Coalition Clean Baltic

PROTECTING THE BALTIC SEA ENVIRONMENT - WWW.CCB.SE

MANAGEMENT BRIEFING:
Sea ducks

A female and a male eider duck © Stefan Menzel

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SUMMARY OF KEY MANAGEMENT MEASURES

Large numbers of sea duck winter in the Baltic Sea. The most common species are the long-tailed duck, common eider, Steller's eider, velvet scoter and common scoter. In all cases their wintering populations have been assessed as Endangered in the Baltic Sea. Bycatch and marine pollution are major concerns as well as activities such as vessel traffic and construction of offshore windfarms that disturb and displace waterbirds. Species which nest in sheltered coastal sites are also subject to additional pressures and threats such as loss of habitat and predation from native and introduced species. Some hunting of sea duck is permitted under specified conditions.

Management measures need to address the main pressures and threats to these species across their range, not just in the Baltic Sea. Beneficial practical management actions include measures to reduce or eliminate bycatch such as modifying fishing gears or establishing no fishing zones. Disturbance free zones in significant feeding and resting areas can reduce negative effects. Both pollution prevention, especially in the case of oil pollution, and emergency response/contingency planning are needed as well as sector-specific measures targeting activities that are a threat to sea duck either because of their mode of operation, their scale of operation, or location. Marine Protected Areas with specific conservation objectives, and maritime spatial planning can provide a valuable framework under which these types of measures can be introduced, regulated and monitored for their effectiveness.

THE SPECIES

Sea ducks are species that nest in coastal or inland areas but spend the non-breeding season in the marine environment. In the Baltic Sea the most common species are the long-tailed duck, common eider, Steller's eider, velvet scoter and common scoter and greater scaup. Large numbers winter in the Baltic Sea, migrating from their breeding grounds in the Arctic. They gather in lagoons, shallow coastal waters, and offshore banks, sometimes diving as deep as 20m to feed on benthic fauna. Their main diet is molluscs such as *Mytilus* spp., *Dreissena polymorpha*, *Limecola balthica*, and *Cerastoderna glaucum* but they also feed on crustaceans, and in the shallow areas in the sounds, on small snails (e.g. Hydrobiidae) and ragworms *Hediste diversicolor*[1].

Male and Female Eider Duck ©Stefan Menzel

1 Nilsson, 2012; Waltho & Coulson 2015

Distribution in the Baltic Sea

The Gulf of Riga, seas around Gotland, the Kattegat and the bays, islands and lagoons along the coastlines of the southern Baltic states of Denmark, Germany and Poland are recognized as being of international importance for sea birds including sea duck[1]. The southern Baltic is also one of the most important wintering sites for diving waterbirds anywhere in the Palearctic[2].

The Baltic Sea is the most important wintering area for long-tailed duck in north west Europe with the major wintering areas in Pomeranian Bay, the Irbe Strait-Gulf of Riga and Hoburgs Bank-Midsjö Banks south of Gotland[3]; the most important area for wintering Velvet Scoter is the Lithuanian-Latvian coast although Pomeranian Bay (Poland/Germany) and the central Polish coast are also important. Common eider congregates in the southern Baltic Sea although previously (in the early 1990s) this also took place in the north-western Kattegat. The most important areas for wintering Scaup are sites in south western Baltic – Szczecin Lagoon (Poland/Germany), Usedomer coast and Greifswalder Lagoon[4].

Conservation status

Steller's Eider *Polysticta stelleri*, is on Annex I of the EU Birds Directive requiring the designation of SPAs. The Common Scoter, Velvet Scoter, Common eider, Greater Scaup and Long-tailed duck are on Annex II for some Member States which permits hunting at specific times of year. Common Scoter and Common Eider are on Annex III B which allows some legal killing or capture.

HELCOM have assessed the wintering populations of Steller's eider (*Polysticta stelleri*), Common eider (*Somateria mollissima*), Common scoter (*Melanitta nigra*), Velvet Scoter (*Melanitta fusca*) and long-tailed duck (*Clangula hyemalis*) as Endangered and the breeding populations of Common Eider and Velvet Scoter as Vulnerable in the Baltic Sea. The Greater Scaup has been assessed as Vulnerable[5].

The Common eider, Steller's eider, Velvet scoter, and common shelduck are species used by HELCOM as core indicators of the abundance of waterbirds in the breeding season[6] and Common eider, Steller's eider and tufted duck as core indicators of the abundance of waterbirds in the wintering season[7].

Ninety nine percent of the world's Velvet Scoter population winters in the southern Baltic and the population has been classified as Vulnerable (VU) by the IUCN on a global scale. For this reason, Velvet Scoter is the most important species that needs to be given the attention. Global populations of Long-tailed Duck and Steller's Eider and European populations of Greater Scaup and Common Eider have also been classified as Vulnerable by IUCN.

Wintering populations of *C.hyemalis* have been assessed as Endangered in Sweden and Near Threatened in Germany; *Aythya marila* is Critically Endangered in Estonia, Endangered in Finland and Vulnerable in Sweden.

1 Skov et al., 2007
2 Durinck et al., 1996
3 HELCOM Red List Bird Expert Group, 2013; http://www.helcom.fi/Red%20List%20Species%20Information%20Sheet/HELCOM%20Red%20List%20Clangula%20hyemalis.pdf
4 Skov et al., 2011
5 HELCOM Red list of Birds http://www.helcom.fi/baltic-sea-trends/biodiversity/red-list-of-species/red-list-of-birds/
6 http://www.helcom.fi/Core%20Indicators/Abundance%20of%20waterbirds%20in%20breeding%20season_HELCOM%20core%20indicator%20-%20HOLAS%20II%20component.pdf
7 http://www.helcom.fi/Core%20Indicators/HELCOM-CoreIndicator_Abundance_of_waterbirds_in_the_wintering_season.pdf

PRESSURES AND THREATS

Bycatch is a significant threat to sea ducks as they feed in coastal waters and shallow offshore banks in the Baltic Sea. They are especially vulnerable to becoming entangled and drowning in gill nets used in coastal fisheries to catch cod, flatfish, herring and salmon although not all species are equally susceptible. One estimate of the cumulative annual bycatch in static net fisheries the Baltic Sea and (predominantly eastern) North Sea (made up mainly of divers, grebes, sea ducks, diving ducks, auks and cormorants) is between 90,000-200,000 birds[1]. The risk of bycatch depends on factors such as the net length, mesh size, soak times and duration of the fishing season. There are also differences in the species which dominate bycatch in different parts of the Baltic Sea. Sea ducks have been reported to dominate the bycatch in the eastern Baltic, sea ducks and diving ducks in the southern Baltic, auks, particularly the common guillemot most commonly caught in the western Baltic, and diving ducks, mergansers and grebes in Lakes Ijsselmeer and Markermeer[2].

Oil pollution is another a significant threat to sea ducks in the Baltic Sea especially when it occurs in areas where birds congregate during moulting or on wintering sites because in these situations large numbers can be affected by a single incident[3]. A heavy coating of oil on the plumage of birds can cause direct mortality but they may also die from ingesting oil when preening or feeding on oil-polluted food or water[4]. Studies in southern Gotland indicate that in the central Baltic Sea, several tens of thousands of long-tailed ducks are injured by oil each year from oil spills along the main shipping routes[5].

Various activities are known to disturb and displace seabirds in the Baltic Sea. Ship traffic and offshore windfarms may temporarily or permanently displace sea ducks from favored feeding grounds[6]. In the case of loons, for example, displacement effects of decreasing abundance in formally occupied areas became significant at around 16.5km from offshore wind farm sites and were still apparent at a distance of more than 20 kms. This was considered to be the result of the combined effects of increased ship traffic associated with maintenance and servicing the wind turbines rather than risk of collision with turbine blades[7]. Fishing activities, sand and gravel extraction and dredging of shipping channels can also cause temporary disturbance and may combine with other factors (such as mussel fisheries) to reduce the food supply for sea ducks[8].

Hunting of some sea ducks is permitted under conditions specified under the EU Birds Directive. This includes hunting for the long-tailed duck, velvet scoter and common eider with several tens of thousands of birds shot around the Baltic Sea each year. Scaup may also be bagged mistakenly as tufted ducks in countries with no open season for this species[9]. Ingestion of poisonous lead shot is another cause of mortality, as has been report for breeding common eider females in the Gulf of Finland[10].

The effects of climate change on sea ducks are uncertain. They may benefit from reduced ice cover on breeding grounds helping to extend the breeding season, but the effects of changing water temperature on their prey species may have a detrimental effect.

1 Žydelis et al., 2009
2 Žydelis et al., 2009
3 Joensen & Hansen, 1977
4 HELCOM, 2012
5 Larsson & Tydén 2005, Larsson 2007
6 Schwemmer et al., 2011
7 Mendel et al., 2019
8 HELCOM Red List Bird Expert Group, 2013; EC, 2007
9 HELCOM Red List Bird Expert Group, 2013
10 Research of sea ducks in the Baltic Sea. Gotland University

Common eider and velvet scoter breed along the Baltic Sea where they are subject to additional pressures and threats such as loss of sheltered, undisturbed nesting sites, and mortality from predation by native species such as the Arctic fox as well as from introduced species such as the American Mink.

MANAGEMENT MEASURES

Management measures need to be linked to conservation objectives and to address the main pressures and threats to the species. This will include actions across the range of the species concerned, not just in the Baltic Sea. Although not considered below, monitoring the effects of management measures is also essential to review progress, and to modify actions in light of the findings.

Conservation objectives

The EU Birds Directive requires the protection, management and control of all species of naturally occurring birds in the wild state in the European territory of Member States. Measures under the EU Habitats Directive are intended to maintain or restore habitats and species at favourable conservation status. The Conservation objectives for sea ducks within MPAs should help facilitate these objectives by providing protection, as well as conditions that improve their conservation status.

Management objectives

Management objectives need to focus on removing the threats to sea ducks in the Baltic Sea. Such actions should, however, be linked to conservation and management plans for species throughout their range and developed with knowledge of the risks elsewhere.

Practical measures

Technical measures to reduce / eliminate bycatch

The main focus of bycatch reduction through technical measures is by modifying the design and operation of fishing gears, increasing the visibility of nets and using deterrent devices. Some technical bycatch mitigation measures have been tested for gillnets but with uncertain results. For example, net light trials in Puck Bay and the Pomeranian Bay did not demonstrate a statistically significant reduction in seabird bycatch but did have some deterrent effect for long-tailed duck[1]. Sound omitting pingers, green lights and buoys with visual bird deterrents on nets have also been examined as possible options for reducing bycatch[2]. Changing fishing methods, for example from set gillnets to hook and line fishery for cod is another suggestion for reducing bycatch however, whilst this may solve the problem for sea ducks, it could potentially increase bycatch of other birds[3]. Solutions are likely to be site specific, depending on fishing practices and the species of bird at risk[4].

1 Almeida et al., 2017
2 Österblom et al., 2002; Field et al., 2019
3 Mentjes & Gabriel, 1999
4 Žydelis et al., 2009

Oil spill response
Contingency planning, including setting out actions, responsibilities and communication pathways in the event of an oil spill, are key to minimizing the effect of oil spills on the marine environment and wildlife, as well as dealing with the resulting impacts. Response preparedness and contingency plans need information on locations, species, and seasonal patterns of risk and the most appropriate responses. MPA managers are in an ideal position to identify, in advance, vulnerable locations/species/times of year and any species-specific actions required at a local level. Ensuring this information is incorporated into contingency planning and participating in joint response exercise to test systems that are intended to protect habitats and species within MPAs in the event of an oil spill, is an essential practical measure to reduce the risk of environmental damage from oil spills.

Disturbance free areas
Disturbance can affect birds in a number of ways including changing in their behaviour, their reproductive success and fitness[1]. These risks can be reduced by establishing disturbance free areas, either seasonally, to prohibit hunting during the breeding season, or on a more permanent basis to prevent disturbance on significant feeding and resting grounds. In the latter case, channeling ship traffic to avoid habitat fragmentation and allow for habituation may be beneficial and could be promoted using zoning schemes within protected areas, or ships routeing measures. Disturbance free zones should also be set up during both the construction and siting of coastal and offshore developments and management of recreational activities, taking account of the sensitivities/different flush distances of different species to give them adequate protection.

Regulatory measures

Spatial measures to reduce/eliminate bycatch
The current best practice for minimizing bycatch is to exclude fishing methods with a high risk of associated bycatch at times of year and/or from areas where susceptible species are known to concentrate. This can be achieved, for example, by excluding gillnet fisheries in areas known to support high numbers of wintering sea ducks, as well as avoiding overlap of such fisheries with important locations used by these species when moulting or during their autumn and spring migrations[2]. One example of this approach is a voluntary scheme in the German Baltic Sea to reduce the use of gillnets in areas where seaducks occur in large numbers between November and March[3]. Such measures should be developed alongside species vulnerability maps to avoid displacement of the affected fisheries to other areas that are also important for sea duck[4].

Effort reduction to reduce/eliminate bycatch
Restricting fishing effort using fishing gears (set nets) at times of year when risk of bycatch is particularly high may lead to some reduction in bycatch. However, the overall effectiveness in removing this risk for a species is unlikely to be significant without other measures, given that some of the vulnerable species are found in high concentrations. Small numbers of nets can therefore inflict significant damage.

1 Schwemmer et al., 2011
2 HELCOM, 2012
3 https://www.ascobans.org/sites/default/files/document/AC24_Inf_2.d_2017%20National%20Report_Germany.pdf; http://www.ostseeinfocenter.de/Freiwillige_Vereinbarung_Fortschreibung_2015.pdf
4 Sonntag et al., 2012

Ships routeing
The Baltic Sea was designated a Particularly Sensitive Sea Area (PSSA) by the IMO in 2005. Various associated protected measures particularly Areas to be Avoided (ATBA) and Traffic Separation Schemes (TSS) have been established as safety measures and to reduce the risk to marine wildlife and habitats from pollution resulting from shipping accidents. The area around Norra Midsjöbanken and Hoburgs Bank, for example, is important for wintering long-tailed ducks, as well as for other bird species. With a high risk of oil spills from groundings on Norra Midsjobanken and from collisions off Gotland and the deep-water shipping route, both an ATBA and TSS have been introduced in this area to reduce the risk of collisions and consequent pollution. Establishing such measures requires agreement with the international shipping community through the IMO and is therefore not likely to be a task of MPAs managers. Nevertheless, detailed information on the threat to wildlife from shipping collected at a local level, as gathered by MPA managers, can provide essential supporting evidence for the introduction of such measures.

Protected areas
Protected areas have been established for birds through national conservation programmes and these locations may also be recognized as Baltic Sea MPAs, Ramsar sites and Ecologically or Biologically Significant Marine Areas (EBSAs). EU Directives require the designation of Special Protection Areas and Special Areas of Conservation to protect both the species and their habitat. Designation provides a regulatory framework for action. In the case of the Habitat Directive this include a requirement to achieve favourable conservation status and to prevent damage and deterioration of the habitat and its typical species. The Birds Directive provides for strict protection of birds including protection from disturbance and displacement by human activities. Protected areas can also be focal points for implementing species action plans.

Supporting measures

Action plans
International and regional Action Plans to reduce the risk to bird populations, including to populations of sea ducks, are essential for conservation of the many migratory species that overwinter in the Baltic Sea. Management of species that spend their entire life cycle in the Baltic Sea will also need the support and agreement of other Baltic States not only because of the widespread distribution of such species, but because some of the significant threats, such as oil pollution, can best be tackled by joint action at regional or international level. Three examples of taking a joint approach are the EC Action Plan for reducing incidental catch of seabirds in fishing gears[1], the international single species action plan for the conservation of the long-tailed duck[2] and the European Species Action Plan for Steller's Eider[3] Supporting the development and implementation of targeted action plans, especially where they identify lead bodies for actions, set timetables, and provide administrative and/or financial support can help MPA managers achieve site specific MPA conservation objectives for sea duck.

MPA Management plans
MPA management plans set out site specific objectives, actions, and supporting measures such as enforcement and opportunities for public participation in the process. They provide a framework for management as well as direction, and set out the reasons for the introduction of measures such as zoning schemes with time/area closures. MPAs are also a focus for activities with more wide-ranging benefits such as raising awareness about the marine environment and about the threats to marine wildlife such as sea ducks.

1 COM(2012) 665 final
2 Hearne et al., 2015
3 https://ec.europa.eu/environment/nature/conservation/wildbirds/action_plans/docs/polysticta_stelleri.pdf

Planning frameworks

Planning frameworks can set direction, bring together key players and involve the public in decision making for particular geographical areas. There is a long history of land use planning in Baltic Sea countries with responsibility typically falling to local and regional authorities. Maritime Spatial Planning is a more recent idea and is the marine equivalent[1]. The management of bird populations cannot be undertaken in isolation of activities, demands and influences taking place around them hence the need to incorporate biodiversity objectives and associated management measures for sea ducks into Maritime Spatial Plans.

The priorities and detailed provisions in management plans can be of direct benefit to sea ducks, for example by identifying areas for development that do not impact key habitats, methods of construction that minimize or avoid disturbance, and environmental impact assessment requirements to give a view of the implications of any schemes. Management plans should also be used to identify any potential in combination effects such as increased vessel traffic associated with the maintenance of offshore wind farms that can be detrimental to sea ducks as well as longer term issues such as risk of displacement or pollution incidents.

International agreements

International agreements support the introduction and enforcement of measures to protect the marine environment of the Baltic Sea. They include designation of the Baltic Sea as a Special Area under Annex I of the MARPOL Convention to prevent oil pollution from shipping, and under Annex IV on the discharge of ships' sewage and Annex V on disposal of garbage. Bilateral agreements and international conventions also strengthen cross-board cooperation in the case of an oil spills or protective measures across the range of the species in both their breeding and wintering areas[2].

Through HELCOM, the Baltic Sea Action Plan (BSAP) provides a framework for joint actions across Baltic states as well as added incentive for national initiatives aimed at reaching good environmental status for the Baltic Sea. Maritime Spatial Plans and prevention of pollution are some of the agreements promoted through the BSAP that can benefit sea duck and need to be maintained and potentially strengthened in the revised BSAP[3]. BaltSeaPlan and Baltic SCOPE have supported the development of MSP in the Baltic and there is a deadline of 2021 for Baltic Member States to establish Marine Spatial Plans under the EU Directive establishing a framework for MSP (EU 2014/89/EU)[4].

Sector specific measures

Where particular activities are a threat to sea duck either because of their mode of operation, scale of operation or where they take place, regulation can support bird conservation. This may, for example include restrictions on fishing and hunting, and on the siting and servicing of offshore wind farms.

Research and understanding

Bycatch mitigation has been recognized as essential to reducing the threat to sea duck and there is ongoing research into potential options supported by both nature conservation and fisheries interests. Further research is needed to determine what if any technical measures can be effective in reducing bycatch for sea ducks most especially from set nets as well as on vulnerability mapping to ensure they are deployed in areas of highest risk as the highest priority. Risk assessments will need to be informed by knowledge of changing patterns of migration and wintering in response to climate change on 'hotspots' for sea duck.

1 Ehler & Douvere, 2009; Kappeler et al., 2012
2 Marchowski, et al., 2017
3 E.g. http://www.helcom.fi/baltic-sea-action-plan; BMEPC, 2018
4 E.g. http://www.helcom.fi/baltic-sea-action-plan; BMEPC, 2018

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