5th Meeting of the ASCOBANS Jastarnia Group

Turku, Finland 23-25 February 2009

1. Opening of the Meeting

Sara Königson opened the meeting at 16:20 and welcomed the participants to Turku. She introduced Lotte Kindt-Larson of the Danish Technical University who was attending the Group for the first time. Signe Sveegaard explained that she was again representing Jonas Teilmann.

2. Adoption of the Agenda

Some changes were made to the schedule to take account of the fact that some representatives of the Finnish Fisheries Department would be arriving the following day. It was agreed that the first day's business would carry on until 21:00 with a break for dinner. Otherwise the agenda was adopted as drafted.

3. Election of the Chair for this Meeting

Sara Königson was elected as chair of the meeting by acclamation.

4. Implementation of the Jastarnia Plan and the recommendations of the 4th meeting of the Jastarnia Group

The Group worked through the existing action points of the Jastarnia Plan and the associated recommendations. The revised list of recommendations appears at Annex 3 to this report.

a. Bycatch Reduction

Reduce fishing effort in certain fisheries

In the Swedish recreational fishery, the maximum length of nets was 180 metres. Denmark also had a length limit, while Finland was about to enact new legislation limiting certain types of gear to professional fishermen. The sightings system in operation meant that a request was made not to set nets when porpoises were in the area.

Petra Deimer-Schütte suggested that fisheries authorities could buy out licences or not issue new ones when established fishermen retired.

Stefan Bräger proposed that all representatives should send in a summary of how their licensing system worked and how such fisheries were monitored. Kai Mattsson suggested a simple *pro forma* to ensure comparable answers with the option of brief free text descriptions, although Harri Kukka thought that, given the different set ups, a uniform form might not be appropriate. Sara Königson suggested that the form differentiate between professional, part-time, licensed and recreational fisheries. Quoting Karl-Hermann Kock, Petra Deimer-Schütte said that small-scale net fisheries caused the same level of bycatch as larger scale commercial operations.

Action: Harri Kukka, Lotte Kindt-Larsen, Krzysztof Skóra, Stefan Bräger and Sara Königson all agreed to check the national position, as most part-time fishermen had boats of less than 18 metres and therefore were not covered by EC Regulation 812.

Involve stakeholders in the work of reducing bycatch of harbour porpoises

Stefan Bräger thought that the existing wording in the recommendation should be altered, as it was too soft and unlikely to result in any action. Sara Königson said that the onus should be placed on fishermen to come up with their own solutions. Regulation 812's weakness was that it was a "top down" approach rather than "bottom up". Mats Amundin said that with bycatch numbers being so small in absolute terms, fishermen were unaware of the seriousness of the problem. Sweden was succeeding through face-to-face contact with stakeholders but still needed to persuade the fishermen to take on responsibility for solutions. Sara Königson added that fishermen's representation at the Group could be greater. The issue could develop into a "win-win" situation with better gear, catching better fish, commanding better prices at market and fewer by-caught porpoises. Mats Amundin suggested approaching the fishermen with a concept for a green policy with a "name and shame" approach for those adhering to bad practices. The dolphin friendly tuna campaigns in the USA had been flawed but had resonated with the consumer and growing awareness of the collapse of cod stocks was affecting consumer behaviour. Signe Sveegaard wondered whether this was in part price driven rather than green consciousness. Krzysztof Skóra pointed to the porpoise friendly sprats initiative led from the Hel Marine Station with cooperating fishermen. Sara Königson mentioned that quality guarantee system whereby fish were associated with a specific location and even a named fisherman. Harri Kukka pointed out that stakeholders were not just fishermen but other actors.

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

Lotte Kindt-Larsen gave a presentation on research on alternative fishing gear for bycatch mitigation based on the work of DTU AQUA. This included acoustically enhanced and modified gillnets, long lines and fish traps. The slides accompanying the presentation are attached to this report at Annex 4.

Sara Königson gave a presentation on the Norwegian two-chamber cod trap. As a baited fishing gear, its success depended on a number of variables: temperature, current (as the scent of the bait diffused); bait (fresh or frozen); the behaviour of the fish (seasonal) and the density of the target species. The slides accompanying the presentation are attached to this report at Annex 5.

Stefan Bräger asked whether all studies in alternative fishing gear could be collated in time for the Advisory Committee, with a focus on the findings on cost effectiveness. Sara Königson and Lotte Kindt-Larsen agreed to produce executive summaries of the Swedish and Danish studies respectively in English in time for the Advisory Committee.

Sara Königson said that with a balanced use of "carrots and sticks" fishermen would accept change.

Implement a pinger programme on a short-term basis

Mats Amundin noted that the heading within the draft Plan made no reference to boat size. Sara Königson pointed out that even the limited provisions of Regulation 812 had not been fully implemented and that no powers existed to have pingers installed on smaller boats. Lotte Kindt-Larsen pointed to the possibility of the review of Regulation 812 changing the 12-metre limit, which was an arbitrary, political decision, given that the limit for observers was 15 metres. The current Jastarnia Plan contained the wording "irrespective of vessel size". In the EU, pingers were to be deployed in the west of the Baltic (Germany, Denmark, Poland and Sweden) but not in Finland, Lithuania, Estonia or Latvia.

Mats Amundin said that given the urgency, ordinary pingers should be used while interactive pingers were developed.

The *Land* government of Mecklenburg-Western Pomerania was considering implementing a pinger programme but had yet to decide how to fund it. There had been some take-up of pingers by fishermen.

Parties were urged to implement the Plan's recommendation if fisheries were considered "high risk". As there had been only two recorded bycatch incidents in recent years (in 1996 and 1999) and one of the animals was believed to have been dead before it was caught, Harri Kukka suggested that there were no high risk fisheries in Finnish waters. Mats Amundin said that the position in Estonia, Latvia and Lithuania was not known, nor was it in Southern leisure fisheries or in the North of the Baltic.

Sara Königson expressed the view that since some Swedish fisheries had embraced change as a result of seal interactions (such as the introduction of push-up traps and electrified nets), the same might occur with porpoises.

The consensus was to retain a recommendation advocating the use of pingers.

b. Research and Monitoring

Analyse stock affinities of harbour porpoise in the transition zone of the south-western Baltic

Signe Sveegaard reported findings of one of 36 tagged harbour porpoises along the Swedish coast. Funding was being found to tag a further 20 individuals. Stefan Bräger asked whether there was data on age and sex of the tagged animals and how long they stayed in specific locations. There seemed to be indications that the Danish-Kattegat and southern Swedish populations were linked or even the same, although Signe stressed that the sample size was too small to draw firm conclusions.

Iwona Kuklik said that the main difficulty was bringing the geneticists together to collaborate and arranging for the Swedes, Danes and Ralph Tiedemann under one roof was a challenge. This was possibly the only means of being able to compare all the data sets and to resolve definitively the questions of whether there were distinct populations or not.

The report of the Bonn workshops held in October 2007 had not been published yet because of computer equipment failure. Stefan Bräger pointed out that the unfortunate re-scheduling of the population structure workshop (from February to October 2007) had made it impossible for Prof. Tiedemann to take part, thus effectively preventing one of the intended outcomes of the workshop, i.e. the facilitation of a closer collaboration among Baltic Sea geneticists. Work on the catalogue of genetic material had encountered problems, when Jonas Teilmann found unwillingness on the part of researchers to release data. If progress were made with the catalogue, the next step would be to have the material made generally available. It was acknowledged that data for the Baltic proper was limited and the fact that Ralph Tiedemann's results were still not published despite the project having been completed in 2007 hampered progress. Also, the sample size of genetic material available for the Baltic proper was too small and was unlikely to increase.

Given these problems with genetic research, a more promising alternative avenue might be morphology, as there were numerous skeletons in different collections.

Anders Galatius, who had been working in this field at doctorate level and would probably continue at post doctorate level, and Jonas Teilmann were awaiting confirmation that they could proceed with their project. Heidrun Frisch explained that the funding agreement for the US$5,000 was in the process of being prepared.

Penina Blankett pointed out that under the Habitats Directive, no distinction was made between different populations, and that the harbour porpoise as a species was listed. Sara Königson however said that it was important to find out more about the populations to motivate fishermen to take the problem of bycatch more seriously.

Petra Deimer-Schütte felt that the debate over the Baltic proper was secondary. Harbour porpoises were threatened throughout the Baltic, including the west, German waters and the

Kattegat – in fact across the whole HELCOM area. Mats Amundin said that if migrations occurred and repopulation was to be possible, then the transitional zone would be crucial. Signe Sveegaard said that in this regard the question of whether there were one or several populations was relevant as was the extent of migration from the Belt Seas.

Stefan Bräger reminded the meeting that the Jastarnia Plan stated that there should be no delay in taking conservation action to await more research. There appeared to be evidence of migration between Danish waters and the Baltic, but DNA evidence suggested very little successful mating between porpoises from the Inner Danish Waters and the Baltic Proper. Mats Amundin added that the aim was to restore the species to its original range.

Penina Blankett thought that the conservationists were convinced of the case for action, but other players, notably fishermen remained to be persuaded, and for this reason, research still needed to be carried out.

Moving the discussion to the 1.7% maximum bycatch rate, Stefan Bräger said this figure was based on inherent biological parameters and thus applied to all populations and localities with similar life history. If SCANS II were completed, one of its outcomes would be to reassess the 1.7% bycatch level. Latest research results showed that the bycatch level in the German Baltic with a population of just a few thousand harbour porpoises exceeded 1.7%. Lotte Kindt-Larsen questioned the basis of the 1.7% figure given uncertainties over the estimated population, a point picked up again later by Mats Amundin.

Iwona Kuklik did not think that reopening the debate over whether there were two distinct populations was fruitful. All publications stated that there were, but the number of tissue samples was insufficient for absolute certainty. The overall aim should be to make the Baltic Sea a safe habitat for harbour porpoises regardless of which population they belonged to.

Signe Sveegaard said that the 1.7% bycatch limit should be area related. Mats Amundin said that eliminating bycatch would not achieve the other main aim of restoring the population to 80% of its carrying capacity. This would require positive steps to increase the population, not just reduce accidental mortality. It was also difficult to achieve without knowing how many porpoises there were, but as the numbers were thought to be low, two animals killed in bycatch exceeded the threshold.

In defining areas, Petra Deimer-Schütte said that ASCOBANS being more akin to HELCOM should adopt the same definitions as that organisation which also had a conservation mandate, rather than ICES with strong links to fisheries. HELCOM's definition of the Baltic included the Kattegat. Iwona Kuklik pointed out that the "transition zone" was included.

Stefan Bräger pointed out that the Swedish and Danish experts had done most work on genetics and it was possible that their core data related to the Danish/Swedish populations and not to the Baltic proper, so they were possibly comparing like with like and were less likely to discover differences. There was also some debate over the statistical analysis of the studies by Per Berggren and Per Palsböll. Mats Amundin asked whether, if the analysis was correct and all harbour porpoises were akin to those in Danish waters, the 1.7% bycatch limit would be relaxed. Penina Blankett explained that the terms of the Habitats Directive meant that all countries had to protect harbour porpoises within their waters. Germany was going to submit several documents to the 16th Advisory Committee Meeting that clearly showed that the current rate of annual harbour porpoise bycatch in the German part of the Baltic Sea exceeded 1.7% of the local population by far. These documents should be referred to for more detail. Petra Deimer-Schütte stressed that the 68 cases were the *reported* bycatch. There were almost certainly unreported cases. While fishermen reported no bycatch, this could not be verified without a dedicated observer programme. Stranded specimens were examined and 12% were in a condition to check for net marks and 48% of those showed signs of entanglement.

In summary, Sara Königson said that opinions differed over the importance of establishing whether the Baltic Sea population was genetically separate; that it was important to follow up

the actions identified at the Bonn workshop and the results of Signe Sveegaard's tagging project should be circulated as soon as possible after the project's completion – securing funds was progressing. Similarly, the results of the German study should be released, but the amount of data was still very low in the Baltic, although somewhat better in the transition zone. Petra Deimer-Schütte said that regardless of where in the Baltic, the status of the porpoise necessitated action.

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

Mats Amundin gave a presentation on the developments under the SAMBAH **(S**tatic **A**coustic **M**onitoring of the **BA**ltic Sea **H**arbour porpoise) project. The aim of SAMBAH was to ascertain harbour porpoise abundance in the Baltic, based on less thorough census and more sophisticated modelling. It was hoped to identify hotspots of favoured habitat to help implement the Habitats Directive and with seasonal variations taken into account and to establish a baseline for tracking future trends.

In autumn 2008, all countries in the Baltic except Germany (but it was hoped that they would come on board later) and the Russian Federation were involved in the new LIFE+ application. The proposal was submitted to the Swedish Environment Protection Agency in December and with some amendments to the Commission in January 2009. The Commission made some comments, which had been addressed. A decision was expected in June or July 2009.

Stefan Bräger suggested that Mats Amundin be invited to make this presentation at the Advisory Committee.

The slides making up the presentation are attached at Annex 6.

Develop interactive pingers or pingers using frequencies not audible to seals.

Mats Amundin suggested changing the recommendation in the light of new fieldwork. Stefan Bräger questioned the validity of the recommendation as it was aimed at the protection of seals rather than the harbour porpoises being excluded from their habitat. Mats Amundin felt that excluder devices were the lesser evil compared with bycatch and that solutions to bycatch needed to win over fishermen. Stefan Bräger said that in that case fisheries forums should fund the development of such pingers. Regarding seals, the question was not simply loss of catch to seals but also of bycatch of seals.

Simple exclusion devices had yet to be fully deployed and sophisticated selective pingers with expensive trigger devices were unlikely to be introduced in large numbers. The key was to develop better fishing gear. Selective pingers cost €800, much more than ordinary pingers which fishermen already objected to on cost grounds. Lotte Kindt-Larsen drew attention to Nick Tregenza's studies of pingers, which acted not as a deterrent but made porpoises aware of the presence of nets. A sound had been found which made harbour porpoises click. More field trials were needed, as some sounds did not produce clicks in response. Mats Amundin referred to studies by Ron Kastelein and it was not however clear why the 10kHz pingers worked.

Stefan Bräger pointed out that the original draft of the Plan had advocated the short-term deployment of pingers – and the short term had long since expired – while alterative fishing gear was being developed. Progress had been limited. Emphasis should be now placed on developing new gear. Mats Amundin said that interactive pingers could be developed and he would approach the firm Aquatech with a precise specification to obtain an estimated cost. Krzysztof Skóra pointed out that the Plan advocated different approaches suitable for different localities. He cited the example of a pinger project launched recently in Poland which had promising results in an area with no seals. Pingers without nets were being set up in Puck Bay to exclude harbour porpoises at key times.

In Stefan Bräger's view, pingers were detrimental to the long-term conservation of porpoises. Mats Amundin differed, saying that this was not his experience and was supported by Lotte Kindt-Larsen citing an unpublished study conducted over six months, which found that pingers were not a permanent deterrent insofar as when the pingers were deactivated, the porpoises soon returned. This however was not consistent with studies by Jonas Teilmann cited by Stefan Bräger (c.f. reports of the third and fourth meeting of the Jastarnia Group). Signe Sveegaard said that it had been impossible to tell whether the porpoises were the same ones returning or ones new to the area. Mats Amundin recounted the experience of a young porpoise, which seemed to enjoy triggering a pinger, and its mother stayed nearby.

Investigate possible detrimental effects of various types of sound and disturbance (including pinger signals, noise from vessels, wind parks or construction and seabed exploration for oil and gas) on harbour porpoise

Stefan Bräger reported that the CMS COP9 had adopted a resolution on noise and the Advisory Committee Working Group was working towards a resolution to table at the MOP. Mats Amundin said that the Swedish Environmental Protection Agency had provided money to monitor noise caused by passing boats to measure the effect of speed. Loughborough University was working on the analytical tools to interpret the data. Different propeller design had a considerable effect on the noise generated. Heavy boats low in the water were less noisy than lighter craft hitting the surface. The effect of ferries, personal watercraft and yachts needed to be assessed. Some leisure boats had echo sounders fitted as standard and these were sometimes permanently operative while the motor was on. Boat builders and users were unaware of the problems they were causing. The frequencies of nuisance noise had to be established.

Iwona Kuklik mentioned that old World War II ordnance had been destroyed by explosion in Puck Bay. The military had taken no account of the effect on wildlife. Petra Deimer-Schütte said that the NGO NABU, the German BirdLife partner was aware of the ordnance problem. Ordnance posed a threat to humans, who mistook it for amber when it was washed ashore. Once located, dumps could be frozen for safe disposal on land but this was expensive. If the munitions were destroyed at sea, they could be ringed by a bubble curtain. Mr Schütte had recently filmed such an operation and the footage could be made available at the Advisory Committee. Bubble curtains were routinely used to mask pile-driving operations. Mats Amundin confirmed that porpoises exposed to explosions could be killed outright or have their hearing permanently impaired leading to starvation, as they could no longer hunt.

The new Russian oil terminal in the Baltic was nearing completion and was expected to lead to greater shipping traffic.

Monitor by-catch in fisheries known to be harmful to harbour porpoises to be able to estimate by-catch levels.

Sara Königson reported on the pilot study in Sweden, which involved installing video equipment on board smaller vessels. The report had been completed and was on-line. The system had worked well with three vessels participating. The initial reaction had been negative but the scepticism soon evaporated as fishermen saw the study as a way to prove that bycatch was low. The video worked when the net setting gear was operated. The three boats were monitored for 150 days at a cost of SEK 3500 (€350) per day per boat, a third of the cost of an on-board observer. Aiming at a 20% coverage on the West coast fishery, the cost would be SEK 5 million for monitoring the set net fishery. To get any reliable by-catch estimates on the East coast/Baltic fisheries, a coverage of 80% would be needed and the cost for monitoring the set net fishery in the Baltic would be 160 million SEK (16 million euro). The main costs were salaries and renting the video equipment.

The website www.morswin.pl had footage of video cameras in operation. Lotte Kindt-Larsen said that using four cameras and a multiple screen, most of the fishermen's activities could

be adequately monitored. A good working relationship with the fishermen meant that they could be asked to move to ensure better camera angles. The number of full time observers in 2008 was one in Sweden, whereas it had been the equivalent of 2.75 full time posts in 2007 dedicated to marine mammal bycatch monitoring. In Finland, Penina Blankett reported that over two years, two observers had encountered no bycatch, whereas in Poland, 10 observers monitoring drift nets over two years had seen no bycatch. There were no observers assigned to Polish set nets.

Krzysztof Skóra gave a presentation on Polish observer effort. The presentation was a work in progress and was not available to be included as an annex to this report. The presentation showed the shortcomings of EC Regulation 812/2004 in terms of bycatch reduction. The presentation included a map depicting bycatch and stranding incidents in the ICES areas 24 (Pomeranian Bay) and 26 (Puck Bay). Puck Bay accounted for 1% of Poland's fishery effort and 40% of the bycatch. Another graphic illustrated the structure of the gill net fleet in ICES Area 24 which had 72 vessels under 12 metres; 25 between 12 and 18 and just five over 18 metres. The medium and large categories accounted for 29% of the fleet but 47% of the net capacity and only 16% of the boats were large enough to qualify for observers. The figures for Puck Bay showed of a fleet of 133 vessels, 14 were in the medium category and just 3 in the large category, with just 12% over the 15-metre observer threshold.

Sara Königson asked whether the Group should continue to call for observer programmes in view of the high costs. Attention was drawn to the forthcoming meeting in Brussels (24-25 March), which would take the form of a workshop on the effectiveness of Regulation 812 as part of the four-yearly reviews. The meeting would provide some indication of future development of the regulation. Simon Northridge's draft report for ICES had been posted on the internet and it suggested that low bycatch numbers required a higher percentage coverage for accurate results to be obtained.

Penina Blankett stressed that also part-time fisheries, not just commercial fisheries, needed to be monitored. The EU logbooks should be designed to record effort, catch and bycatch of marine mammals and birds. Sara Königson stressed the need to engage fishermen rather than just impose unpopular regulations and obligations.

It was suggested that the Group recommend that EU member states use the opportunity to influence the Commission by raising the bycatch issue. Kai Mattsson stressed that the Advisory Committee should be informed that this issue had been raised within the Group and was considered urgent.

Sara Königson promised that an English version of the executive summary of a Swedish report on recreational fisheries and vessels under 12 metres would be ready for the Advisory Committee. Sweden's progress was welcomed and other Parties were encouraged to follow suit, adapting to their own circumstances.

In summary, the unanimous view of the group was that Regulation 812 had failed to meet its objectives.

Compile Data on Fishing Effort

Stefan Bräger stressed that it was important to identify areas of conflict. The fishing effort was only half the story. Accurate data on porpoise distribution and population density was also needed. This data would emerge from the SAMBAH project. Vessel monitoring data was also available but did not cover smaller vessels. Harri Kukka pointed out that the Commission had extensive fisheries data at its disposal, but Sara Königson said this excluded vessels under 10 metres (or 8 metres for Baltic cod fisheries).

Examine Habitat Preference of Harbour Porpoise

This objective was covered as part of the SAMBAH project, so the Group should await the decision of the LIFE+ round in the summer. The Group agreed that in general acoustic research should be supported.

Investigate the prevalence of derelict (ghost) gear and feasibility of its removal

Sweden had done some work on collecting ghost nets cooperating with fishermen. Sara Königson undertook to find out more about the methodology and results of the project. The EU had financed the fishermen's own initiative. Unfortunately no further funding was available from the Swedish government this year. Jan-Erik Holmberg explained that fishermen searched for ghost gear during the closed season for fishing. They had found large quantities of nets originating from all over the Baltic. His association had just launched a "Keep the Baltic Clean" campaign. Petra Deimer-Schütte referred to a similar exercise off Madeira, in connection with efforts to protect the Monk Seal, which had also produced large quantities of ghost nets.

Parties needed to be aware of the extent of the problem of ghost nets and believed that retrieval operations presented an excellent opportunity for fishermen's associations to prove their "green" credentials by undertaking clearance operations.

c. Marine Protected Areas

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

Stefan Bräger reminded the meeting that all EU member states should have submitted their proposed marine SACs under the Habitats Directive. Germany appeared to have no clear plans for how to implement management measures in the sites designated for harbour porpoises. The first stage of identifying the sites had been completed relatively easily; the second stage of devising plans was a challenge. Signe Sveegaard thought that the details of such plans would depend largely on local circumstances and no uniform formula would work. Declaring no fishing zones would have limited impact, because porpoises would still be at risk in adjacent areas.

A new recommendation should call for the Advisory Committee to ask for funding for a follow-up workshop to decide what criteria should apply in devising policies for designated protected areas.

Site selection was progressing differently in different countries. Denmark had the advantage of satellite data not available to Sweden. Signe Sveegaard said that the Commission had issue detailed guidelines on site selection. Iwona Kuklik said that Poland had selected two sites, subject to minor border adjustments. These were Pomeranian Bay and Puck Bay. These sites would test new management regimes under the supervision of the Ministry of the Environment rather than Agriculture.

d. Public Awareness

Develop a comprehensive public awareness campaign based on elements outlined.

Penina Blankett said that the Baltic harbour porpoise database would be discussed at the HELCOM habitats meeting. She asked about the status of the database. Petra Deimer-Schütte sought clarification of what "the Baltic database" was, as information was spread over many places, for instance the GSM/BfN sightings map. This was restricted

geographically to east of 12°E (near the Darß ridge) and was temporally restricted because some data was part of a current Bachelor thesis. Stefan Bräger said that a database existed for harbour porpoises beyond 12°E and it was hosted by the FTZ, but there was no more federal funding for it. The original idea was for an open, web-based GIS system. Efforts should be made to ensure that this site was reactivated or at least that the data it contained be retrieved.

Heidrun Frisch said that she had contacted FTZ as instructed by the last Advisory Committee meeting to put them in touch with HELCOM about a possible link or transfer of the database. Little progress had been made. Stefan Bräger suggested therefore that the outcome of initial contacts with HELCOM to determine what might be possible should inform decisions about how best to revive the Baltic database. If HELCOM could manage the data, then Parties should provide HELCOM with material for inputting. Heidrun Frisch undertook to contact Hanna Paulomäki to determine what was technically possible and at what cost.

Heidrun Frisch reported that the ASCOBANS leaflet had been revised after the last Advisory Committee meeting and translated using the German voluntary contribution for 2008. The drafts were awaiting final clearance by the countries, but at least some language versions were expected to be ready for the Advisory Committee and International Day of the Baltic Harbour Porpoise in May. The 2009 German voluntary contribution would be partly used, if the German government agreed, to produce a leaflet for fishermen throughout the ASCOBANS Area. A consultant might be engaged to carry out an analysis of available material and gaps in consultation with Parties and members of the Group. The publication would be made available in printed form and on the web. Stefan Bräger stressed that the expertise to produce a fishermen leaflet could be found easily within the Jastarnia Group and suggested its members should be consulted in the production process. Heidrun Frisch clarified that this had never been foreseen differently and that indeed the Secretariat had already made initial consultation with the ASCOBANS constituency, including the Jastarnia Group.

Krzysztof Skóra passed round a new DVD with 25 minutes of material suitable for awareness raising in schools. The copyright for the material was held by the Hel Marine Station. The DVD had received some media attention, mainly from local commercial stations rather than national state broadcasters.

e. ASCOBANS Cooperation with Other Bodies

The presentation by HELCOM reported in detail below under item 5 together with the ensuing discussion showed that cooperation with other bodies was bearing fruit.

Krzysztof Skóra asked that the Advisory Committee be requested to provide funding for an ASCOBANS representative to attend meetings. Heidrun Frisch pointed out that the budget line for experts was only €856 in 2009 but the forthcoming MOP could decide to increase this. The views of the Group should be passed to the Advisory Committee and then on to the MOP. Sara Königson said that Hanna Paulomäki's attendance was a good start and such contacts should be maintained. Heidrun Frisch reported that she had contacted the Baltic RAC. It operated an open system with no formal observer status and ASCOBANS was now on the mailing list and would be notified of future meetings, such as the scientific working groups on 7 May and the General Assembly on 8 May. The RAC was meeting in Gdynia suggesting that either Krzysztof Skóra or Iwona Kuklik should attend.

The Baltic RAC did not have a specific bycatch working group as suggested by Coalition Clean Baltic; its working groups covered commercial fisheries, pelagic fisheries and salmon and sea trout.

Pennina Blankett undertook to represent ASCOBANS and the Jastarnia Group at the HELCOM Fish Forum and possibly at the seal group.

5. Report HELCOM by Hanna Paulomäki

Hanna Paulomäki of the HELCOM Secretariat gave a presentation entitled "towards favourable conservation status of the Baltic Sea Biodiversity". Within the Secretariat she was responsible for GIS, databases and protected areas. HELCOM's Action Plan included 2010 biodiversity targets. Among the actions was ensuring viable species populations, and regarding the harbour porpoise, HELCOM was cooperating with ASCOBANS on bycatch, stranding and sightings, alongside the Baltic RAC and national fisheries associations and authorities. The slides accompanying the presentation are attached as Annex 7.

Hanna Paulomäki wanted to ensure maximum cooperation with ASCOBANS through the HELCOM species groups and to avoid duplication of effort. One way for ASCOBANS to help HELCOM would be for an expert to provide information for the harbour porpoise fact sheet. Stefan Bräger agreed to lead an e-group to draft this fact sheet. He could adapt existing material from the chapter for the fact sheet. The Secretariat could help with logistics.

Petra Deimer-Schütte welcomed cooperation with HELCOM in part because of its broader definition of the Baltic including the Kattegat.

The calling notice for a stakeholder conference organised by HELCOM on 3 March was drawn to the Group's attention. Penina Blankett was not sure if she would be able to attend this conference, but if so would report back to the Advisory Committee.

6. Evaluation of the New Draft of the Jastarnia Recovery Plan

Sara Königson announced that having consulted widely among the Group, the meeting would consider the revised draft of the Plan provided by Rüdiger Strempel.

Heidrun Frisch made a statement on behalf of the Secretariat, explaining the Secretariat's conviction that that while the revision prepared by Mr Strempel greatly improved the plan, the task set by the Advisory Committee had not been fully met. The revised Plan did not entirely follow the draft North Sea Plan, especially with regard to the breakdown of the actions outlined. The change of format had been requested to make it easier for decision-makers to identify the main actions and actors. The revision prepared by the consultant Ms Wharam had attempted to follow this format and could serve as a model. The Secretariat therefore urged the Group to consider how best to fulfil the task set by the Advisory Committee.

Penina Blankett confirmed that Finland's suggesting that the Jastarnia Plan should be re-structured to resemble more closely the North Sea Plan had been for these reasons. The more action-oriented format of the North Sea Plan was considered more useful.

Penina Blankett suggested the greater use of subheadings in the text to help the reader identify key passages. Heidrun Frisch pointed out that this had been done in the revision prepared by the consultant and that perhaps this could be used as a model for more clearly structuring the draft they were considering.

The group agreed changes which Sara Königson incorporated into a text projected on the screen and also involved Rüdiger Strempel in the discussion by telephone. It was agreed that this text should be the basis of the further revision.

7. Any Other Business

As Jan-Erik Holmberg was possibly retiring during the course of the year, this might have been his last Jastarnia Group meeting. Sara Königson thanked him for his work for the Group.

8. Adopt Rules of Procedure

Drafts Rules of Procedure (RoP) for the Jastarnia Group were circulated for members to consider. The Jastarnia Group adopted the RoP (with some minor changes) as outlined in the attached document (see Annex 8). The draft rules should be submitted to the Advisory Committee thirty days in advance of that meeting.

9. Election of new chairperson for the Jastarnia Group

The Jastarnia Group decided to defer the election of the new chair until the Advisory Committee meeting. Until then Sara Königson would continue in this role.

10. Date and Venue of the 6th meeting of the Jastarnia Group

Provided the timing of other meetings allowed, it was hoped to hold the 6th meeting at a similar time in 2010. Krzysztof Skóra had approached the Polish Ministry and could provisionally offer to host the meeting at Hel. It was possible that the 17th Advisory Committee meeting would be held in Stralsund in March 2010.

11. Closure of Meeting

After the customary expression of thanks to the hosts and the organisers, the meeting closed at 15:00.

Annex 1

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Annex 2

Agenda

1. Opening of the Meeting

2. Adoption of the Agenda

3. Election of the Chair for this Meeting

4. Implementation of the Jastarnia Plan and the recommendation of the 4th meeting of the Jastarnia Group

a. Bycatch reduction
b. Research and monitoring
c. Marine protected areas
d. Public awareness
e. ASCOBANS cooperation with other bodies

5. Hanna Paulomäki will give us a brief update of HELCOM's work and the Baltic Sea Action Plan. Starting point for discussions regarding the Jastarnia Group's cooperation with HELCOM

6. Evaluation of the new draft of the Jastarnia Recovery plan

7. Any Other Business

8. Adopt Rules of Procedure

9. Election of new chairperson for the Jastarnia Group

10. Date and venue of the 6th meeting of the Jastarnia Group

11. Closure of meeting

Annex 3

Recommendations to the Advisory Committee

Bycatch Reduction

1. Parties should urge their relevant authorities to investigate ways of limiting part-time and recreational set-net fisheries.

2. Parties should involve stakeholders, including fishermen, and urge them to accept responsibility for eliminating the potential risk of bycatch in gillnets and to take the necessary actions to obtain this goal. One way of making this into a positive market force is to develop a green policy for the fisheries, promoting a "porpoise free fish" label. In such a process it is recommended to seek advice from similar label initiatives on the market and to integrate this green policy into the public relations and awareness campaigns discussed below.

3. Parties should promote research on the development of new porpoise-safe fishing gear. Included in the responsibility of the stakeholders for mitigating bycatch is the active participation in this research and development. The implementation of resulting new fishing gear can be considerably facilitated by including the new gear in a green label, e.g. as outlined above, since it will increase acceptance of a higher value of the catch, which in turn would serve as an incitement for the fishermen to adopt the new gear.

4. Parties are reminded to implement urgently the pinger use recommended in the Jastarnia Plan, which calls for pingers to be made mandatory in probable high-risk areas and fisheries associated with bycatch of harbour porpoises on a short-term basis (no more than 3 years) irrespective of vessel size. In the meantime, Parties must develop long-term measures to mitigate bycatch, such as alternative fishing gear.

Research and Monitoring

5. The Secretariat should work to ensure that the final report of the Workshop on Genetics and Population Structure of the Harbour Porpoise in the Baltic Sea , held in October 2007, be made available in time for the 16th meeting of the ASCOBANS Advisory Committee (AC). The AC should initiate any necessary follow-up, which should also include the catalogue if available samples and results of ongoing research when they become available.

6. Baltic parties are urged to submit all available results on genetic, morphological and other biological research, dealing with the stock identity of Baltic porpoises, to an expert group that should be established by the AC. Also results from ongoing relevant studies should be included. Based on these data, the working group should assess the current status of Baltic porpoise stock identity, and recommend what further research might be required to resolve this issue. This work should be reported at the 2010 Advisory Committee meeting.. Parties are encouraged to provide funding for such future research.

7. The Jastarnia Group recommends further support for systematic large-scale passive acoustic monitoring to collect population density data. These data should then be correlated to GIS modelling already carried out to ascertain the distribution of harbour porpoises' prey fish and various habitat factors. The Jastarnia Group is grateful for the support given by ASCOBANS to the application of the proposed LIFE+ SAMBAH project.

8. Parties should promote studies on alternative fishing gear, the development of interactive pingers and pingers not audible to seals.

9. Parties and the ASCOBANS Advisory Committee Noise Working Group are asked top give special consideration to the particular requirements in the Baltic Sea when mitigating the impact of anthropogenic noise on porpoises, such as the destruction through explosion of old

ammunition or during the construction of sea bed pipelines as well as pile-driving for wind turbines. Furthermore, additional ship noise is of concern during offshore construction as well as the use of depth sounders (e.g. fish finders) with frequencies of less than 150kHz in particular by an increasing number of leisure boats.

10. Parties are asked to undertake baseline studies of underwater noise in their respective waters as a reference point for future impact assessments.

11. The Jastarnia Group requests that the working group on noise should also consider guidelines on the safe disposal of abandoned ammunition to minimise the detrimental effects on harbour porpoises, for example through the use of bubble curtains.

12. Parties should use their right to comment during the process for the review of the Common Fisheries Policy of the European Commission to ensure marine mammal bycatch reporting. For example, bycatch reporting should be included in the fishing logbooks as additional columns without requiring any separate forms.

13. The Jastarnia Group notes the success of the Swedish pilot project regarding installation of video cameras on board small fishing vessels for monitoring bycatch and encourages parties to take similar measures.

14. Parties should recognise the magnitude of the problem regarding derelict fishing gear and encourage fisheries organisations to remove it. There may be major benefits for the stakeholders in terms of public relations.

Marine Protected Areas

15. ASCOBANS should organise a workshop, e.g. at the 2010 annual conference of the ECS, that considers criteria and best practice of management measures to be implemented in Marine Protected Areas for harbour porpoises. Parties are encouraged to provide funding for this workshop.

Public Awareness

16. The Secretariat should liaise with the HELCOM Secretariat about starting a joint Baltic harbour porpoise database as part of HELCOM's online information system. If such a database is created, data from the Baltic Sea Porpoise Project, currently hosted by the FTZ in Germany, should be included in it.

Cooperation with Other Bodies

17. The Jastarnia Group acknowledges the progress regarding the future cooperation between the Jastarnia Group and HELCOM. The Jastarnia Group promotes further cooperation with the HELCOM ad hoc Seal Group and will strive to cooperate with the HELCOM fish forum. Further, HELCOM should continue to be invited to take part in the Jastarnia Group meetings.

18. In the ASCOBANS budget for the triennium 2010-12, Parties should ensure sufficient funds for the annual meetings of the Jastarnia Group and the participation of a representative of the Jastarnia Group in relevant meetings, such as the HELCOM Seal Expert Group, the fisheries/Environmental Forum for the implementation of the HELCOM Baltic Sea Action Plan and the BSRAC.

Annex 4

Possible alternative mitigation methods

Jarstarnia group meeting, Turku 2009

Lotte Kindt-Larsen, DTU AQUA, Denmark
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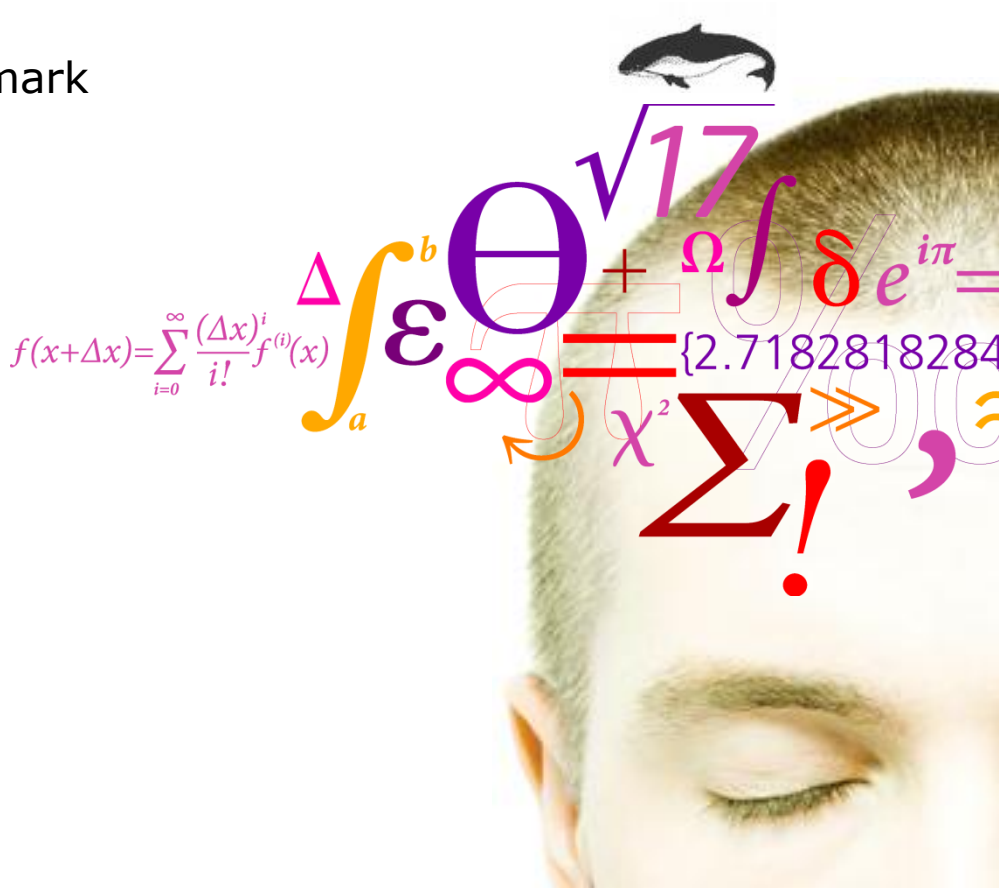
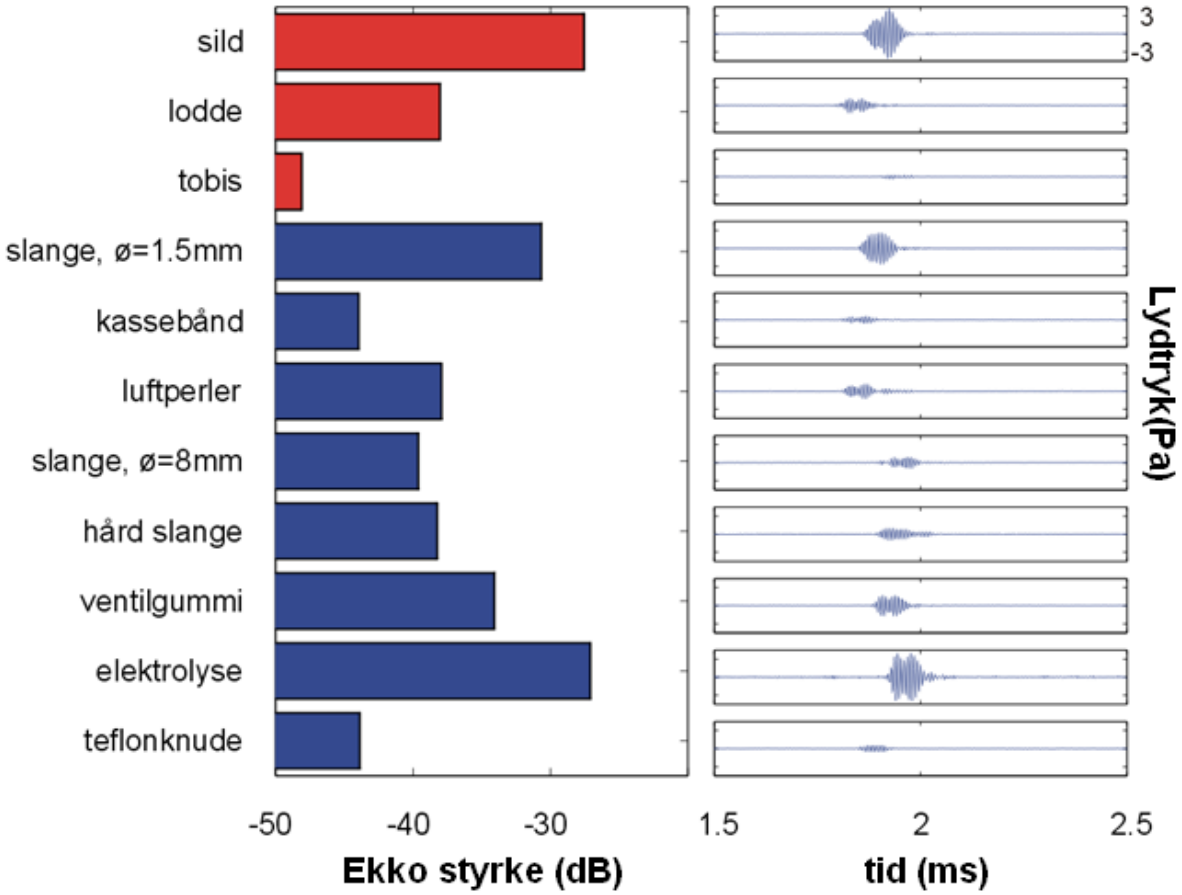


Acoustic enhanced and modified gillnets

- **Barium sulfate**
  (Trippel et al., 2003; Northridge et al., 2003; Larsen et al., 2007; Beedholm, 2008)

- **Devices**
  Hembree & Harwood, 1987; Goodson *et al., 1994*; Koschinski & Culik, 1997*;* Beedholm 2008).

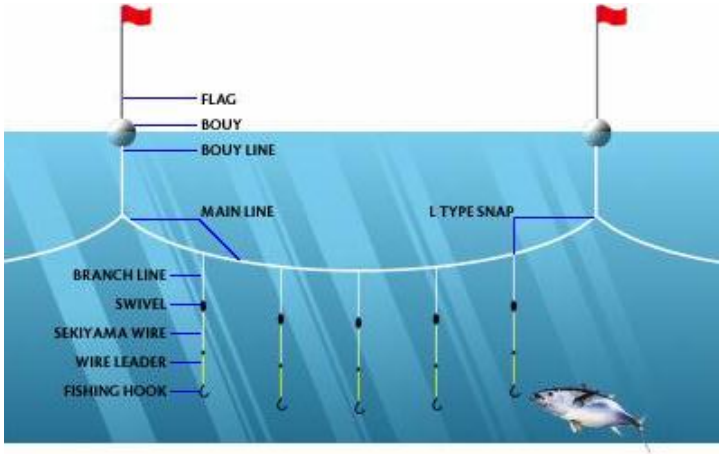
- **New research**
  (Beedhold, 2008)



Change in gear

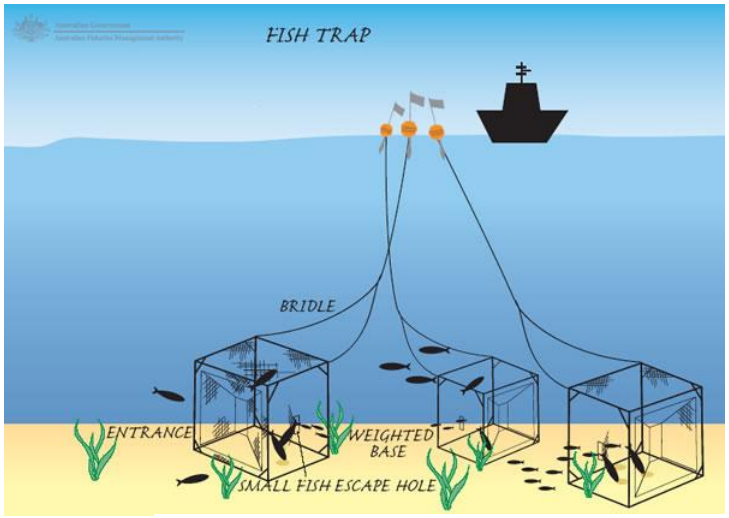
Longline

- Used all over the world
- North Atlantic (Norway, Island, Canada): cod, haddock, tusk, leng, halibut, Greenland-halibut, wolf-fish and hake.



Traps

- Used in Northern waters
- cod, haddock, tusk, leng, and hake



Longline

Hook

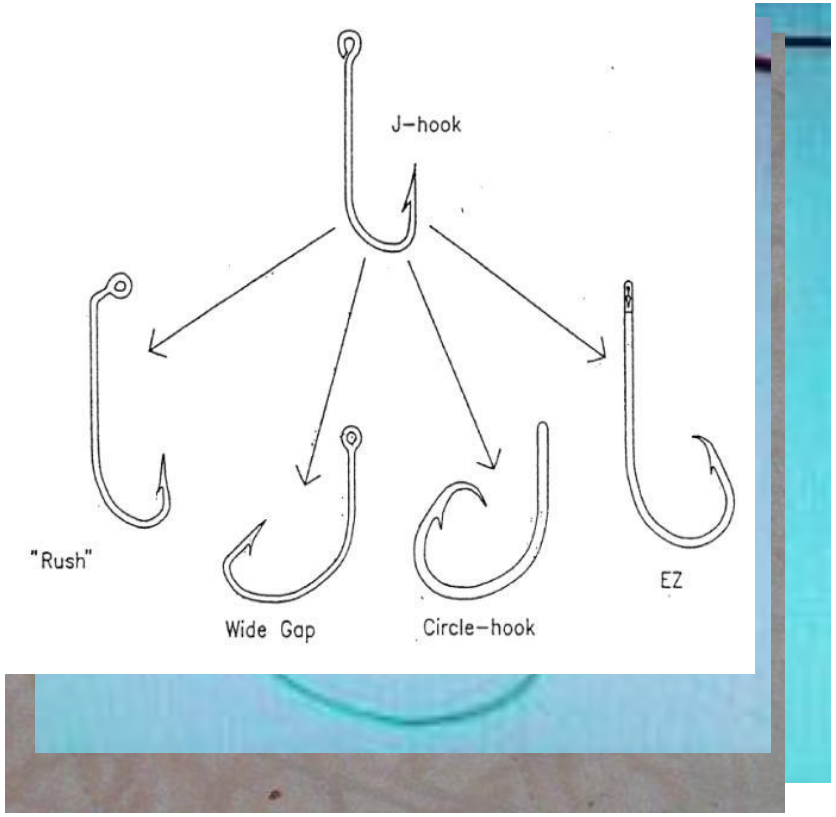
- Small hooks => higher catch rates
- Hook size => higher selectivity
- Hook shape => higher catch rates

Lines

- Color => higher catch rates
- Swivel => higher catch rates

Bait

- Species => higher catch rates
- Size => higher selectivity
- Artificial bait=> longer validity



Longline- experimental results

Catch rates

- Norway: 5-35 fish/100 hooks
  20days of fishing =>108,9tons (Björndal, 1983, 1989)
- Denmark: Mean catch rate 391-.691 kg/day/vessel (Krog, 2003)

Size selectivity (Hovgård & Riget 1992, Engås et al. 1996, Halliday 2002)

- Longline ⟷ Trawl
- Longline ⟷ Gillnet

Species selectivity (Engås et al.,1996; Huse et al., 2000; Santos et al., 2002; Erzini et al., 2003)

- Longline ⟷ Trawl
- Longline ⟷ Gillnet

Danish longline catches in the Baltic (Krog, 2003)

- Cod => OK
- Turbot => Not OK

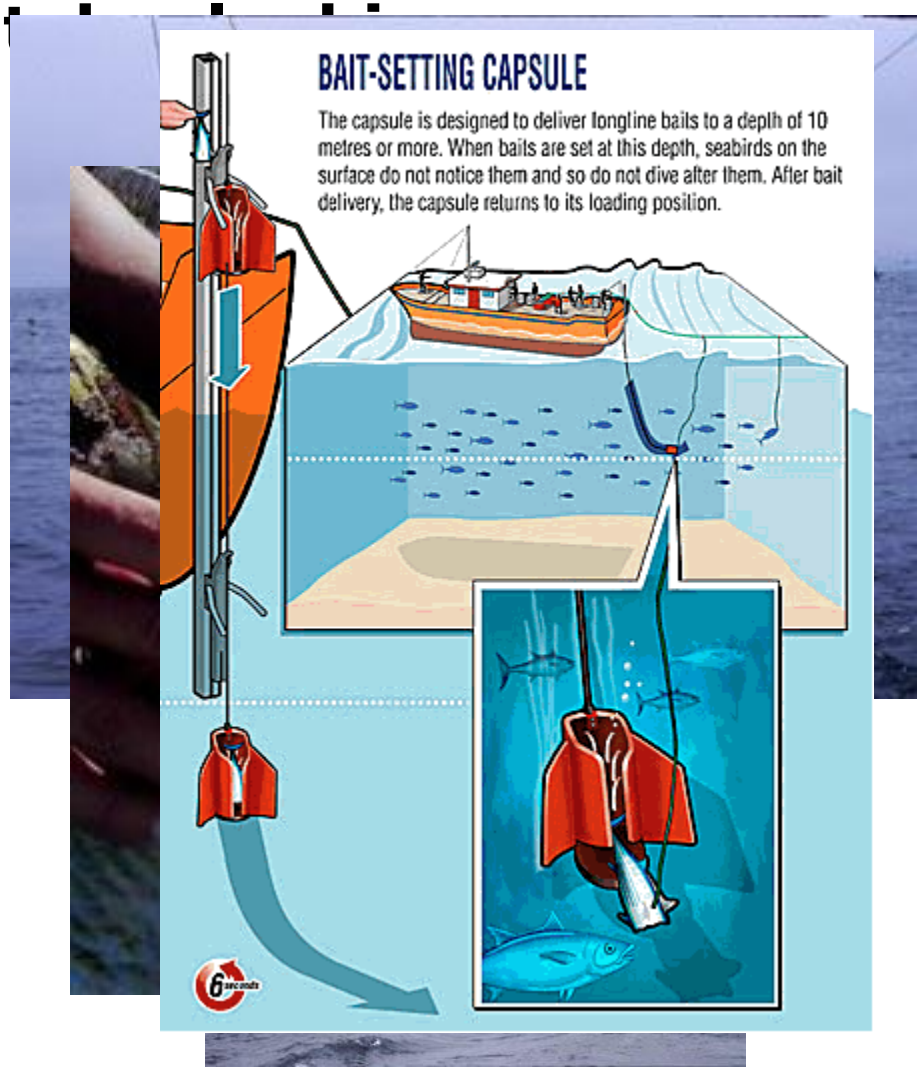
Longline side effects

- Bycatch of turtles
- Bycatch of seabirds

- Under water baiting and streamers

New techniques

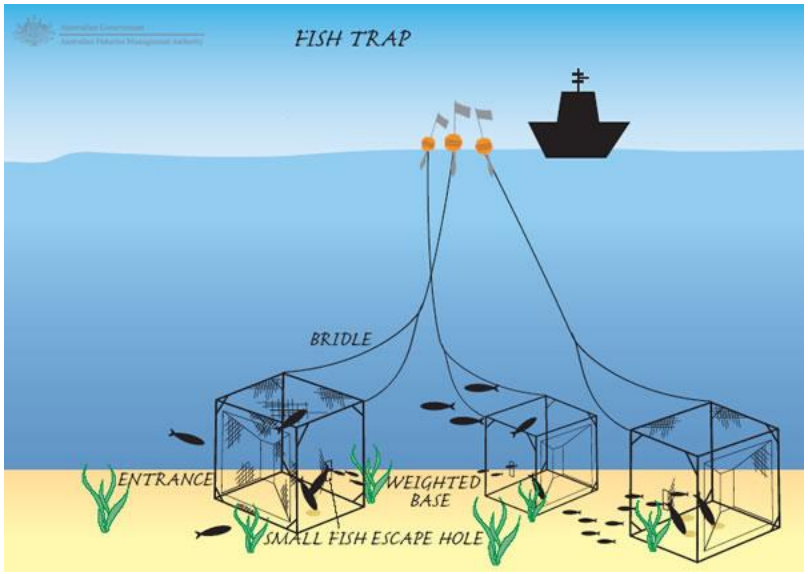
- Atomized longline systems



Fish traps

Influencing factors:

- Number of chambers
- Size
- Shape
- Number of entrances
- Exit shape
- Distance between traps
- Bait: species and protection
- Fishing time
- Age



(REF: Parks 1973; Clausen &Fuijoka, 1985; Bjørndal & Furevik, 1988; Raymore & Weinberg, 1990; Furevik &Skeide , 1994, 2002; Furevik & løkkenborg, 1994; Krog 1998; Conners et al., 2004;, Agnew et al., 2001;, Pedersen, 2000)

Fish traps – Experiments

DK

- Size: 180x90x90 cm
- Catch 0,2-6,8kg
- **Cod**, leng & tusk
- Fish time 12 hours- 10 days
- Economy ⬇

Norway

- Different sizes of traps
- Catch2-6kg
- **Tusk**, cod & leng
- Fish time: 15 hours
- Economy ⬆

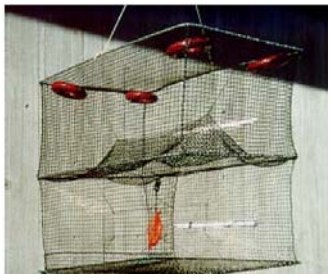
- Conclusion

Closure of areas

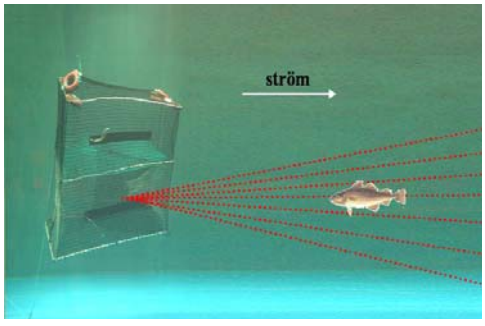
- Distribution, density, movements
- New Zealand (Hector dolphins) Slooten et al., 1993, 2006
- Gulf of Maine (Harbour porpoise), Murray et al., 2000
- Effects of closure

The Norwegian Two-Chamber Cod Trap

Sara Königson Swedish Board of Fisheries



The basic balance

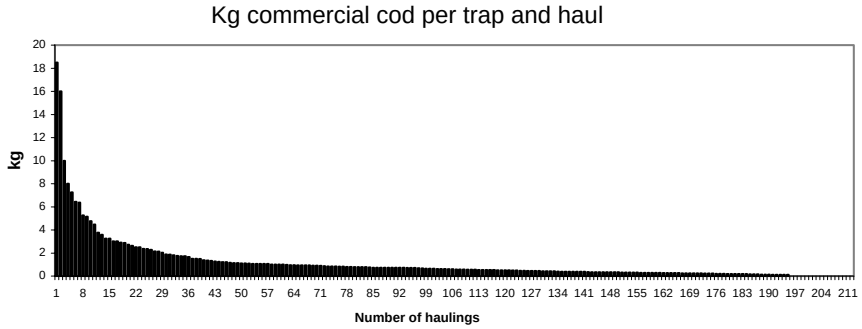


Cod trap trials 2008

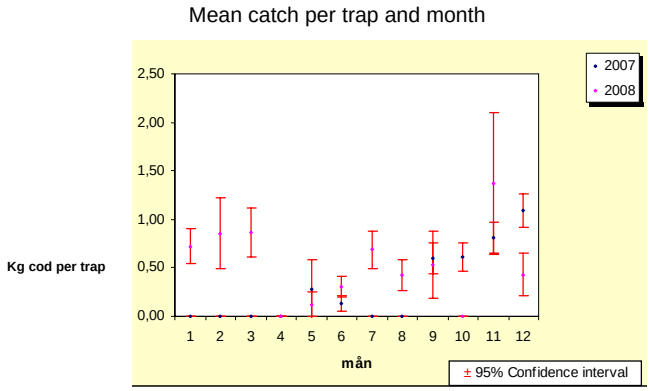
- 10 fishermen have been fishing 162 days- corresponds to 9 936 trapdays
- Catch: A total of 1 748 kg - 1 385 large cod. 2 420 small sized cod
- Mean per hauling 1,16 kg ± 0,29 (95 % ci)
- Mean per trap and day 0,3 kg ± 0,15 (95 % ci).

Large variation in catch

- a potential for large catch



No clear variation in catch over the fishing season

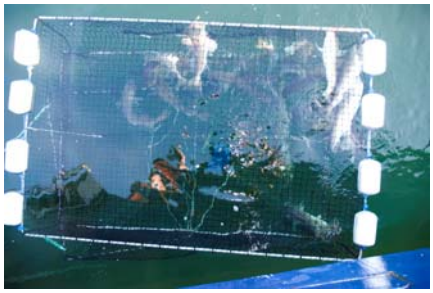


Cod trap trials 2009

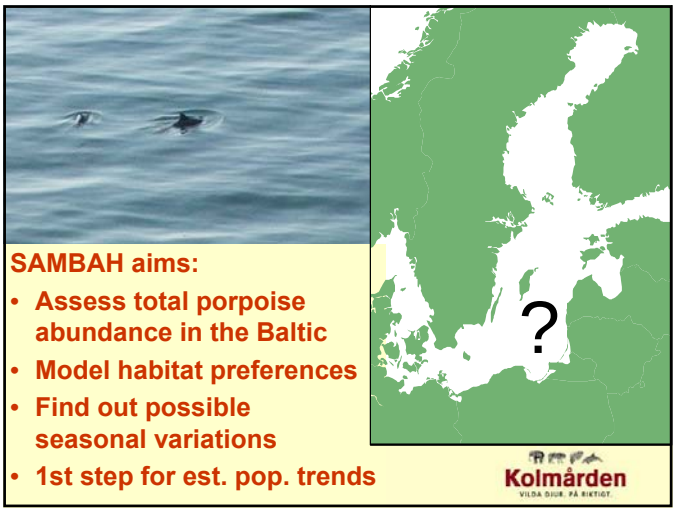
- One fisherman will be fishing full-time during 2009
- He will use up to 130 traps
- He has modified his boat to the use of cod traps

Questions?

- Visual stimuli
- Reef effect
- Selectivity
- Different bait
- Bycatch



- Can cod traps become cost effective?



LIFE+ SAMBAH application

- Submitted 19/12, 2008 to SEPA
- All countries but Russia and Germany joined
- Application acknowledged by LIFE+ in January and minor details fixed
- Decision expected in June-July

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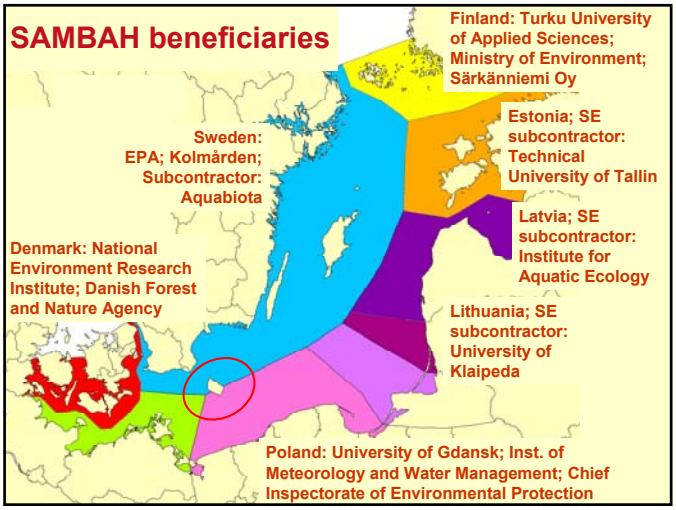
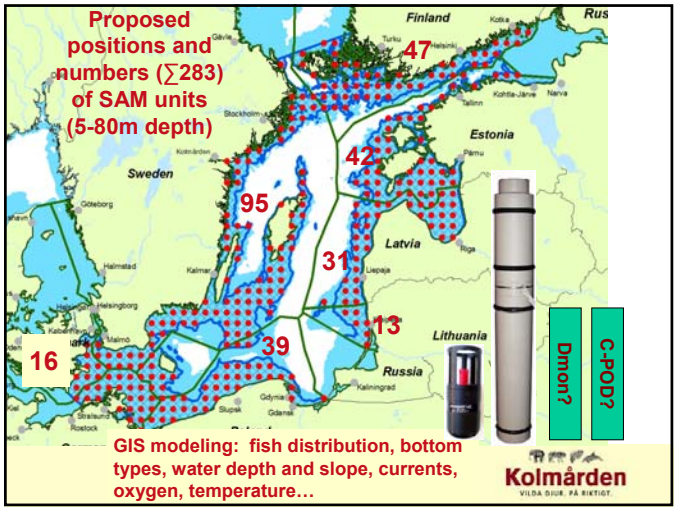
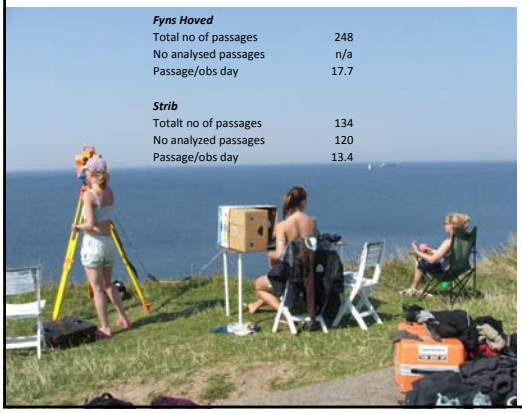




Preparatory field work in DK waters, 2008….



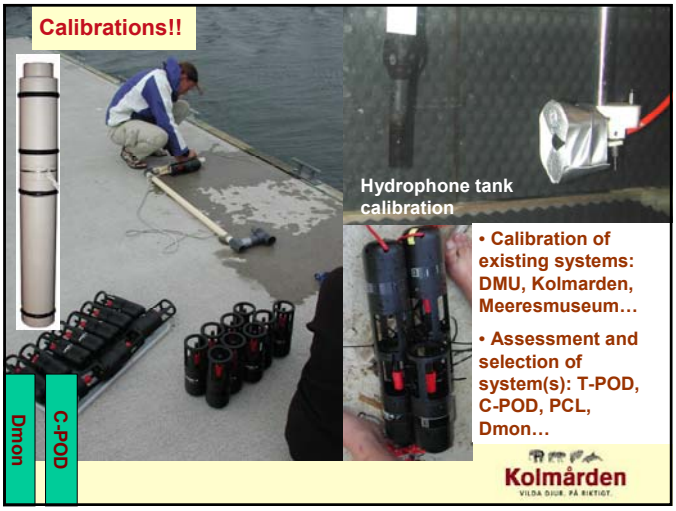
Collection of important basic data:

- SAM calibration/ assessment
- g(0)
- max detection distance
- detection probability function
- received sound levels
- acoustic ranging

Preparatory field work in DK waters, 2008 Bad weather in June…

important basic data:

- SAM calibration/ assessment
- ~~g(0)~~
- ~~max detection distance~~
- ~~detection probability function~~
- received sound levels
- acoustic ranging

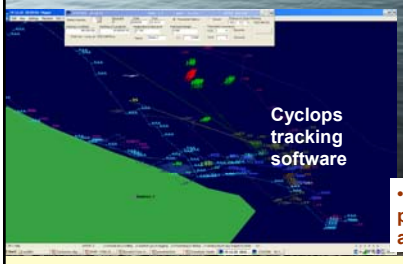


- Calibration of existing systems: DMU, Kolmarden, Meeresmuseum…
- Assessment and selection of system(s): T-POD, C-POD, PCL, Dmon…

Visual tracking re to SAM unit logging

SAM flag buoy

Porpoise



Cyclops tracking software

• 3 + 3 weeks field periods jointly by DK and SE

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Visual tracking in combination with broad band hydrophone array and SAM recordings

- underwater tracking
- apparent source levels
- assessment of SAM recordings

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Point transect sampling based on SAM

Aim: population density => total abundance (?)

Requires new methodology

Number of detected objects

Estimated group size

$$D = \frac{E(n) * E(s)}{a * P_a}$$

Density

Sampled area

Detection probability

Number of animals in a detection impossible to determine.

Apply average group size??

Small proportion of "ranging SAMs" needed.

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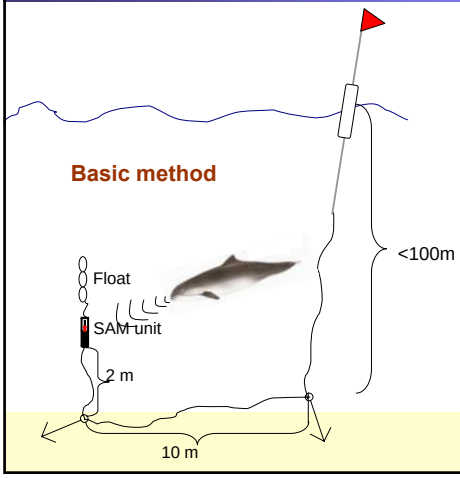
Anchoring

Basic method



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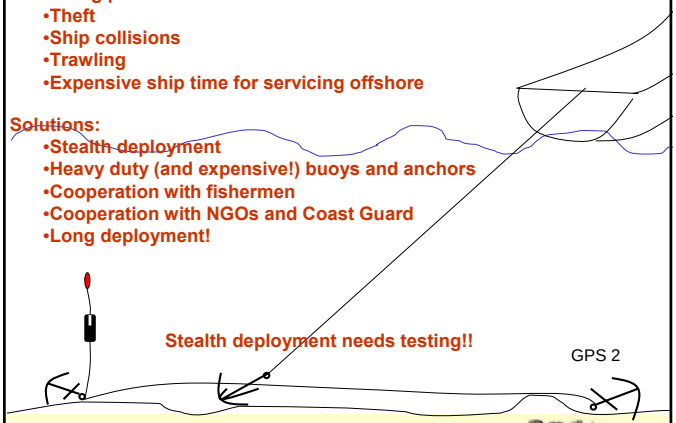
Anchoring problems:

- Theft
- Ship collisions
- Trawling
- Expensive ship time for servicing offshore

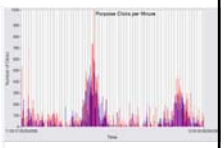
Solutions:

- Stealth deployment
- Heavy duty (and expensive!) buoys and anchors
- Cooperation with fishermen
- Cooperation with NGOs and Coast Guard
- Long deployment!



Kolmården
VILDA DJUR. PÅ RIKTIGT.

SAM data analysis



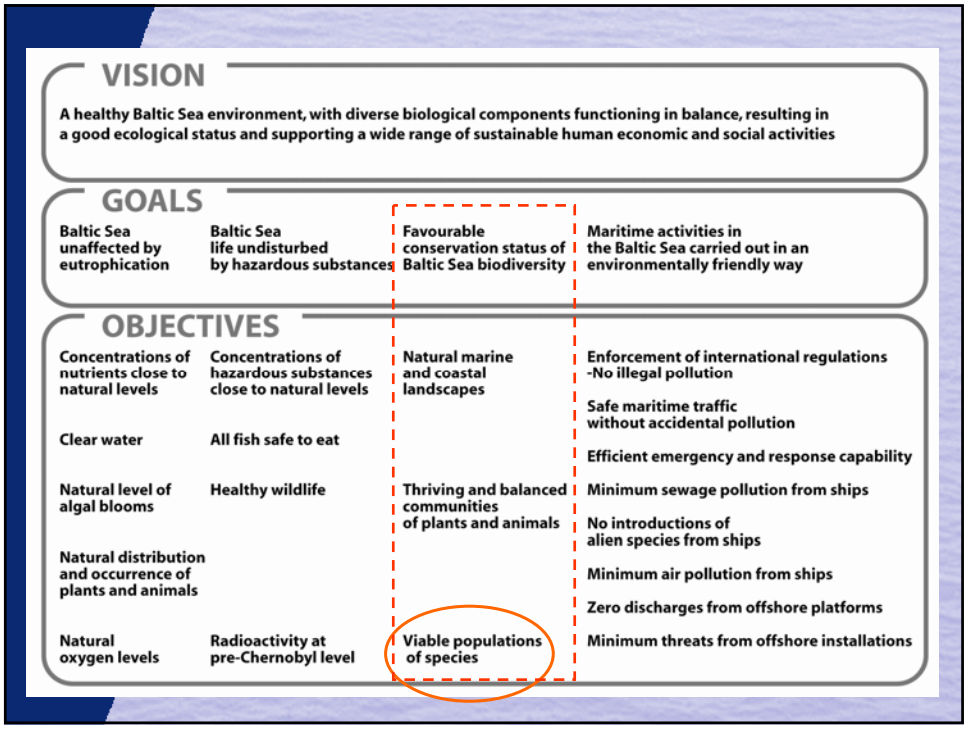
Diurnal rhytms in sonar activity – affect on SAM analysis?

Automatic and/or manual interpretation; comparability between systems?

Kolmården
VILDA DJUR. PÅ RIKTIGT.

Thanks for your attention!

Kolmården
VILDA DJUR. PÅ RIKTIGT.



Favourable conservation status of the Baltic Sea biodiversity

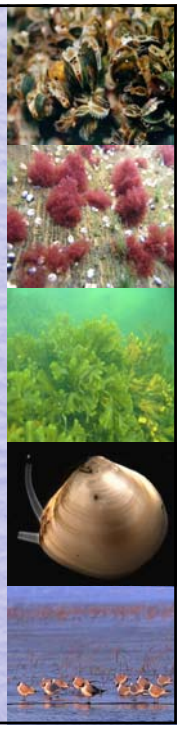
- by 2010 to further developing in co-operation with ASCOBANS a co-ordinated reporting system and database on Baltic harbour porpoise sightings, by-catches and strandings;
- development and implementation of effective monitoring and reporting systems for by-caught birds and mammals
- an evaluation of the effectiveness of existing technical measures, to minimise by-catch of harbour porpoises, and to introduce adequate new technologies and measures in fisheries

Targets under ”Viable populations of species” involving porpoises

- By 2015, improved conservation status of species included in the HELCOM lists of threatened and/or declining species and habitats of the Baltic Sea area, with the final target to reach and ensure favourable conservation status of all species,
- By 2015 by-catch of harbour porpoise, seals, water birds and non-target fish species has been significantly reduced with the aim to reach by-catch rates close to zero.

Associated Indicators in the Action Plan

- Trends in the number of threatened and/or declining species,
- Abundance, trends, and distribution of Baltic harbour porpoise,
- Trends in numbers of discards and by-catch of fish, marine mammals and water birds,
- Number of entangled and drowned marine mammals and water birds



An Integrated Thematic Assessment on biodiversity and nature conservation in the Baltic Sea

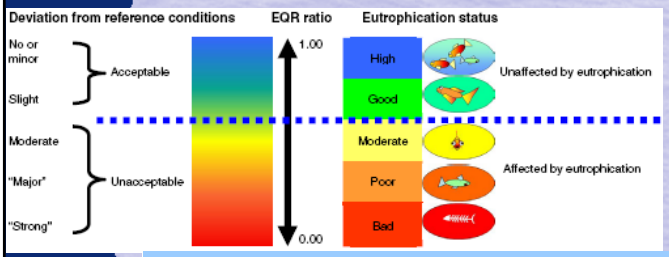
- The first comprehensive report of biodiversity and nature conservation in the Baltic Sea, to be published by June 2009
  - a baseline for monitoring progress towards the goals and targets of the Baltic Sea Action Plan that relate to biodiversity
- Illustrates the links between the different pressures and activities in the Baltic area and the resulting environmental state
- Suggests steadfast recommendations to safeguard, and when necessary to restore Baltic Sea biodiversity
- BEAT-tool to assess the status in relation to set targets concerning biodiversity and nature conservation of the Baltic Sea




Harbour porpoise – BIO-report

- Status and trends
  - Abundance and distribution
  - Sightings and strandings
- Factors influencing the state of the harbour porpoise
- Recommendations:
  - By-catch reduction close to zero calls for the elimination of any contact of porpoises with the responsible gear
  - A reduction of fishing effort in the responsible fisheries to avoid prey depletion due to over-fishing
  - Noise pollution may be reduced by limiting the maximum speed of vessels
  - Increased monitoring and research

BEAT - an indicator based assessment tool



Ecological quality ratio

BEAT+ A tool for assessment of 'conservation status' includning confidence rating of the assessment

Station/water body: Odense Fjord, Denmark

Marine landscapes	RefCon	Unit	Resp.	RefCon_score	AcDev	AcDev_score	Status	Status_score	EQR	Ind_Conf	Weight	QE_EQR	QE status	QE_Conf	Weight
Eelgrass coverage, whole system	26,48	km2	-	1 2 3	50%	1 2 3	1,25	1 2 3	0,047	3 out of 7	80%				
Wetlands (perimeter), whole system	100,00		-	1 2 3	50%	1 2 3	25,00	1 2 3	0,250	3 out of 7	20%				
Add new indicator ...				1 2 3		1 2 3		1 2 3							
											100%	0,080	POOR	5 out of 13	25%

Structure, function & stability	RefCon	Unit	Resp.	RefCon_score	AcDev	AcDev_score	Status	Status_score	EQR		Weight	QE_EQR	QE status	QE_Conf	Weight
Primary production, outer parts	117,00		+	1 2 3	50%	1 2 3	226,00	1 2 3	0,518	6 out of 7	20%				
Chlorophyll-a, outer parts	1,70		+	1 2 3	25%	1 2 3	4,20	1 2 3	0,405	7 out of 7	20%				
Macroalgae biomass, inner parts	9,00		+	1 2 3	50%	1 2 3	42,00	1 2 3	0,214	6 out of 7	40%				
Chlorophyll-a, inner parts	3,10		+	1 2 3	25%	1 2 3	5,70	1 2 3	0,544	7 out of 7	20%				
Add new indicator ...				1 2 3		1 2 3		1 2 3							
											100%	0,372	BAD	23 out of 25	25%

Species	RefCon	Unit	Resp.	RefCon_score	AcDev	AcDev_score	Status	Status_score	EQR		Weight	QE_EQR	QE status	QE_Conf	Weight
Eelgrass depth limit, outer parts	6,00	m	-	1 2 3	25%	1 2 3	2,50	1 2 3	0,417	7 out of 7	100%				
Add new indicator ...				1 2 3		1 2 3		1 2 3							
											100%	0,417	BAD	7 out of 7	25%

Supporting features	RefCon	Unit	Resp.	RefCon_score	AcDev	AcDev_score	Status	Status_score	EQR		Weight	QE_EQR	QE status	QE_Conf	Weight
DIN (annual), outer parts	7,90		+	1 2 3	50%	1 2 3	31,40	1 2 3	0,252	6 out of 7	20%				
Tot-P (annual), outer parts	0,31		+	1 2 3	50%	1 2 3	1,51	1 2 3	0,205	6 out of 7	10%				
DIP (annual), outer parts	0,32		+	1 2 3	50%	1 2 3	0,77	1 2 3	0,416	6 out of 7	10%				
DIN (annual), inner parts	24,30		+	1 2 3	50%	1 2 3	85,00	1 2 3	0,286	6 out of 7	20%				
Tot-P (annual), inner parts	0,81		+	1 2 3	50%	1 2 3	3,31	1 2 3	0,245	6 out of 7	15%				
DIP (annual), inner parts	0,32		+	1 2 3	50%	1 2 3	1,78	1 2 3	0,180	6 out of 7	25%				
Tot-N (annual), inner parts	47,50		+	1 2 3	50%	1 2 3	126,00	1 2 3	0,377	6 out of 7	0%				
Add new indicator ...				1 2 3		1 2 3		1 2 3							
											100%	0,251	BAD	36 out of 43	25%
															100%

Final ecological status: BAD

version 20070814 79,76% Final confidence rating: Class I

Next Steps / Areas of co-operation

- Producing data and information:
  - to enable the production of HELCOM Indicator Fact Sheet on the status of the harbour porpoise
  - to have required data to be used in BEAT-tool
- Further developing of the reporting system and database on Baltic harbour porpoise sightings, by-catches and strandings
- Link the data to HELCOM GIS

Outline of HELCOM indicator facts sheets

1. Title of indicator
2. Key message
3. Results and assessment
   - Relevance of the indicator for describing developments in the environment
   - Policy relevance and policy references
   - Assessment
   - References
4. Data
5. Metadata
   - Technical information
     - Data source
     - Description of data
     - Geographical coverage
     - Temporal coverage
     - Methodology and frequency of data collection
     - Methodology of data manipulation
   - Quality information
     - Strength and weakness (at data level)
     - Reliability, accuracy, robustness, uncertainty (at data level)
     - Further work required (for data level and indicator level).

Thank you!

For more information
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