

SOCIAL CAUSES OF THE CORMORANT REVIVAL IN THE NETHERLANDS

Severine van Bommel

*Tropical Nature Conservation and Vertebrate Ecology Group and Communication and
Innovations Studies Group, Wageningen University
Wageningen, the Netherlands*

Niels G. Röling

Communication and Innovations Studies Group, Wageningen University
Wageningen, the Netherlands

Sipke E. van Wieren¹

Tropical Nature Conservation and Vertebrate Ecology Group Wageningen University
Bornsesteeg 69 6708 PD Wageningen, the Netherlands.
e-mail sip.vanwieren@staf.ton.wau.nl

Hartmut Gossow

Institut für Wildbiologie und Jagdwirtschaft
Universität für Bodenkultur, Vienna, Austria

Abstract

In the 1960's, the cormorants had nearly become extinct in the Netherlands. After becoming a protected bird species in 1965, the cormorant population recovered very fast and it reached numbers it had not reached for a long time. The great revival of the cormorant population in the Netherlands can only be explained in the light of a change in human behaviour. This article explains the human background to the change of cormorant numbers. The conclusion is that this change is the result of a changed perception of three social groups. Social learning and a shift in the wider context of the discussion altered the perception.

Keywords

cormorants, institutions, multiple perspectives, *Phalacrocorax carbo sinensis*, the Netherlands, social learning.

Introduction

The degradation and loss of biological diversity has never occurred so rapidly as in the past century and is threatening the very basis of human existence. Today's mass extinctions can be compared to mass extinctions in the geological past, in which tens of thousands of species died out following some massive, unknown catastrophe, possibly a collision with an asteroid (Primack, 1993). Extinction had nearly become the fate of cormorants in Europe too. The cormorants are fish-eating birds and are therefore believed to be harmful to the fisheries (Van Eerden and Van Rijn 1997). In 1965, the Netherlands was home to some of the last remaining birds and breeding sites. To prevent their extinction, the Dutch started to protect the cormorants and this helped them to recover very fast from their severe prosecution. Surprisingly, nowadays the cormorants are present in unexpectedly large numbers in the Netherlands. The population even seems to have reached its ecological limits of around

¹ Corresponding author.

20.000 breeding pairs in summer (Veldkamp 1996). It is even more remarkable that the cormorant is still a protected bird species despite its fish-eating habits and their large population size.

This study looks at the change that has accompanied the shift from near extinction to the present abundance. The past has proved that the Netherlands can only be home to the cormorant when the Dutch allow it to be there. The change in the cormorant population therefore means that the Dutch society must have changed. The objective of this study is to explain how the Dutch perception and behaviour changed for the cormorants to be able to return and stay in such large numbers in the Netherlands. The concept of social learning is applied to explain and understand this change. The results are presented in the form of an overview of important events that influenced the development of the cormorant discussion.

The Great Cormorant “*Phalacrocorax carbo sinensis*”

As long as eutrophic water bodies in Europe sustain (relatively) large fish populations, cormorants will remain a potential eye-catching element in aquatic ecosystems. In many places with a (temporally) highly attainable fish stock, depredation on this resource will either occur during summertime (breeding areas) or during wintertime. Cormorants are migratory birds and in winter cormorants are distributed over a vast territory in Europe and North Africa (Van Eerden and Van Rijn 1997). Three areas of wintering can be distinguished:

- Northern Europe: the Netherlands, Belgium, northern Germany and northern France.
- Central Europe: central and southern France, southern Germany, Switzerland and Austria.
- The Mediterranean (southern part of Europe): Italy, Spain, Portugal and northern Africa.

Due to the migratory habit of the species, numbers visiting the small-scale waters may not be adjusted to the “longer term” carrying capacity. During a few days of migration only, large numbers of birds may exceed the carrying capacity. This for example happens to sub-alpine rivers and streams where relatively few birds settle in mild winters as the feeding conditions in the slow-flowing main river are better. As soon as these river stretches are frozen, birds go for the smaller streams that are still open (Van Eerden and Van Rijn 1997).

Transition to an alternative paradigm

Ecological processes determine the potential cormorant population but social processes play a large role in determining the actual cormorant population. Ecological systems function within the subjective boundaries set by men. The realist positivist paradigm, in which reality is thought to be independent of the human observer, is not sufficient anymore when the boundaries set by men are ambiguous. A problem situation can occur in which different parties disagree on the definition of these boundaries (Pretty 1995, Pimbert and Pretty 1995). This is often the case in nature conservation because ecosystems carry a high level of intrinsic uncertainty. The functioning of nature and ecosystems is not easily captured by a set of time and context-free generalisations. Even a few simple processes operating on different scales can impose a distinct variety of characteristics in space and time on the ecosystem (Holling 1995). When dealing with these uncertainties, people will have different views and opinions on reality. Studying change in an uncertain, problematic situation calls for a different approach to nature conservation than realist positivism provides.

Realist positivism is not the only way in which our world can be described. An alternative way of looking at reality is constructionism. Constructionism implies that there are more perspectives and not just one objective truth. Through their interaction, people come to agree about concepts, objectives, acceptable behaviour and the meaning of events and phenomena.

This is how they construct a reality that allows them to operate more or less effectively in their environment (Röling and Wagemakers 1998). Nevertheless, constructionism does not necessarily mean relativism because not every perspective is equally useful. There is an environment and people have to survive in this environment. To survive, they construct 'adaptive knowledge' and they act upon that knowledge. (Maarleveld *et al.* 1997). Management of uncertain systems becomes a learning process in which communication and negotiation are central issues.

Following a constructionist paradigm, the change over time in the cormorant discussion needs to be understood in terms of a change in competing values, beliefs and perceptions of those that are involved in it. This means that the change in the cormorant discussion is a learning process in which various stakeholders with multiple perspectives learn to resolve conflicts and take action. This kind of learning is called 'social learning' (Röling and Jiggins 1998, Parson and Clark 1995, Pretty 1995). Social learning can be a potential force for change. The change emerges as actors 'change their minds' through interaction and dialogue with others (Woodhill and Röling 1998). Social learning is not an exclusive or elite task for 'scientists', 'experts' or 'intellectuals'. It is not a question of specialists 'discovering' the answers. It is a widely shared learning of actors about themselves being an indissoluble element in the cormorant discussion (Röling and Maarleveld 1999, Pretty *et al.* 1995).

Methods and Techniques

There is a methodology that takes a group of people through a number of 'steps' of the social learning process. This is the RAAKS (Rapid or Relaxed Appraisal of Agricultural Knowledge Systems) methodology (Engel and Salomon 1997). RAAKS was designed to help people with diverse interests to begin to work and learn together. It allows actors to design strategies to improve their current situation and take the action. At the core of RAAKS lie the appreciations (the perceptions, pre-occupations, judgments and understanding) of the principal stakeholders. The RAAKS approach helps to make these appreciations explicit as the actors go through the learning process (Salomon and Engel 1997). Instead of actively taking actors through such a learning process, in this study RAAKS was used to develop an understanding about the social learning process the stakeholders had already gone through in the cormorant discussion.

Different techniques were used to collect information about the context, the past and the present of the cormorant discussion:

1. Scientific literature research (secondary information);
2. 'Unscientific-literature' research (secondary information);
3. Interviews (primary information).

The 'unscientific-literature' research was the research of newspapers and magazines that reflected the views of the various stakeholders. Old volumes of newspapers, fisheries magazines, nature conservation magazines and anglers magazines were consulted in the Royal Library in the Hague. All magazines in the period of 1975 till 1999 were checked on articles on cormorants or cormorant damage. These articles were copied. The year of 1975 was chosen as a start because from the late 1970's onwards the cormorant population had recovered sufficiently to be able to lead to complaints again. In total this research resulted in over 100 articles.

The results of this literature research were cross-checked by interviewing 13 relevant stakeholders. These interviews also gave an indication which aspects of the discussion were perceived to be influential on the course of the discussion. The questions and topics of the interviews were based on the outcome of the literature research and guided by the 'windows and tools' of the RAAKS method (Salomon and Engel 1997). The organisations and groups

were chosen from different organisational levels (e.g. Ministry, Product Board of Fisheries, Fishermen's Union and individual fishermen). Those organisations, groups or people were interviewed that were thought to be involved mostly in the cormorant discussion, based on the 'unscientific-literature' research and the snowball method (recommendations by actors already interviewed).

Results

Over centuries time and again the cormorants have had to deal with habitat loss and persecution in the Netherlands (Marteijn and Dirksen 1991). The situation really became alarming during the late 1950's when there were only 3 breeding colonies left in the Netherlands. These colonies were strictly controlled in accordance with the Fisheries Inspection. (Van der Helm, 1994). To prevent their extinction, the cormorants were assigned the status of a protected bird species in 1966. Protection of breeding sites and the ban on a number of persistent pesticides in the late 1960's and early 1970's made a recovery possible (Veldkamp 1997). At first this recovery was quite slow but at the end of the 1970's the cormorants were definitely back in Holland a.o. Marteijn and Dirksen 1991.

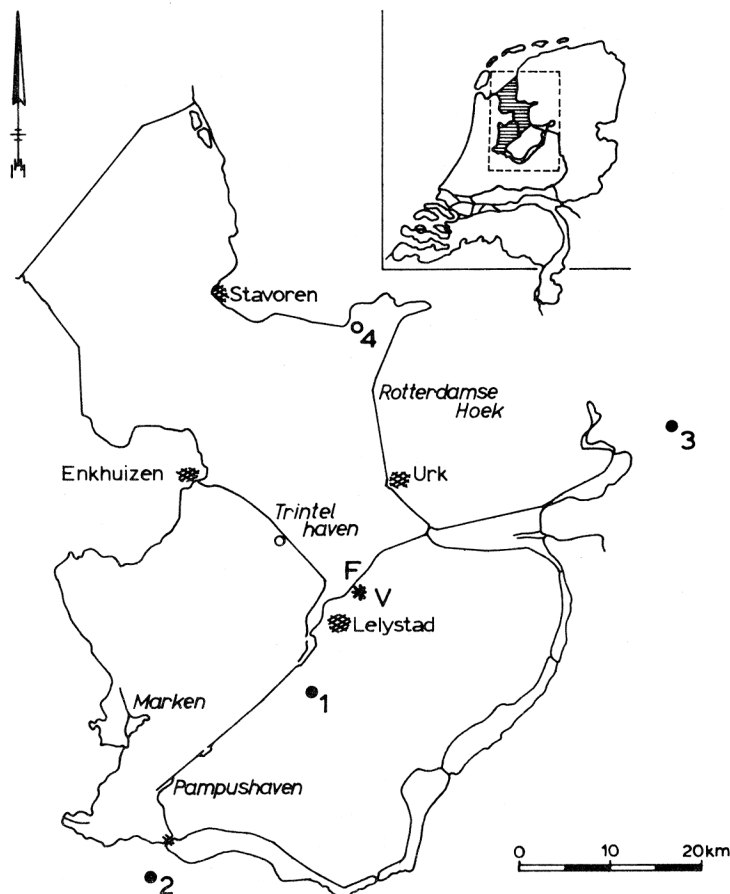


Figure 1. Situation fish farm Lelystad (V), colonies (1-3), gathering site (4)

In 1978 the cormorants settled in the Oostvaardersplassen (a protected area which developed on a planned industrial area) only 10 kilometres from West Europe's largest fish farm (see Figure 1). The cormorants started feeding on the ponds of the fish-farm (Osieck 1982, Moerbeek 1983). The owner of the fish-farm, the Organization for the Improvement of Inland

Fisheries, wanted to be compensated by the Dutch government for the damage caused by the cormorants (Buissink 2000).

After 9 years of legal actions, in 1991 the court decided that their complaints were legitimate. The government had to pay the compensation not only because it owned the nearby protected area but also because it actively encouraged the settlement of cormorants by providing artificial nesting sites in this area (Jongkind 1991). Although the outcome softened the grief, it was too late to save the fish farm in Lelystad. This fish farm had to close down due to the cormorant damage. A new fish farm was opened in Valkenswaard in the South of the Netherlands, far away from the cormorants.

In the 1990's the nature of the cormorant discussion changed. It was characterized by the concerns of the commercial fishermen and by the research on the feeding habits of cormorants. When the decreasing fish yield in Lake IJsselmeer became evident, the cormorant discussion started again.

In order to fight over-exploitation, the commercial fishermen had to reduce their fishing efforts with 50% in 1989 (Jongkind, 1991). This was when they became concerned about the growth of the cormorant population. The Lake IJsselmeer fishermen navigated the lake every day and they saw the large number of cormorants and the amount of fish that these birds ate. This did not seem fair. The commercial fishermen took their complaint to the Ministry of Agriculture, Nature Conservation and Fisheries (Visserijnieuws 1993). The Ministry wanted to have more information about the perceived problem and asked the National Reference Centre for Nature Management to investigate the impact of the cormorants on the commercial fisheries. The National Reference Centre for Nature Management established a working group to which important stakeholders were invited. The working group aimed at estimating the possible effect of fish depredation by cormorants on the commercial fisheries but refrained from qualifying this effect in terms of damage (Van Dam *et al.* 1995). Their goal was to collect information on the relation between commercial fisheries and the cormorants and to explore the current situation. The conclusions of the working group in 1995 were that the main diet of the cormorant on Lake IJsselmeer in the summer consists of perch (24%), smelt (21%), ruffe (25%) and roach (18%), pike-perch (6.2%) and eel (0.5%). The fishermen mainly catch eel, perch and pike-perch. According to the team, the cormorants and the fyke-net fisheries together withdraw 96% of the biomass of small perch (Dekker 1997). As a consequence of the consumption of perch by cormorants, the commercial catch of perch is likely to be several times less than it could have been. Due to the by-catch in fyke-net fisheries the commercial catch of perch is likely to have been reduced to the same extent (Van Dam *et al.* 1995).

After this research, the commercial fishermen have not been able to get enough support for their complaints to enforce restrictive measures on the cormorant population. It had now become very difficult for them to convincingly ground their arguments.

The 1990's have been turbulent times for the anglers as well, but their approach to the cormorant discussion is quite different from the approach of the commercial fishermen. The anglers have never joined in the public discussion between the fishermen and the conservationists. This does not mean that anglers do not experience any problems. Locally, they do face difficulties caused by cormorant depredation, but they do not see the cormorants as a national problem. The Dutch Anglers association accepts the cormorant as a part of the natural ecosystem. They want to solve this problem by adapting the vulnerable angling-waters. They want the waters to become ecologically healthy with enough hideouts for the fish. They expect that the cormorants will then move on to the larger waters, because the fishing effort will become too high on the small waters. Recently the Dutch Anglers Association, the Association for the Protection of Birds, and the Organisation for the Improvement of Inland Fisheries started working together on this solution. They are investigating the influence of the cormorants on angling activities and they are working on possible ecological measures to solve the local problems.

Despite all the difficulties, the cormorant remains a protected bird species in the Netherlands. The government does not want to change this status because there is insufficient support among the Dutch society for active control through hunting or disturbing the nests, besides legislative restrictions to do so.

Since 1965 the influence of the fisheries sector has decreased whereas the support for nature conservation has increased. This has weakened the position of the fisheries sector. On the other hand, the number of members of nature conservation organisations has increased over time and this has strengthened their position (four million members 2002). The increasing cormorant number cannot be the direct cause of decrease in contribution of the fisheries sector to the Dutch economy as the absolute net income of the fisheries sector has increased over time.

Discussion and Conclusions

The social learning process that the actors have gone through after the revival of the cormorant population in the Netherlands can explain the change in the cormorant discussion. In relation to social learning, two important processes in the 1990's can be distinguished. The first and most important process was social learning in relation to the commercial fisheries. The second process was social learning in relation to the angling.

Cormorants, commercial fisheries and social learning

This first process started in the beginning of the 1990's when National Reference Centre for Nature Management was asked to investigate the situation of the cormorants in relation to the commercial fisheries by the Ministry of Agriculture, Nature Conservation and Fisheries. The outcome of this investigation was a shared view of the participating actors on the diet of the cormorant and their effect on commercial fisheries. For an overview of all participating actors see table 1. This shared view would have a great impact on the course that the discussion was to take in the next few years.

Table 1. Parties represented in the working group on Cormorants and fisheries

Research	Policy	Fisheries sector	Anglers	Nature conservationists
OVb RIZA RIVO IBN IKCN	Ministry of Transport, Public works and Water Management / Directorate IJsselmeergebied Ministry of Agriculture Nature Conservation and Fisheries / Fisheries Directorate	Product board for Fish	NVVS	Natuurmonumenten Vogelbescherming Nederland

After the research of the working group, the focus of the discussion shifted to the cormorant as one of the possible causes of the decreasing fish yield. The discussion started to centre on the decreasing fish yield instead of focussing on the diet of the cormorant. This meant that the cormorant discussion had now become part of the broader ‘fisheries’ discussion. All actors were now concerned with the decline of the fish stock in Lake IJsselmeer. Nevertheless, the stakeholders perceived the causes of this low fish stock differently. The fishermen felt that the cormorant was an important determining factor, but the nature conservationists interpreted this as a scapegoat mechanism (the cormorant as the scapegoat). Although both groups referred to the results of the research in 1995, they interpreted the results differently. The nature conservationists concluded that the cormorant forages mainly on non-commercial fish species. They argue that cormorants do have some influence on the biomass of perch, but that this is only to be expected in a heavily disturbed, highly overexploited estuary system like Lake IJsselmeer. The commercial fishermen, on the other hand, concluded that although there was some over-exploitation, the cormorants intensified this by adding extra strain to the system. According to them the cormorants put the fishermen in a sub-optimal position and are therefore an important cause of the over-exploitation in Lake IJsselmeer.

The different actors may interpret the results of the research in different ways, but the working group has nevertheless shifted the way in which the actors define the problem. The direct attention is now away from the cormorants and on the diminishing fish-stock.

Cormorants, angling and social learning

The second process (perhaps a bit less conspicuous) that explains the change in the cormorant discussion is the teamwork on cormorants and angling. In the beginning of 1998, nature conservationists, the Dutch Anglers Association and a research institute together started a project on cormorant damage in angling. As opposed to the commercial fishermen, the Dutch Anglers Association accepts the cormorants as a natural part of the ecosystem. They acknowledge that cormorants can be a local problem, but not a national problem. This project looks at the management of fish and the quality of the aquatic environment. It tries to strike an ecological balance to prevent cormorant damage, without having to persecute the birds violently. Instead of opposing each other, the nature conservationists and the anglers are working together towards a solution.

Shift in the perception of the Dutch society

The social learning processes in relation to angling and especially in relation to the commercial fisheries are important explanations for the change in the cormorant discussion. Nevertheless there is a third, more general, process that also influenced the cormorant discussion. This third process is a shift over time in the power balance between the nature conservationists and the fishermen. In the 1950's the three cormorant colonies that were left in the Netherlands, were strictly controlled in accordance with the Fisheries Inspection. At that time, the fisheries sector was perceived to be a very important contributor to the Dutch economy. Nowadays, this is not the case anymore. Presently, it is not likely that the Fisheries Inspection would tell the nature conservationists to control the number of cormorants in their preserved areas. The nature conservationists have gained quite some support over the years. The strengthened position of nature conservationists and the weakened position of the fisheries sector have influenced the shift in perception of the Dutch with regard to the cormorants and this influenced the cormorant management. This reasoning cannot be turned around. The position of the fisheries sector weakened but the increase in cormorants cannot have been the cause of this. The cormorant is still a protected bird species (although it is present in large numbers) because the Dutch population as a whole does not support interference in the cormorant population.

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Severine van Bommel

corresponding address:

Sipke E. van Wieren

Tropical Nature Conservation and Vertebrate Ecology Group Wageningen University
Bornsesteeg 69 6708 PD Wageningen, the Netherlands.

e-mail sip.vanwieren@staf.ton.wau.nl

