

**SLOVENIA MEETING REPORT**  
**INTERCAFE @ Bohinj 07-09 October 2006**

**“Angling and EU Legislation”**

**INTERCAFE meeting report, Bohinj, Slovenia, October 2006**

**D.N. Carss & M. Marzano (Editors)**

This full report of the meeting is in eight parts:

- (1) Introduction
- (2) Presentations – local experts
- (3) Environmental law
- (4) Integrated working session I: exploring the local situation
- (5) INTERCAFE@Bohinj field trip report
- (6) Integrated working session II: discussion of E-conference
- (7) Integrated working session III: regular Work Group tasks
- (8) 2006/07 Short Term Scientific Missions

The Agenda for the meeting is given in Appendix One.

**PART (1) Introduction**

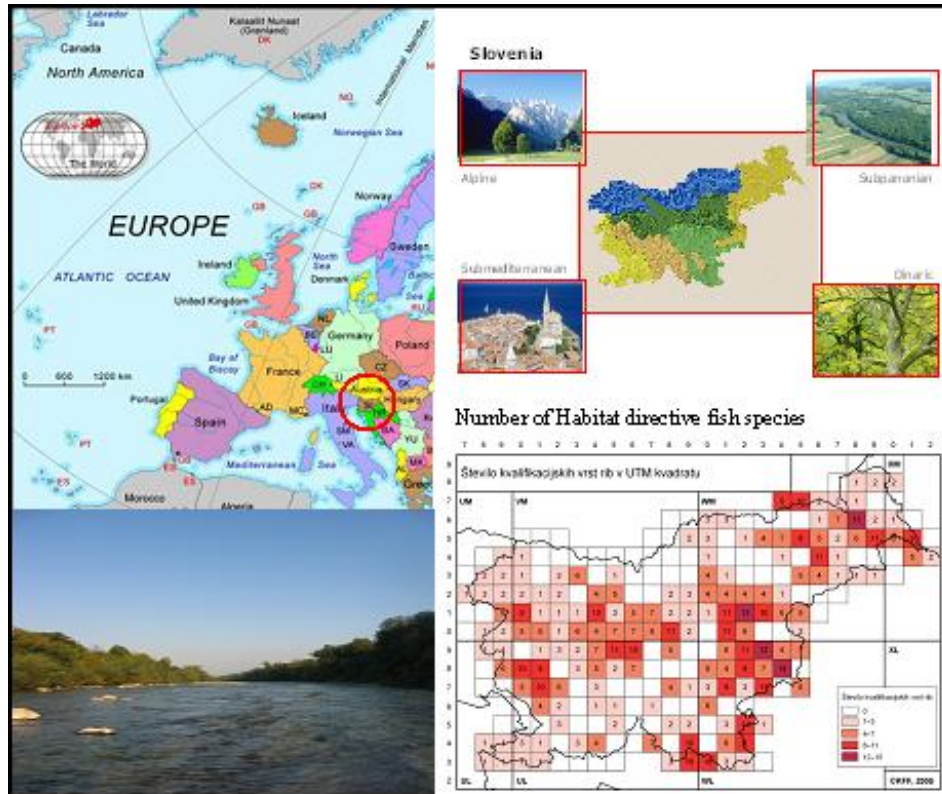
This, the sixth INTERCAFE meeting, was held at the Hotel Jezero, Bohinj on the 7-9 October 2006. As well as the ‘regular’ INTERCAFE Work Group activities, the meeting was themed around the issue of “angling and EU legislation”. This theme was chosen carefully for two main reasons.

First, angling (both as a recreational sport and a source of tourist income) is very important to this region of Slovenia, and to the country as a whole. Indeed, almost all of the popular angling magazines advertise Slovenia – and the rivers in the area where INTERCAFE participants met – as prime fly-fishing waters. Second, the Bohinj INTERCAFE meeting followed closely on the Action’s first E-conference (“Exploring issue of pan-European cormorant management” 2-19 September 2006).

We were privileged to work with many local experts during the meeting (including representatives of several local Angling Societies, the Ministry for Environment and Spatial Planning, the Institute for Nature Protection of Slovenia, and BirdLife Slovenia) and this collaboration allowed us to learn much about the fish diversity, fisheries management and economic value of recreational angling to this area. Many of the fish species in Slovenia are of high conservation status and their protection - and that of their habitats - is taken very seriously. Coupled with this, the relatively recent arrival of cormorants (another protected species) has led to considerable discussion on the impacts of these birds on fish stocks – particularly in habitats considered by many to be ‘pristine’ in relation to many other European waters.

Indeed, the situation could be described as *“Protected cormorants foraging on protected rivers feeding on protected fish.”*

The issue of fish stocking was an important theme running throughout this meeting and also formed an important part of the field trip. The use of fish stocking to enhance fish populations is clearly a complex issue and perhaps one that deserves even more attention at a future INTERCAFE meeting.



**A flavour of Slovenia:** geographical location, habitat variety, fish species richness and high water – and recreational angling – quality.

Much of the debate and discussion surrounding cormorant-fisheries issues leads to the matter of EU legislation, its meaning, interpretation and practical application on the ground. Legislation was a theme running throughout the REDCAFE project (see reports at <http://www.intercafeproject.net>) and it was a topic included in INTERCAFE’s original Work Programme submitted to COST - both in terms of obtaining a deeper understanding of the legal frameworks pertaining to cormorant-fisheries conflicts and in relation to the relationship between policy, best practice and science. Furthermore, the issue of EU legislation and its interpretation (and apparent flexibility) was also an issue discussed during the E-conference as well as being a point of discussion in most, if not all, previous INTERCAFE meetings. At the Bohinj meeting, INTERCAFE participants and local stakeholders were thus also privileged to discuss European legal matters with two invited experts: Ilona Cheyne, an International and European environmental lawyer who presented information on legal institutions and instruments in EC law and the regulatory framework of the Habitats and Wild Birds Directives; Micheal O’Briain from the EC’s Directorate General Environment who presented information on the cormorant in the context of the Birds Directive

## PART (2) Presentations – local experts

### 2.1 Slovenia: facts, figures and fishes

Marijan Govedic: Center za Kartografijo Favne in Flore, KLunova 3, SI-1000 Ljubljana, Slovenija

Slovenia is situated both in the southern part of Central Europe and in the northern part of the Mediterranean. Its 20,272 km<sup>2</sup> territory spreads at a geographical position of 45°25' and 46°53' northern latitude and between 13°23' and 16°36' eastern longitude. This



former Yugoslav republic has been an independent state since 1991 and now borders on Italy, Austria, Hungary and Croatia. Slovenia has about 2 million inhabitants, distributed through almost 6,000 towns and villages. Almost half of these inhabitants live in the countryside. The highest population concentration is in Ljubljana, the capital, with some 270,000 inhabitants.

Slovenia lies in the contact area of the Alps, Dinarides, Mediterranean and Pannonian Plain. It is a mountainous country. Mt Triglav in the Julian Alps is the highest peak in Slovenia. The ridges of the Dinaric mountain chain run in NW – SE direction and cover an extensive part of western and southern Slovenia. In the southwest of the country is the 46.6 km long coast of the Adriatic Sea. The proximity of the sea also influences the climate inside the country.

Forests cover ca. 60 % of the state surface, with the highest degree in the Alps and Dinarides. In three fourths of the forest surface, the beech (*Fagus sylvatica*) is the predominant tree species. Forest management in Slovenia is sustainable; clear cuts are prohibited. In some areas, the share of old trees is very high. Some small primeval forests have also been preserved, with no management allowed in them. Highly forested areas are inhabited by four large carnivore species: the Brown Bear (*Ursus arctos*), Lynx (*Lynx lynx*), Wild Cat (*Felis silvestris*) and Wolf (*Canis lupus*).

In Slovenia we have recorded 95 fish species to date. Some old data are doubtful. 31 species are listed on Annex II of the Habitat Directive for which Slovenia has designated Natura 2000 sites. For other species of animals and plants from Annex II and for habitat types from Annex I, Slovenia proposes almost 33 % of country for

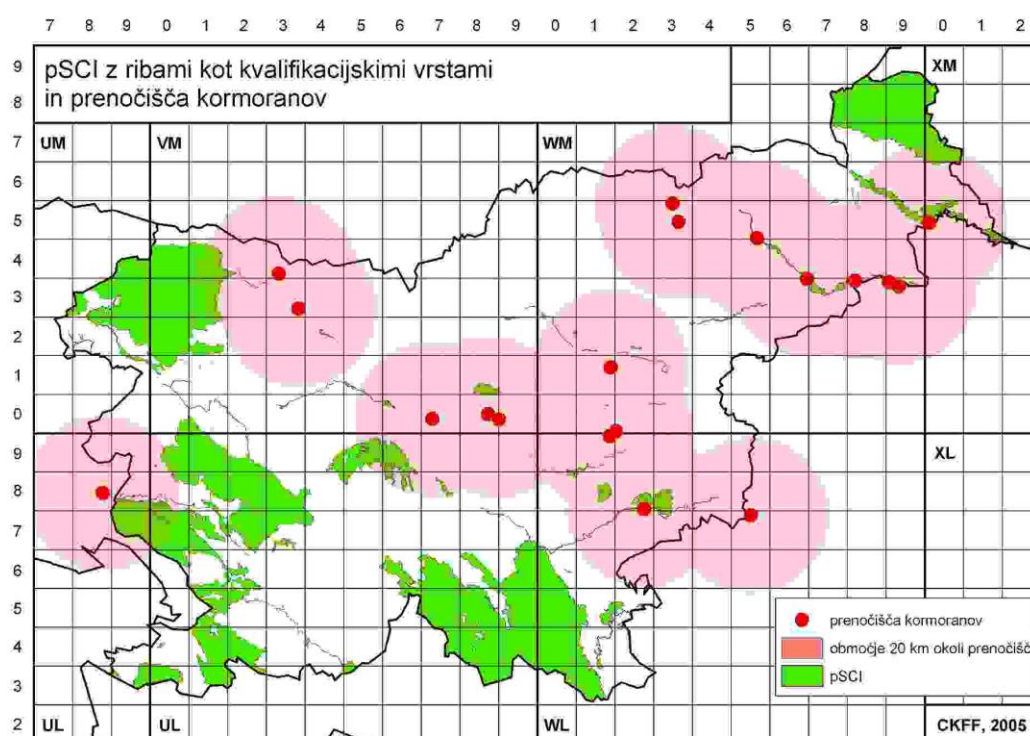


Natura 2000 sites. Some of these fish species are also found (Danubian Roach *Rutilus rutilus*, Marble Trout *Salmo marmoratus*, Danube Ruffe *Gymnocephalus baloni*) or are probably components of cormorant

diet (Asp *Aspius aspius*, Danube Salmon *Hucho hucho*, Soufie *Telestes souffia*). However, most of the fish species are too small or live in habitats that are not used by cormorants (European Mudminnow *Umbra krameri*, Danubian Gudgeon *Gobio uranoscopus*, Kessler's Gudgeon *Gobio kessleri*, Ukrainian Brook Lamprey *Eudontomyzon mariae*, Balkan Barbel *Barbus balcanicus*, Danubian Bleak

*Chalcaburnus chalcoides*, Balkan Loach *Sabanejewia balcanica*, Spined Loach *Cobitis taenia*, Balkan Loach *Cobitis elongata*, Bullhead *Cottus gobio*, Weather Loach *Misgurnus fossilis*).

Cormorants don't breed in Slovenia and there are known breeding records from the last century. But there is archaeological evidence that the species was present in Slovenia 3,600 years B.C. Today there are around 30 permanent winter night roosts and 20 other that are only periodic. Most roosts are situated near big rivers. However, because of the relatively small distances involved, cormorants can also exploit small tributaries in which Brown Trout (*Salmo trutta*) and Grayling (*Thymallus thymallus*) occur.



**Slovenia:** distribution of NATURA 2000 sites (green), cormorants night roosts (red dots), and 20km radii from roosts (pink circles).

For last 20 years the Fisheries Research Institute of Slovenia have gathered data about sport fishing catches. These data show decreasing catches of some species, especially Nase (*Chondrostoma nasus*). Large dams are the main reason for this decline, but we suspect that cormorants also have significant impact.

## 2.2 Problems caused by cormorans on the Sava Bohinjka river

Stanislav Gorenc, Fishing Club Bohinj, Triglavaska 35, p.p. 56, 4264 Bohinjska Bistrica, Slovenia.

### History

We first started observing cormorants right after the summer of 1990, before then the cormorant was unknown in this area. At this time we were not so aware of the cormorant and its presence, nor that they were causing major declines of Grayling and Brown Trout



in the Sava Bohinjka – a river well known for these two species. However, in 1997 the National Institute for Water made an inventory that showed that Grayling was no longer present in the river. As a result of that inventory and our new knowledge of cormorant ecology and habits, we realised how big a threat the cormorant was for fishes.

### **Cormorant numbers**

The Cormorant appears in this area in the beginning of October and stays until the end of April, flocks usually contain between 100-240 birds. Also another typical fish-eating bird in this area is the Grey Heron - about 80 – 90 individuals – present all year.



### **Precautions and scaring**

After 2000 we started a methodical scaring programme for cormorants, but separately - every angling association operating by itself. However, in 2003 we joined our strengths together (RD BOHINJ, RD BLEDE, ZZRS) in order to get better effects and to lower the costs. Scaring is done at standard, well-defined primary and secondary locations near Sava Bohinjka, chosen in relation to the river/habitat configuration on the ground. In this, we also cooperate with the hunting association.

### **Results**

As we do statistics every year, the increase of Grayling and Brown Trout in the last few years is easy to see after 2003. For example, catch statistics (numbers of fish) in part of RD Bohinj's waters (2001-2005) are shown below.

	<b>Year</b>				
	<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>	<b>2005</b>
<b>Grayling</b>	8	6	23	32	58
<b>Brown Trout</b>	101	84	177	201	224

Catches for 12th FIPS-Mouche European Fly Fishing Championship held on the rivers Sava Bohinjka, Sava Dolinjka and Sava, from 5 to 11 June 2006, show that in five sessions of 3 hours each, 95 angling competitors caught:

	<b>Stretch of the river managed by</b>			
	<b>Bohinj</b>	<b>Institute</b>	<b>Bled</b>	<b>Total</b>
<b>Grayling</b>	309	306	52	667
<b>Brown Trout</b>	71	10	266	347

The costs of mitigation against cormorants for each of the two fishing clubs and for Fisheries Research Institute (RD Bohinj and for each of the two toher fishing associations) in 2000-03 were nearly 10,000 Euros a year, a total of ~30,000 Euros. After 2003, as we started to cooperate with RC Bled and Zavod za Ribištvo and the costs declined by 20% to 24,000 Euro for the two clubs and Fisheries Research Institute together and the efficacy is also much better.

### Conclusion

All of us that are managing rivers in the area have high costs associated with maintaining the abundance of fish. The Cormorant is still rather highly protected – and we only have permission to shoot 154 birds a year in the whole of Slovenia.

But, what about the protection of our fish?



## 2.3 Measures against fish-eating birds in the Soča River

Lucian Rejec, Tomlin Angling Society, Trg 1. maja 7, 5220 Tomlin, Slovenia



### Introduction

The Tomlin Angling Society has 400 members and manages the rivers of the upper Soča valley. There are two large rivers, the Soča and Idrija, and 8 smaller ones. Apart from fishing rivers totalling 145 km in length, there are an additional 33 nursery streams, 10 sanctuary streams and many small streams without active management. The Society has built a hatchery for Marble Trout and Grayling, as well as a fish farm housing a breeding stock of the same species. Each year around 400,000 Marble Trout and 600,000 Grayling hatchlings are produced. One of the biggest European research projects on freshwater fish ("The repopulation of the Marble Trout") has been on-going since 1993 with guidance from the biological station Tour du Valat, France. As a result of this project, the survival of the Marble Trout, not long ago on the brink of extinction, is now assured.

The Society employs four qualified personnel and annually sells 3,000 – 6,000 fishing permits. The economic value of fly-fishing tourism in the area is estimated at 2.2 million Euro annually (An Assessment of the Importance of Sports Fishing in the Soča and Idrija Basins, Slovenia. Sullivan, C., Jesensek, B., Jensenek, D. & Zusa, A. [2003] unpublished CEH study).

### Fish-eating birds

Not so long ago – until the 1980s – fish-eating birds were practically unknown in the Soča valley. Sporadically, during the spring rains, some gull flocks appeared, only to

vanish as quickly as they had arrived. In the 1970s, hunters introduced the Mallard (*Anas platyrhynchos*) which established itself in the area, albeit without any adverse effects on fish populations. At that time, so many Grayling were present in the rivers of the Soča and Idrija that Italian fishermen called the area "Temolandia" - The Land of the Graylings.

The first serious fish-eating birds to arrive were gulls and Grey Herons (*Ardea cinerea*). They appeared in the second half of the 1980s. Both species were strictly protected and no measures against them were put in place. The fishermen observed the gulls foraging occasionally on fish, but the damage on the fish stocks was not deemed meaningful. It was a different story for the Grey Herons. They mostly inhabited smaller streams, especially nursery streams. In Slovenian fisheries management, the nursery streams play an important role. They serve for the "co-natural" breeding of fish. Salmonid hatchlings are stocked in fishless nursery streams, then they are fished-out after 1-2 years and transferred to the larger fishing rivers. The yield of fished-out salmonids in such nursery streams has declined dramatically since the arrival of Grey Herons. The decline was so drastic – up to 85% - that the practice was completely stopped in more than half of the 33 nursery streams.

### The cormorant

The first flock of cormorants in the Soča valley was observed in February 1998. The fishing season in 1997 was excellent with a record 6,000 fishing permits sold to tourist fishermen. Very soon, flocks of 50 – 100 cormorants were observed foraging in the Soča river. Year after year, the number of sold fishing permits declined, reaching an absolute minimum of 2,662 in 2004. The catch of Grayling also declined, from 2,064 in 1997 to an unbelievable 66 in 2004! It became clear that the Angling Society had to introduce proper monitoring and control measures in order to stop the decline in fish populations and fishing tourism.

**REPORT FORM**

IME IN PRIMEK: SILVO HANFREDA

Datum odvrtaanja: 26.01.06 Ura (od-od): 8:30 - 14<sup>h</sup>

Reka - odsek: SOČEJE SOČE IN VOLARJE DO LEHEM BARČU DO KOSMICEVA JARNAČEVA, DO BERNIČ PA DO SLAPA DO

Število opaženih ptic: \_\_\_\_\_

Sivo čaplje: 2      Komoranci: 2

Ukrepi - način odvrtaanja: 2400SODVALA PRISOTNOST

VOZNIK 2 AVTOR 2 UZDEKATNI MI VARNI MI

POSTANKI

Druge opažanja - pripombe: \_\_\_\_\_

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IME IN PRIMEK: SILVO HANFREDA

Datum odvrtaanja: 10.11.04.06 Ura (od-od): BOVČANSKI ČAS

Reka - odsek: DO BISTANJE DO NOVOU VALVA PEI BIST - LEVI BREG

Število opaženih ptic: \_\_\_\_\_

Sivo čaplje: 1      Komoranci: 2

Ukrepi - način odvrtaanja: PLAŠENJE - PEŠ

Druge opažanja - pripombe: \_\_\_\_\_

**MONITORING FORM**

Teden 12.12. - 18.12.2005

Reka - odsek	Ime in priimek	Revir	Kontaktna oseba-čuvaj
SOČA: Kobarid - Kamno	Drago Kavčič	KO	Oskar Rosič 041 545 783
	Rado Kodell	KO	
	Ivan Kolenc	KO	
	Edvard Koren	KO	
	Hrvoje Korosec	KO	
SOČA: Kamno - Volarje	Peter Kavčič	TO	Dejan Gabrijel 031 800 561
	Franc Kavčič	TO	
	Savina Kelher	TO	
	Davorin Kenda	TO	
SOČA: Volarje - Tolmin	Stojan Kimovski	TO	Anton Jesenšek 041 941 661
	Daniilo Klincik	TO	
	Jože Klincik	TO	
	Miran Klincik	TO	
	Zoran Kocič	TO	
JEZERO - TOLMINKA	Janko Koder	TO	Tomo Sotenšek 031 649 074
	Estevan Kodermac	TO	
SOČA Bovec	Dušan Kogoj	TO	Albert Mihelič 031 812 576
	Ernest Čmak	BO	
NADIŽA	Frida Čmak	BO	Oskar Rosič 041 545 783
	Blaz Kravanja	KO	
BACA spodaj	Jože Kravanja	KO	Josip Smolnikar 041 393 289
	Marko Skok	MO	
BACA zgornj	Dariko Zbogar	TO	Andrej Krapež 031 725 544
	Ivan Bratina	GR	
IDRIJCA: Stopnik - Slap ob Idriji	Andrej Jus	TO	
	Bojan Jus	TO	
	Gregor Jus	TO	
	Matevž Jus	TO	
IDRIJCA: Slap ob L - Most na Soči	Franko Kogoj	TO	
	Janko Koren	TO	
	Zlatko Kogoj	TO	
	Franc Kokalj	TO	

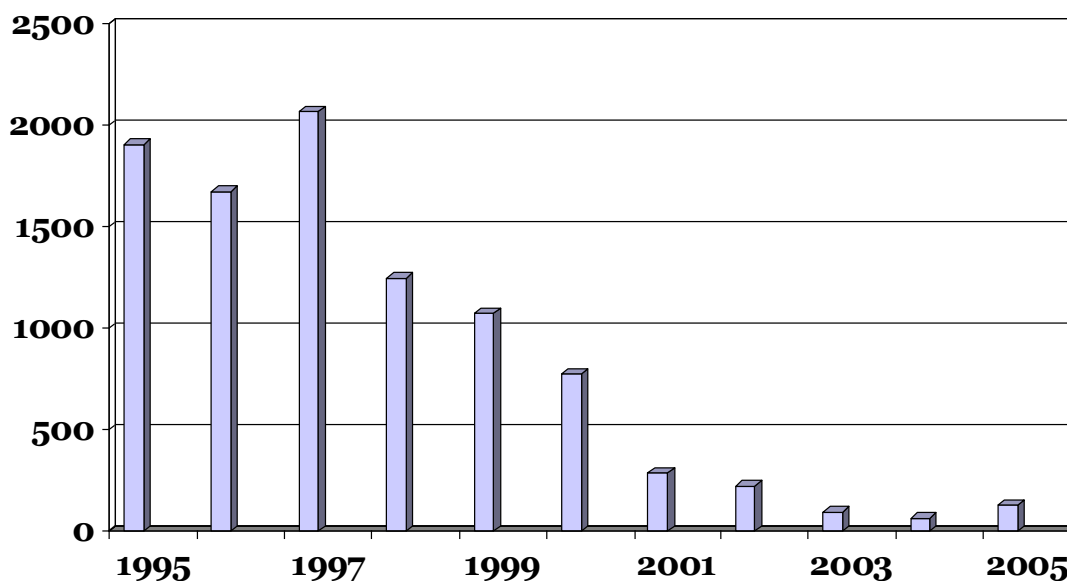
**Tomlin Angling Society report form for the monitoring and scaring of cormorants**

### Monitoring and control measures

In 2004 the General Assembly of the Tomlin Angling Society decided to introduce special duties for all the Society's members. Each member had to spend on day, during the cormorant season, along the rivers scaring the foraging birds away and reporting their numbers. The management prepared a detailed plan for the action. The rivers were divided into different zones, according to the severity of the cormorant infestation.

An additional measure employed was the purchase of gas cannons and their installation along the spawning grounds. A high efficiency of this noise-making measure was observed and, throughout the season, no cormorants were reported in these places. Another measure adopted by the Society was the breeding of larger fish for stocking. The problem is the lack of space capacity at the fish farm. Nevertheless, in 2005 some 5,000 Grayling of 30-40cm were bred and stocked during the fishing season. For the future, we are looking into new solutions for breeding larger Marble Trout and Grayling in order to stock them during the fishing season.

Culling of cormorants was not allowed by the Ministry of the Environment in 2005 and, for the whole Adriatic catchment area of Slovenia, a cull of just 15 birds was allowed. Only hunters have culling rights and it is quite difficult to get their collaboration. We judge this measure to be very important, if the acoustic (gas cannon) scaring is to remain effective.



**The annual catch of Grayling** (numbers caught 1995-2005): fish this species is the main prey of cormorants on the Soča River.

### Perceived results

This is more than just measurable results - we can also talk about anecdotal evidence regarding the effects of these activities in reducing the impact of fish-eating birds. In our opinion, these active control measures contributed to the disintegration of previously very large cormorant flocks, to a rebound of fish populations and, consequently, to a revival of fly-fishing tourism. After the all-time low of 2004, the



numbers of fishing permits sold in 2005 increased by 28% and a similar trend is being observed again this year (2006). However, the battle is not yet won – a lot of effort and creative ideas will be needed to bring fly fishing in the Soča river back to its old glory.

## 2.4 Conflicts between cormorants and autochthonic fishes in the River Krka

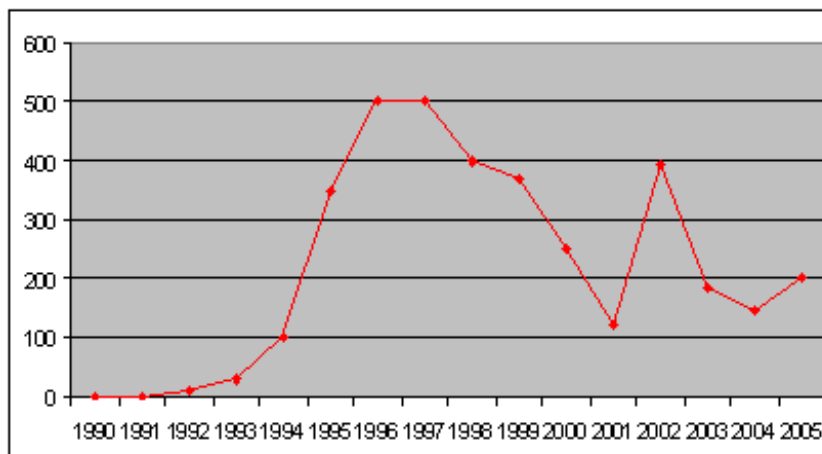
Matej Lustek, *Fishing club Novo mesto, Seidlova cesta 8, 8000 Novo mesto, Slovenia*

### Summary

River Krka is the biggest (94 km long) tributary of river Sava, located in the south-eastern part of Slovenia and running through the beautiful valley well-known for its wonderful castles. It's a typical karst river with high biological production and enviable biological diversity. More than 35 fish species live in river Krka. The most important are Danube Salmon, Brown Trout, Nase, Danube Roach, Chub and Pike. Many of these fishes are protected by the Natura 2000 designation and by the Habitats Directive. The Fishing Club Novo mesto manages the biggest part of river Krka.



The first cormorants were seen on river Krka during the winter 1991-1992. Over the next 4 years their numbers increased. A peak was seen in 1996 and 1997, when about 500 birds were on the river every day. After 1997 the number of birds varied from 130 to 400 birds/day (see graph be). Cormorants usually come onto the river Krka early in the morning from the river Sava or from the ponds in Croatia, which are located close to the Slovenian-Croatian border. They fly back late in the afternoon. The peak of cormorants is usually in November and then in January or February if a very cold winter. Just one roost was detected on the lower part of the river being used only during the very coldest winters when the ponds in Croatia are frozen.



**Population of cormorants on river Krka – trends from 1990 to 2005**



Four to five years after the arrival of the first cormorants, a rapid decrease of some fish populations was seen in the part of river Krka managed by the Fishing Club Novo mesto. The most vulnerable fishes are Nase and Grayling. The population of Nase had decreasing slightly during the previous 30 years, however a severe decline in the population was seen during the last 10 years (see graph below). The yearly sport-fishing catch of Nase for last few years represented

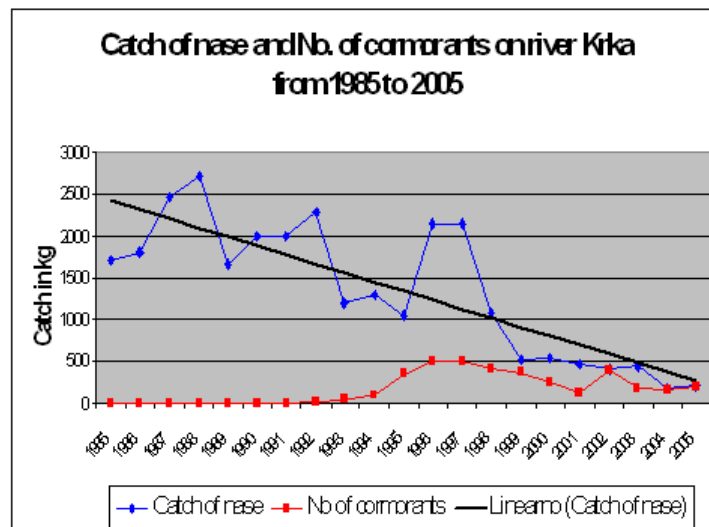
only 25 % to 30% of that before the arrival of cormorants. Other negative impacts (i.e. number of sport-fishing days, water pollution, regulations of the river and destruction of its banks) had not changed during this 10-year time period.

An evaluation of the Nase population was made on the basis of:

- Evidence of the yearly sport-fishing catch
- Results of monitoring the spawning seasons (i.e. the activities of fishes on the spawning areas)
- Ichthyological investigations

Some measures were taken by the members of Fishing Club Novo mesto to reduce the conflict between cormorants and the autochthonic (native/indigenous) fish population immediately after the cormorant was taken off the red list of protected species. Organised and well planned scaring of cormorants and other actions with hunters resulted in a slight to mild reduction in cormorant numbers on river Krka. All activities to protect the river from cormorants are most effective on the upper part of Krka, where the river runs through the relatively narrow valley.

Artificial breeding and repopulation of some species (Nase, Danube Roach, Grayling) is, in combination with the scaring of cormorants, the second important mitigation measure. Fishing club Novo mesto spends approximately 7% of its annual budget (about 12,000 to 14,000 €) each year in reducing the conflict between cormorants and native fish populations on the river Krka.



**Yearly sport-fishing catch of Nase in river Krka – trends from 1985 to 2005**

## **2.5 Wild Birds & Habitats Directive - transposition & implementation on the example of the Cormorant and fish species**

Andrej Bibič, Ministry for the Environment and Spatial Planning, Office for the Environment, Sector for Nature Conservation

### **Transposition of the Wild Birds Directive (79/409/EEC)**

In the process of accession to the European Union, Slovenia also had to transpose all the requirements of the Wild Birds Directive (WBD). The transposition took place in the period 2001-2004, and the situation regarding the legislative framework, administrative practice and situation in nature and society is briefly summarised below.

In Slovenia, the Cormorant (*Phalacrocorax carbo*) was (and still is) a wintering species, the overwhelming majority of the population belonging to the *sinensis* subspecies. Any taking of Cormorants from nature by means of hunting can take place only by members of a hunting family on their hunting grounds.

At the beginning of the transposition, the following parliamentary Acts were in place:

- for Nature Conservation in the year 1999 – the approved Nature Conservation Act,
- for Angling - the Continental Fishery Act from 1976,
- for Hunting - the Hunting Act from 1976.

In 2000, the Government removed the Cormorant (*P. c. sinensis*) from the list of protected species and listed it among the huntable species, to follow the removal of the *sinensis* subspecies from Annex I of the Wild Birds Directive (removal of the obligation to designate Special Protection Areas for this subspecies of the Cormorant).

The cormorant was allowed to be hunted after approval of a yearly (for the winter period) management plan, prepared by the State Forestry Service and approved by the Ministry of Agriculture, Food and Forestry (and in certain years after approval of the Ministry of Environment and Spatial Planning). The main aim of the management plan was to reduce the number of wintering Cormorants, thus distributing the total number of birds to be shot more or less equally all over the country. This led to the spread of efforts to protect waters important for fish over a geographically large area, and with hunting activities taking place only during a few days in any week. The management plan does not fulfil all requirements of the WBD and the procedure of approval has gaps, therefore a change of legislation was necessary.

Each year's practice in this period started with emotional debates at the beginning of the establishment of the management plan. This left no room for deeper analysis of the problem. The approved management plan reflected views of the more numerous stakeholders, and was always disputed by DOPPS - BirdLife Slovenia - in court. Under the court's decision, which followed a year later (at the end of the wintering season) the management plan was annulled. The number of wintering cormorants did not change, nor did reports on affected fish populations.

The transposition of articles 1 and 5 of the WBD required the establishment of a general protection for the Cormorant (*P. carbo*), including the *sinensis* subspecies,

and in particular prohibition of deliberate killing or capture by any method. There are specific exemptions from this prohibition, where there is no other satisfactory solution (Article 9):

- to prevent serious damage to crops, livestock, forests, fisheries and water,
- for the protection of flora and fauna.

Annex II of the WBD lists bird species that can be hunted, and on this Annex there are no species which shall be hunted to manage their population (so *Ph. c. sinensis* is not listed here).

The only possible legal solution was to list the Cormorant again among the protected species by the date of accession (1.5.2004). For exemptions a permit can be issued by the MESP's Environmental Agency of the Republic of Slovenia, based on the opinion of the Institute of the RS for Nature Conservation.

### **Transposition of the Habitats Directive (92/43/EC)**

The transposition of the Habitats Directive (HD) took place parallel to the transposition of the WBD and it resulted, amongst other things, with the designation of the Natura 2000 network. With this transposition, 27 fish species occurring in Slovenia became species of Community Interest, and their habitats were included in the Natura 2000 network in order to maintain or, where appropriate, restore the fish populations to a favourable conservation status (Map 1).

### **Implementation of the Directives – new approach**

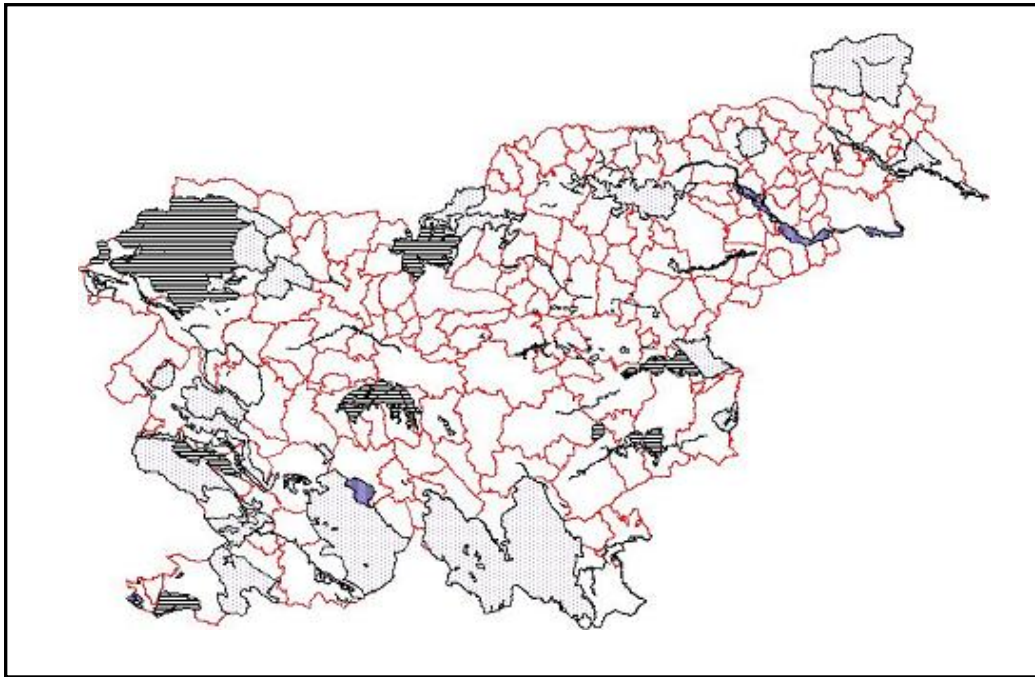
With a new legal basis, work started in parallel on:

- short term solutions (i.e. permit for taking cormorants in the winter 2004/05)
- preparation of a long term action plan.

Short term solutions in winter 2004/05 moved from aiming at reducing the numbers of wintering cormorants to:





- protecting open waters, important for endangered fish species (i.e. species on the National red list or annexes of the Habitats Directive)

The main stakeholders RZS (the Anglers Association of Slovenia) and DOPPS (BirdLife Slovenia) started, on their own initiative, to improve relations regarding this problem, and the Ministry then helped to develop this relationship. In 2004 the process of preparing the permit for taking cormorants in the winter 2004/05 took longer in order to allow the stakeholders to fully present their positions and list the important facts. In this winter, for the first time, the Ministry supported the International Waterbird Census, which also enabled joint (i.e. RZS and DOPPS) counting of Cormorants at roosts.



**Map 1: Natura 2000 sites in Slovenia**

**Legend**

-  Special Protection Areas (SPA)
-  SPA designated for waterbirds
-  pSCI designated for fish species
-  local community borders ( $\approx$  borders of angling districts)

Preparation of a long-term action plan started in 2005, aiming at:

- the conservation of endangered fish species in open waters, where Cormorant is an important factor in reducing fish populations,
- the appropriate, selective and effective protection of property (especially fish in fisheries) from the Cormorant,
- the maintenance of favourable conservation status for threatened waterbirds and their habitats, and of Cormorant (*P. carbo*), especially at wintering and migration sites.

In the process of preparing this plan, the Ministry supported the coordination of protecting open waters important for endangered fish species, and the assessment of needs to develop a good protection of these waters. It also supported a deeper analysis of existing data on Cormorants and fish species in Slovenia with the objective of

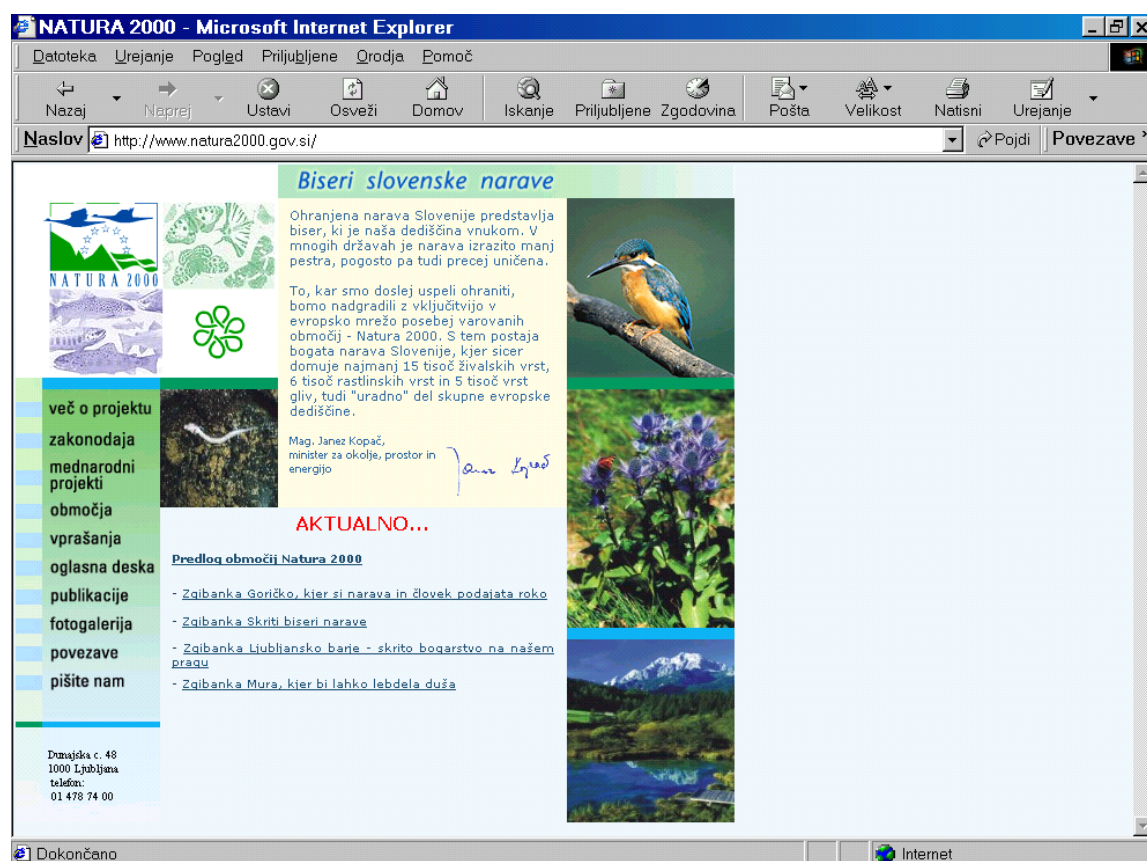
concentrating efforts where they were most needed. In addition, it also supported a proposal to establish monitoring of “cormorant days on waters”.

## Outlook

As a result of the work started in 2004 and 2005, the knowledge of features important for achieving favourable conservation status for fish species and waterbirds should thus be further improved.

In the future, efforts to protect waters from Cormorants should be concentrated mainly on selected waters that are important for fish species, and here towards increased effectiveness of the protection.

Further approximation of the positions of the main stakeholders (RZS - Anglers Association of Slovenia and DOPPS - BirdLife Slovenia) should also be further supported.



The most challenging task is however to improve the conservation of aquatic habitats, as this contributes most to the favourable conservation status of fish species there and to the reduction of the Cormorant-fisheries conflict.

More information on Wild Birds Directive (incl. all amendments and case law) can be found at:

<http://europa.eu.int/eur-lex/lex/Notice.do?val=72812:cs&lang=en&list=218545:cs,301999:cs,172874:cs,87721:cs,72812:cs,&pos=5&page=1&nbl=5&pgs=10&hwords=wild%20birds~>

Transposition of the Wild Birds Directive and Habitats Directive in Slovenia:

ZON-UPB2 – <a href="#">Zakon o ohranjanju narave</a>
ZDivL – <a href="#">Zakon o divjadi in lovstvu</a>
UHT - <a href="#">Uredba o habitatnih tipih</a>
UZPŽŽV - <a href="#">Uredba o zavarovanih prosto živečih živalskih vrstah</a>
UTŽRV - <a href="#">Uredba o ravnanjih in načinih varstva pri trgovini z živalskimi in rastlinskimi vrstami</a>
UEPO - <a href="#">Uredba o ekološko pomembnih območjih</a>
UPosVO – <a href="#">Uredba o posebnih varstvenih območjih (območjih Natura 2000)</a>
U(7) – <a href="#">Uredba o spremembah in dopolnitvah Uredbe o posebnih varstvenih območjih (območjih Natura 2000)</a>
UDDL – <a href="#">Uredba o določitvi divjadi in lovnih dob</a>
PIPTN – <a href="#">Pravilnik o izvedbi presoje tveganja za naravo in o pridobitvi pooblastila</a>
PPS - <a href="#">Pravilnik o presoji sprejemljivosti vplivov izvedbe planov in posegov v naravo na varovana območja</a>

More information on the Natura 2000 network in Slovenia is available at:

<http://www.natura2000.gov.si/>

<http://kremen.arso.gov.si/NVatlas/> (an interactive map)

## **PART (3) Environmental Law**

### **3.1 Legal Institutions and Instruments in EC Law**

Summary of two presentations given by Ilona Cheyne, Newcastle Law School, UK.

*(A) Ilona's talk covered such issues as:*

- 1. What is law, and what can we expect from it?**
- 2. Different kinds of legal systems**
- 3. The EC: its institutions and legal instruments**
- 4. Access to the Court of Justice**

*(B) As well as introducing and discussing:*

#### **The Wild Birds Directive**

The key provisions of the Wild Birds Directive are as follows.  
Italicized words and phrases indicate points of particular relevance.

##### Article 1

(1) This Directive relates to the conservation of *all species* of naturally occurring birds in the wild state *in the European territory* of the Member States to which the Treaty applies. It covers the *protection, management and control* of these species and *lays down rules for their exploitation*.

(2) It shall apply to *birds, their eggs, nests and habitats*.

##### Article 2

Member States shall take the requisite measures to maintain the population of the species referred to in Article 1 at a level which:

- corresponds in particular to ecological, scientific and cultural requirements
- while taking account of economic and recreational requirements

##### Article 4(1)



1. The species mentioned in *Annex I* shall be the subject of *special conservation measures concerning their habitat* in order to ensure their survival and reproduction in their area of distribution.

In this connection, account shall be taken of:

- (a) species in *danger of extinction*;
- (b) species *vulnerable to specific changes* in their habitat;
- (c) species considered *rare because of small populations or restricted local distribution*;
- (d) other species requiring particular attention for reasons of the specific nature of their habitat.

#### Article 4(1) and (2)

- *Member States shall classify the most suitable territories in number and size as special protection areas (SPAs) for the conservation of these species, taking account of the protection requirements of the species in Europe*
- *same obligation for regularly occurring non-Annex I migratory species, bearing in mind their need for protection in Europe as regards their breeding, moulting and wintering areas and staging posts along their migration routes*

#### Article 5

. . .Member States shall take the requisite measures to establish a *general system of protection for all species of birds* referred to in Article 1, prohibiting in particular:

- (a) *deliberate killing or capture* by any method;
- (b) *deliberate destruction of, or damage to, their nests and eggs or removal of their nests*;
- (c) taking their eggs in the wild and keeping these eggs even if empty;
- (d) *deliberate disturbance of these birds particularly during the period of breeding and rearing, in so far as disturbance would be significant* having regard to the objectives of this Directive; . .

#### Article 7

Species listed in Annex II may be hunted under national legislation

*but* MS must ensure that hunting does not jeopardize conservation efforts

*and* must comply with principles of wise use and ecologically balanced control and be compatible with Article 2

*in particular* no hunting during the rearing season nor during the various stages of reproduction or, in the case of migratory birds, on their return to their rearing grounds

#### Article 8

MS must *prohibit hunting, capture or killing of birds by large-scale or non-selective capture or killing of birds or methods capable of causing the local disappearance* of a species

Particularly forbidden:

- snares, limes, hooks, live decoys, tape recorders, electrocuting devices
- artificial lights sources, mirrors, etc.
- explosives
- nets, traps, poisoned or anaesthetic bait
- semi-automatic or automatic weapons

(listed in Annex IV (a))

#### Article 9

Member States may *derogate* from the provisions of Articles 5, 6, 7 and 8

- where there is *no other satisfactory solution*
- for the following reasons:
  - in the interests of public health and safety
  - in the interests of air safety
  - to *prevent serious damage to crops, livestock, forests, fisheries and water*
  - for the *protection of flora and fauna*

(C) *There was also discussion of:*

#### **1. Derogations**

#### **2. Hunting**

#### **3. Economic and other interests**

#### **Concluding Summary**

Law can be seen as a tool with which to achieve policy outcomes, and its clarity depends on political consensus. Particular factors that affect its interpretation and application are the level of discretion granted to the authorities responsible for its implementation, and the style of the chosen regulatory technique. Because legislation always involves a degree of ambiguity, courts commonly have to adopt interpretative approaches which assist them to discover the intentions of the legislators. In the case of the European Court of Justice, it often uses the purposive approach and this is particularly necessary where directives are being considered. The Court has also ensured that EC law is uniformly applied throughout the Community through the supremacy principle, and that private individuals may rely, where appropriate, on the EC Treaty and secondary legislation.

The Commission has a central role in formulating legislative proposals, monitoring compliance with legislation, and enforcing it through reasoned opinions and if necessary recourse to the Court. In the case of the WBD and Habitats Directives it has been particularly difficult to obtain proper implementation by Member States. The Commission has partly responded to this difficulty by issuing guidelines. Responsibility for the implementation of the WBD and Habitats Directive is borne by national authorities who must not only prohibit certain acts but also draw up national management plans in order to achieve the overall conservation objectives of the Directives. There are limitations on this discretion, such as limited powers to derogate, and the Court's jurisprudence has consistently employed strict interpretation of the obligations of Member States and emphasized the ornithological objectives of the WBD. However, there is considerable flexibility available to Member States to adapt their management plans to their own environmental and other concerns.

### **3.2 The cormorant in the context of the Birds Directive**

Micheal O'Briain, Nature and Biodiversity Unit, DG Environment, European Commission

1. As with all species of wild birds the Cormorant is covered by the general scheme of protection of the Birds Directive (79/409/EEC) and its deliberate capture and killing, disturbance, destruction of its nest or taking of its eggs can only be allowed by Member States in accordance with the derogation system of the directive. Three species of Cormorants that naturally occur in the EU, Great Cormorant (*Phalacrocorax carbo*), Shag (*P. aristotelis*) and Pygmy Cormorant (*P. pygmaeus*) are given this protection under the Directive.

Key provisions of the Directive relevant to the conservation and management of Cormorants include:

- Article 1: Directive relates to conservation of all wild bird species
- Article 2: MS take requisite measures to maintain populations at levels that correspond to ecological, scientific & cultural requirements...taking account of economic & recreational requirements
- Article 3: general duty of habitat/biotope conservation

- Article 4: specific habitat conservation measures, especially Special Protection Areas for Annex I (e.g. *P. pygmaeus*) and migratory species, especially regarding wetlands (e.g. *P. carbo*)
- Article 5: establish a general system of protection, prohibiting in particular, deliberate capture and killing, disturbance, destruction of the nest or taking of eggs
- Article 8: prohibited methods for killing and capture
- Article 9: derogation scheme of directive, where no satisfactory solution for specific reasons, including ‘to prevent serious damage to fisheries and water’ and ‘for the protection of fauna and flora’
- Article 10: encouragement of research

2. When the Birds Directive was adopted in 1979, the continental sub-species of the Cormorant (*P. c. sinensis*) was considered to be endangered and was therefore listed in Annex I of the directive as a species requiring special habitat conservation measures, including site protection. However, the populations of



- the species have significantly increased and the species is now considered to have a favourable conservation status. As a result of this development the Commission, having consulted the Member States, removed *P. c. sinensis* from Annex I of the Directive. *Phalacrocorax carbo*, is a migratory species that occurs in wetlands of international importance and therefore still needs to be subject to habitat conservation measures in Special Protection Areas established under the Directive.
3. The Commission is aware that there are conflicts between fishermen and *P. carbo* in certain parts of the Community and it has agreed with Member States that they can make full use of the derogations provisions of the Birds Directive to prevent serious damage by cormorants to fisheries, where this is justified in the absence of alternative solutions. The Commission is less aware of any significant conflicts with other species and habitats of conservation importance but the derogation provisions of the Directive are equally applicable for the protection of fauna and flora.
4. Key elements in relation to the application of derogations under the Birds Directive include:

- There must be no other satisfactory solution
  - Must meet one of the conditions set out in Article 9.1 of Directive (e.g. to prevent serious damage to fisheries and water)
  - Derogations are specific and time limited and means, arrangements, methods must be specified & controls carried out
  - Member States must annually report on use of derogations
  - Commission ensures that derogations are not incompatible with Directive
5. This derogation system, which can involve scaring methods, is being used in different Member States. The Commission has not been provided with scientific studies to show that such an approach does not work. It will examine any new evidence on this subject that is made available to it with the competent authorities of the Member States.
  6. The Commission also further continues to encourage co-operation between Member States on this issue, while maintaining the objective of keeping *P. carbo* in a favourable conservation state. There has been a previous attempt to elaborate an International Management Plan for this species, in the framework of the Convention on the Conservation of Migratory Species (Bonn Convention), following work initiated by Denmark and the Netherlands. However, this appears not to have had the active support of all countries concerned.
  7. The Birds Directive does not provide for internationally binding management plans for species such as *P. carbo* and does not give the Commission powers to request Member States to take control measures. It is for each Member State to take the measures it considers necessary to manage populations and any conflicts that arise in relation to fisheries interests.
  8. Nevertheless, the Commission encourages co-operation between Member States on this issue and has on a number of occasions initiated discussions on this subject with the Committee for Adaptation to Technical and Scientific Progress, set up pursuant to Article 16 of the Directive (the so-called Ornis Committee). The Commission is aware that there is still a need for increased international co-operation between countries in relation to action on this subject.
  9. There was a colloquium on the '*Grand Cormoran*', held in Strasbourg in March 2002. The recommendations of this colloquium proposed the objective of developing a European strategy to exchange information, manage and possibly reduce cormorant populations. It also recommended the need for local decisions to respond to local problems within the context of an overall global strategy. The opening of general hunting of *P. carbo* was not invoked as a solution to deal with the problem of Cormorants and fisheries.
  10. There is also ongoing research in different Member States, on improving ways to deal with the problem of damage caused by *P. carbo* to fisheries. The Community is also supporting multinational cooperative research projects aimed at reducing

the conflict between cormorants and fisheries on a pan-European scale. The completed REDCAFE<sup>1</sup> project highlights the dynamic and complex nature of this issue not only from an ecological perspective but also within the social, cultural and economic perspective. This work is being further developed under a new project called INTERCAFE<sup>2</sup>.

11. The Commission does not consider further amendments to the protection status of this species under the Birds Directive necessary at this stage. It is not considered that the listing of the species *P. carbo* in Annex II of the Birds Directive (i.e. to list this species as a huntable one) would represent an appropriate solution to addressing problems between Cormorants and fisheries interests. The legal status of *P. carbo* under the Birds Directive is already appropriate to allow Member States to take any necessary management measures for this species within their territories.

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<sup>1</sup> Redcafe ("Reducing the conflict between Cormorants and fisheries on a pan-European scale")  
[http://ec.europa.eu/research/quality-of-life/ka5/en/projects/qlrt\\_1999\\_31387\\_en.htm](http://ec.europa.eu/research/quality-of-life/ka5/en/projects/qlrt_1999_31387_en.htm)

<sup>2</sup> Intercafe ("Interdisciplinary Initiative to Reduce pan-European Cormorant-Fisheries Conflicts")  
<http://www.intercafeproject.net/>

## **PART (4) Integrated Working Session I: exploring the local situation**

### **4.1 Work Group One: Ecological databases and analyses**

**Participants:** Michal Adamec, Zeev Arad, Szymon Bzoma, Mindaugas Dagys, Marijan Govedic, Mikael Kilpi, Botond Kiss, Loïc Marion, Ivailo Nikolov, Jean-Yves Paquet, Josef Trautmansdorf, Mennobart van Erden, Stef van Rijn, Catarina Vinagre, Stefano Volponi

Invited stakeholders: Matej Lustek, Primoz Kmecl

#### **The Slovenian situation**

As in the whole of Slovenia, in the Soča valley there are no cormorant breeding colonies and bird presence is limited to small numbers during winter and migration periods. Cormorants are immigrants that originate from outside the region, thus every activity carried out for reducing the impact on wild fish and angling catches strictly depends on what is happening in the areas of cormorant origin. There was a general agreement on the need for basic information on cormorant ecology from a wide geographical range to be able to elaborate a local management policy for the cormorant problem. So far the situation in (westernmost Alpine) Slovenia is still not governed by a lot of cormorant damage cases. Given the special mountainous conditions the following observations were made:

- (1) The fish populations are diverse and composed of many more species than in NW Europe. In Slovenia over 90 species of fish are present, of which many are endemic to the country or a relatively confined area in the Balkan countries.
- (2) The salmonids represent a significant and, from the viewpoint of biological diversity, valuable part of the aquatic fauna; these values are internationally recognised and protected under the EC Habitat Directive.
- (3) Regarding the Marbled Trout, now considered a species (*Salmo marmoratus*), much effort is directed to the reconstruction of the original genotype. Here, a genetic breeding programme goes hand in hand with measures to reduce the occurrence of foreign species and races of fishes and an awareness programme among anglers to arrive at a situation of sustainable fishing.

With respect to Cormorants, there is no acute reason for concern; however, the water systems under consideration represent a unique situation. [NB. However, it was noted by some Slovenian stakeholders that cormorants have brought Adriatic Grayling in the Soča and Grayling in Sava Bohinjka and in Unica to the brink of extinction and thus created a bottle-neck effect]



WG 1 discussions considered that although many of the rivers and fish communities in Slovenia are deemed to be 'pristine', there are a number of exotic, non-native species. These include Rainbow Trout (*Onchorhynchus mykiss*

deliberately released and economically important), the – mostly in ponds and artificial lakes – the Sun Perch (*Lepomis gibbosus*) (an accidental release), two species of catfish and the Grass/Silver Carp (*Ctenopharyngodon idella*) again, these are accidental fishes brought in mixed with Carp). There are also some populations of Arctic Char (*Salvenius alpinus*) and one river has the American Signal Crayfish (*Pacifastacus leniusculus*). Discussions also explored the scale both of cormorant impact on local fisheries and of the stocking regimes used as part of local fisheries management programmes.

The Rainbow Trout is deliberately stocked and anglers do fish for it and eat it. Native fish species have to be returned to the water but Rainbow Trout may be taken, although there are places where this species is not wanted. There is evidence that Rainbow Trout interact negatively with Grayling when introduced to the same waters.

Here in this part of Slovenia, the mountainous water systems are unique, undisturbed, and pure – but other Slovenian river systems are not so pristine. For example, rivers in the karst plain are less pristine but they still hold many species of fish. Several aspects of the issue were explored in a round-table discussion:

Mennobart: Although this part of Slovenia is classified as pristine and unique in Europe, and its waters contain many fish species, there is also considerable fishery/angling management and fish stocking occurs.

Marijan: *We need to be careful. We can not extrapolate from one river to the Alpine Region, or from specific regions to the Slovenian level.*

Loic: In the story of the declining Nase, their strong decline began well before the cormorant arrived. What was the cause?

Marijan: *The minimum viable population size of Nase is really quite high. It spawns in the end of March here whilst further north (say, 100km) it spawns at the end of April/early May.*

Primoz: Does the Nase have other problems, perhaps associated with things like habitat or parasites?

Matej: *We are arguing that the decline in Nase was really associated with the cormoarnts. There has been a 30-40% decline in spawning compared to before the arrival of cormorants.*

Szymon: But it could just be a critical point which pulls the Nase population down – you might have reached a lower threshold and observed a similar ‘crash’ without the presence of cormorants.

Marijan: *No, we have used age-class determination. Nase behaviour is quite similar to that of Grayling – it moves to deeper waters in winter (prior to spawning) and uses still running waters that do not freeze. The Nase is probably not a good example because of other factors.*



Mennobart: There may be other confounding factors since 1988. Mild winters for example – all sorts of things.

Marijan: *Yes, things like water level changes, mild periods and so on, all affect fish behaviour, productivity, spawning, etc.*

Mennobart: OK, we only have circumstantial evidence – how can we distinguish between the effects of cormorants and the effects of everything else?

Marijan: *Well, talking to Josef and Rosemarie, these Slovenian rivers are comparable to the small tributaries of Austrian rivers (so rivers here are small, are easy fishing for cormorants and they are able to move easily between river sections). We can measure Grayling density in 30 km of river here and can calculate how many cormorants would be required to eat 50% of the standing crop of fish. Two hundred birds have been counted at the night roost on the Soča Bohinj, and there are more this year.*

Josef: *Nase populations are going down everywhere, for instance in the Danube catchment – so its not just a Slovenian issue. The Nase was declining before the cormorants came.*

Mennobart: That is the question. Were the birds the cause of the decline or were the fish vulnerable because they were already at low numbers?

Marijan: *Cormorants just changed the steepness of the decline – it was happening anyway.*

Matej: *We have seen no recoveries in fish populations after the arrival of cormorants – and the spawning stock has declined. No population structure data are available. We only have annual catches – but the population has become older and older – all the juveniles are missing. We now breed fish and try to repopulate parts of the upper river Krka. Here the population is now better and 2-4 year-old fish are there now.*



Mennobart: Have you tried to compare other temporal data – fish catches, climatic conditions, etc – to see if there is a pattern?

Matej: *Yes, we did this. The population decline of Nase was bigger than for the other species (which also declined, but less severely). Grayling is very similar to Nase. In the last 5 years, Pike and Danubian Roach have declined too (we can't say that this is because of cormorants) but we think cormorants do have a great impact on the Nase.*

Primoz: *I agree with Marijan and want to stress the use of sound scientific data. Catches can be affected by other factors, including ones that are not necessarily 'scientific' for instance economics. If the price declines, the catch often declines too. Sometimes, the cormorant count information provided by fishermen is unreliable. So, if we are using 'unreliable' x 'unreliable', this equals problems.*

Matej: *Fishermen have tried counting cormorants and we think our figures are OK.*

Primoz: *It's the first third of the day that is the best time for counting them.*

Josef: *Has fishing effort changed over time?*

Matej: *The number of fishing days has been stable for the last 3 years. It did decline because the fish population was at an all-time low and so fishermen changed their quarry species. We need 5-10 years to get the story – but by then it will be too late.*

Marijan: *I think it is worth remembering that if we are talking about a small river section – say 30 m wide and 30 km long – then we are talking about a relatively small area of water. Only a few birds can cause a lot of damage in such an area.*

Mennobart: *How are the fisheries and angling distributed?*

Marijan: *It is really hard to say. Anglers' distribution is correlated with river microhabitat as well as to access. There are specific spots used by anglers – really because of the presence of other, inaccessible, areas throughout the catchment. We have no idea what is going on in lakes in relation to fish populations there.*

Mennobart: *When do the cormorants come?*

Marijan: *A lot depends on the severity of the winter weather (here and elsewhere) but the peak is usually in November with 2-4,000 birds. They usually leave in March. We do not count regularly, so these are just approximate figures.*

Matej: *Many cormorants come here from elsewhere (e.g. Hungary) especially in November.*

Jean-Yves: *In Slovenia, are you happy with the fish monitoring system?*

Marijan: *Yes. Three years ago we were not happy but now we are better than a lot of countries and, on the EU scale, Slovenian fish information is very good.*

## **4.2 Work Group Two: Conflict management and resolution**

### **The local story**

Drafted by Ian Russell

**Participants:** Daniel Gerdeaux, Ger Rogen, Henrik-Lykke Sorensen, Ian Russell, Ilona Cheyne, Kareen Seiche, Linas Lozys, Nils Røv, Oleg Nemenonok, Petr Musil,

Redik Eshbaum, Robert Gwiazda, Scott Jones, Tamir Strod, Thomas Keller, Timo Asanti.

Stakeholders and invited experts: Lucijan Rejec, Tanjar Kosar, Jens Thygesen, Micheal O'Briain

The following report attempts to itemise the key points arising from the initial consultation with stakeholders within WG2, we were seeking to address two broad questions:

*Q1 Dialogue - plus what is the local story*

*Q2 Links local, national and beyond*

**Anglers' Perspectives (local stakeholder - Lucijan Rejec):**

- Fishing is very important for this area economically, in particular supporting angling tourism.
- Anglers' perspective is clear – nothing was done for a long time, then very slow progress. We need greater action. We like the Swiss model for alpine streams, but are not able to apply this. Would like to see this done here also. We have particular concerns about the impact of cormorants in smaller streams.
- Rivers here have very clear water - 'fish on a plate' - even small numbers of birds can have a big impact in such sites (for example 13 cormorants/day on the Soča river). We have some lakes which cormorant foraging could be switched to, without causing particular harm, in order to take pressure off rivers.
- Catch & release is practised by 70% of anglers, who also use barbless hooks. Thus anglers already doing all they can to limit impact on stocks and to manage stocks responsibly. We have also spent money on conservation, protection and research and on deterring cormorants. Most management on rivers is done by angling groups, supported by licence income – there is no financial support from government.
- Only hunters are allowed to shoot birds. The number of birds allowed to be killed is an arbitrary figure (currently set at 154 for all of Slovenia) – this is seen as a political 'fix' - and is far too low. In addition, the perception is that those stakeholders who have more influence with the Ministry get more allowance than others. In general cormorant shooting is not well organised in many parts of Slovenia. We use the example of killing bears – we have 500 bears in Slovenia and allow 100 to be killed per year and yet still have stable population. An estimate, based on the equivalent of the Swiss plan in Slovenia, would allow up to 1,000 birds to be killed – anglers believe this would be very effective.
- Gas cannons are used – we observe habituation to these by Grey Herons, but they seem to be effective for cormorants

- Stocking – our focus is on introducing juvenile (ca. 5 cm) Marbled Trout and allowing these to grow-on to recruit to the fishery in later years (N.B. we have Minimum Landing Size for trout). We are using genetic testing to stock appropriate strains. Natural spawning is mostly hybrids (Mediterranean/Danube stocks) – and we are trying to get back to ‘pure’ genetic strain. The situation is improving year on year, but we have a 20-year horizon to achieve these goals. Larger rainbow trout (ca. 1kg) are stocked only in the biggest rivers and are quickly caught and removed by anglers. These fish are never stocked into small high biodiversity value sites.



- Grayling are predated heavily every winter. Grayling are very vulnerable in our rivers. In lakes, birds tend to take cyprinids (of lower value to anglers). Grayling spawning has also been reduced by predation. So now produce Grayling fry from broodstock (>600,000 were stocked in 2006) and we stock these at very small size.
- Anglers believe there is ample evidence of cormorant impact. For example, annual angling permits/licence sales have fallen from 6,000 to 2,500. At a price of 50 Euro per licence, this represents a very significant reduction in income to angling organisations. In addition we have concerns about cormorant impact on endangered species (e.g. Blageon - *Leuciscus souffia*).
- Generally we have good co-ordination now with national bodies/Ministries, including BirdLife participation – relationships have improved and we are going in the right direction. Climate for consensus is improving, but for countries in transition this has been difficult to implement and achieve.

#### **National / Ministry perspective (local stakeholder - mainly Tanja Kosar)**

- Legislation providing protection of wildlife species came into force in Slovenia in 2004.
- Institute of Nature Conservation has produced a policy paper on nature conservation related to cormorants (15 page report + 15 page of appendices).
- Have held a number of meetings (about 4) with different stakeholders invited to decide policy – particular focus has been protection of endangered fish species, so measures are applied differently in different parts of Slovenia based on areas where endangered fish species are located. A long-term cormorant management plan is not yet written, but is planned and has been started.

- In the short term, the Ministry issued permission (not obligatory) allowing specified numbers of birds to be killed (only 154 birds in each of these years); this applied from 2004 to 2006. This was based on 5% of the wintering population (as agreed by Birdlife Slovenia – taken from statements in the REDCAFE report). Numbers to be shot were allocated regionally according to the distribution of important (conservation) fish species. Advice is also given about how best to intervene/manage problems.
- The Ministry feel there is little or no reliable information on the impact that cormorants have on fish populations. The Ministry feel they need this in order to issue permits in relation to the protection of endangered fish species. The Ministry recognise that there has been no monitoring by the authorities up to now (all previous monitoring has been done by anglers), but both the Ministry of Agriculture and the Ministry of Environment are keen to develop a long-term plan, and this will include monitoring.
- The Ministry would welcome hearing wider experiences from impact studies in other alpine streams, and also in ponds, lowland rivers, etc. We have complex issues to resolve, including managing designated Natura 2000 sites, for some of which cormorants are designated as a qualifying species.

**Other issues raised in discussion that affect fisheries in local rivers:**

- Michael O’Briain (Commission) expressed concern that discussions had had a rather narrow focus on one particular issue. He felt it was important to retain a wider holistic view, with focus on wider issues and broader conservation questions - e.g. what other pressures are affecting fish stocks? In moving from the pan-European to the local level, we still needed to recognise the aim of ensuring sustainable fish stocks and maintaining the favourable conservation status of birds and wider biodiversity. He suggested the possibility of developing a Natura2000 management plan for the river (possibly as an EU ‘LIFE’ project) with the broad objectives of the sustainable use of fish (e.g. were Grayling stocks sustainable?) and maintaining favourable conservation status of birds, etc as the cornerstones of the plan. It would be important within such a plan to define conservation priorities between species. There was also a recognition that decisions have to be made - a management plan is very useful in this context.
- Local response – *We would be keen to develop a plan. Generally we have good co-ordination now with national bodies & Ministries, including BirdLife – relationships have improved and going in right direction. We are now good allies with the Institute for Nature Protection. Climate for consensus is improving, but for countries in transition this has been difficult to implement and achieve.*
- Jens – we are dealing with a protected bird and a number of endangered fish species protected via the Habitats Directive, equal legally. How do you strike an appropriate balance between conserving protected species – how many of one protected species is one able to be taken by another? Also, why do you not have any monitoring on how many fish from the protected species are taken?

- Local response – *we hope that the long-term answer will involve such monitoring (but there is none to date).*
- Nils - Was stocking a potential problem in attracting birds to a site?
- Local response - *Not thought to be a problem given that fish mainly stocked at small size (ca. 5cm).*
- Q. Has the stocking of Rainbow Trout changed and what about the impact of large stocked Rainbow Trout on Brown Trout and Grayling?
- Local response - *We don't aim to fill the river – but our policy is to change the structure of the fish stock – thus to have a flexible approach to stocking coupled with flexible control of fishing (e.g. minimum landing sizes that apply). In 1998/99 the Ministry also banned the stocking of Rainbow Trout in the Soča River and this put greater angling-related pressure on other species. Rainbow trout are also reproducing here but tend to be out-competed by Marble Trout.*
- Thomas – what about the other fish species e.g. Grayling?
- Local response – *the Grayling is the most vulnerable prey for the opportunist cormorant, especially in winter. When the grayling are spawning (April) the cormorants have largely migrated away. Catches have fallen from 2,000 grayling in 1997 to 66 in 2004.*
- Question - Hunting Clubs – what do you offer and why don't they agree to help you?
- Local response - *Many hunting clubs exist (14 in our area); hunters have licences and only they are allowed to shoot birds. However, there is no obligation on hunters and since cormorants are not eaten and are not a recognised trophy, there is little motivation for them to spend time shooting these birds. Hunters would sooner shoot other species. Hence there is a very haphazard approach to shooting and takes a long time to initiate. Angling organisations offer to cover costs to encourage participation - some hunters are prepared to cooperate some are not – now have co-operation with four hunters. Anglers feel this needs better co-ordination, especially at the national level. The simplest way would be to allow fishermen to hunt.*
- Tamir – The discussion has focussed on fish loss by cormorants, but what about other factors affecting fish populations and how many cormorants are there? It doesn't seem to make sense that cormorants are the only issue.
- Local response – *there are various other issues:*
  - *There are no power stations on the local rivers, so no turbine passage issues.*
  - *Water quality is generally better than in the past – most bigger settlements now have sewage treatment plants and agriculture is less intensive than before*

*(few concerns about herbicides). It was not felt that this had affected productivity; at least the anglers' perception was that the food available to fish (invertebrates, etc.) was still good.*

- *Angler catches may have changed over recent years – possibly targeting different species.*
- *There are other fish-eating birds affecting fish stocks. Now there are a lot of Grey Herons on bigger rivers (like cormorants they are also a new predatory species). Marbled Trout in nursery streams are thought to be particularly vulnerable to Grey Herons and are not affected by gas cannons.*
- *Gravel extraction from the river is allowed – this is coordinated with the Ministry. In the past, extraction was rather haphazard, but now there is an overall plan. Extraction is limited to periods when it is expected to have least effect on spawning fish - i.e. 15 Jan – 15 Mar (after Brown Trout spawn and before Grayling spawn) and also 15 Sep to end Oct.*
- *The recent earthquake in 2000 caused a large landslide (about 1 million cubic metres of material was deposited into the river). This affected the reproduction of Marbled Trout & Grayling for a number of years, but is now improving. The impact appeared to be greatest in the lower river – most of the material settled in the gravel here rather than in the higher energy/flow areas further upstream.*

#### **4.3 Work Group Three: Linking science with policy and best practice**

**Participants:** Michael Anderson, Sandra Bell, Mariella Marzano, Dave Carss, Trude Borch, Miha Janc, Nikolay Kissiov, Vilju Lilleleht, Simon Nemtzov, Rosemarie Parz-Gollner, Erik Petersson, Pekka Salmi, Ketil Skogen, Faustas Stepukonis, Jaroslav Bohac, Daliborka Barkatarov

**Stakeholders:** Andrej Bibič, Tomaz Jancar

#### **Specific question and answer session with Slovenia stakeholders:**

Miha Janc – Slovenia Anglers Association, Andrej Bibič – Ministry of Environment and Spatial Planning, Tomaz Jancar – DOPPS Birdlife Slovenia.

Miha: 17 small rivers are officially recognised as vulnerable to cormorant predation scaring/shooting of cormorants is allowed there. 200 birds can destroy the fish in 2 winters. There is no control over water fauna – just let it disappear.

Tomaz: We know some illegal killing (of cormorants) is going on – but numbers not high.

Andrej: Evidence from internet site that people are doing illegal acts. We will never get them to zero.



Q: Is the cost of illegal killing missing at the SPA sites?

Miha: *Anglers Association did a study and found that there are not enough people to guard sites (against cormorants) but it could be possible to use visitors as guards.*

Michael: Is there a strong opinion in DOPPS against killing corms?

Tomaz: *When this conflict began 10 years ago it was very emotional, but across the years of fighting we developed better communications. We don't want cormorants killed but understand in some rivers they do cause problems. It is an ethical question. We need to find other solutions. We will not oppose ANY killing – we will accept it in some rivers. This morning 2 anglers' Societies discussed their experiences using other solutions for instance.*

Pekka: Are there non-organised fishermen?

Miha: *Organisations/clubs have to work and pay (stocking, building dams, cleaning banks of their rivers, lakes and ponds, inventories of pollution sources etc.). If you just buy a fishing licence you don't have to worry about duties. It is an obligation to be organised. Angling statistics are good for the west and centre of the country but are less reliable in the east. We measure the average catch from organised anglers and extrapolate for tourists.*

Simon: I had a problem with the way this morning's speakers' organisations had collected their data. The numbers of cormorants and associated damage were produced by anglers. Is the government being independent?

Andrej: *Someone has to convince the government to be interested enough in the statistics. Politicians do not consider it their job to seek these statistics. They just want to solve problems people perceive, not situations in nature. After 10 years when certain solutions were implemented there was a willingness among anglers and bird conservationists to co-operate. So now we are in an early phase of gathering data. Stocking is one way to get data. Some research has been going on for years and years. Due to other problems, some institutions (Public Institute of Fisheries) do not want the data to be accessible. In the accession period more funds were available. Electro-fishing enables you to get data on all fish. If you want to know what is going on you can reduce bias in your proxy data (i.e. stocking and licence sales).*

*Also, a project for BirdLife and Anglers' Association and Ministry – has been trying to check the data to see where there is no conflict and where there are problems. All except 10 per cent of waters are managed by clubs. The number of members might drop. Public Institute as experts are independent – they are not a body of the ministry. They manage 10 per cent of Slovenian rivers. They manage a register of data for the whole country – data provided by fishing clubs.*



Michael: If you all agree who is the enemy?

Tomaz: *We did not agree so well 5 years ago. Since then we have been looking for a management system for the best rivers. We don't agree over everything but it is growing. We want to focus on agreement – not disagreements. We now count cormorants together.*

Ketil: What about tourists – do they have a different fishing culture to locals? And what about hunting?

Miha: *Both activities are traditional in Slovenia. 30 years ago the chamois population exploded and then they got scabies and 100 per cent died. So hunters are important to the balance.*

Ketil: Is hunting a common activity?

Miha: *Yes.*

K: Do tourists hunt?

Miha: *Yes – bears and wolves.*

K: Is there strong tradition for fishing?

M: *Yes.*

Trude: Is it right that there is a decrease in organised fishing activities and an increase in Italian anglers?

Miha: *Grayling populations went from 1 tonne to nothing at source Soča River (source). There was a drop in tourism. This is serious as these valleys are economically dependent on tourism.*

Andrej: It is difficult to know the real reason as to what happened at Soča River (source). Were there not enough people to protect it? Or was there another explanation?

Trude: What are the most important rivers.

Tomaz: *We need to find out.*

Miha: *Grayling – it doesn't hide – its populations are the first victims. The answer to the question in purely biological terms is the Upper Sava and Krka where Nase are in danger.*

Q: Do you have NGOs with more extreme opinions on cormorant killing?

Tomaz: *DOPPs (BirdLife Slovenia) cover almost all birders in Slovenia.*

Andrej: *There are now complaints from other NGOs. The complaints procedure is tackled directly by the ministry and there are now complaints from people who do not accept killing of any animals. So far the Society for the Liberation of Animals do not play a role. They employed a lawyer who is going to court, so this will mean that the authorities have to work more strictly according to regulations.*

Miha: *You heard about the decline of Marble Trout and issues with Cormorants, Grey Herons, gulls, and hydro-electricity.*

Q: Which is the worst problem?

Miha: *You have to do what you can in all fields. We failed with hydro-power and plants were built in the most stupid way. The Lower Sava river is now dead. We already have 2 hydro-power plants and 3 others to be built.*

Tomaz: *I agree with Miha. Canalisation of rivers is a more serious problem than cormorants. But it is easier to remove the cormorants than the dams!*

Andrej: *Politicians and stakeholders don't like the Ministry to have an opinion. But in reports some of the problem is habitat degradation - as even slight changes allow cormorants to forage on more fish. The question is how other threats are topping up. You have to come to the cormorant problem – in between you have to manage the other problems too.*

Rosemary: *Would you say environmental changes fit with the sudden appearance of cormorants? There is some evidence that cormorants like human-modified water bodies. This is a manmade problem and you have some problems in the tributaries. In some Austrian water bodies the problem is not the overall population development of cormorants – it is the modification of water bodies that attract the birds.*

Simon: *Why can't you use this knowledge?*

Tomaz: *It is probably true that dams and accumulations attract the birds. In Slovenia one third of the electricity comes from hydro sources. We can't get rid of it. There are not many more rivers left for it to expand.*

Miha: *We need more electricity because we use it wastefully. In the village that I live in (there are 200) street lamps illuminate empty streets and people want to have more. Energy used per unit of product (Industrial output versus energy) is 2-3 times higher here than the EU average.*

Andrej: *We have strong winter cormorant population on morphologically changed rivers. Cormorants benefit from change of river morphology.*

Ketil: *The so-called conflict is very shallow (birders/anglers). In my experience most anglers are conservationists and anglers and birdwatchers reflect the same social segments. The problem is cormorants/fish. Regarding the data quality, have you tried to involve the two groups to work together collecting data in association with official bodies?*

Miha: *The fish data is the problem – the Institute for Fisheries is not very co-operative.*

Andrej: *In this season there was electro-fishing done by organisations not directly connected to the government but by Angling Associations. There might be limitations as electro fishing requires certain skills and is costly.*

Michael: *Would you agree this is a unique situation – there is not just conflict of interests. All agree that certain rare fish species are vulnerable and certain rivers need protection. Where is the conflict?*

Tomaz: *We agree in some cases that cormorants can cause problems to fish but we think the data are very poor. We are looking to get data from the projects we are running together. Only after this will we know how many rivers are threatened by cormorants.*

Miha: *Here we have a disagreement. If you prove cormorants did the job on one river you don't need to go to another river...*

Simon : *But 30 corms are not a problem.*

Miha: *Not on your ponds in the Hula Valley.*

Simon: *What about the Grey Heron? Nobody is talking about herons...*

Miha: *Yes - because this is a cormorant group....*

? *Usually we say cormorant numbers are interesting. We are changing. Anglers are changing – there is not so much fly fishing. So we don't care about cormorants.*

Miha: *Yes you are right there is a trend for fly fishing to decline– you need a healthy population of Grayling.*

Tomaz: *Miha used a wrong case – because Graylings are not native to the Unica river.*

Miha: *Right, but they are economically important now.*



## **PART (5) INTERCAFE@Bohinj: Field Trip Report**

[Scott Jones, Josef Trauttmansdorff, Trude Borch, Bruno Broughton]

### **Background to report**

The field trip took us from Lake Bohinj, via Bled and Kranjska Gora, through the Triglav National Park. Much of our journey was along the Soča River and our guides provided a commentary about significant aspects of the places we passed, for example in terms of ecology, commerce, society and culture. These points helped significantly in setting a context for the fisheries-cormorant conflicts that were described. Along the way we stopped for a detailed presentation about Marble Trout and other aspects of angling. We visited a Marble trout and Grayling hatchery and a small local institute where fishery scientists work.



### **Questions addressed during field trip**

#### ***Timing***

1. *Stocking* for Marble Trout (an endemic species in Slovenia), Grayling fry and fingerlings takes place June to July – 200,000 Marble Trout and 400,000 Grayling – in the Soča River and tributaries. Rainbow Trout are still released but the impacts of their introduction are under study. One example concerns spawning site competition between Grayling and Rainbow Trout, although there seems to be no major concerns between Marble and Rainbow trout. Stocking of Brown Trout has been banned since 1996 because they hybridise with the Marble trout and the hybrids backcross with the parents.

Grayling and Marble Trout are bred separately – initially using wild fish but now with their own brood stock (screened for genotype and phenotype) kept for one year and then released. The primary intention is to preserve and enhance the isolated populations of Marble Trout and introduce the species into selected areas that are suitable for them in an attempt to extend their geographic range. The overall management strategy involved setting reduced size limits for catch and keep with higher fish size limits for Marble Trout, thereby ensuring a differential removal of the Brown Trout and hybrids.

A permit from the government is needed for stocking and the stocking regime is part of the overall management plan for the two rivers (Soča and Idrijca). A lot of consideration has been given to genetics and ‘*doing the right thing*’ to create self-sustaining, genetically appropriate Marble Trout populations. There is angler pressure to stock Rainbow Trout (the species grows to fishable size in two year, as opposed to Brown Trout (2-3 years), Marble Trout (5-7 years), and Grayling (3-4 years)) and also to increase the richness (variety) of fishing.

2. *Seasonality* Marble Trout spawn in winter, which is possible because the narrow, fast flowing rivers don't freeze. Cormorants arrive around October and leave in late March or April, preying mainly on Grayling. Angling tourism is regarded as a sustainable form of development that supports 'traditional' economies. Angling also extends the tourism season outside the central summer months into the shoulder season between summer and winter sports.



### **The Nature of Collaboration between groups and consensus**

There is cooperation with hydropower energy people and some power plant money has been invested in the fish hatchery. WWF money was provided at beginning of the 1990s helping to fund the preparation of an action plan for Marble Trout. Other collaboration partners include: government agencies, fishing organisations, municipalities, conservation groups, local community, international partners (institutional collaboration with France and Italy especially, but also research collaboration with other places). It seems that the end user (anglers) appreciate the activity.

There is also collaboration with Birdlife Slovenia and between the different fishing clubs. In the 1970s plans for damming the Soča were prevented by protests from local people and the case was made that in future there would be no further hydro-electric planning in that area.

### **Fisheries Institute**

We crossed part of the river managed by the Fisheries Institute, which manages about 10% of Slovenian rivers. Some clarification was felt necessary regarding the role, responsibilities and influence of this organisation. Apparently, it has strong powers, for example to permit or reject stock enhancement, to manage sections of the river and decline the release of fisheries data. Lack of resources may be a reason why the Institute (which is under the Ministry of Agriculture) is apparently withholding historic fisheries data. It is perceived as part of the "Old System" and therefore a certain level of animosity with angling clubs may exist. The angling clubs went to court to seek permission to secure management responsibility from the Fisheries Institute for the other stretch of the river but this application was not granted.

### **Technical Questions about scaring**

Cormorant migration into Slovenia takes place during the autumn and the birds leave in spring. While in the country the main predation is on Grayling, probably because of the accessibility of river stretches supporting this species; the narrow width, fast flowing and overgrown nature of the Marble Trout stretches make them generally unsuitable for cormorants. Bird scaring with gas canons together with limited lethal

shooting and acoustic flares was felt to be successful and is being extended to other areas.



### **Management Objectives and Priorities at different scales**

The main management objectives were thought to be “to protect and enhance vulnerable and economically valuable stocks of Grayling and Marble Trout.” Stakeholders want to promote something that is special and even unique to the area. Other objectives included reducing the number of hybrid (Brown v Marble) and Rainbow

Trout and preventing further introductions of Brown Trout.

American crayfish will probably arrive eventually in the river systems (they are present further downstream) and there is an objective to understand how to deal with that problem.

Specific objectives emerge from time to time. One example would be the rescuing and translocation (through electro-fishing) of native Trout populations when human activities take place (e.g. when a new road is built which impinges somehow on the water course).



There was discussion about using Marble Trout as an ‘indicator’ or ‘key species’ - creating an instrument for protecting habitats for other species. It was felt that conflicts between Grayling and cormorants could be solved by moving cormorants out of the area but allowing them to remain in less sensitive places. There are some small, protected areas where it is not possible to do angling (like set-side in forestry and agriculture).

### **Habitat degradation and modification**

Earthquakes have been a major influence on habitat modification causing landslides and transportation of gravels and sediments downstream. This in turn destroys or degrades spawning places. One such landslide led to the eradication of one of only eight genetically isolated stocks of Marble Trout.

Damming for hydroelectric power is perceived to have a major negative effect on habitats. Extraction of river gravels is seen as a problem but extraction activity is now concentrated outside the spawning season, making it less damaging. Increased forestry and declining agricultural areas are resulting in changes in sedimentation, hydrology and temperatures. Research is underway to understand more clearly the specific changes and impacts that these influences may bring.

Localised channel modifications are as a result of human activity, including steel production, flood prevention and road building. Climate change may bring changes in water temperature. This could be a problem for Grayling because of their sensitivity to temperature increases.

Because the water quality is very good there may be increased demand on water abstraction in the future, although excessive abstraction is not an issue at present. On the supply side, water quantity also is related to climate change and weather patterns, for example through snow pack and rainfall amounts (which are quite high in the Soča watershed).



### **Other issues emerging**

The group did not understand very well the nature of the conflict between the fisheries we saw and the cormorants in the area we visited. Conflict in the places we visited was thought to be in a relatively small area with very few cormorants, although the level of damage claimed is high. It may be that because cormorants arrive during the spawning season of the Marble Trout, when they are together in bigger groups, that they cause some damage. However cormorants normally do not reach the narrow river stretches where Marble Trout live. Catch and release (70%) is widespread and increasing, meaning that the populations of Marble Trout should be increasing. The group didn't have any data from which to assess the survivability of stocked fish once released or the fate of those fish that didn't die naturally of old age.

If cormorants weren't eating them and fishing isn't taking them then the question remains - "what is happening to the population?" Marble Trout population sizes should be increasing, but if they are not, why not? Is fish-on-fish predation significant? What other reasons might there be to explain this anomaly?

## **PART (6) Integrated Working Session II: discussion of E-conference**

**Participants:** Michal Adamec, Zeev Arad, Szymon Bzoma, Mindaugas Dagys, Marijan Govedic, Mikael Kilpi, Botond Kiss, Loïc Marion, Ivailo Nikolov, Jean-Yves Paquet, Josef Trautmansdorf, Mennobart van Eerden, Stef van Rijn, Catarina Vinagre, Stefano Volponi

Invited stakeholders: Matej Lustek, Primoz Kmecl

### **6.1 Work Group One: Ecological databases and analyses**

#### **E-conference discussion**

The 2006 INTERCAFE E-conference provided a structure of important themes and elements associated with any considerations of pan-European cormorant management. The E-conference included documentation for discussion. It was not meant to include too much depth on any specific issue but within the process the discussions were useful to determine quantifiable information that must be available on pan-European level.

Within the WG1 discussion of the E-conference some gaps were defined, these were mainly related to different definition of issues. WG1 concentrated on the Biological theme within the E-conference.

(B) BIOLOGICAL – aims at least to sketch out the scale of the issue of reducing population numbers from the biological perspective.

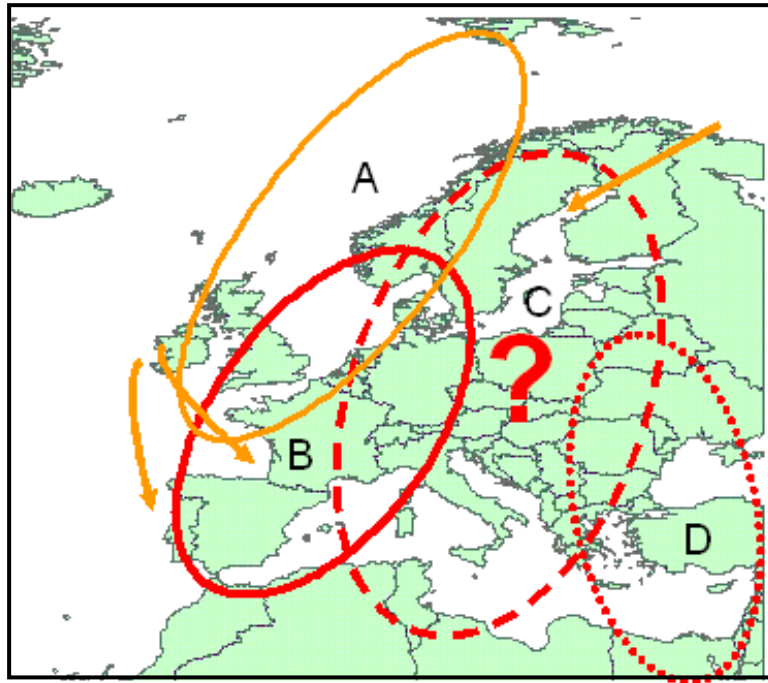
*(1) How many cormorants are there and where are they? – summarising the breeding counts and the winter census.*

This question is important because we need to give proper population estimates and use information about distribution patterns for the best problem analysis. Information about bird mobility and rate of inter-exchange between colonies belonging to different flyways is also important for assessing the potential effect of measures aimed at population limitation - on bird distribution both at breeding and wintering times.

To assess an answer to question 1, we must consider that “Europe” has to be defined properly. “Europe” excludes Ukraine and the Russian Federation but without the inclusion of the breeding distribution here there is quite an overlap in birds using the continent in wintertime. We need to define the borders better (only EU, Europe as a continent, over borders, Russia etc).

In order to clarify the situation of what is understood when one speaks about the "European population of Great Cormorant", a map of 4 major flyways in Europe was drawn (see figure below). When a count result is given, it should be referred to one or several of these "flyways", although the limits are not really clearly defined and some overlaps do occur. However, the exercise of drawing this map shed light on some gaps in our knowledge that should be solved by a thorough analysis of pan-European ringing data. For example, the distinctions between the B and C flyways need to be refined.





**Map of the 4 major flyways** of Great Cormorant in Europe. **Flyway A** concerns the *carbo* population of NW Europe, with a tendency to migrate along the Atlantic coast of Western Europe. **Flyway B** concerns the *sinensis* population of NW Europe, with the "historic" population centre of Holland and Denmark, migrating to the South-western Europe. **Flyway C** is centred on the Baltic sea and show a tendency to winter more to the east of Flyway B (perhaps the distinction between flyway B and C is not so relevant as most counts do not intend to differentiate them). **Flyway D** concerns the Black Sea breeding population, wintering in Israel and Egypt.

“Floaters” (i.e. sexually mature non-breeding birds) are most likely to be overestimated in previous population estimates.

We need to be aware that not all information sources are quantitative enough at the moment; also it is not correct to directly compare breeding vs. non-breeding numbers (estimates) collected in different periods (years).

Because of both methodological and ecological issues, the breeding distribution is much better known and described than the winter distribution. Generally speaking it is easier to discover and count breeding colonies than winter roosts: the former are located in traditional places and often established in areas previously occupied by other colonial waterbirds or used as winter roosts for years. On the other hand, (winter) night roosts may change location and be established only temporarily according to several environmental (e.g. temperature influencing prey accessibility and availability) and human (e.g. direct or indirect disturbance) factors. Moreover,

colony size is easier to estimate and more stable during the breeding season (time from egg laying to young fledging takes around 3 months) than is the size of roosts. In winter (and even more during spring and autumn migration periods) cormorants are very mobile and numbers at roosts are rarely stable for more than a few days (or a few weeks), so effective counts on a regional or wider geographical scale must be well coordinated and completed in the few days during the period when cormorant are less mobile (most of the time this is in mid-January).

- (2) *Recent changes in cormorant status and distribution – perhaps at the continental scale but also at the local scale (do we have similar information to Werner Suter’s ‘colonisation’ of Switzerland? – to get some examples of optimal/sub-optimal habitats at the local [national or regional] scales).*

There is a clear gap here and some in-depth analysis is needed to study local-scale population development in order to obtain similar information to Suter's example. Long-term data on winter and breeding numbers are becoming available for different sites both in the core traditional range and in newly colonised areas. So, probably, part of this existing knowledge gap could be filled during one of the proposed STSMs.

- (3) *Population modelling – how do current models fit with real world data? What do the models tell us about the numbers of cormorants that would need to be killed to reduce the European population? And by how much? This should include (a) What age-cohort is the most efficient one to reduce (e.g. shooting adults versus oiling eggs)? (b) How long would we need to wait to see an effect of killing in the real world?*

It is clear that population scenarios depend on model assumptions and their predictive value based on data availability. To answer the above question we definitely need to know the sex and age distribution of killed birds to assess the right modelling approach and the predictive way of using it. At the moment nothing, or very little, is known about legally shot birds, while nothing at all is known about illegal killings which may account for a significant (yet variable and difficult to estimate) source of additional mortality. We also need to know how many birds accidentally drown in fishing gear/nets. These factors are all important parts of the birds birth-mortality relationship when using a model, especially if there is the need to derive different scenarios for areas/flyways in Europe.

Social factors (roost) and axial migration (rings) need also to be considered (compare with map above).

With some local exceptions, the collection of data such as those on sex/age ratio of killed birds is beyond the possibility of WG1, while for others (e.g. ring recovery and re-sighting data) there are several potential source of information (e.g. databases at EURING and from national ringing schemes) but their collections and analysis would require a significant work load that is impractical for the group as yet.

## 6.2 Work Group Two: Conflict management and resolution

Drafted by Thomas Keller

**Participants:** Daniel Gerdeaux, Ger Rogen, Henrik-Lykke Sorensen, Ian Russell, Ilona Cheyne, Kareen Seiche, Linas Lozys, Nils Røv, Oleg Nemenonok, Petr Musil, Redik Eshbaum, Robert Gwiazda, Scott Jones, Tamir Strod, Thomas Keller, Timo Asanti.

Stakeholders and invited experts: Lucijan Rejec, Jens Thygesen, Micheal O'Briain

### **Theme A: Cormorant management at the pan-European level:**

- **(A2) Why some people believe that a pan-European cormorant management plan is needed.**
- **(A3) What is meant by the term 'pan-European management'?**

Due to the limited time available, it was suggested confining the first part of the discussion to E-Conference themes A2 and A3:

- 1: In 1996 France asked NL and DK to develop a Cormorant management plan. Today French people still think that NL and DK should do something about Cormorants. A recent study (Viviane Hénaux 2006: Dynamique d'une population gérée par l'homme: dispersion, densité-dépendance et destructions hivernales chez le grand cormoran. Thèse pour obtenir le grade de docteur de l'université Montpellier II) suggested that the number of Cormorants shot in Europe has exceeded sustainable levels since 2002. Thus, many scientists feel a European Cormorant management plan is necessary, although birders push the problem away.
- 2: Carp pond owners and anglers are stakeholders that also want to have a pan-European management plan.
- 3: Need to understand that we have very different groups with different knowledge, understanding and requirements involved.
- 1: The Swiss Management plan could be used as a model for other regions too. It is a negotiated solution, which features Cormorant zones and No-Cormorant zones. The French plan is similar to this.
- 4: I agree with (1), a plan would be useful in which a maximum number of Cormorants should be established.
- 5: Cormorants cannot be managed locally without a basic European view.
- 6: Don't forget the history of the Cormorant management/action plan in Europe and the lessons that can be learnt from this: the primary issue is to reduce conflicts not bird numbers. If it is scientifically proven that a substantial number of birds needs to be removed to prevent serious damage to fisheries and there is no other satisfactory solution then that might be a reasonable approach.. However, reducing bird numbers cannot be the goal in itself. It appears to me that a European management

framework with national management plans is much more realistic than a European management plan.

- 7: The aim should be to reduce conflicts while safeguarding cormorants.
- 2: A pan-European management plan is seen as a tool to reduce Cormorant conflicts by many fishery stakeholders.
- 3: Co-ordination of national management plans would be required to ensure success.
- 8: This is theoretical! Would it be realistic or even allowable to kill 50% of the Cormorant population?
- 6: If it is concluded from scientific studies that the only solution to prevent serious damage to fisheries is the killing of a large number of birds then this would have to be seriously considered. In this regard, the target oriented derogations, like that in Switzerland, appear to be a very interesting approach that merits further consideration, with a view to wider application.
- 9: People believe that a European management plan is needed. However, mostly young birds are shot. Thus, the impact of shooting is low.
- 10: A pan-European management plan is needed to reduce conflicts. There is not enough flexibility in the laws (i.e. the Birds Directive).
- 7: Local governments like to blame the EU if stakeholders complain about bird conflicts instead of taking action on their own.
- 1: WG2 should give a recommendation. The Swiss management plan can be seen as a model for other countries. As in Switzerland, Cormorants should not be tolerated on small rivers. On the other hand, large lakes have a much higher carrying capacity and the birds are OK here.
- 11: I doubt whether the Swiss plan would be an effective model for use in the UK.
- 3: I agree that we should give recommendations.
- 10: The favourable conservation status of Cormorants should be defined.

**Theme C: Mitigation:**

- **(C4) Can we learn lessons from Switzerland - control at specific sites to keep them cormorant-free?**
- **(C5) How does the Birds Directive allow people to cope with a problem like the cormorant one?**

As time was very short, it was suggested that focus should be on Questions C4 and C5 as these had already been touched on when discussing A2 and A3 (see above):

- 7: As I have stated before I like the Swiss concept.
- 3: But, what can we do where we have conflicts in coastal areas? Conflicts do not only occur in ponds.
- 12: We do not have low-impact sites that we could move Cormorants to in the Czech Republic.
- 7: This sounds like comments from Swiss stakeholders 20 years ago.
- 1: Anglers are not in conflict with Cormorants on large reservoirs in France.
- 12: Yes, but Czech reservoirs freeze in winter.
- 11: We don't have lots of large lakes to move birds to in the UK. Many conflicts are at heavily managed sites, often of relatively low biodiversity value. There is potential danger that birds would be displaced to sites of higher biodiversity value and arguably greater impact.
- 7: Could you push the Cormorants to the sea?
- 13: The key point is that the Swiss management plan is a negotiated solution. Management plans could be scaled up from rivers to nations.
- 4: In Slovenia no consensus is possible. But, the Swiss management plan could be a solution for Slovenia too. It would help a lot if INTERCAFE would make a recommendation regarding management plans.
- 3: How many birds do we tolerate? Who decides?
- 6: This is the wrong question. Once again, the goal should be reducing conflicts not reducing bird numbers. In deciding between broad based and focussed approaches, the latter is to be preferred.

Thomas: To conclude this session, I would summarize that WG2 feels that, in principle, the Swiss model of a target-oriented solution is to be preferred over broad-brush approaches and could be recommended for other regions as a basic concept. Thus, where it was possible to tolerate Cormorants on large water bodies and control them at small waters this could be pursued. In other cases, alternative targets may be needed.

### 6.3 Work Group Three: Linking science with policy and best practice

**Participants:** Michael Anderson, Sandra Bell, Mariella Marzano, Dave Carss, Trude Borch, Miha Janc, Nikolay Kissiov, Vilju Lilleleht, Simon Nemptzov, Rosemarie Parz-Gollner, Erik Petersson, Pekka Salmi, Ketil Skogen, Faustas Stepukonis, Jaroslav Bohac, Daliborka Barkatarov

**Stakeholders:** Andrej Bibič, Tomaz Jancar

#### **Perceptions of the INTERCAFE e-conference**

Discussion notes edited by Erik Petersson and Simon Nemptzov.

**Mandate:** What are the key messages from the e-conference for our WG?

WG3 looks mainly at needs, fears and perceptions. WG3 discussed the gaps, as well as the major points expressed in the E-conference. Many of the comments discussed were not directly from the summaries of the E-conference, but were certainly related to them.

- A. **Tolerance.** We found the discussion on “social carrying capacity” (SCC) quite interesting. This term is basically equivalent to “tolerance”. This has also been referred to as the “minimum sustainable whinge” i.e., decision makers will find a solution to a controversial issue (whether its cormorants killed or fish predated) that reduces complaints by society as a whole to a low, acceptable level. There is apparently quite a large variance in SCC, among individual people, of course, but also among people from different geographical, cultural, and economic populations. We need to manage SCC, which cannot always be measured, not just biological carrying capacity, which can. Using conflict management tools we need to increase influence and empowerment of stakeholders in order to increase tolerance.
- B. **Cormorant management plans.** Finding a real number for how many actual birds there should be is often irrelevant, since most people feel that the problem is simply that now there are “too many”. What is important is not finding the “right” number of birds, but finding tolerable levels of damage. Setting up a pan-European management plan for the cormorants by shooting or hunting may not cause major impact on the populations but it could influence stakeholders’ tolerance levels. Also, who would do the shooting, since in most of Europe there is no tradition for hunting or eating cormorants? The scale of the management is also important, as Europe as a whole may be too large for one solution (and local solutions are too small), so the plan needs to have finer scale solutions. For example, we would need a management plan with sub-plans on a scale of regions that have some biological meaning e.g. catchment basins and not simply political boundaries. But a pan-European plan has the advantage of central management and reporting. Perhaps the Swiss plan (a mosaic of areas where cormorants are allowed and where they are not) is applicable to other countries, but the Swiss have a different legislative basis since they are not part of the EU.
- C. **Perceptions.** Perceptions are important to people, often more than the facts. For example, some fishermen feel that cormorants are protected by the law at

their expense. This can lead to LACK of TRUST between decision makers and stakeholders (e.g. local people who feel that “Brussels” doesn’t care). Perhaps putting cormorants onto the huntable species list would change this perception, even if it did not affect actual management. Another example is that there are fishermen in Sweden who feel that cormorants are protected by EU legislation because they are a rare species in southern Europe. Also, cormorants are often perceived as a symbol of a problematic species and receive more attention (but not in Norway), whereas other species may be more harmful to fish stocks (e.g. seals) but they are not dealt with in the same manner. There is a need to address stakeholder’s perceptions of the problems.

- D. **Serious Damage.** This is usually measured as economic impact. But can also be measured in other currencies, such as loss of recreational or leisure activity. It is often perceived that damage to commercial fishing is more important than is damage to recreational fishing, since fishermen need to make a living. But recreational fishing can also have economically measurable losses.
- E. **Impacts.** There are apparently many other aspects of impacts on fish populations besides cormorant predation, such as parasites, dams, human activities, invasive species, over-fishing. Is there a way to measure these impacts?

## PART (7) Integrated Working Session III: regular work group tasks

### 7.1 Work Group One: Ecological databases and analyses

**Participants:** Michal Adamec, Zeev Arad, Szymon Bzoma, Mindaugas Dagys, Marijan Govedic, Mikael Kilpi, Botond Kiss, Loïc Marion, Ivailo Nikolov, Jean-Yves Paquet, Josef Trauttmansdorf, Mennobart van Erden, Stef van Rijn, Catarina Vinagre, Stefano Volponi

Invited stakeholders: Matej Lustek Tomaz Jancar

#### (1) Manual (J. Trauttmansdorff)

A lot of progress has been made before and during this meeting. The table below shows what still has to be done (red and yellow). Chapters are finishing and the editing and checking of text can start.

<b>Cormorant manual</b>			
nr	chapter	author	status
0	Introduction	J.Trauttmansdorff	done
1	Diet		
1.0	Introduction	J.Trauttmansdorff	done
1.1	Bioenergetics	M.Enstripp	partly
1.2	Pellets	M. Govedic et al	partly
1.3	Stomach analysis	J.Trauttmansdorff	done
1.4	Regurgitation	J.Trauttmansdorff	done
1.5	Reference collection	J.Trauttmansdorff	partly
2	Colony & Roost count		
2.0	Introduction		missing
2.1	Breeding colonies	T.Bregnballe & S.Lorentzen	done
2.2	Roosting sites	R.Parz-Gollner & J.Y.Paquet	in progress
2.3	+ Calculation of Cormorant/days	Stefano	missing
3.0	Breeding success	S.Volponi & T.Bregnballe & B.Kiss	done
4	Sexing & ageing		
4.1	Introduction		done
4.2	Nestling biometrics	M.van Erden, S.van Rijn	in progress
4.3	Full grown birds	R.Parz-Golner & J.Y.Paquet	in progress
4.4	Sexing & ageing	R.Parz-Golner & S.Newson	in progress
4.5	Subspecies identification	S.Newson	done
5	Ringing & Colour-ringing	S.van Rijn & J.Y.Paquet	missing
6	Fish density assessment	S.Franca, C.Vinagre & I. Russell	done
7	Indicators of damage		
7.1	Scars	P.Musil & H. Engström	done
7.2	Age distribution	P.Musil & H. Engström	done
7.3	Interaction with fish community	P.Musil & H. Engström	done
8	Management	B. Broughton	missing scheduled 15/
9	Special issues on other species of Cormorant (especially Pygmy Cormorant and Shag)	I.Nikolov	missing



The deadline for writing the current 'missing' sections was set to the end of the year, so it would be possible to quickly arrange the draft of the full manual to be put on the INTERCAFE web site forum for a general discussion and have a final version ready for the Finland meeting in April 2007.

**(2) Water system database (S. van Rijn, M. van Eerden)**

Progress was discussed and a final strong plea for completion was made. The next meeting in Finland will be used to exchange the results of the first analysis. To avoid extra work due to late incoming data, we need to agree a fixed final date for the database to be considered "complete"; we suggested to allow data to be sent in until 1 January 2007 in order to have enough time to complete the analysis. The following conclusions were drawn:

- (a) Extra cases will be added for Germany (4 and another 3 by Kareen).
- (b) For Austria extra important cases will be included in collaboration with fish experts (Rosemarie).
- (c) Denmark is finally giving input. Fish data need to be included for an extra case. These will be given with a best estimate using the catchability of species caught by trawls (Thomas).
- (d) Sweden will provide some extra data (Henri) to include from inland lake situations.
- (e) Lithuania has send one case to be used (Mindaugas)
- (f) Slovenia will send its extra river cases (Marijan)
- (g) France is not able to produce fish data for its waters but a final attempt is undertaken to get something from this country (Daniel)

COUNTRY	Redcafe	Intercafe	new	COUNTRY	Redcafe	Intercafe	new
AUSTRIA	1	1	+ 5 + 3	CROATIA	0	0	
BELGIUM	1	1		CYPRUS	0	0	
BULGARIA	0	4		DENMARK	0	0	4 + ?
CZECH REPUBLIC	4	4		HUNGARY	0	0	
ESTONIA	3	3		ISRAEL	0	0	
FINLAND	0	1		LITHUANIA	0	0	1
FRANCE	2	2		MACEDONIA	0	0	
GERMANY	7	10	+ 4 + 3	MONTENEGRO	0	0	
GREECE	3	3		SERBIA	0	0	
IRELAND	0	1		SLOVAKIA	0	0	
ITALY	13	14		TURKEY	0	0	
LATVIA	0	2		UKRAINE	0	0	
NETHERLANDS	4	4		<b>Total</b>			<b>5</b>
NORWAY	0	2					
POLAND	11	11					
PORTUGAL	0	4					
ROMANIA	1	1					
SLOVENIA	0	1	+ 4				
SPAIN	10	10					
SWEDEN	0	1	+ 5				
SWITZERLAND	1	1					
UK	12	12					
<b>Total</b>	<b>73</b>	<b>93</b>	<b>24</b>				<b>122</b>

A quality analysis of all cases must be prepared. Fish data particularly need to be checked on their quality. A forum (Internet) could provide us means for such an analysis. Fish data are not included in all cases. There is a need to define areas better (coastal waters <15 m deep and ranges).

The yellow table above shows the number of cases that will be used as the deadline will pass this year and the data will be analysed (see STSM). In total, 122 cases will be included.

EU water data maps are available (CORINE) and can be used for a first attempt of spatial analysis of the relationships between waters and cormorants.

The first contacts are made with the Joined Research Centre (Landsat data on watertype availability, Water Framework Directive) in Italy. A STSM is planned for spring 2007 for preparation of data layers (see Section 10).

### (3) Winter count 2003 (R. Parz-Gollner, L. Marion)

A final check of data is in progress. Further steps will be a roost count analysis, an interpretation of regional patterns, writing up of results in CRG Villeneuve proceedings, a plan for a STSM in late winter 2007 for preparation of data layers (see Section 10).

A table was also produced as a quality check on the data available so far.

### (4) Breeding count 2006 (M. van Eerden, S. Volponi, T. Bregnballe, S. van Rijn).

First results from national coordinators are coming in slowly. The deadline for sending data to the project coordinators was set on 31th of August 2006, but so far only a few countries have completely gathered the data from local counters and sent all the data. A reminder has been recently sent to the national coordinators (November 2006).

The group produced a table that shows a preliminary overview of the number of breeding pairs of cormorants for each country (not shown here).

The preliminary breeding numbers may be used to make a rough calculation of the total number of birds present in winter. We did this only for *P.c. sinensis*, excluding the eastern “flyway” (i.e. the flyway C on the map above) and the *P.c. carbo* (Flyway A).

In the calculation we assumed:

- “Floater” fraction of the population to be ca. 15%.
- Average young production 1.6 young/pair [highly varying from 0.5 (IJsselmeer) to sometimes 3 at other (growing) populations].
- Adult annual survival of 85% (based on Dutch and Danish modelling).
- First year annual survival of 60% (idem)
- 85% of mortality occurring before mid January (provisional estimate).

#### **(5) Organisation of a winter count in 2007 (Rosemarie Parz-Gollner, Loïc Marion)**

From the perspective of population data analysis and modelling it would be of great importance to have a reliable estimate of cormorant numbers at the pan-European level just after the breeding count project carried out in summer 2006. During the meeting, WG1 members had a long discussion on the opportunity and actual possibility of successfully organising and undertaking a pan-European count of wintering cormorants in January 2007.

Summarising, main issues pointed out during the discussion where:

- Not all the data collected during of the 2003 mid-winter count are yet available and the final report with the pan-European figures is still not finished. Factors affecting a proficient collection of the data at country level (e.g. Italy) and thus the finalisation of the report have been discussed. It has been pointed out by one of the coordinators that organising a new census before the results of the previous one have been published will lead many field workers (who cooperate voluntarily and without any financial support) to not participate to the project.
- At this time of the year, there is not enough time for satisfactorily preparing for a count next January (2007); this holds especially when considering that in some countries (e.g. Germany, east-Europe) the network of local co-ordinators and field workers need to be reorganised, and in others that may hold significant numbers of wintering birds (e.g. Italy) there are still problems of co-operation with the institutions involved in the previous census.

In view of the new project, there are also methodological questions to be solved to allow data comparison at pan-European level. In 2003, only in a relatively small number of countries that were sent requests for data actually collected it by following strictly the recommended method (count at night roost). In most other

countries data were a mix of roost and day counts. Additional difficulties arose because in some areas (e.g. coastal France) birds belonging to the Atlantic and continental races mix during winter (and could not be differentiated).

- In some countries, such as France, winter counts are carried out every two years (next in January 2007, then in 2009) so it would be ill-timed to organise a pan-European count in 2008 when for sure important countries will not participate to the project.

All this considered, the final decision of the WG1 participants was to delay the organisation of a new pan-European census to January 2009, based on the sequence of counting in France.

## 7.2 Work Group Two: Conflict management and resolution

Drafted by Ian Russell, Bruno Broughton and Thomas Keller

**Participants:** Daniel Gerdeaux, Ger Rogen, Henrik-Lykke Sorensen, Ian Russell, Ilona Cheyne, Kareen Seiche, Linas Lozys, Nils Røv, Oleg, Petr, Redik, Robert, Scott, Tamir, Thomas, Timo, Vilju.

Stakeholders and invited experts: Lucijan Rejec, Jens Thygesen, Micheal O'Briain

### 1. Nils Røv: How to prepare cormorants for food:

Nils handed out a short paper on how to butcher and prepare cormorants for food, including some recipes. At the next meeting in Finland Nils will give a presentation on the pollution of cormorants with DDT, PCBs and heavy metals.

#### How to prepare cormorants for food

Nils Røv, Norwegian Institute for Nature Research, Trondheim, Norway

In earlier times, cormorants and shags were an important source of food among fishermen and farmers in coastal Norway. Mostly young birds were taken. The



preparation appears to have been very simple: cutting the plucked bird into pieces and boiling in water. Among indigenous hunters in East Siberia (own observations) goosanders and other ducks are prepared in the same way. In the spring goosanders were quite fat. The hunters carefully removed the fat from the boiled water, and stored it for later use. It was considered a delicacy. The gravy was used as soup. However, the cormorant's fat has a taste of fish oil, which easily

turns rancid and, as in other wildfowl, the birds need to be stored ("hanged") for some time in order for the meat to get tender. Therefore the cormorants were usually prepared in special ways, sometimes quite sophisticated.

## **Butchering**

Cormorants, like other seabirds, ought to be skinned and the inner parts removed immediately after the birds have been killed. First cut off the neck (close to the head), wings (close to the body) and feet. Cut an opening in the skin across the bird's breast and remove the skin. Take care of the heart, for the sauce.

In order to remove the fish-oil taste one may remove the fat (some fat "follows" the skin), or neutralize the taste. It is often recommended to let the meat lie overnight in milk or a mixture of water and vinegar (1 litre water + 2.5 dl 7 % vinegar). Arne, a friend of mine, recommends a mixture of milk and water with raw potatoes added. If all the fat has been carefully taken away from the meat, it is not necessary to put the meat in vinegar-water. Then the taste is best.

Cormorants should be "hung" for 2-3 days in cool weather, until tender. They may then be frozen, but not for too long a time, maximum one year. Some cormorant hunters use the breast parts only, but there is much food on the thigh bone as well, although it is probably not so tasty.

## **Recipes**

Usually meat from the breast muscles of one bird is enough food for four persons. Never expose cormorant meat to long-lasting high temperatures.

Notes from **Irene**, a fisherwoman from Froan, outside Trondheimsfjorden: When she was a young girl she took part in the collection of young shags and cormorants from their breeding nests in late summer. They cut off the head, removed the inner parts and let the bodies "hang in the wind" for several days. Before preparation, the birds were plucked, and then braised in a roasting pan before being boiled in water. The meat dish was served for dinner with boiled potatoes and brown sauce, sometimes with a stew of green peas. "Very good, but with strong taste."

**Britt Eli**, whose father was a fisherman and eager cormorant hunter outside Kristiansund, western Norway, writes that her father let the cormorants hang for 3-4 days, then the skin was stripped off and breast muscles and the thighs were taken out. Her mother let the meat pieces soak in cultured milk or vinegar-water for 3-4 hours before they were dried and braised in a roasting pan with butter. She made a sauce in the following way: The meat pieces were taken out and the pan "boiled out" with a little water, then she browned butter and flour in the pan, not too dark, and added the gravy, some sour cream and possibly a little water/cream. Salt and pepper were added and sometimes some brown cheese made from goat's milk. The meat was then boiled in the sauce until it was tender. According to Britt Eli this meat dish was "Extremely good".

**Cormorant hunter Erling's recipe:** The best result is obtained when the bird is prepared shortly after it has been shot, before "rigor mortis" has occurred after 2-3 hours. At that time the meat is very tender. Alternatively one may hang the bird until it becomes tender. About 40 day-degrees (centigrade) is recommended. Preparation: Cut the fillets into slices, and roast at high temperatures until the outer 3 mm is roasted, but still with red colour inside the fillet. Take care so that the meat does not become dry. Although young cormorants are mostly used, some prefer adult birds because they have more taste than the young ones.

**Newspaper Dagbladet's recipe:** Place the skinned birds in a marinade made of beer, vinegar, pepper, and bayleaves. Take out the birds after two days and put into a spacious iron pan, and boil for 15 minutes in a mixture of milk and water. Remove the boiling water before further preparation. This procedure removes any taste of fish-oil. Cormorant beefsteak: 2 cormorants, 2 onions, 200 g mushroom, 100 g asparagus. Roast the fillets as a medium steak. Serve with lot of roasted onions, mushrooms, and asparagus, baked potatoes and béarnaise-sauce. Cormorants legs have much meat. After removing the bones they can be prepared as hare's legs.

Wildlife researcher **Thrine** prefers to make a force of cormorant meat, mixed with meat from other animals.

Bon appetit!

## **2. EAA Cormorant Questionnaire – Main Results from 14 Countries**

Jens K. Thygesen, (EAA) Environmental Consultant. Danish Anglers Association

### **Jens' summary of his presentation**

According to the subject of the meeting “Reducing conflicts between fisheries and cormorants” the results of a questionnaire, prepared by the European Anglers Alliance, and answered by 14 out of 17 national anglers associations (and due to be published in 2007), were presented and discussed.

The questions asked in the questionnaire focused on many aspects of conflicts between cormorants and fish/fisheries.

Amongst others, the results of the questionnaire highlighted small rivers, the cyprinid zone and salmonid zone as well as the salmonid zones of medium rivers as “hotspot” areas of conflicts as far as the fish populations were concerned. As far as fish species is concerned, the cormorant causes the most problems for Grayling, Brown Trout, Nase, Atlantic Salmon, Sea Trout (migratory Brown Trout) and Rainbow Trout, according to the questionnaire.



To the angling community, the questionnaire reveals that the most negative impact of cormorants on angling is reduction in fish of spawning age, which causes insufficient reproduction.

The questionnaire also gives a broad view of the rules and regulations applied by each nation in their own national management plans and the view of the angling

community on these management plans. A great majority of the anglers' organisations regard their own national management plans to be too bureaucratic and insufficient and they call for a European harmonized management plan for cormorants.

Such a harmonized plan should be a balanced plan between bird protection and fish protection, but still including sufficient measurements to fulfil the balance between the two species.

Concluding, the angling community of Europe finds that damage to fisheries by cormorant is proven. Protective measurements therefore are legitimate, ethically and ecologically justified and in line with the Birds Directive.

Some EAA members, however, are not fully convinced that a European management plan is to be respected, because of different attitudes towards nature protection and also partly in relation to different types of waters ("fewer problems - less need to change")

A "Task Force Group" has been established to provide EAA policy and concrete suggestions for such a management plan

By removing the cormorant from Annex 1 in 1996, the broad acceptance of the bird no longer being endangered was confirmed – since 1996 the cormorant population has increased considerably.

An idea: establish a European body appointed by the Commission to assess "favourable conservation status" for Cormorants in Europe as stated in the Directive and use such an assessment as the foundation of a management plan, including, maybe, a reduction of the bird to the number required to maintain FCS.

There followed a short exchange:

Thomas: This presentation gives a good overview of cormorant conflicts in Europe. I feel that this EAA Questionnaire is in good accordance with the REDCAFE report volume 1.

Jens: There is a lack of direct communication between the EAA and INTERCAFE.

Thomas: I cannot agree to this statement. Let me just remind you about Mr. Mohnert being invited to our meeting in Lisbon, Dr. Schlieker attending the Gdansk meeting, and yourself coming here to Slovenia. (Note: Bernard Breton, then the EAA Chairman, also attended the Saxony meeting).

### **3. Brief analysis of the cormorant issue situation in Latvia**

Oleg Nemenonok (Association of Fish Breeders of Latvia)

The problem with cormorants in Latvia has arisen among fish farmers who breed fish in ponds. There are nearly 40 active fish farms in Latvia at present. Most of the fish farms are for local (self) consumption and recreational angling - occupying nearly

1,500 ha of ponds in Latvia and with an average pond size of less than 1 ha. Due to the relatively small size of ponds, combined with a small density of fish, cormorants and other protected birds do not harm these activities.

However 6 of Latvia's biggest fish farms aim their fish breeding for the consumers' market and occupy approximately 4,500 ha of ponds (the smallest pond is 5 ha and the biggest 127 ha) stocked with fish. Approximately 90% of the total freshwater fish in Latvia is produced by these 6 fish farms. The fish farming method in Latvia is considered to be extensive, on average the production yield is about 170 kg/ha and the feed used is purely grain. This is one of the reasons why fish pond farming in Latvia is environmentally friendly providing favorable conditions for the conservation of nature and attracting more and more cormorants and other birds each year.

The majority of these 6 biggest farms are situated in NATURA 2000 sites and other protected areas. Therefore culling predators is prohibited and disturbance was prohibited too until recently. Technical mitigation measures which are used at the fish farm are gas canons and scarecrows. Regarding the scarecrows, they are not effective. Regarding canons as we know the size of a pond is quite big, so one can imagine how many canons a fish farmer needs to surround the area. In terms of effectiveness, farmers do admit that these canons are better than nothing. However, birds are getting used to the noise canons make and they also forage for fish between the shooting (shown when the canons were installed on the small winter ponds at one of the farm). These instruments of conflict reconciliation cannot be used on their own but must be consolidated with a damage compensation scheme, where implementation of technical mitigation measures on site will be a compulsory condition for a fish farmer to be eligible for financial compensation. The reason for this is environmental concern, which will be appropriately treated by keeping these beautiful - but sneaky - birds alive. And on top of this, sociological concern will also be treated fairly by providing financial aid to social groups whose economic activity ensures that the general public can enjoy rich fauna.

For a view of the economical damage cormorants do to fish farmers I will give an example in Table 1 of a production registration of two-year old carp (average weight in = 19grams, average weight out = 200grams) held in 3 ponds at one of the fish farms in 2005.

**Table 1. Production figures of 2-year old carp during the 2005 breeding season in 3 separate ponds.**

Pond N	Area, ha	Number of fish in spring	Number of fish out Autumn	Output, %
3.	104.7	114,000 individuals	21,000 individuals	18.4
4.	81.0	146,000	42,100	28.8
9.	96.2	98,000	21,200	21.6
<b>Total:</b>	259.9	358,000	84,300	23.5



As you can see from the table, the percentage of the output is very low in (numerical) total. According to the norms, the output has to be 80 %. There were no fish diseases noticed during the period. But there were a lot of cormorants there. And we see as well dependence between a size of a pond and the output – a bigger pond has a lower output. These data can be combined with observations (of both farmers and ornithologists) of how many birds there were during the period and the average most realistic figure will be found so the most appropriate financial compensation for the damage caused by cormorants can be identified (applicable to all six farms).

Ponds do provide good conditions for a great amount of biodiversity - of both flora and fauna, therefore fish farmers are also doing their best to develop a tourist business. However suspension of their fish breeding business cannot be considered as an option. Mostly because it is a rather profitable business in such rural areas (wetlands in particular) and is not so suitable for other economic activity - accept maybe tourism.

In this particular case we look at extensive pond fish farming where farming densities are not high (<450 kg per ha) in order to avoid use of synthetic substances, which pollute the environment. Where farming densities are high (intensive aquaculture), the use of synthetic substances is inevitable in order to prevent fish diseases and to boost the natural productivity of the ponds. Under these conditions, the pond habitat cannot absorb waste products from fish (Nitrogen and Phosphorus) in natural way above a certain amount of waste per hectare of fish pond. In extensive and semi-extensive systems labour efficiency and productivity are low compared with the standard of intensive fish farming, because of the limited speed of the natural production cycles. However, extensive or semi-intensive fish farming systems have a long tradition in Europe. These aquaculture practices may recover agricultural wastes and use low-quality resources in the production of animal protein, playing a useful role in integrating agricultural production, recycling wastes and by-products, and contributing to the biodiversity at landscape level. In other words, extensive and semi-intensive aquaculture areas playing a role in acting as buffering zones for nature conservation and for the enhancement of biodiversity<sup>3</sup>.

Based on Latvian experts' (Laboratory of Ornithology, state agency Nature Museum) estimates there were approximately 4,000 cormorants in Latvia from May to August in 2005, and it is assumed that most are migrants. The largest numbers of the birds are seen by fish farmers as well as by ornithologists in September, October and sometimes in November and December depending on the weather conditions and the time at which fish ponds become covered with ice. Importantly, no cormorant colonies have been recorded on the coast only on inland waterbodies. Although most

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<sup>3</sup> Oleg offered an Internet link to a presentation titled "Aquaculture as a way to protect biodiversity of freshwater ponds" by Dr Mirosław Ciesla, Div. of Ichthyobiology and Fisheries, Warsaw Agricultural University, PL. This is an objective presentation showing such economical activity as pond fish farming from different angles at broader scale. For more information, please follow this link:  
[http://ec.europa.eu/fisheries/meetings\\_events/events/archives/events\\_2007/conference\\_270607\\_en.htm](http://ec.europa.eu/fisheries/meetings_events/events/archives/events_2007/conference_270607_en.htm)

Then go to "Agenda of the meeting with links to the presentations" at 15:45.

birds seen in Latvia are likely to be migrants, some of them are breeding and wintering residents (only about 100 birds in 2005 winter, according to ornithologists).

I am confident to say that the situation I presented reflects pretty much the situations in other Eastern and central European countries.

There followed a short exchange:

Redik: I agree, it is not easy to shoot cormorants on large water bodies. How is shooting regulated?

- Oleg:
- *There is no legal shooting on FFH/SPA sites (ponds). Illegal shooting may occur though.*
  - *Fishermen do not push for permits to shoot cormorants. Fishermen want to be reimbursed. Reimbursements should also cover costs for deterring cormorants.*
  - *Shooting has a psychological effect and so aids scaring.*
  - *Fishermen feel they suffer due to local and EU government.*

Tamir: What is the expected annual yield?

Oleg: *The expected 1,600 tonnes of fish is reduced to 800 tonnes by cormorants.*

Lucijan: Our experience is also that shooting increases the effectiveness of gas cannons.

***Additional information given by Oleg after the meeting:***

Pond fish farming is the prevailing aquaculture method in Central and Eastern European countries. In 2004 the total production of freshwater aquaculture in CEE was 225208 mt, from which carp is 81% and 19% other species, while the figure for the total freshwater aquaculture production for Western Europe was 9632 mt, of which 78% was made up of trout and 22% other species (source: Fishstat Plus, 2005). Pond fish farming play a huge role in nature conservation by providing favourable conditions for flora and faunas, a great number of which are in danger of extinction. This contribution of pond fish farming is preserved due to regular execution of routine day to day, year to year maintenance. However, freshwater fish farmers are fighting a battle with, (1) increasing globalization (where they are forced to compete with producers from countries with far lower costs of production) and, (2) intensive fish breeding systems (not very ecological but economically more efficient). Plus farmers have to conform to the stringent demands of national and European legislation with regards to product environment and health, which weakens the economic viability of fishpond farming. However, reduction or closure of fish farming businesses will have a negative impact on nature conservation, outlined in the nature conservation and biodiversity legislation. Therefore, there is a need for action before fish farmers go out of business and (central and eastern) ecosystems are negatively impacted.

## 4. Ian Russell: Cormorants in England & Wales - populations & management

Summarised available information for England and Wales in relation to cormorant populations, diet and management:

### 4.1 Populations

#### 4.1.1 Cormorant population changes

- Rapid increase in numbers in last 20-30 years.
- Best recent estimate of wintering birds in Britain put at ~23,000.
- However, this recently revised as a result of a new approach for adjusting annual WeBs counts – i.e. the Dispersed Waterbird Survey. This will be published soon in *Bird Study* (Jackson *et al.*). Wintering estimate now put at 30,697 birds, with 95% CLs 20,840 - 46,034.
- Breeding birds in Britain currently estimated at ca. 9,000 pairs, of which ca. 1,600 inland (these mainly in England).
- Coastal breeders have increased at 3% p.a. over recent years, but inland breeders currently increasing at ca. 19% p.a.
- Birds also making increasing use of inland sites, partly due to immigration of *P.c. sinensis*, but also movement inland of *carbo*.
- Winter habitat not thought to be fully utilised – carrying capacity not reached.

#### 4.1.2 Changes in sub-species composition:

- 1981 - first inland *sinensis* tree-nesting colony established in UK.
- Increased to 4 inland colonies by 1988; >20 by 2002
- Proportion of *sinensis* in population has increased steadily:
  - ca. 2% (analysis of ringing data 1980-94)
  - ‘Substantial but unknown’ (Sellers 1993; Ekins 1997)
  - 5-10% (Kirby 1995)
  - 26% (Winney *et al.* 2001)
  - >30% (Newson *et al.* 2004)
- Introgression occurring (Goostrey *et al.* 1997; Winney *et al.* 2001)
- Recent estimate derived for a sample of birds (n=876) shot between 1997 and 2003 (using discriminant function method described by Newson *et al.* 2004) indicates:
  - *sinensis* comprise 41% of population,
  - this varies regionally with highest proportions (>50%) in SE England,
  - proportion of *sinensis* increased over the period.

#### 4.1.3 Sex & Age of shot birds

- Based on a sample of birds shot between 1993 and 2003 (n=1,410):
  - Females comprised 40% & males 60%
  - Immatures comprised 63% & adult birds 37%
- No sex/age differences between birds of known sub-spp (n=876):
  - Females: *carbo* 41%, *sinensis* 42%
  - Immatures: *carbo* 68%, *sinensis* 71%

## 4.2 Diet

Results based on the post mortem examination of 1,338 birds (shot between the winters of 1993/94 and 2003/04) at a range of inland sites in England & Wales were presented. Main findings:

- In sample, 460 birds (34%) were empty.
- No. of prey items ranged from 0 to 263 - just over half of non-empty birds had 1 or 2 items.
- Study resulted in the identification of 32 species, totalling 6,746 prey items – almost exclusively freshwater species.
- Small fish predominated in diet, but some larger fish (up to ca.1 kg) also taken.
- Roach, Perch & Bream were most numerous species in diet numerically, but expressed as percentage by weight, Roach were most important with Rainbow Trout and Brown Trout next.
- Prey composition at specific sites consistent with range of species present.
- Evidence that larger birds (male *carbo*) target put-and-take trout fisheries whereas smaller birds (female *sinensis*) more likely to be found at coarse fisheries.

## 4.3 Policy and Management

### 4.3.1 Policy prior to September 2004

- Wildlife & Countryside Act 1981 implements EC Birds Directive to protect wild birds, but provides derogation to prevent serious damage to fisheries.
- Birds only shot under licence 'as an aid to scaring'.
- Licences assessed on case-by-case basis and Nos. per licence restricted.
- National limit also applies <5% of wintering cormorant population in any winter 'season'.
- Regional limit <20% of wintering cormorant population.
- All licence holders provide returns; sites also monitored by Wildlife Advisers.
- Conditions apply - shooting at specific sites only permitted where:
  - a) Birds causing, or likely to cause serious damage to fish stocks or fisheries;
  - b) Other non-lethal measures tried and ineffective, or impracticable at the site;
  - c) Other factors not likely to be responsible for the serious damage;
  - d) Shooting will help to prevent damage; and
  - e) There is no other satisfactory solution.

### 4.3.2 Revised Policy – from September 2004

- New licensing controls (England only) increased the number of birds that can be shot each year.
- Recognition that earlier system too restrictive – unreasonable burden of proof.
- Presumption: 'where significant numbers of cormorants are present at a site and it is clear that these are feeding on fish stocks that are worth protecting, serious damage is occurring or there is a risk of serious damage'.
- Still requires assessment on a case-by-case basis.
- Licences now permit birds to be shot both as an aid to scaring and to reduce numbers at a site.
- Licence conditions apply as previous.
- Limits continue to apply on individual licences, but these increased.
- Regional limit as before (20% of wintering nos.).

- National limits increased to 2,000 p.a. with scope for this to be increased to 3,000 p.a. for the first two years.
- Enhanced monitoring introduced to ensure conservation status of cormorants not threatened.
- Recognised that reduction in population may be a consequence of revised policy, but not the objective.
- Licence extensions also allowed in some cases to protect smolts & spawning fish.
- All licence holders required to provide returns; sites also monitored by Wildlife Advisers.

#### **4.3.3 Basis for new policy - modelling**

- Numbers permitted to be killed was based on population modelling using a simple deterministic model. Details at: <http://www.defra.gov.uk/wildlife-countryside/vertebrates/reports/cormorant-removal.pdf>
- Density dependent relationship was demonstrated for UK cormorant population and this used to estimate cormorant population growth rate in relation to abundance.
- Model used to reduce population size by set amount (number or proportion) per year and then to recalculate population size following a period of growth – this repeated 20 times.
- Various model assumptions applied.

#### **4.3.4 Modelling conclusions (based on WeBs count data)**

- An annual reduction of 5% or 500 birds reduced numbers by 3.4-6.3% after 20 years - this is stable.
- An annual reduction of 10% or 1,000 birds reduced numbers by 10-13% after 20 years - this is stable
- Long-term status is endangered by annual reductions greater than 25% or 2,500 birds.
- A proportional reduction includes a greater element of safety than a set number cull.
- Effects could be monitored through existing WeBs counts.
- For more information see: <http://www.defra.gov.uk/wildlife-countryside/vertebrates/Reports.htm>.

#### **4.3.5 Recent Developments**

- Peer-reviewed paper on model has been submitted.
- Model has been revised following review of WeBs data (corrections to earlier data suggest slower rate of growth – i.e. earliest figures too low) and in light of dispersed waterbird survey estimates (i.e. revised higher wintering estimate – see above).
- Numbers permitted to be killed will be reviewed in light of shooting statistics and effects on population. Policy will be revised if population responds in unexpected way.
- Enhanced monitoring introduced.

#### 4.4 R&D

- Focus has been on need for good science & evidence-based policy.
- In mid 1990s UK government funded 5 R&D topics:
  1. Assessment of the problem of fish-eating birds in inland fisheries in England and Wales.
  2. Population, distribution, movements and survival of fish-eating birds in Great Britain.
  3. Feeding behaviour of fish-eating birds in Great Britain.
  4. Case studies of the impact of fish-eating birds on inland fisheries in England and Wales.
  5. Assessment of the effectiveness of management measures to control damage by fish-eating birds to inland fisheries in England and Wales.
- Ongoing government-funded R&D is focusing on non-lethal methods of control, in particular on the use of fish refuges. This is producing some encouraging findings – another useful management tool.

For more information see:

<http://www.defra.gov.uk/wildlife-countryside/vertebrates/leaflets.htm>.

There followed a short discussion:

Robert: Why are there so few Ruffe in the cormorant diet?

Ian: *This species is relatively rare in Britain.*

Timo: What resources are used to avoid reducing a regional population by >20%?

Ian: *The number of birds licensed to be shot in a particular region is regulated. Numbers shot are always less than numbers licensed - e.g., numbers shot under the new policy have been well below (ca. 1,000) the modelled number of 2,000 – 3,000 birds that can be taken annually without doing harm to the population. There are also regular bird counts. If necessary the model will be reviewed and the policy changed if the population changes in unexpected ways.*

Bruno: *Licenses are only issued to private fishery owners. Thus, it is private resources that are spent for cormorant shooting. Reports on the shooting have to be sent in, otherwise no more licenses will be issued in the following year. The fishery owners are responsible for this, although there is also some monitoring by the authorities.*

Timo: How many cormorants are seen to be tolerable?

Ian: *This has not been addressed and is not what the model sets out to achieve.*

Daniel: How can there be a model with so few breeding birds? There is a need for a European scale, like in the PhD of Viviane Hénaux (2006) (Dynamique d'une population gérée par l'homme: dispersion, densité-dépendance et destructions hivernales chez le grand cormoran. Thèse pour obtenir le

grade de docteur de l'université Montpellier II). Thus, there is a need for a European management plan.

## **5. Stakeholder views and engagement – the human side of conflict resolution in the UK**

Bruno Broughton

Anglers' and fisheries managers' perceptions of cormorant predation problems in the UK have changed in the last 20 years. As bird numbers rose, so did frustration about predation on fish, culminating in various lobbying exercises – in the UK and in Europe – petitions and calls by angling newspapers for cormorant culls (e.g. the infamous 'Angling Times' article in 1996 headed "There birds must be shot")

Considerable illegal shooting of cormorants did – and still does – take place. However, in 2002 a multi-disciplinary group was formed (under the aegis of the Moran Committee 'Joint Bird Group') to engage in dialogue, find common ground, seek solutions to the bird/fish and human/human conflicts, and to produce information for public use. That group still exists, now as the FACT (Fisheries & Angling Conservation Trust) Wildlife Management Group (of which Bruno Broughton is currently the chairman).

The Group's achievements include:

- Broad consensus among, and co-operative action by angling and fisheries organisations, government agencies, NGOs, research institutions and other stakeholders.
- Publication of the brochure "Cormorants – The Facts" now in its second edition.
- Publication of the detailed booklet, now in its second edition, entitled "Protecting Your Fishery from Cormorants".
- Establishment of a website ([www.cormorants.info](http://www.cormorants.info)) giving additional information and downloadable copies of the publications.
- Representations to Government ahead of the September 2004 legislative changes (outlined earlier); advice to licence applicants.
- Additional publications on saw-billed duck predation on fish.

Taken together, these actions have defused the human/human conflict, and anti-cormorant stories in the angling media have largely disappeared. There was also a realisation among angling groups following the change in policy in 2004, which attracted sustained opposition from conservation groups, that government had probably gone as far as it possibly could, given current circumstances, to address the cormorant issue. Over the same time, fisheries management practices have been amended to help overcome cormorant predation difficulties, viz:

- Stocking put-and-take trout fisheries with larger (1 kg+) fish.
- Development of increasing numbers of carp-dominated fisheries containing fish too large for cormorants to consume.
- Deployment of refuges (on recreational fisheries) and wires/nets (on fish farms).

- Other deterrents – deliberate stimulation of algal blooms to colour fisheries, various non-lethal scaring techniques, etc.

There followed a short discussion:

Lucijan: It is good that the fishermen get shooting licences in the UK. This is not the case in Slovenia.

Timo: Does consensus lead in the right direction?

Bruno: *Yes, if we take the current low numbers of complaints/letters in the UK angling press as an indicator.*

Thomas: Could the UK way/solution be applied to Slovenia?

Bruno: *Yes, dialogue is the key to making progress. Stakeholders should look for consensus.*

Jens: Are the quotas for cormorant shooting negotiated and is there a maximum number for shooting in England?

Ian: *No, the numbers are not negotiated, although there were many years of lobbying by anglers about the problem. Numbers allowed to be shot are set by government bodies, and this is a maximum number, but is not a target. It represents the maximum that is possible to shoot (a prudent upper limit) while safeguarding the conservation status of the birds. At the moment applications for licences do not reach the maximum.*

Bruno: *It is impossible to get accurate figures, but there may be as many as 5,000 cormorants shot illegally in UK (plus the 1,000 that were shot legally).*

Ian: *The UK model is based on the annual wintering counts so takes account of any illegal shooting or immigration/emigration.*

Timo: Shooting is not very sophisticated. In Finland about 1,100 eggs are stolen per year. The process in England is a good start. In Finland politicians would not accept being bothered like this.

Ian: *The relative power of the stakeholders is likely to be an issue. In England the RSPB is a large and powerful body, until recently angling organisations were fairly poorly coordinated and needed to join forces.*

Nils: You should bear in mind that there are two subspecies. *P. c. carbo* is much less abundant than *P. c. sinensis* and perhaps under threat.

Timo: As stated before, I think WG2 should make management recommendations.



## 6. Work Group 2 outputs

WG2 briefly discussed intended outputs. There will be two outputs that will build on information already available:

- INTERCAFE – Summary report (ca.15 pp.)
- Flyer (ca. 4 pp.)

### Expected contents:

- Type of fishery
- Type of water body
- Management techniques, tools
- Strategies (e.g. CH, Israel, England)

### Homework (Bruno, Ian – WG2 – all):

- Send out:
  - Moran committee booklet
  - Fish refuges flyer
  - Wires and nets flyer
  - REDCAFE report
- Check for gaps and seek responses from WG2 and others
- Build subgroups/teams to author chapters
- Carp subgroup to add information
- Preparation process:

→ WG2 Recommendations

→ WG1 and WG3 to comment/add

→ **Final version**

## 7.3 Work Group Three: Linking Science with policy and good practice

**Participants:** Michael Anderson, Sandra Bell, Mariella Marzano, Dave Carss, Trude Borch, Miha Janc, Nikolay Kissiov, Vilju Lilleleht, Simon Nemtzov, Rosemarie Parz-Gollner, Erik Petersson, Pekka Salmi, Ketil Skogen, Faustas Stepukonis, Jaroslav Bohac, Daliborka Barkatarov

Stakeholders: Andrej Bibič, Tomaz Jancar

Scott Jones chaired this session and the Work Group discussed several issues:

- WG3 Terms of Reference – what impacts do we want as a group? How are we going to have that impact? What outputs and outcomes are we trying to achieve?)
- Homework
- STSMs

### WG3 responsibilities

WG3 is an interdisciplinary group. Its responsibility originally was to provide a basis for examining the wider socio-cultural, economic and political context of

INTERCAFE case studies e.g. picking up information about stakeholders at each meeting, the relationships between different stakeholders and their relationship to policy. Our primary deliverables as outlined in the original proposal are:

- Bibliography
- Best (now replaced with good) available practice manual: on how to link science with policy, how do you engage with stakeholders and “preferred recommendations”.
- Informing EU policy e.g. developing tools that will help guide EU policy-making, how to link communities and policy, how to listen to science etc.

### **(A) Bibliography (now to be called “reading list” or “Rough Guide to...”)**

**DEADLINE: before Finland meeting**

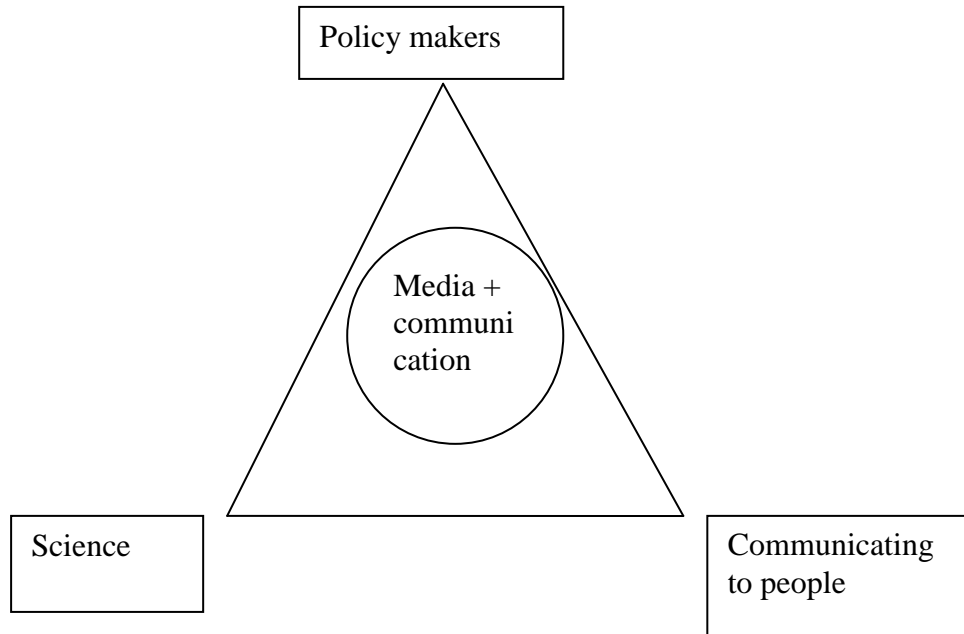
**Co-ordinator: Scott Jones**

After quite a bit of discussion on the key issues that should be covered in the bibliography, it was decided that in order to be accessible and useful the bibliography/reading list would:

- Have a 1-2 page introduction explaining why the references are important and how they are linked together
- Be split up into different sub-sections.
- Each sub-section will have 10 key papers that gives context to the issues.
- Each subsection and paper will have keywords and cross-referencing.
- Non-English papers will have a summary.

### **Subheadings**

- Where do overall common management plans exist? What are the conflict species are countries already dealing with? (**Rosemarie and Erik**)
- Tools used for successful conflict management (**Scott Jones**)
- Reviews of papers that analyse resolution of human-wildlife conflicts in a way useful to INTERCAFE e.g. where it worked, where it didn't work and why. To include socio-cultural and political understanding of conflicts between different interest groups (**Simon and Susana**).
- Wetland management for birds (**Rosemarie**)
- Relationship between science and policy (**Trude and Faustas**)
- Communicating science (see diagram below) (**Trude and Faustas**)
- Law and regulation. Links to legislation and EC guidelines, academic papers on the Directives, summaries of cases to help understanding of legislation. (**Ilona and Andrej**).
- Ethical perspectives (**Erik, Ilona, Ketil and Simon**).



### **(B) Homework**

Each homework group discussed their progress and plans of what they will achieve before the Finland meeting (as well as what the final output will be).

1. Review of existing Management plans of focal or flagship species/habitats in own countries (e.g. Look at how they came about, what processes were involved, which stakeholders were involved, which stakeholders were excluded etc.)  
Rosemarie, Erik and Pekka

This group are examining management plans and interviewing those involved in order to illustrate the processes involved in setting one up. The group have selected several management plans from their own or neighbouring countries. So far, stakeholders from three management plans, including the Cormorant, have been interviewed by Erik in Sweden. Rosemarie is examining management of various species which are being coordinated across borders (e.g. fish/otters/beavers in cooperation with Czech Republic and Hungary; brown bear with Switzerland) as well as the updating of the management plan for cormorants in Switzerland. The management plan for cormorants will now have be revised as the breeding population has expanded beyond the allowed 100 pairs

#### **Interview questions include:**

- (1) Who initiated the development of the management plan?
- (2) How was scientific knowledge involved in the process?
- (3) Were stakeholders involved, and if so, how and at what stage of the writing were they involved?
- (4) Which organisation (governmental) paid for the work?
- (5) Time from initiation to accepted product.
- (6) How detailed is the list of actions or the manual? For example, are there any recommendations for how to handle a situation if something happens (a conflict)?

### Questions from the group:

T-Is the public included in your study or just stakeholders who were involved in the management plan?

R – *We are going to compare the case studies and look for common rules. Incorporation of the public is one of the main goals and ways to deal with public opinion e.g. bears might not be essential for crayfish.*

S-Have you already got management plans you want to work with or do you want more cases (He give an example of the Coyote conflict in California, USA)?

E-*The focus is on the scientific process-how is scientific knowledge included in management plans? What we need is a person to talk to about this?*

M – Should we focus on conflicts? Is there a conflict with crayfish?

R – *Yes, in Austria.*

E – *It is an invasive species.*

P – What about suggestions in the plan about linking science and policy. How do we collaborate in the real world?

It was agreed that Pekka should join Rosemarie and Erik. Jaroslav offered to contribute and Scott said he would contribute documents relating to the double crested cormorant in the USA.

**REQUEST:** If you know of useful management plans that could be explored, please contact this group. The main criteria are that there should be a contact for Erik, Rosemarie or Pekka to talk to.

## **2. Examination of how scientific knowledge was incorporated into the Action Plan for the Management of the Great Cormorant in the African-Eurasian Region** Trude Borch, Michael Andersen, Dave Carss, Pekka Salmi

This group will resemble the work of group one but will look specifically at the management of cormorants at the pan-European – rather than national-scale, examining the processes that were involved in developing the African-Eurasian action plan. Several of the key players are INTERCAFE participants but other members of the original writing group will also be interviewed. The expected output will be an academic paper that will explore the process involved in putting the Action Plan together and the relationship between scientific knowledge and policy. Some issues that will be examined include:

- Who were selected to be involved and why?
- Why did the title of plan change (biologists vs fisheries)?
- How much input did stakeholders have?

### **3. Review of literature or cases of human-wildlife conflicts that have had some degree of success because of co-operative solutions** Simon, Susana and Scott

This group have started to draw together major studies that are the most relevant and will provide a review. They are looking for cases where human-wildlife conflicts have been resolved in a good and useful manner involving proper stakeholder consultation and participation (e.g. not top-down).

They will have a short list of 10 case studies by the Finland meeting and asked if it was OK to look at studies beyond Europe especially USA although the cases should have relevance for cormorant-fisheries. The group agreed that it would be important to include the USA as they are well advanced in collaborative endeavours.

There was a general discussion about collaboration and participation. Michael made the point that you should assume that a management plan will work because you have written one. Scott added that the process was important whilst Mariella suggested that participation can be a loaded term and doesn't always work either. Andrej asked what was meant by success – is it that stakeholders are happy or that the environment is better protected? Scott said it would be difficult to judge this reviewing literature as they often don't include a 'happiness index'. Andrej gave an example stating that one measure of happiness could be that there are no court cases, which led Scott to ask – what are the indicators of success? Ketil highlighted a few cases where collaboration has been very difficult either because there has been a tendency to include the wrong groups or that some groups may not be organised or have formal status which may mean that the conflict lives on.

**REQUEST:** if you know of useful articles, please send them to Simon and Susana. The main criteria are that there should have been some attempt at collaboration between groups that were not alike.

### **4. A review of media articles in relation to human-wildlife conflicts for further analysis** Faustas and Jaroslav

This group will focus specifically on media articles. The main purpose for now is to collate as many articles as possible from around Europe to see how the public are informed about cormorant conflicts.

**REQUEST:** Please send your media articles to Faustas along with:

- 1) Name of the media source e.g. name of the newspaper
- 2) Date of publication
- 3) Article title (in English)
- 4) Main ideas expressed in the article (in not in English)
- 5) What you think about the article (e.g. is it biased etc.)?

Some questions were raised in relation to this request:

E- How far back in time do you want the articles?

F- *I would like current articles*

(NOTE: Ian Russell pointed out that opinions change over time and this can be reflected in newspaper articles. Where an INTERCAFE person has such a collection, please could you liaise with Faustas so he can have access).

S- What are we trying to get out of collecting this data?

F – *How science can form attitudes and perceptions surrounding the problem.*

P- You will have to make a selection but how will you do this? We should give the background and [political?] slant of the paper.

T- it is also important to note who wrote the article – it could be written by a scientist or a journalist. In different contexts the cormorant problem will be framed in different ways. For example framed in the cod debate we need to question the agendas of different groups of people. Thus we need to understand what kinds of things are being written, how they are being written and by whom.

D- How do you think it's going to work in terms of sampling. Will you want as many people as possible to send stuff in and see what you've got and then do what you can?

F- *Yes*

D – So it's a stratified random sample. You will need to explain what methods you used and what you're going to get out of it but we can rework this as we go along

A- Do you just want articles (not policy documents).

F- *Yes, media articles*

The meeting finished with a discussion on the objectives of WG3. Andrej Bibič asked which policy process WG3 fitted into. Scott replied that it was trans-national. Michael added that WG3 was about looking at the processes of conflicts within the wider socio-cultural, economic and political context. Erik highlighted that we needed to work out as a group how to fit all the homework we are doing together coherently.

## **PART (8) 2006/07 Short Term Scientific Missions**

The following STSMs for 2006/07 were discussed and approved at the Slovenia meeting:

### **Work Group One**

- (1) Breeding and winter cormorant census data (GIS work)
- (2) GIS/Water database completion and analysis

### **Work Group Two**

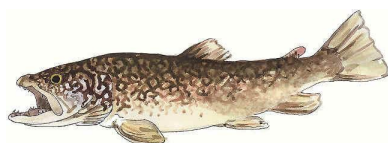
- (3) Analysis of patterns of Cormorant-fishery conflicts in Carp fishpond cases across Europe
- (4) To study unique mitigation methodologies in the UK and to learn how to collect and analyse data on their use. Specific examples are: (1) fish refuges, (2) measuring feeding impact by observation of cormorant activity, (3) analysing wires and netting use on fish farms (methods to measure damage).

### **Work Group Three**

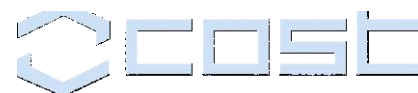
- (5) The European Cormorant Management Plan Process – to explore the issues surrounding the process of drafting the African-Eurasian Action Plan (discussions and interviews).
- (6) Scaling up Best Practice: opportunities and constraints in developing action plans and management plans for “conflict species” at local, district, national and international level.

## Appendix One - Agenda

### INTERCAFE@Bohinj (Slovenia) October 7-9<sup>th</sup> 2006



“Angling and EU legislation”



Expected arrival of INTERCAFE participants: Friday 06/10/06

Landing at Brnik airport (Ljubljana)

Transportation (approx. 50 mins) to Hotel Jezero (at Bohinj lake). Shuttle buses arranged.

**Friday 6<sup>th</sup> October- Dinner from 19.00**

#### **DAY ONE (Saturday 7<sup>th</sup> October)**

##### **07.30 Breakfast**

08.30 Opening session with Dave Carss and Scott Jones. Welcome and Introduction.

09.00 **Short presentations (10 minutes each)** from:

Matej Luštek (Fishing club Novo Mesto)

Andrej Bibič (Ministry for Environment and Spatial Planning)

Stanislav Gorenc (Fishing club Bohinj)

Lucijan Rejec/Miha Janc (President of fishing club Tomlin/INTERCAFE)

Marijan Govedič (INTERCAFE)

(There will be further opportunities for discussion in evening)

10.00 Presentation by Iona Cheyne-International and European Environmental Law:  
“Legal institutions and instruments in EC law”

##### **11.00 Coffee break**

11.30 Micheal O’Briain –DG Environment (Ornis): “The Cormorant in the context of the Birds Directive”

12.00 Opening session on E-conference with Dave Carss

12.30 Work Groups focus on gaps evident in E-conference

##### **13.00 Lunch**

14.00 Work Group Activities cont.

15.15 Presentation by Iona Cheyne- International and European Environmental Law: “The regulatory framework of Habitats and Wild Birds”

##### **16.00 Coffee break**



16.30 Integrated working session/discussion with INTERCAFE participants and invited stakeholders- facilitated by Scott Jones.

Matej Luštek (Fishing club Novo Mesto)  
Andrej Bibič (Ministry for Environment and Spatial Planning)  
Stanislav Gorenc (Fishing club Bohinj)  
Lucijan Rejec (President of fishing club Tomlin)  
Mitja Kersnik/Gregor Bolcina/Bogdan Mahne (Slovenian Hunting Association)  
Dejan Pehar (Directorate for Forestry, Huntsmanship and Fisheries)  
Tanjar Košar (Institute for Nature Protection of Slovenia)  
Tomaz Jancar (BirdLife Slovenia [DOPPS])  
Primoz Kmecl (BirdLife Slovenia)

17.45 Working groups report back

18.30 Plenary session with Dave Carss and Scott Jones

**19.00 Dinner at hotel and ‘night school’**

## **DAY TWO (Sunday 8<sup>th</sup> October) FIELD TRIP**

**08.00 Breakfast**

**09.00** From Bohinj over Mountain pass Vršič (~1500 m above the sea level) to Kobarid, where Mr. Rejec will meet us. Includes one or two stops to get an impression of Soča and its valley and then presentation of Marble Trout studies (subpopulations in different streams, different phenotypes, etc), of Marble Trout and Adriatic Grayling breeding, and of their methods of protecting their streams from cormorants.

**12.00 Lunch**

**13.00** Visit to fish farm where the two species are bred.

**15.00** Journey home through Idrijca (tributary of Soča) valley

**17.00 Arrive back at hotel**

**18.00:**

**Group 1: Management Committee Meeting**

**Group 2: Writing up fieldtrip report**

Management Committee Agenda (Dave Carss: Chair; Rosemarie Parz-Gollner: Vice Chair; Rappateur: Markus Knoflacher)

1. Welcome to participants
2. Adoption of agenda (standard COST format)
3. Minutes of last meeting
4. Report from the Scientific Officer

News from the COST office  
Status of the Action  
Number of Signatories  
Budget Status, budget allocation process

5. Year Budget status and planning
6. STMS status, applications
7. Publications, annual report
8. Evaluations
9. Request for new members
10. Non-COST participations
11. Updates of Co-ordinates MC/WGs etc.
12. Web update
13. Progress report of working groups
14. Long terms planning
15. Time and place of next meetings
16. AOB

**20.00 Dinner at the hotel**

**DAY THREE (Monday 9<sup>th</sup> October)**

**08.00 Breakfast**

09.00 Opening session with Dave Carss and Scott Jones

09.30 Normal Work Group Activities

**11.00 Coffee**

11.30 Work Group Activities cont.

**13.00 Lunch**

14.00 Work Group Activities cont.

**15.30 Coffee break**

16.00 **MINI Conference:** Feedback on activities and progress from all Work Groups. Feedback and agreement on report structure, writers, editors and deadlines

18.00 Subgroup meetings (can be continued after dinner)

**20.00 Dinner at hotel**

**Tuesday 10<sup>th</sup> October – Participants leave.** Shuttle buses arranged.