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Continental cormorant in the Nordic countries – a position paper

Photo: Helge Sörensen.

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Introduction

The fast expansion of the continental cormorant (*Phalacrocorax carbo sinensis*) has caused concern and resistance all over Europe. The major concern is focused on the diet and the habitats. Cormorants eat mostly fish, and therefore cormorants may cause a significant impact on local fish stocks, but also on the recovery of weak fish stocks. The concern for the fish stocks is substantial and in Denmark there are several documented cases where fish stocks in several rivers and streams are actively threatened by wintering packs of cormorants. The cormorant is colonial and the faeces on the areas of their breeding sites is very effective in killing the vegetation. Due to a strong protection, not least because the species is covered by Council Directive (79/409/EEC) of 2 April 1979 on the conservation of wild birds, the population has increased heavily in the north of Europe during the last decades. Since many commercial fish stocks are also overexploited, there is an imbalance in the ecosystems. Also, many fish species together with rare and characteristic habitat types are targeted for protection under the Habitats Directive (14.). In 2008, the European Parliament adopted a resolution calling for action to minimise the increasing impact from cormorants on fish stocks, fishing and aquaculture (1.). In Europe, it is expected that the population of the continental cormorant is at its highest numbers in 150 years (2.). **We – the Nordic angling organisations – see the need for a joint Nordic strategy.**

The demands from the Nordic anglers' organisations:

- The application procedure for limiting the cormorant population must be made easier.
- The protection of the continental cormorant cannot pose a threat to endangered or threatened fish species.
- The protection of fish stocks and threatened fish species shall be considered more important than the protection of species with a positive stock status, such as the continental cormorant.
- In areas with weak and threatened fish stocks, existing cormorant colonies and/or new colonies can be limited or eliminated.
- The national authorities handling cormorant management in the Nordic countries shall be given the responsibility to survey and follow up the effect of the cormorant populations on the fish stocks. To secure the protection of threatened fish species, the authorities shall also act to the situation in what way necessary.
- In areas of importance for fisheries, especially angling and angling tourism, more active measurements shall be carried out if the cormorants cause a considerable damage on the fish stocks.
- Like in Denmark, national councils shall be established where angler organisations and other interests can actively join and contribute to the national management of cormorants. There may be a need for international coordination, which can be conducted through a Nordic council or BALTFISH.
- We want a Nordic cooperation/forum between the authorities, where knowledge can be shared and the regulation of the cormorant populations can be dealt with.

04 July 2017

The Nordic angling organisations share the joint opinion that a common species – in this case the continental cormorant – must not pose a threat to endangered or rare species, like the eel.

The continental cormorant is no longer endangered

An intervention on better managing the cormorant populations will need a genuine and close cooperation between organisations, volunteers and authorities. As mentioned, the directive on the conservation of wild birds is – when it comes to the continental cormorant – not the same as a complete protection against lethal or non-lethal measures. But now, when the populations of cormorants in the Baltic region has reached – and even exceeded – sustainable levels, there are no elementary reasons to fully protect the continental cormorant. In Norway, where the continental cormorant has spread towards the west coast, hunting is permitted. Both great and continental cormorant can be hunted for along the coast in October-November, and continental cormorant can be hunted for in freshwater from August 21st to November 30th. In Denmark, Sweden and Finland, no hunting is allowed, except for a strictly regulated culling hunt.

Suggested approach:

- There is already enough evidence on the substantial negative effects from the continental cormorant on fish stocks. It is now time for action. The measurements should be conducted under the surveillance of the authorities. Therefore, a superintendent/inspector/surveyor should be appointed the task of handling the plan for measurements (hunting permissions, geographical options etc.), and the organisation around it. This appointed person is responsible for collecting reports on for example how many cormorants was shot or how many eggs was collected/dotted.
- The field work can be based on voluntary participation. These volunteers are already disposable and consist mainly of locals, which means they have the local knowledge needed for the task. Local anglers will be of significant help.
- The Nordic angling organisations will be glad to participate and the work should be conducted in working groups, where all interests are present.
- The continental cormorant constitutes a substantial threat to biodiversity, and focus of the work should be to **limit the existing oversized populations** and to **prevent colonies to spread** to new areas, especially to freshwater like rivers and streams with salmon, trout and whitefish.

The Nordic angling organisations want to emphasize that there is no intention to affect the conservation status of the continental cormorant, but to ensure the possibility of restrictive measurements on sites and in areas where the cormorant population has grown too big and/or pose a threat to locally weak and endangered fish species. The prerequisite for the recovery of the fish stocks is of course to also handle general environmental and ecosystem impact factors, like eutrophication and overfishing.

Cormorants in river Kungsbackaån, Swedish west coast. Photo: Markus Lundgren.

About the continental cormorant

Cormorants belongs to the order of Pelicaniformes. In Finland, Denmark, Norway and Sweden there are wintering packs of ***Phalacrocorax carbo***, but the birds reproducing are of the sub-species ***Phalacrocorax carbo sinensis***. On the Norwegian coast and along the northern parts of the Swedish west coast, there can also be found the European shag – ***Phalacrocorax aristotelis***. The sub-species *sinensis* is believed to have entered the Baltic sea region during the 16th to 18th century. The population was probably large during the 19th century, but nearly went extinct already by the turn to the 20th century (3.).

The cormorant is covered by Council Directive (79/409/EEC) of 2 April 1979 on the conservation of wild birds. However, the directive´s article 9 give member states the possibility to derogate from these strict conservation measures to prevent serious damage (4.). The sub-species *sinensis* was originally listed in Annex I as a bird species to which special conservation measures applied. However, in 1997 it was deleted from the list, as the state of the population had ceased to be unfavourable.

The history of the cormorant in the Baltic Sea region is based on archaeological findings from after the ice age. With this background, it is stated by many that the sub-species sinensis can´t be seen as an invasive species.

Diet of the continental cormorant

Cormorants are opportunists and hunt the fish species that are available. Thus, the species vary, depending on where the cormorant is foraging. A full-grown cormorant eats ca. 350-500 grams per day. We now have good knowledge on, and examples of, cormorants reducing local fish stocks, especially in Denmark. It has also been documented that the outtake of fish in some areas might be the same or more compared to commercial fisheries. With this at hand, it is likely that the cormorant can have a big negative effect on local fish stocks and on the recovery of weak fish stocks.

The continental cormorant in the Nordic countries

Denmark

The diet of the cormorant in Danish waters has been well examined, and correlates with the area of foraging. In Ringkøbing Fjord, a shallow fjord with a wide variance in salinity, cormorants feed on at least 15 species, including gobies and flatfish. These species are by quantity the most common, but species like sea trout, salmon and perch are also included in the diet (5.). Even though salmon and sea trout are only a small part of the total diet in Ringkøbing Fjord, the predation has significance for the status of these two stocks. Other studies show that at least 40 % of the smolts from Skjern Å, with its effluent in Ringkøbing Fjord, are taken by cormorants (6.).

Since the winter 2009-2010, large flocks of wintering cormorants have been foraging in freshwater, and mostly in streams. The stocks of trout and grayling have because of this been drastically decreasing in several streams. One example is a 2-kilometre-long stretch of Omme Å, where the grayling stock was reduced from 412 to 6 individuals between the second half of 2009 and the first half of 2010. Cormorant predation is believed to be the major reason for this rapid decline. This and many more examples on the reduction of fish stocks due to cormorant predation can be found in Jepsen et al. (7.). In Skjern Å the ascension of spawning salmons was reduced from 4 300 salmons to 2 800 salmons two years after the winter 2009-2010.

In Denmark, the numbers of breeding cormorants declined from ca. 42 000 pairs during 1993-2005 to around 26 000 pairs during the period 2010-2013. In 2014, the numbers went up to 30 500 pairs, 31 358 pairs 2015 and 31 682 pairs 2016. Interestingly enough, the conflict between angler interests and the effects of cormorant predation increased during a period when the numbers of breeding birds decreased significantly. Since the winter 2009-2010, the cormorants seem to more and more hunt their pray in running waters. Also, the conflict correlates with the fact that the numbers of wintering birds did not see the same obvious decline as the breeding population. The wintering cormorants in Denmark primarily originate from countries around the Baltic sea.

Norway

In Norway, the continental cormorant appears in both saltwater and freshwater, with a trend going towards a more permanent stay in freshwater. No diet studies have been made, but many of the streams and rivers where flocks have started to appear are trout and salmon rivers. In these waters, cormorants can pose a threat as a predator on juveniles and smolts. In other inland streams and rivers, the composition of different species is more varied, but the cormorant is also present in many lakes with strong trout stocks.

The major part of cormorants in Norway is the great cormorant (*Phalacrocorax carbo carbo*), with around 20 000-30 000 breeding pairs and a winter population estimated to ca. 100 000 individuals. Also, the population of the European shag (*Phalacrocorax aristotelis*) is estimated to be ca. 24 000 breeding pairs and a wintering population estimated to ca. 50 000-70 000 individuals. The continental cormorant is relatively new and the first breeding was recorded in 1997. Since then, the population has increased almost linear. The last population assessment was made in 2012, estimating 2 500 breeding pairs along the Skagerrak coast between Rogaland and the border to Sweden (8.). The continental cormorant can be hunted without restriction in all areas where hunting is permitted. In freshwater, the hunting season is August 10th – December 23rd. In the sea, only young cormorants can be shot.

Sweden

The cormorant is a generalist and an opportunistic hunter, based on diet analysis made by the Swedish University of Agricultural Sciences (Boström et al. 2012b). An analysis from Kalmarsund 1992 showed that the diet was mostly perch (41 %) and cyprinids (36 %). During a similar analysis from the same area in 2009, the diet consisted more of other species – eelpout (40 %) and sticklebacks (20 %). Only 9 % was cyprinids and perch was not present at all in the analysis. The study shows the wide variety in diet of the cormorant, and the ability to adapt to what species are available.

The diet of cormorants was examined 1999-2002 on three places in Kattegat and Skagerrak on the Swedish west coast (Finfo 2005:11). The study was made by analysing the content in stomachs of 500 cormorants. By analysing otoliths, it was shown that the spectra of species was very wide – 59 species! 86 % of the fish was made up, in descending order, by short-spined sea scorpion, cod, saithe/coalfish and different flatfish. The proportions of different species varied over the years, except for the distribution of cod, that was stabile (9.).

In 2014, a study from the lake Roxen was released. In 1992, the first colonies of cormorant were seen. In 1999, there were 908 breeding couples. In the study, the maximum sustainable outtake of fish was calculated to 3-6 kilos per hectare, based on the nutrient levels of the lake. In the study, it was concluded that the outtake of fish from cormorants was 7,5 kilos per hectare – far more than what was considered sustainable. In 2013, the outtake from the commercial fishery was 0,85 kilos per hectare. The results of the study show that cormorants can have a significant impact on the fish stocks and the ecosystem (10.).

In December 2016, a report was presented that describes the ecological effects of fishing closures (no-take areas) in Swedish marine and coastal waters. Around Gålö in the Stockholm archipelago, it was concluded that the large predation on the fish stocks from continental cormorant was the probable reason that the perch population wasn´t increasing. For the larger predators pike and pikeperch, the spawning stock biomass was increasing in the same area (13.).

For parts of the Swedish and Finnish coast, new research shows that the cormorant predation on perch by far exceeds the combined landings from both recreational and commercial fisheries (15.).

In Sweden, the continental cormorant breeds along all the coast line, and along many lakes. The breeding population was estimated to 40 600 pairs in 2012. This can be compared with 43 700 pairs in 2006. This means that the steep increase of the breeding population has stopped and even decreased a little, but in the total count also non-breeding cormorants are included and the total count was estimated to 200 000 continental cormorants in 2012. These figures are only a rough guess, since there is no data for juveniles and non-breeding individuals (9.).

Finland

The diet of the cormorant has been examined in the Gulf of Finland, the Finnish archipelago and the Gulf of Bothnia. In the Gulf of Finland and the eastern archipelago, the diet was made up by 80-90 % of roach, eelpout and perch (11.). In the main archipelago, the species were the same, but the composition was distributed – in descending order – by perch, roach and eelpout. In the Gulf of Bothnia, the diet was herring, Eurasian ruffe, roach, perch and eelpout. The cormorant is an opportunist and if the colony is based in the same area as an endangered fish species, it is highly likely that the cormorant will pose a big threat to the fish species. This has already been seen in Danish waters and the fear of this happening in the other Nordic countries is substantial.

In Finland, the breeding population has increased heavily since 1996. From 1996 to 2002 the increase of breeding pairs went from 10 to 16 007. In the 2016 breeding population was estimated to 25 000 pairs (12.).

The Nordic angling organisations

Denmark

The Danish Sportfishing Association has 18 000 members in 160 fishing clubs. For DSF, the cormorant policy work is based on handling the challenges where they appear. The resources should be used in areas where cormorants cause trouble for fisheries and the species important for anglers.

DSF means that no colonies can exist or be established near larger running waters with rare or threatened fish species. Also, running waters where fishing is important, should be kept free from cormorants. The association also works for better options to scare cormorants that use the running waters for their foraging. One example is stressing the cormorants at the places where they digest their food or stay overnight.

Norway

The Norwegian Association of Hunters and Anglers (NJFF) has 115 000 members in 575 local associations. NJFF is the national organisation for both hunters and anglers. Their target is to work for the interests of the ordinary hunter´s and angler´s terms and possibilities to pursue their hobby in a healthy environment. The main goal for the association is to preserve the natural conditions for fish and wildlife, so that the basis for hunting and fishing can be secured. The association also aims to manage those species that are considered to pose a threat to these natural conditions. The management aims to minimize or prevent the harm from these species.

Sweden

The Swedish Anglers Association (Sportfiskarna) organize around 60 000 members and 400 local fishing clubs. The 45 employees – a majority of these are biologists – work for good fishing in clean waters with healthy fish populations. The Swedish Anglers Association aims to protect and look after the fish stocks, to discourage all forms of overexploitation, to generate opinion in the society for angling and fish conservation, and to stimulate the interest of angling amongst the youth.

The Swedish Anglers Association has the opinion that, considering the status of the stock, there are no elementary reasons to protect the continental cormorant through the directive on the conservation of wild birds. The association considers the protection of fish stocks and threatened fish species to be more important than the protection of species with a positive stock status, such as the continental cormorant. The management must be more adaptive and have a focus on the protection of weak fish stocks. The Swedish Anglers Association is very worried that the same situation as in Denmark, with large flocks of cormorants wintering along the running waters and reducing the fish stocks substantially, will happen also in Sweden. There are already many reports of this happening, with cormorants eating salmon and trout juveniles in smaller streams and rivers.

Finland

Finnish Federation for Recreational Fishing (FFRF) has 40 000 members in 525 local fishing clubs. FFRF aim to increase the availability for fishing, and support and give advice for sustainable fishing. FFRF wants to use the socio-economic aspects to create a more diverse recreational fishing. The correlation between an active recreational fisherman and health are considered important aspects. Both fishing competitions and the work that local fishing clubs do for children and families are important activities. Projects emphasize a responsible fishing, the availability to fishing waters (for example street fishing) and the conservation of fishing waters and fish stocks. FFRF works for better fishing with local, regional and international focus.

FFC consider it a risk that the increasing populations of continental cormorant in Finland soon may be spread from the coastal regions to freshwater – specially to running waters – where it may pose a threat to the already weak trout stocks, for example. In Denmark, this is well documented and it is only a matter of time before Finland has the same problem. The populations of cormorants in Finland have already exceeded sustainable levels and a plan for managing the populations must be conducted immediately.

Cormorants feeding. Photo: Helge Sörensen.

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