace the current use of driftnets and bottom-set gillnets in the Baltic. The objective of this review will be to identify promising gear for further development and testing.

² *** Top priority/immediate implementation

** high priority/implement without delay

* to be implemented as soon as feasible

It was agreed that this work would take about 2-3 months to complete, at a cost of about 30,000 Euros. Håkan Westerberg and Finn Larsen will be responsible for ensuring that an appropriate person is identified and engaged to do this work. Funding and implementation could be provided through partnership with one or more NGOs, but with the Terms of Reference developed by Håkan Westerberg and Finn Larsen on behalf of the Advisory Committee.

**5. Initiate communication with competent fishery authorities to ensure that there is consistency between what is envisaged in the Baltic Recovery Plan with regard to changes in fishing gear and practices, and any measures that are being considered or taken by those authorities. This work is the joint responsibility of the Secretariat and the Chairman/Vice-Chairman. It should be completed at no cost.

**6. Develop and implement a strategy for getting fishermen to support bycatch mitigation measures.

A key element of any pinger implementation will be educating fishermen on how to use them properly.

*7. Improve effort and protocols for data collection from stranded or incidentally caught harbour porpoises in the Baltic.

Concerted efforts should be made to locate such animals and to perform comprehensive necropsies on them. Data and samples are particularly needed to expand work on stock identification, contaminant levels, diet, and reproduction.

*8. Once sufficient data are available from items 1 and 2, an analysis should be initiated for the Baltic similar to that reported for the North Sea in 2000 by Hansen and Larsen. The aim will be to evaluate the potential for habitat exclusion caused by pinger use in the Baltic.

It was agreed that the eight points detailed above should be attached to the Baltic Recovery Plan.