

**Agenda Item 4.1:**        **ASCOBANS Baltic Recovery Plan (Jastarnia Plan)**

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

**Submitted by:**        **ASCOBANS Secretariat**



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***NOTE:***  
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**Draft Recovery Plan for  
Baltic Harbour Porpoises  
(Jastarnia Plan)**

Bonn, 7 May 2002

**ASCOBANS**



## **NOTE FROM THE ASCOBANS 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, the facilitator and chairman, Dr. Randall R. Reeves, produced three consecutive drafts of the recovery plan for review by workshop participants.

While the facilitator incorporated many of the comments made, it was impossible to reflect every individual suggestion. The present annotated version of the draft Jastarnia Plan contains a compilation of those comments on the text that are not incorporated in the third draft of the Plan, i.e. neither taken over verbatim nor reflected in alternative wording suggested by Dr Reeves, workshop participants or the Secretariat. Passages for which changes were suggested are given in italics, suggested new wording in footnotes, underlined.

The comments reproduced below have not been formally edited.



## DRAFT

### ASCOBANS RECOVERY PLAN FOR HARBOUR PORPOISES IN THE BALTIC SEA

#### (JASTARNIA PLAN)

#### 1. The Problem

2  
4 The harbour porpoise (*Phocoena phocoena*) is widely distributed in shelf waters of the temperate  
6 North Atlantic and North Pacific Oceans and in some semi-enclosed seas (e.g. the Black and  
8 Baltic Seas). Although still numerically abundant as a species, at least in comparison to many  
10 other cetaceans (whales, dolphins and porpoises), the harbour porpoise has experienced major  
12 declines in portions of its range, including and perhaps most notably the Baltic Sea. The causes of  
14 population decline in the Baltic may include the commercial catching of porpoises historically  
16 (Kinze 1995), the periodic catastrophic mortality resulting from severe winter ice conditions  
18 (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.*<sup>1</sup>

#### 2. Objectives

24 ASCOBANS has an interim goal of restoring the population of harbour porpoises in the Baltic  
26 Sea to at least 80% of its carry-capacity level. Berggren et al. (2002) incorporated this interim  
28 objective into a Potential Biological Removal (PBR) model to estimate a “mortality limit” of only  
30 one or two harbour porpoises in the surveyed portion of the Baltic Sea (see section 4, below). In  
32 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 their estimated current minimum bycatch of seven).  
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*

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<sup>1</sup> **Per Berggren:** *Catches of harbour porpoises in salmon drift nets and bottom-set gillnets (for cod and other demersal species) are known to have occurred and still to occur 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.*

of the Baltic that was surveyed in 1995<sup>2</sup>, (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 8<sup>th</sup> 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.<sup>3</sup> 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 Gdansk (Fundacja Roswoju Uniwersytetu Gdanskiego, 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.<sup>4</sup>

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

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<sup>2</sup> **S-MAR:** *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.*  
Comment by S-MAR: The recovery plan needs to address the area not covered by the 1995 survey.

**Per Berggren:** dto.

<sup>3</sup> **Denmark:** *Insert However, there was little time to prepare for the workshop and to ensure broader participation due to the late notification of the workshop.*

<sup>4</sup> **Denmark:** *Insert A summary of the seminar is attached to this report.*

70 porpoises is depleted and under threat, and that more and better information is needed on bycatch,  
72 abundance and stock identity (Donovan and Bjørge 1995, IWC 1996, 1997, 1998). In 1996 the  
74 World Conservation Union (IUCN) listed harbour porpoises in the Baltic as a geographical  
76 population that is “vulnerable”, meaning that it is judged to be facing a high risk of extinction in  
78 the medium-term future (IUCN 1996). In March 1998 the Baltic Marine Environment Protection  
80 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).

#### 82 **4. Status of the Population(s)**

84 As is true of other small populations that inhabit large areas and occur in low densities, scientific  
86 assessment of harbour porpoises in the Baltic is extremely challenging. Estimates of abundance  
88 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 precautionary management decision-making  
(Taylor and Gerrodette 1993).

92 It is clear from morphologic, genetic and other analyses that the aggregate North Atlantic harbour  
94 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  
96 and Berggren 1997, Börjesson and Berggren 1997). However, relatively few porpoise specimens  
98 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;  
100 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  
102 uncertain.

104 **(Insert map here)**

106 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  
108 (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  
110 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  
112 aerial surveys by Hiby and Lovell (1996), as follows: 599, CV=0.57, 95%CI 200-3,300, for a

114 43,000km<sup>2</sup> tract<sup>5</sup> corresponding to ICES Sub-divisions 24 and 25 but excluding a 22 km corridor  
116 along the Polish coast; and 817, CV=0.48, 95%CI 300-2,400, for Kiel and Mecklenburg Bights in  
118 the western Baltic.<sup>6</sup> 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.

120 The situation that appears to have arisen in the Baltic is one that can easily lead to circular  
122 reasoning. With an extremely low density of porpoises, the animals are rarely seen or caught by  
124 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  
126 bycatch is a serious threat to the porpoise population. However, if bycatch was, as many assume,  
128 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  
130 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.

132 Despite the generally poor quality of available data, there is sufficient evidence to conclude that  
134 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  
136 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  
138 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;  
140 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  
142 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  
144 action would be immediate and unambiguous.<sup>7</sup>

## 146 5. Recovery Recommendations

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

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<sup>5</sup> **Per Berggren:** ~~tract~~ *area*

<sup>6</sup> **S-MAR:** Insert new paragraph here so that the following sentence (*The lack of ... levels impossible*) stands alone.

<sup>7</sup> **Denmark:** Insert an additional sentence: *It can therefore be concluded at this stage that a number of important factors are likely to have contributed to the decline in porpoise numbers in the Baltic Sea but at present bycatch is probably the only one where the effect of any remedial action would be immediate, whilst improved knowledge and action on issues related to population status and environmental pressures also need to be addressed in the framework of a recovery plan.*

## A. Bycatch Reduction

152 Both the ASCOBANS Baltic Discussion Group and the Jastarnia workshop concluded that  
154 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  
156 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  
158 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  
160 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  
162 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  
164 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  
166 to bycatch reduction.

168 It is important to emphasize that there is neither unanimity nor consensus on the issue of how  
bycatch should be reduced, although there does seem to be consensus that porpoises are likely to  
170 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  
172 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<sup>8</sup> are those who believe that, despite their  
174 side-effects and associated uncertainties, acoustic deterrents should be used on a short-term  
basis as part of a bycatch reduction strategy.<sup>9</sup>*

- **Reduce fishing effort in certain fisheries**

178 The most effective way to reduce bycatch is to reduce or eliminate fishing effort that  
involves “porpoise-harmful” gear (i.e. gear known to cause high porpoise bycatch rates)  
180 (Read 2000). *Therefore, it is recommended that **measures be taken by the Baltic Range  
States to reduce the fishing effort of driftnet and bottom-set gillnet fisheries<sup>10</sup> in the  
182 Baltic.***<sup>11 12</sup> Fishing effort needs to be clearly understood to include both the amount of

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<sup>8</sup> **Mats Amundin:** ~~At one extreme~~ *On the one hand there 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~~ on the other there*

<sup>9</sup> **S-MAR:** Option a) delete sentence *At one extreme ... reduction strategy.* Option b) replace *At one extreme ... reduction strategy* by Views among participants differed as to what measures should be prioritised for management. While some members were of the opinion that the most effective and environmentally benign way to reduce porpoise bycatch to the PBR level or below would be through the immediate major reductions in high-risk fishing effort, others were of the view that despite their side effects and associated uncertainties, acoustic deterrents should be introduced immediately on a short-term basis as part of a bycatch reduction strategy.

<sup>10</sup> **Denmark:** ... driftnet and certain bottom-set gillnet fisheries ...

<sup>11</sup> **Sweden:** ~~“Therefore, it is recommended that **measures be taken by the Baltic Range States to reduce the fishing effort of driftnet and bottom-set gillnet fisheries in the Baltic**”~~ **Range States to reduce the fishing effort of driftnets.**

184 net deployed and the amount of time that the nets are in the water (soak time). Also, it is  
186 important to emphasize that reductions in catch quotas, or reductions in fishing capacity,  
188 are not the same as reductions in fishing effort, and therefore it *cannot* be assumed that  
190 reduced fish catch quotas or reduced fleet sizes will necessarily reduce porpoise bycatch.  
192 Reductions in fishing effort prompted by concerns about fish stock depletion or other  
194 ecosystem considerations should be encouraged, especially if such reductions are applied  
196 to fisheries known to kill porpoises (e.g. driftnets and bottom-set gillnets) and occur in  
198 areas known, or thought to be, inhabited by porpoises. It is certainly preferable that effort  
200 reductions be targeted at high-risk gear types in areas frequented by porpoises. Although  
202 some uncertainty remains in regard both to high-risk gear and porpoise distribution,  
204 documented bycatch localities and dates (see below) provide a useful starting point for  
206 specifying high-risk circumstances.

- **Change fishing methods away from gear known to be associated with high porpoise bycatch (i.e. driftnets and bottom-set gillnets)<sup>13</sup> and towards alternative gear that is considered less harmful**

208 A changeover to gear that is less harmful to porpoises is one way of maintaining a fishery while  
210 achieving bycatch reduction. It is therefore recommended that **trials of fish traps, fish pots, and  
212 longlines be initiated immediately, with the long-term goal of replacing gillnets in the cod  
214 fishery, particularly in areas where porpoises are known or expected to occur frequently.**  
216 The development and introduction of replacement gear in the Baltic cod fishery should be  
218 undertaken as a high priority. Development work should be coordinated among the range states  
220 and implementation should begin immediately when cost-effectiveness has been demonstrated.  
222 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.

224 Ancillary to this initiative in the cod fishery, it should be feasible to replace salmon driftnetting  
226 with longlining for at least those times of the year when salmon are feeding. Particularly in view  
228 of the United Nations' global ban on large-scale high-seas driftnetting beginning in 1992, and the  
230 recent EU phase-out of all driftnets for most pelagic species as of January 2002, regulations  
232 governing driftnet use in the Baltic Sea lag far behind those in much of the rest of the world. A  
*changeover would almost certainly benefit porpoises, and it is therefore recommended that  
234 serious consideration be given to replacing<sup>14</sup> driftnets with longlines in areas where porpoise  
236 bycatch is known or likely to occur.*

238 It is important to emphasise that any change in fishing gear to benefit porpoises (e.g. replacement  
240 of driftnets with longlines) needs to be considered in the light of possible undesirable effects on

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**In addition reductions should be considered for such bottom-set gillnets that are known to cause high porpoise bycatch rates in areas where porpoise are expected to occur frequently.**

<sup>12</sup> Mats Amundin: ... fisheries in the Baltic, and to include small (< 10m) and non-commercial fishing vessels.

<sup>13</sup> Denmark: (i.e. driftnets and certain bottom-set gillnets)

<sup>14</sup> Sweden: ... replacing, when practical, driftnets ...

224 the target fish (e.g. taking undersized salmon) or other biota (e.g. seabirds).

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- **Compile standardized data on fishing effort**

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228 While any reduction in fishing effort (driftnets and bottom-set gillnets) within the areas used by  
229 porpoises would be expected to have some benefit in terms of reduced bycatch, it is preferable  
230 that effort reductions (and other forms of bycatch mitigation) be targeted on “high-risk” areas.  
231 Identification of such areas depends at least partly on knowing where, when, and how much  
232 fishing takes place. *Therefore, it is recommended that ASCOBANS commission, or persuade  
233 others to commission, a contract study to compile data on fishing effort in the Baltic*<sup>15</sup>, with the  
234 following terms

234

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

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

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

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

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<sup>15</sup> IFAW: *Therefore, it is highly recommended that ASCOBANS urgently commission, or persuade others to commission, a contract study to compile data on fishing effort in the Baltic,...*

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• **Implement a pinger programme on a short-term basis**

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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 be made mandatory in Baltic high-risk gillnet fisheries, on a short-term basis (2 - 3 years), in at least ICES Fishing Areas 24, 25 and 26.** *It is essential that any pinger programme be accompanied by a scheme to monitor compliance (i.e. verify that the pingers are being used properly at sea; Read 2000)*<sup>16</sup>.

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*Because this recommendation is controversial, some explanation and discussion are needed, as follows*<sup>17</sup>:

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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 may be better than no reduction.

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b. *A second problem is that the cost of an independent on-board observer scheme of sufficient scale to monitor the programme's effectiveness*<sup>18</sup> (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 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.*<sup>19, 20</sup>

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<sup>16</sup> **S-MAR:** *It is essential that any pinger programme be accompanied by an independent observer scheme to monitor bycatch reduction efforts and compliance ...*

<sup>17</sup> **S-MAR:** ~~*Because this recommendation is controversial, some explanation and discussion are needed, as follows:*~~ *Before such a scheme is introduced there are a number of issues which should be taken into consideration by management authorities:*

<sup>18</sup> **S-MAR:** *... monitor compliance and the programme's effectiveness ...*

<sup>19</sup> **S-MAR:** *The absence of such an observer scheme would mean that neither compliance nor effectiveness could not be evaluated. For purposes of monitoring compliance with pinger-use regulations to a limited degree it may be possible for enforcement vessels (e.g. Coast Guard) to use click detectors. However the problem of evaluating ...*

Insert new point mentioning the concern about habituation and the need to check for its occurrence.

<sup>20</sup> **Mats Amundin:** Add *However, even with accurate data on the bycatch rate in the pingered nets, the very*

- 296 c. A third concern is that widespread pinger use may displace porpoises from important  
298 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).  
300 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*  
302 *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).*<sup>21, 22</sup>
- 304 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  
306 bycatch problem (above), important research (below), and public awareness initiatives  
(below). Moreover, pinger manufacturers are likely to use the large number of new orders  
308 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  
310 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  
312 place.<sup>23</sup> It is therefore essential that management authorities and the fishing industry be  
encouraged to engage in multiple approaches to the bycatch-reduction problem  
314 simultaneously and to move ahead with the longer-term strategies outlined elsewhere in  
this recovery plan.

## 316 B. Research and Monitoring

318 As discussed earlier in this document, the problem of harbour porpoise conservation in the Baltic  
320 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  
322 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  
324 recommendations in this section of the recovery plan should be viewed as a higher priority than  
the bycatch reduction initiatives outlined above.

326 There is genuine uncertainty about the possible roles of contaminants (e.g., organochlorines,  
328 organotins, and heavy metals), ecological perturbations (e.g., ice winters, trophic shifts affecting

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*uncertain existing data on population size and bycatch rate do not allow for any conclusions to be drawn.*

<sup>21</sup> **S-MAR:** Delete *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)*

**Per Berggren:** Option a) as S-MAR above (delete sentence) or Option b) retain sentence but specify what and where experimental studies were conducted (e.g. size of captivity setting).

<sup>22</sup> **Mats Amundin:** Add *However, it has also been shown in the field that porpoises have reclaimed a "pingered" area within a few hours after experimental pingers were removed (Koschinski and Culik 1997): Detering harbour porpoises (Phocoena phocoena) from gillnets: observed reactions to passive reflectors and pingers. Rep. Int. Whal. Comm. 47:659-668; Culik, Koschinski, Tregenza and Ellis 2000: Reactions of harbour porpoises (Phocoena phocoena) and herring (Clupea harengus) to acoustic alarms. Marine Ecology Progress Series.).*

<sup>23</sup> **S-MAR:** Insert new paragraph here so that the following sentence (*It is therefore essential ... plan*) stands alone.

330 porpoise prey consumption; see MacKenzie et al., in press), and other factors in the decline, and  
331 failure to recover, of harbour porpoises in the Baltic. In the long term, these other factors could  
332 prove decisive in determining whether the animals are able to repopulate the region. Therefore,  
333 further research is needed not only to supply information related to bycatch mitigation and  
334 recovery monitoring, but also to guide decisions concerning such things as waste management,  
335 pesticide use, energy development, and fisheries (in a broader sense than only bycatch), and to  
336 convince fishermen, decision-makers, and the general public of the need for a recovery strategy  
(see “Public Awareness,” below).

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

- 342 • **Analyse stock affinities of harbour porpoises in the “transition zone” of the**  
343 **southwestern Baltic.** Various types of evidence already available need to be considered  
344 in an integrated analysis, taking account of new acoustic, tracking, and genetic data. There  
345 should also be a strong initiative to obtain and analyse additional tissue samples from the  
346 Baltic proper (e.g. historical samples in museums and new samples from stranded or  
347 bycaught animals).
- 348 • **Develop and apply new techniques (e.g. acoustic monitoring) for assessing trends in**  
349 **abundance.** Given the apparently low-density occurrence of porpoises in the Baltic,  
350 standard distance sampling is unlikely to provide adequate statistical power to detect  
351 trends. Therefore, new approaches, such as acoustic monitoring, will be essential for  
352 assessing effectiveness of recovery efforts.
- 353 • **Identify “high-risk” areas** by integrating fishing-effort data with data on porpoise  
354 distribution and relative abundance. This task is linked to the third recommendation under  
355 “Bycatch Mitigation” (above), and further requires collation of all available data on where  
356 and when porpoises occur (or occurred historically) in the Baltic.
- 357 • **Investigate the effects of various types of sound (including pinger signals and noise**  
358 **from vessels) on harbour porpoises.** Such investigations should be conducted  
359 somewhere other than in the Baltic, in areas with higher porpoise density where proper  
360 experimental design can be applied.

### 366 C. Marine Protected Areas

368 Available data on porpoise distribution and habitat use within the Baltic are currently inadequate  
369 for identifying specific areas that should be designated for special protection. Existing and  
370 proposed protected areas in the Baltic are generally considered either too small or inappropriately  
371 designed to provide significant benefits to harbour porpoises. There is a danger that protected  
372 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

374 porpoises (see Read and Westgate 1997; Larsen et al. 2000), these animals are highly mobile, and  
375 this has important implications for protected area scale and design. Although **authorities should**  
376 **be encouraged to implement management measures within protected areas to benefit**  
377 **porpoises and/or their critical resources (e.g. prey stocks), such limited measures should not**  
378 **be allowed to serve as substitutes for the other broader-scale conservation initiatives**  
379 **recommended elsewhere in this recovery plan.**

380

#### D. Public Awareness

382

383 Public awareness is an essential part of this recovery plan. Unless people are convinced that  
384 porpoises are present in their local waters, that these creatures are worth saving, and that the  
385 animals' existence is threatened, they are not likely to support recovery efforts. Whereas other  
386 elements of the plan depend largely on the decision-making processes of national or supranational  
387 governmental agencies and international regulatory bodies, public awareness is an area in which  
388 ASCOBANS has an autonomous role to play. Parties to ASCOBANS have ongoing  
389 responsibilities and commitments to disseminate reliable information about Baltic harbour  
390 porpoises and to actively promote their protection and recovery.

392 Because they are among the people likely to interact most directly and most frequently with  
393 harbour porpoises, Baltic fishermen must be viewed as a key audience. At the same time, it is  
394 important to reach members of the general public, as they are consumers of fishery products and  
395 the ultimate arbiters of public policy (via the democratic process). It is vital that public awareness  
396 efforts be objective, attendant to and respectful towards cultural and linguistic differences, and  
397 candid about scientific uncertainty. In fact, one of the greatest challenges to implementation of  
398 this recovery plan is the uncertainty surrounding the porpoise population's status and the nature  
399 and level of threats to its existence.

400

401 The elements of a comprehensive public awareness campaign are outlined in Appendix 3. The  
402 four principal recommendations are listed below:

- 404 • While acknowledging the proven value of national programmes in raising public  
405 awareness (see Appendix 2), ASCOBANS should **develop and promote a regional**  
406 **approach to Baltic harbour porpoise conservation**, possibly using as a model the  
407 Danish programme "Look Out for Whales and Dolphins in Danish Waters".
- 408 • In relation to the preceding recommendation, explicit efforts should be made to **enlist the**  
409 **help of the general public in obtaining reports of porpoise observations** throughout  
410 the Baltic. This can be expected to improve understanding of porpoise distribution,  
411 relative abundance, and bycatch, while at the same time enhancing public support for  
412 recovery efforts. However, it is important that opportunistic reports by untrained observers  
413 be interpreted cautiously, and that the need for documentary evidence (e.g. photographs,  
414 tissue samples in the case of strandings) be stressed when soliciting such reports.
- 415 • The ASCOBANS Secretariat should **establish direct communications links with Baltic**  
416 **fishermen and seek their assistance** in determining how to reach fishing communities
- 417
- 418

more effectively, e.g. via newsletters, tabloids, displays at fishing exhibitions, etc.

420

- 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.

422

424

## 426 **E. ASCOBANS Cooperation with Other Bodies**

428 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  
430 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  
432 and cooperation between ASCOBANS and these other bodies.

434 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  
436 fishery management organization 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  
438 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,  
440 including harbour porpoises.

442 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  
444 design and management of marine protected areas. The IBSFC has championed an “ecosystem approach” to marine conservation, which must implicitly take into account not only bycatch, but  
446 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.  
448 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  
450 within the framework of the Common Fisheries Policy. Individual states in the region may also adopt national regulatory measures which only apply to their national fishing fleets.

452

The European Union’s Council Directive 92/43/EEC (Habitats & Species Directive) lists the  
454 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),  
456 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  
458 ... 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  
460 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  
462 fisheries and ecosystems. The European Commission has, in recent years, indicated to member states its intention to deal with the problem of cetacean bycatch.

464

**F. Re-evaluation of this Recovery Plan**

466

468 *It is important that this recovery plan and the actions outlined within it be implemented without*  
470 *delay, and that ASCOBANS undertake a formal process of re-evaluation and revision of the plan*  
*no less often than every five years<sup>24</sup>. 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<sup>25</sup>.*

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<sup>24</sup> **S-MAR:** ... revision of the plan in conjunction with Baltic non-Party Range States no less than every five years.

<sup>25</sup> **IFAW:** ... annual basis, specifically concerning progress in implementation.

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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. Report of Research and Monitoring Working Group, Recovery Plan Workshop, Jastarnia, Poland, 9-11 January 2002.**

This group considered the research and monitoring needs for the Baltic harbour porpoise recovery plan.

As explained below, the group explored many facets of these needs, but several general points emerged.

1. To a certain extent, the actual priorities depend on the management actions that will be taken to attempt to improve the situation for harbour porpoises. If an action is taken, it is important to know the effectiveness of that action.
2. Research that requires reasonable sample sizes of harbour porpoises, or that adds measurably to the mortality risk of an individual, has to be conducted outside the Baltic. This means that those implementing the Baltic recovery plan need to encourage or even fund research outside the Baltic.
3. Research alone will not make the harbour porpoise population recover, only management actions can do this. There was wide agreement that the need for further research should not be used as an excuse to delay implementation of the most urgent management actions.

Research and monitoring needs were fitted broadly into five categories, as follows:

- Fishery-related issues
- Porpoise population issues
- Other pressure issues
- Individual porpoise issues
- Methods/data issues.

These were considered in turn, and the most urgent priorities actions were selected from the list. We attempted to:

- Describe the rationale linking the possible results of the research to possible management actions, and
- Identify costs, time scale and groups that might carry out the research.

### **Overall priorities:**

- 1) The need to acquire fishing effort data for salmon drift nets and bottom-set gill nets and to assemble information on harbour porpoise bycatch in order to identify high-risk areas that might be the first targets of mitigation measures [see main text of recovery plan, third item under “Bycatch Reduction”]. As a subsidiary to this, the relationship of the porpoises living in the transition area, between the Mecklenburg Bight and the area immediately east of Rügen, to those in the Baltic proper needs to be established.

- 2) The need to study the effects of gear replacement/modification brought in as mitigation measures on fishing practices and on other ecosystem components [see main text of recovery plan, second item under “Bycatch Reduction”].
- 3) The need to develop passive acoustic monitoring methods in order to provide reliable population trend data, so that the effectiveness of any management measures taken might be assessed.
- 4) The need to model the effects of wide pinger use in fixed gill net & drift net fisheries.
- 5) Important studies needing to be done outside the Baltic are:
  - A) Development of acoustic monitoring methods
  - B) Improvement of methods to estimate absolute abundance (in order to lower the coefficients of variation associated with estimates, i.e. narrow the confidence intervals)
  - C) Study the effects of noise on porpoises.

## 1. Fishery-related issues

The group established the following priorities in relation to fisheries:

1. Identify high-risk areas [see main text under “Bycatch Reduction”]. Why? Necessary in order to direct the bycatch mitigation activities optimally. There is a further need for:
  - a. Effort statistics (e.g. soak time); may be gathered from interviewing fishermen. Also from IBSFC. For the most “porpoise-dangerous” fisheries: salmon drift net and set gill nets. These fisheries may need to be closed or reduced anyway due to fish stock depletion.
  - b. Porpoise distribution (as shown by bycatches, strandings, sightings, acoustic detections). Area of interest west of the “Berggren boundary” [i.e. roughly west of 20E and south of 58N]. More data needed from Poland, Germany, Denmark and other states fishing in this area
  - c. Costs: 2 person-years.
2. Mitigation research. Why? In order to give the best recommendations, gear replacement/modifications, area/fisheries closures need to be evaluated and/or modelled:
  - a. Porpoise-safe gear: cod pots (cages) vs set nets – do they fish well enough in the Baltic? Also other options, e.g. longlining. Must be tested for other types of bycatches. Marine ecology perspective. Lots of Danish boats are changing to longlining in the North Sea. Could be done by fisheries research agencies of all states. Salmon quota is being managed such that drift nets are allocated 50% for Baltic proper, with the other 50% allocated to river fisheries. The latter have only been able to take 30%, and the remainder has been reallocated to the drift nets. It is expected that river uptake will improve and that successively larger proportions will be shifted towards river fishing. This is guided by concerns for

the wild salmon stock and the above measures would assist in the recovery of wild salmon stocks, too. Conflicts with seals in the river fisheries have to be considered. Longlining can perhaps replace driftnets and bottom-set gillnets for cod.

- b. Mitigation monitoring - Monitoring of mitigation measures would be essential over both the short and long terms (to determine whether effectiveness changes with time).
  - c. Costs: ?
  - d. Development of alternative pingers or other deterrents was considered a lower priority.
3. Modelling the effects of closed areas or widespread use of acoustic deterrents was considered a lower priority. Two different modelling directions required: How will a measure affect the fisheries? And how will it affect porpoises. Information will be needed on where and how the nets are set.
  4. State of food resources (lower priority): Why? Amount and quality of food may have a large effect on porpoises and help determine the population's ability to increase. The average size of Baltic herring has declined, and this could have energetic consequences for porpoises if they need to expend more energy foraging. However, it is unclear what combination of average fish size and fish shoaling behaviour is optimal for porpoise feeding. In addition, Baltic cod stocks have declined in recent years (MacKenzie et al. in press), and the effect of a reduction in this important prey species of porpoises (Aarefjord et al, 1995) is uncertain. For stocks assessed and managed on an international basis there is much information available, e.g. from acoustic surveys. However, few data exist for non-assessed species that are important for harbour porpoises. More data are needed but are difficult to obtain. However it is hard to believe that food supply is a limiting factor for Baltic harbour porpoises. Much better in Baltic proper than in inner Danish waters. Oxygen depletion /dead areas; exotic gobiid species (a recent introduction that lives in midwater and is successful in certain areas). Both of these may affect porpoise food in an unknown way. Fisheries lab task.

## **2. Porpoise population issues**

These relate to the need to know more about the distribution and abundance of the animal that we are trying to help recover.

1. Relative population trend/distribution as found through acoustic monitoring using either towed or fixed hydrophones. Why? As an alternative to estimate absolute abundance, which is difficult to obtain. It is important to measure the effectiveness of mitigation efforts.
2. Population structure/distribution and migration as found through tagging, genetic studies and modelling. Population structure especially in Kiel and Mecklenburg Bights

vs Baltic proper. Why? Important for, e.g. bycatch mitigation measures, to know if these bights should be regarded as part of the Baltic. Genetic studies may help in this attempt to define the distributional area of the “Baltic porpoises”. Why? The currently used Darss and Limhamn underwater ridges may constitute a misleading border, as satellite-tracking data indicate that some porpoises from the western inner Danish waters at least occasionally move back and forth across this line.

3. Improve the methods for estimation of current absolute abundance and increase the surveyed area. A survey is planned for summer 2002, but any further abundance surveys should wait until a better method has been devised. Why? Because the CVs associated with present methods are too high in such low-density areas, making it impossible to detect trends without conducting many costly surveys.
4. Climate effects/historical evidence/modelling; university study. Why? Essential background for understanding long-term changes in ecosystem; important for the dialogue with the fishermen.
5. Determination of habitat preference/migration routes/nursery areas. With currently very low number of porpoises in the Baltic, the chance of determining these features seems low. Additionally, tagging involves a finite (but unknown) risk to the animals. A minority of group members felt that this risk was not worth taking with such a small, endangered population. Tagging returns could be combined with acoustic monitoring and habitat mapping of sediments and hydrographic data to determine preferences.
6. Modelling

The group ranked investigations of interactions with other species of marine mammals as a low priority.

### **3. Other pressures**

There is a need to investigate other pressures on Baltic porpoises besides those associated with bycatch.

1. State of food resources. Fisheries have altered the fish stock composition of the Baltic. Managers are attempting to balance this alteration in order to ensure sustainable fisheries. Too little is known about the needs of harbour porpoises – information that is required if the “ecosystem approach” is to be employed in Baltic fisheries management. Fish stock management is effectively deciding ecosystem structure. If cod are allowed to increase, sprat will almost certainly decrease. Cod are an important food species for porpoises. Oxygen depletion will also affect fish stock size and distribution.

2. Contaminants. Why? Contaminants may affect porpoise health through toxicity, immune suppression, reproductive impairment, developmental defects etc., thus affecting the population's ability to grow. Cod are generally less contaminated than sprat. Parasites and diseases could also be relevant.
3. Noise and disturbance from human activities in the Baltic could affect harbour porpoises. Sources include:
  - Leisure boats
  - Merchant shipping
  - Fishing vessels
  - Construction (including wind turbines)
  - Military activities
  - Pingers on nets
  - Seal scrammers at fish farms

All could potentially affect access to important habitat. Studies are needed to evaluate the nature and degree of disturbance. Guidelines could be introduced to minimise potential for disturbance (such as for recreational boats, military mine removal, etc.). Studies would need to be long-term; simulations would need to closely mimic reality. Scrammers probably a low priority at present, but if salmon farms (and seals) expand into porpoise areas, priority would increase.

Other lower-priority concerns include: electromagnetic fields (fish effects), introduced species, inter-species interactions and oil spills.

#### **4. General harbour porpoise biology/body studies**

The difficulty of obtaining sufficient samples is a major obstacle to investigating harbour porpoise biology in the Baltic.

1. Reproduction. Why? Reproduction is a key element in the recovery of the population. How often are the females calving? Is their fertility compromised by contaminants, disturbance etc?
2. Social system. Why? The possible territoriality of females during mating and calving, and the dispersal of daughters will affect the speed of reoccupying range. Tagging might help to resolve this. Genetic fingerprinting can also be useful.
3. Diet. Why? Fisheries management and invasive/introduced fish species may force/allow porpoises to change foraging strategies, and affect their ability to reoccupy their historical range in the Baltic and their exposure to fat-dissolved contaminants (e.g. cod vs sprat/herring). Fatty-acid tracers can be used as diet indicators. More samples needed. Exotic goby species can be distinguished from indigenous ones by means of otoliths. Some checking of older samples for gobiid specification may be useful.

4. Foraging behaviour. Why? Foraging behaviour affects risk of being caught in different types of fishing gear. Probably requires “smart” tags with, e.g., TDR/Tilt sensors (bearing in mind that tags may alter behaviour).
5. Genetics/morphology. Why? Especially important to know if porpoises in the transition zone between Mecklenburg Bight and the Baltic proper belong to a single population or represent a mixed stock – it has management implications. Relatively cheap/university project. Increase awareness may increase sample size – returned bycatch/strandings. Continue ongoing work. Research capacity development in NE Baltic needed.

## **5. Methodological development**

1. Acoustic monitoring (preferably on platforms-of-opportunity in order to keep costs down). Why? It is a promising new technology, but methodological uncertainties need to be resolved before it can be used for either relative abundance or total abundance estimation. PODs in combination with theodolites, to evaluate the acoustical data; captivity studies for the same comparison; theory tests, the development of an alternative system with higher number of cheaper PODs is encouraged; further development of towed arrays is also encouraged. Developmental work should take place in the North Sea. Tests with towed PODs are being carried out in Denmark. A method based on a possible age-specific peak frequency in sonar clicks will be tested in Denmark. Time schedule: 2 years.
2. Improvement of survey methods. Why? Ship- or airplane-based surveys are sub-optimal in low-density populations (although airplanes are better than ships), so alternatives are required. The aim is to obtain abundance estimates with low CVs, and also good distribution data. May rely on platforms-of-opportunity. One possible method could be based on aerial photography, using heat-sensitive cameras mounted on autonomous or towed helium balloons. This concept should be tested in captivity or in areas with higher porpoise densities than occur in the Baltic. [Note: Results of trials with captive porpoises in February 2002 by Amundin and Desportes cast doubt on feasibility of this concept.] Platforms-of-opportunity: to be useful, effort needs to be quantified; may be expensive; may require a large amount of effort for a small return.
3. Tagging. Why? May produce valuable data (on both biology of the animal and its environment) that are hard to obtain any other way in a low-density population. Available tag technology is good enough. Possibly worth pursuing if gillnets are replaced with pound nets for bycatch-reduction purposes and incidentally caught porpoises therefore become accessible for tagging. Possible adverse physiological effects are a consideration, particularly with such a small population. Monitoring of health status and effects of tagging on health and behaviour should be required. This is at least partly monitored automatically via the transmitted dive data.

4. Databases/-banks. Why? It may be useful to gather different data in same system, or to create a database showing where different samples are located, to facilitate or make possible effective analysis. Needs to be encouraged. Security of central banks. A database on location of samples should be developed. Genetic samples. Skin samples. Baltic specimens should be sampled thoroughly, since they are so rare. Ownership of samples should be taken into account.

Working group members:

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### **Appendix 3. Report of Public Awareness Working Group, Recovery Plan Workshop, Jastarnia, Poland, 9-11 January 2002.**

#### 1. Present state of public awareness within the Baltic countries; lessons learned

##### a) Present state of public awareness

Public awareness of the existence of harbour porpoises and their conservation status is unsatisfactory in practically all of the Baltic range states. In many, the general public often seems more aware of issues related to “exotic,” non-native species than to the cetaceans in their own “backyards.” There are, however, marked differences both within and between countries.

The degree of public awareness is generally greater in coastal areas than in other parts of the Baltic countries. This applies not only to the larger states, e.g. Germany and Poland, but also to small ones such as Latvia and Lithuania.

Large-scale public awareness campaigns launched in 2000 and 2001 in Denmark, Finland and Germany demonstrated that public awareness can be influenced and increased substantially by coordinated information campaigns. Thus, the Danish programme “Look Out for Whales and Dolphins in Danish Waters” led to an increase in reported sightings and strandings in Denmark. A telephone hotline established for this reason has proven highly useful. The number of reported sightings doubled within one year. A website established in connection with this programme registered 30,000 hits in 2001. The effect probably extends beyond Denmark, as tourists visiting the country, in particular from Germany and Sweden, also gain awareness from exposure to the programme.

Experiences in Finland with an information campaign launched in 2001 have likewise been very positive. This campaign involved the publication of a brochure, the distribution of a Finnish version of the ASCOBANS poster, the establishment of a website and the airing of short television spots. The phone numbers were published of several institutions to which sightings can be reported. As a result of these efforts, the number of reports about harbour porpoises in the media has increased noticeably. Moreover, several sightings were reported in the first summer (2001) and historical sightings, some dating back to the middle of the 20<sup>th</sup> century, have been brought to the attention of relevant Finnish institutions. It appears that the degree of public awareness increased substantially within only one year.

Conditions in other countries seem to be somewhat less favourable. Despite the fact that a number of institutions accessible to the general public in Germany deal with these issues, public awareness in Germany needs to be increased considerably, in particular in the non-coastal regions of the country. Recent campaigns by WWF and IFAW have gone some way towards improving the situation. Experience shows, however, that the public tends to forget quickly and needs to be kept informed continuously. On the other hand, conservationists are treading a thin line, as information campaigns may in the long run arouse the suspicion and ultimately opposition of sectors such as the tourism or fishing industries, as demonstrated by

the campaign waged in Germany that eventually led to the creation of a first nature conservation area in the waters of the North Sea Islands of Sylt and Amrum.

The situation in Latvia is currently characterized by a general lack of awareness, as there is a strong focus of public interest on Latvian issues. Since the last reported bycatch of a cetacean was in 1974 and sightings are not reported on a regular or official basis, small cetaceans are however not considered a native species – the stranding of a bottlenose dolphin near the Lithuanian border in 1998 notwithstanding. As in other countries it can be assumed that while information on the existence of harbour porpoises and their (former) presence in Latvian waters is presumably widespread in coastal areas, this is not the case elsewhere in the country. It is however hoped that the ASCOBANS exhibition “Harbour Porpoise in Distress“, which will be shown at the Latvian Museum of Natural History in Riga in spring of this year will serve to inform a wider public.

In Lithuania the situation is somewhat more favourable. While Lithuania’s coastline is only 100 km long, the Lithuanian Sea Museum in Klaipėda, which also includes a dolphinarium, attracts a large number of visitors (including tourists from Latvia) each year. The museum carries out a number of educational programmes in particular for school children. A special educational programme was initiated in 2001 in connection with the showing of the ASCOBANS exhibition “Harbour Porpoise in Distress“, which was visited by approx. 200,000 persons in summer and fall of that year. Moreover, one case of bycatch was recorded and widely reported in the press in 2001, conveying the message that presumably there are other porpoises in Lithuanian waters. Fishermen are asked to report any cases of bycatch to the Lithuanian Sea Museum. It is hoped that international cooperation will eventually lead to the recovery of the species in Lithuanian waters.

Like many other countries, Poland has a long tradition of conservation regarding terrestrial species, whereas marine species have appeared on the agenda only fairly recently, largely due to the efforts of Gdansk University’s Hel Marine Station. This institution has initiated a number of educational programmes, in particular for schoolchildren and for the military. Hel Marine Station has also been instrumental in inspiring others, such as for instance the Polish mail and Telekomunikacja Polska S.A. to take action. Thus, stamps and telephone cards with motives related to marine conservation have been produced. Moreover, Hel Marine Station has repeatedly cooperated with ASCOBANS in awareness-raising activities, such as for instance displaying the ASCOBANS exhibition “Harbour Porpoise in Distress“, of which a Polish version has meanwhile been produced, at the Station’s information center. While the scientists at Hel Marine Station have been instrumental in promoting public awareness, it has also become evident that, given their other commitments, they are unable to shoulder this task by themselves. Therefore, Hel Marine station has sought the assistance of a regional NGO (“Friends of Hel“) in this endeavour. This cooperation has proven to be highly beneficial. It has demonstrated that competent and professional NGOs, conveying the right information without dwelling on the emotional aspects of the issues are highly useful in raising public awareness. Moreover, wherever necessary, the potential commercial benefits of sustainable use of marine resources should also be stressed. This is relevant in particular

with respect to fishermen. Hel Marine Station is cooperating with the local fishing community which, in light of dwindling fish stocks, is reorienting itself towards tourism and beginning to understand that tourism, in particular ecotourism needs natural values and an intact environment. Despite these efforts educational programmes remain of vital importance to increase the knowledge of marine conservation issues in Poland.

Currently there is clearly a regard for improvement with respect to public awareness in Sweden. Sweden is, however, engaged in various measures to enhance knowledge of harbour porpoise issues. Thus, Kolmården Wild Animal Park is involved in awareness-raising activities. Some 250,000 visitors annually are informed about the problems of harbour porpoise bycatch. The zoo school offers regular educational programmes for schoolchildren. The ASCOBANS poster is on display at the dolphinarium and ASCOBANS brochures are distributed. A brochure on small cetaceans was printed in Sweden in the mid-1990s and is currently being reprinted. The brochure, containing information on small cetaceans in general and harbour porpoises in particular, is aimed at fishermen, the coastguard etc. It also contains information on whom to contact to report stranded or bycaught animals. Moreover, Sweden is stepping up efforts to promote public awareness, for example by printing a leaflet for the general public. It is hoped that this leaflet will lead to a higher number of reports on sightings. The Swedish Environmental protection Agency, SEPA, is developing a website dealing with porpoise issues. Nevertheless, there is clearly a need for improvement in this respect.

b) Lessons learned

Enhanced information and involvement of stakeholders and the general public can lead to greater understanding and a greater sense of ownership and responsibility with respect to nature conservation. Public awareness programmes must however be geared to specific target groups. Furthermore, they are more likely to achieve their aim if they are fair and neutral and follow a non-confrontational rather than a fundamentalist approach.

Knowledge on harbour porpoises can be enhanced with the help of the nonscientific public. A prerequisite for this is, however, the designation of one or more “focus institutions“ that can be approached to report sightings, strandings, bycatches or other potentially relevant information. The contact details of these institutions should be widely disseminated. Ideally, these institutions should be reachable around the clock.

Increasing public awareness demands a continuous effort. Short-lived campaigns with no follow-up are of limited use only.

While the Danish programme “Look Out for Whales and Dolphins in Danish Waters“ has been very successful, it also demonstrates that national programmes alone will not suffice in the Baltic area. Rather there is a need for regional cooperation. In promoting regional cooperation however, regional, linguistic and cultural differences must be borne in mind and respected. Denmark is willing to share the experience and information gained with a view to launching such a regional project.

## 2. Target Groups

The working group identified four target groups:

- administrators, i.e. staff of relevant international institutions, ministries, government agencies and local authorities;
- persons working aboard vessels navigating the Baltic: fishermen, crews of commercial, navy and coastguard vessels, yachtsmen
- persons working at or near the seaside or doing work related to the marine environment: scientists (including bird watchers), museums and other scientific institutions, lighthouse keepers, rescue services, blue flag stations.
- the general public: institutions such as libraries, universities, zoos, staff of tourist industry, shipping companies, educators, children. The working group felt that the growing number of amateur biologists should also be enlisted to help. Inevitably, there will be some overlap between these groups.

## 3. Information to be conveyed

Ideally, information material and public awareness campaigns should differentiate between the groups listed above, with media and messages geared to individual groups. This may however not be possible in every instance. In particular in countries or regions with a presumed low abundance the production of a wide variety of information material might be perceived as overkill and difficult to justify.

The following information and messages should be contained in all material produced and campaigns launched:

- The existence of harbour porpoises in Baltic waters.
- Description of harbour porpoises to facilitate identification both of live individuals and stranded or bycaught animals;
- Information on abundance and distribution (insofar as available), life-cycle and “habits“ of harbour porpoises;
- Threats facing harbour porpoises;
- Information on what individuals can do to help: report sightings, bycatches, strandings etc., involvement in the work of relevant NGOs;
- What to do and whom to contact in case of live entanglement or stranding;

Material aimed at relevant professional groups such as administrators, fishermen, educators etc. should moreover contain information on some or all of the following:

- the value of the harbour porpoise as both an indicator species and a flagship species;
- potential commercial benefits of a healthy porpoise population in a healthy marine environment;
- relevant research;
- methods to mitigate threats;

- international bodies and legal instruments related to marine conservation in general and porpoises in particular;
- relevant national legislation.

The working group felt that in order to facilitate the production and dissemination of information material, the ASCOBANS Secretariat should be kept informed of and be provided with a copy of all brochures, posters, videos, CDs etc. produced and available at the national level. Moreover, the working group acknowledged that it is frequently difficult to obtain the documentary material, in particular photographs or footage, needed to produce publications for awareness-raising. Therefore it suggested that individuals or institutions willing to provide their intellectual property (in particular pictorial material) for use in non-profit information campaigns either by ASCOBANS or by national institutions or NGOs should inform the ASCOBANS Secretariat accordingly.

#### 4. Methods of conveying relevant information

The working group felt that a wide variety of methods and media should be used. Thus:

- Brochures and posters should be produced and distributed in all Baltic countries. Ideally, these publications would differ in content and style according to their target groups. Where this is impossible, publications for general use will be needed. The use of cartoons for this purpose should be envisioned. ASCOBANS posters, brochures and other info material should also be made available in all Baltic range states;
- Exhibitions, in particular traveling exhibitions are an excellent means of informing a wide audience. Ideally, regional cooperation should be sought in producing these exhibitions. They should have a modular structure, enabling individual countries and institutions to select those elements best suited to their needs. To this end, an “exhibition bank“, i.e. a central institution preparing the exhibiton based on input from all Baltic countries and distributing it to users as needed should be envisioned;
- An annual “Day of the Baltic Harbour Porpoise“ should be observed on the third Saturday in May. One or (if feasible) several institutions such as museums or dolphinariums should launch special educational programmes on this day, seeking to attract and inform the general public. This event should be staged for the first time in 2003;
- Other events should also be envisioned. These could include a contest to design and/or name a harbour porpoise mascot for use in awareness-raising campaigns;
- Schools should be involved in awareness- raising and disseminating information to children. An annual “harbour porpoise project week“, ideally leading up to the “Day of the Harbour Porpoise“ should be suggested. To this end, an information kit for educators should be available for downloading from a central (for instance ministerial) website;
- Television, radio and print media should be encouraged to report both on propoise-related issues in general and, whenever feasible on porpoise-related “events“. The interest of the general public in stories about local events should be exploited to raise

public awareness. To this end government agencies, scientific institutions and institutions “on the ground“ as well as NGOs should keep the media abreast of any new developments or events such as sightings or strandings (where sufficiently unusual to merit public attention), conferences and scientific meetings, publications etc.;

- Short spots for television and movie theaters should be produced;
- Videos/DVDs on Baltic ferries should be used to inform travelers;
- A central website percountry containing information on harbour porpoise issues would be useful. This could be established and maintained by a ministry or government agency, but other options such as scientific institutions could also be considered. The content should however be monitored by a relevant governmental institution;
- The use of the harbour porpoises in logos and advertising should be promoted. With governmental institutions setting an example. The harbour porpoise could develop into a veritable symbol of the Baltic region;
- Porpoise watching can be beneficial to conservation efforts. Commercially viable porpoise-watching operations can be envisioned only in areas of relatively high abundance. These areas are to be found in Denmark and possibly on the west coast of Sweden and in Germany. While these regions are outside the “Baltic proper“ as defined in the terms of referenc of this workshop, this potential for giving the general public a first hand experience of the species and actually demonstrating the commercial benefits to be derived from porposie conservation should not be neglected. In areas of lower abundance, “porpoise watching“ can take the form of encouraging sailors, passengers of ferries, yachtsmen and others to be on the lookout for the species and report sightings (cf. above).

## 5. Fund Raising

Funding for research and other measures spelled out in the harbour porpoise recovery plan, but also a sustained effort to promote public awareness will require funding. In some cases, substantial sums may be needed. Therefore, options for fund-raising should be explored. These include:

- Voluntary national contributions to ASCOBANS
- LIFE Funding
- Funding by Nordic Council
- GEF funding
- Commercial sponsors. This option is presumably realistic only if funding constitutes a “social investment“ for the sponsor, i.e if there is a mutual benefit to be derived by sponsoring ASCOBANS activities. This benefit need not necessarily be strictly material but could consist in an enhanced, “greener“ image.

## 6. Conclusions and recommendations

### Conclusions:

There is clearly a need for enhanced public awareness concerning the conservation and, indeed, the mere existence of the Baltic harbour porpoise. A better informed public and a greater involvement of stakeholders and the general public can lead to greater understanding and acceptance and ultimately to a greater sense of ownership and responsibility with respect to porpoise conservation. This can, however, only be achieved by a fair and neutral approach, as opposed to a more fundamentalist stance that is likely to alienate some segments of society. In stepping up efforts to promote public awareness, a regional as opposed to a national approach may be beneficial in many cases. Regional, linguistic and cultural differences must however be taken into account.

Information material and campaigns should address the following four target groups:

- Administrators
- Persons working aboard vessels navigating the Baltic
- Persons working at or near the seaside or doing work related to the marine environment
- General public

Increasing public awareness demands a continuous effort. Short-lived campaigns with no follow-up are of limited use only. Sustained awareness-raising campaigns will, however, be contingent on the availability of (often substantial) funds. Hence the need to explore fund-raising options.

### Recommendations:

a) A national, government-designated focal point for public awareness should be established in each Baltic range state. These focal points should coordinate awareness-raising activities and disseminate information and documentation material as needed. They should be linked in an e-mail network and maintain close contact amongst themselves and with the ASCOBANS Secretariat.

The following methods of awareness-raising should be employed:

- Brochures and posters for general distribution, including ASCOBANS material;
- Exhibitions, in particular a traveling exhibition. The exhibition should consist of interchangeable modules. Regional cooperation should be sought in producing this exhibition and an “exhibition bank“, i.e. a central institution producing the exhibition based on input from all Baltic countries and distributing it to users as needed should be established;
- Increased coverage of porpoise related issues by television, radio and newspapers. Governmental and local institutions (including those “on the ground“) as well as

NGOs should keep the media abreast of any relevant events and developments and encourage them to report. National focal points should also be able to provide the media with at least some background documentation and information material (including photographs and relevant footage), or to inform them of persons and institutions that could do so.

- A central website per country established for instance by a ministry or government agency informing on harbour porpoises;
- Videos/DVDs and posters informing passengers on Baltic Ferries about harbour porpoises and encouraging them to report sightings.
- Promotion of porpoise watching where possible;
- Promotion of the use of the harbour porpoise in logos, advertising etc.;
- Observance of an annual “Day of the Baltic Harbour Porpoise“ on the third Saturday in May. On this day one or several qualified institutions (e.g. museum, dolphinarium) per country should stage educational and recreational events related to the harbour porpoise and aimed at a wide audience.
- Possible other events aimed at attracting a wide public should be considered.
- Involvement of schools for instance by means of an annual “harbour porpoise project week“, ideally leading up to the “Day of the Harbour Porpoise“. An information kit for educators should be available and downloadable from the national harbour porpoise website (cf. above).

b) At least one constantly accessible contact institution per country should be designated to which to report sightings etc. and from which help and advice can be solicited. The contact details of this institution should be widely disseminated.

c) In promoting public awareness a regional approach should be taken wherever possible, regional, linguistic and cultural differences should however be taken account of.

d) Where possible and feasible, cooperation between governmental institutions and NGOs in promoting public awareness should be sought.

e) In order to facilitate the production and dissemination of information material, the ASCOBANS Secretariat should be kept informed of all information material produced and available at the national level. Individuals or institutions willing to grant the use of their intellectual property for use in non-profit information campaigns either by ASCOBANS or at the national level should inform the ASCOBANS Secretariat accordingly.

f) Options for fund-raising to promote activities related to this recovery plan should be explored.

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## **Appendix 4: Report of Bycatch Working Group, Recovery Plan Workshop, Jastarnia, Poland, 9-11 January 2002**

### Level of current by-catch

- agreed there was need for improved fishing effort statistics collated in a form that can be comparable throughout the Baltic. Recommend that someone with fisheries experience (approach ICES for contact) be commissioned to undertake such an exercise (see separate paper on this subject) (**high priority and immediate initiation**)

With such improved effort data there should be increased possibility of identifying areas where higher fishing effort is ongoing and thus target mitigation.

### Observer studies

- observer studies recommended as feasible for implementation in salmon driftnet fishing vessels (high priority with immediate implementation).

(Note: observer studies considered infeasible in cod gill net fishery due to large number of vessels making coverage excessively costly to provide data of sufficient statistical power to comment on bycatch levels associated with the fishery)

### Marine Protected areas

There are two MPAs currently proposed in Polish waters and one in Swedish waters where fishing will not be allowed. It was considered difficult at present to identify key habitat for porpoises due to lack of life history data. There are many other proposed MPAs in areas inhabited by porpoises which are similarly not proposed specifically for porpoises but which could be considered as suitable for fishing restrictions of porpoise harmful gear.

- It was considered important to notify authorities that porpoise bycatch should be considered by any proposed MPAs in order to give consideration to fishing restrictions on porpoise harmful gear, and that EU countries should ensure appropriate EU engagement.

Mitigation measures considered feasible for Baltic fisheries

**Given the current status of the Baltic porpoise population, immediate mitigation measures were considered the highest priority for Baltic countries to make progress on and to implement.**

It was noted that most mitigation programmes do not rely on one mitigation measure but rather a combination of one or more measures. The suite of options available for the Baltic were discussed and given the **following prioritisation** for implementation as a matter of urgency:

- Change of fishing gear away from gear known to be associated with porpoise bycatch (ie. salmon driftnets and cod gill net fishery) to alternative gear which are not considered harmful.

Trialling fish traps/pots as an alternative to the cod gillnet fishery was considered the most promising with immediate trialling and subsequent development and implementation within 2-3 years (**High priority with immediate initiation**).

It was considered feasible to replace salmon driftnets with longlining for at least parts of the season when the salmon were feeding. The cost associated with changeover may be high but was perhaps something for which subsidies could be sought.

- Introduction of pingers as a short term measure with required observer programme to check compliance as recommended in the Read report; *data from observer programmes underpin all efforts to reduce by-catches in the US, in fact , despite the cost and inconvenience of such programmes, it is difficult to conceive of any practical system of by-catch mitigation that did not rely on a data collection system employing independent observers. Such programmes are necessary to provide the data required to formulate effective by-catch mitigation strategies and, after their implementation, to determine the success or failure of such approaches.* (support not unanimous – majority).
- Reduction of net length and soak time (to reduce overall fishing effort). Currently allowed maximum net length in salmon driftnets (21km) and cod gill nets (12 km for boats under 12m and 24km for boats over 12m). (support not unanimous - minority)
- Use of time/area closures was not considered a feasible mitigation measure in the Baltic due to lack of information to identify relevant areas. May be a possibility in future in light of better life history data.