



The Impact of Cormorants and Goosanders on River and Stillwater Fisheries in the UK

“I know of successful businesses that have been badly damaged by excessive predation by cormorants and we must give our inland fisheries the protection they need to remain healthy and productive.”

Owen Paterson MP, Secretary of State for Environment, Food and Rural Affairs. October 2012

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1. Foreword by Hugh Miles

As a lifelong angler, bird-watcher and wildlife film maker I have a burning passion for the natural world. I have spent countless hours filming nature in the raw and hope that some of my work, including films made for the wildlife trusts as well for angling and fishery bodies have helped promote a better understanding of the threats faced by our precious wildlife. And yes that includes our wild fish that have swum in the rivers and streams of this country and now face an uncertain future as a result of the unsustainable levels of predation from cormorants and goosanders, whose numbers have exploded out of control over the last 25 years.

Our rivers and their wildlife are in trouble and I hope that birdwatchers, anglers and conservationists will come together to contribute to the solutions. Two thirds of our rivers are failing the EU's Water Framework Directive that measures 'good ecological status' and most of these rivers are failing due to lack of fish life. Scientists have counted at least 20,000 cormorants visiting our inland waters every winter, largely from Denmark and the Netherlands, and if scientists are correct, each one needs a pound of fish a day to survive. That means that at least 20,000lbs of our native wildlife is eaten EVERY day. Government surveys have shown that the survival of several fish species on some rivers is under threat, including the endangered freshwater eel, which in recent years has suffered a decline of 95%. Eels are an important food for herons, let alone the much loved otter.

Unsustainable cormorant predation is only one of many problems for our rivers - abstraction, pollution, low flows, siltation, extreme weather patterns and global warming are just a few of the others. We need urgent action on these issues and anglers are pressing for this, often in partnership with the RSPB. However, this will take many years, and fish stocks are suffering today from cormorant predation.

I was pleased when the Angling Trust launched their *Action on Cormorants* campaign and urged anglers to write to their MPs supporting the call to put cormorants and goosanders on the general licence on an annual, reviewable basis. This would give these avian predators the same status as rooks, crows, jays and magpies. That would mean predator numbers can be controlled without angling clubs and fishery managers having to use the current cumbersome and ineffective licensing system which has completely failed to protect stocks of vulnerable silver fish in most parts of the country.

And it has been good to see the campaign supported by the other fisheries, angling and wildlife organisations all of whom recognise the damage that these birds are doing to our rivers, streams and lakes. I've been trying to play my part by working with friends Trevor Harrop and Budgie Price from the Avon Roach Project in re-introducing successfully spawned young roach back into the once prolific waters of the beautiful Hampshire Avon. Of course none of this would have been necessary if it were not for the fact that the cormorants had all but wiped out stocks of wild roach from this iconic chalk stream. Hopefully, the government will now act and allow us to protect our fisheries and these young creatures will have a chance to grow and spawn themselves without disappearing en masse down the throat of a cormorant.

You see the cormorant is a silver fish killer unparalleled in nature whose numbers have increased to such an extent that the middle reaches of many rivers are now all but devoid of once common and sought after species such as roach and dace. Well balanced ecosystems need a healthy balance between predator and prey and we need action now to restore that vital balance and give our fish a chance.

Through their purchase of Environment Agency licences, anglers contribute over twenty four million pounds towards the health and protection of the wildlife of our freshwater rivers and lakes and that includes bird-life. No other recreational water users contribute anything like as much. Many people other than anglers support the work of the Angling Trust and Fish Legal, which campaign and take legal action against polluters who damage our rivers and lakes.

I am an angler and proud of the contribution I make to the conservation of all British wildlife and that includes fish which is why I want to see them given the protection they deserve.

Hugh Miles

Please visit my blog on the predator/prey imbalance on our rivers at:

<http://hughmiles9.blogspot.co.uk/>

2. Introduction

Anglers, angling clubs and fishery owners have been campaigning for almost 20 years, more recently the Angling Trust has been campaigning for nearly 3 years to change the licensing regime for the control of cormorants and goosanders. As part of this process, anglers have recorded nearly 70,000 sightings of these birds throughout the country in the past year at www.cormorantwatch.org. We have also compiled a dossier of case studies from angling clubs & anglers with their observations of the damage caused to fisheries from fish eating birds. Selected case studies have been compiled in this report to provide an indication of the range of impacts on angling activity and the local economy caused by excessive predation. The names of clubs and precise locations have been provided to the Angling Trust and the case studies have been arranged by County and region and are followed by a comprehensive and evidence-based study of the impact of cormorants on the middle reaches of the Hampshire Avon. We have also included information from the Environment Agency's own fish stock surveys on a number of different river systems which illustrate worrying declines in fish like roach and dace that are most vulnerable to avian predation.

From this information, it is clear that cormorants and goosanders are often the main factor in the decline of many fisheries and it is not just what they eat; damaged fish die, they become stressed stop feeding and become prone to disease, they shoal up unnaturally often in very shallow water thus making them prone to other predators. The Angling Trust will continue to campaign and Fish Legal (which acts as the Trust's legal arm) will continue to take legal action to address problems with pollution, abstraction, bad hydropower developments and loss of fish habitat. We hope that these campaigns and legal actions will help restore some of our rivers to good health but predation needs to be managed alongside efforts to restore natural productivity in our fish stocks.

We are also greatly concerned about the decline of eel stocks and have included an assessment of the Environment Agency's views of damage to this species from avian predation included in their eel management plans which were approved by the European Commission. Eel populations have declined by 95% in recent years, for a variety of reasons. Reducing predation would help avoid any further decline towards extinction.

We believe that there is no alternative but to allow fisheries greater freedom to protect fish from excessive predation from cormorants and goosanders. We will work with all our members to ensure that this is done in a responsible and co-ordinated fashion; it is not our intention to decimate the population of either of these birds in the UK nor to endanger their conservation status. However, the current licence regime is highly bureaucratic, expensive to administer and is in need of reform. We believe there is a strong case for cormorants and goosanders to be added to the General Licence subject to the normal annual review of numbers.

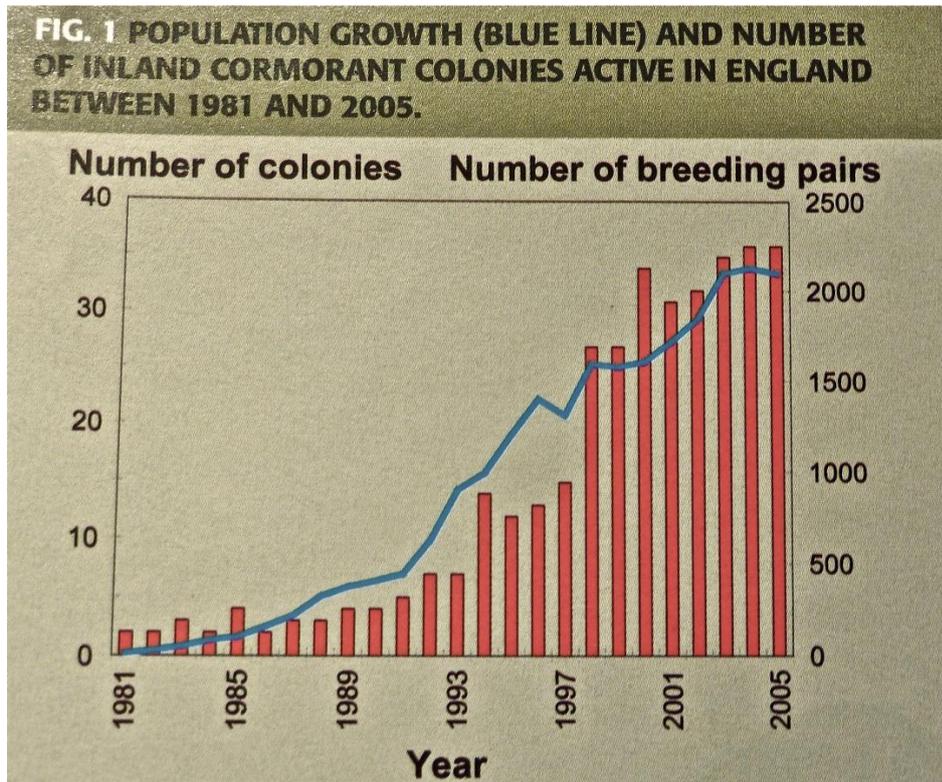
Support our campaign to protect our wild fish stocks by visiting www.anglingtrust.net/cormorants Please send us pictures of damaged fish and any other evidence of the decline of fish stocks as a result of excessive avian predation to cormorants@anglingtrust.net. We are also happy for Angling Trust members and supporters to use the information here in pressing for action on cormorants.

Thank you for your support.

Mark Lloyd, Chief Executive, Angling Trust & Fish Legal

3. Cormorant numbers

Cormorant numbers have increased since protection for these birds was introduced in 1981 via the European Wild Birds Directive and following the banning of DDT. Numbers of over wintering inland birds, which traditionally were around 2,000 in the sixties and seventies, rose dramatically to 14,554 in 1987/8 and to a peak of 30,188 in the winter of 2003/4 - a doubling of numbers in 6 years and a staggering 15 fold increase in just over 20 years. The number of recorded colonies and breeding pairs increased dramatically through the 1990s, as shown by the graph below from the British Trust for Ornithology's survey data.



Source: British Trust for Ornithology survey data published in *British Birds* 2007.

Given the voracious appetite of cormorants, eating on average 1lb of fish a day or around 3 million pounds each winter, it is hardly surprising that fish stocks have been severely damaged. Cormorant numbers show a small decrease to 26,953 in the count of 2009/10 and are expected to show a further decrease in the following year. However, these adjustments come nowhere near showing any trends which suggest that the conservation status of cormorants is likely to be even slightly threatened anytime soon and these numbers are based on statistical modelling from a small number of sites rather than on live observed counts. The modelling also does not take into account of the increasing tendency for cormorants to remain feeding on inland waters throughout the year and an increase in the numbers of the sub species *Phalacrocorax carbo sinensis* flying in to feed from the European mainland. The massive explosion in cormorant numbers in the last 25 years, whether by a factor of five or fifteen, makes arguments over year on year fluctuations somewhat irrelevant.

The fact remains that predation by cormorants and goosanders is, and has been, at unsustainable levels and now threatens the conservation status of several important wild fish species in many of the UK's rivers and lakes.

Observations:

The rapid increase in numbers from 1996/1997 shows the resilience of cormorant populations to recover quickly in numbers following the ban on agricultural pesticides such as DDT together with other factors affecting numbers prior to this date. As no monitoring was carried out prior to 1981 it is not possible to review historic cormorant population numbers.

4. Legislative background

Protection of wild birds stems from the Convention of European Wildlife and Natural Habitats 1979 (the Berne Convention) which the EU and Member States signed up to and Article 2 of the Berne Convention states:

“The contracting parties shall take requisite measures to maintain the population of wild flora and fauna at, or adapt it to, a level which corresponds to ecological, scientific and cultural requirements, while taking account of economic and recreational requirements and the need of sub species, varieties or forms at risk locally”

This definition has been translated into European law via Article 2 of the Wild Birds Directive (1979) and Article 9 allows derogations for Member States in order to conform to the requirements to control populations. It is currently being reviewed to ensure that such derogations properly conform to the needs of Article 2 and this article states that:

“Member States shall take the requisite measures to maintain the population of the species in article 1 at a level which corresponds in particular to ecological, scientific and cultural requirements, while taking account of economic and recreational requirements, or to adapt the populations of these species to that level”

Whilst Natural England has produced a population level figure that they regard as meeting conservation status requirements based on the average population size over the period 1995 – 2000, this figure is based on personal judgement only and has no scientific basis. Indeed there are arguments that the legal requirement is for maintenance of the population level of cormorants and goosanders that was present at the time the Directive was introduced in 1979.

5. Cormorant Watch

In June 2011 Angling Trust set up a web site to allow anglers to record cormorant sightings as the angling community in general have little faith in the numbers being recorded by Natural England via the WeBs data, the results being:

- Between June 14th 2011 and 1st October 2012 www.cormorantwatch.org has been used to create **10,089 records**.
- **3,380 unique users created those 10,089 records**
- There were 7,702 records of individual cormorant sightings with a total of 37,762 birds
- There were 882 records of cormorant colonies with a total of 20,744 birds
- There were 1,084 records of individual goosander sightings with a total of 5,254 birds
- There were 211 records of goosander colonies with a total of 2,270 birds
- There were 199 records of merganser sightings with a total of 780 birds
- There were 51 records of merganser colonies with a total of 776 birds
- **There were a total of 67,586 birds recorded in 10,089 records by 3,380 unique users**
- The 67,586 birds recorded does not include those records where users have either mistakenly or mischievously entered large numbers of birds

6. The Action on Cormorants Campaign

In 2010 the Angling Trust won the agreement of Fisheries Minister Richard Benyon to review the current ineffective licensing regime for controlling cormorant damage to our fisheries. This built on the work of the previous government who recognised that action on cormorant predation was vital to protecting the aquatic environment for all wildlife. The Defra Review Group is due to report shortly and the minister is expected to make an announcement before the spring.

With the support of many wildlife, countryside and angling organisations, the Angling Trust launched the *Action on Cormorants* campaign in the summer of 2012. This urged anglers to write to their MPs supporting the call to put cormorants and goosanders on the general licence on an annual, reviewable basis. This would give them the same status as rooks, crows, jays and magpies whose numbers can be controlled without resort to a specific licence. Currently angling clubs and fishery managers have to use a bureaucratic, cumbersome and ineffective licensing system which has completely failed to protect stocks of vulnerable silver fish and salmon smolts in most parts of the country.

The campaign is seeking to protect fisheries, not to get rid of all inland cormorants, which is why we are supporting an annual review, but we do believe that fisheries need more effective protection from unsustainable predation which is endangering other wildlife. The Angling Trust has offered take a lead in co-ordinating action in catchments throughout the country, and advising anglers about how to control birds responsibly including the use of non-lethal techniques which can protect fish. However, we do want local angling clubs and fishery owners to be able to protect their fisheries effectively in the interests of not just anglers but all wildlife that needs healthy and self sustaining fish stocks to survive.

The campaign has attracted the support of angling celebrities such as TV host Chris Tarrant and singer Feargal Sharkey. Other partners include the award winning Avon Roach Project which features in a specially-made campaign video by the award winning wildlife film maker and longstanding RSPB member Hugh Miles.

There is a dedicated webpage at www.anglingtrust.net/cormorants with an online message facility for anglers to contact their MPs and special postcards to be distributed to anglers via fisheries and tackle shops. Anglers have been asked to contribute to a picture gallery to show MPs and the public the horrific damage these birds can do.

Action on Cormorants also urges MPs to follow the lead of members of the All Party Parliamentary Group on Angling and become parliamentary supporters of the campaign to protect our fish. MPs can register their support for their local anglers via the website or by notifying George Hollingbery MP , Chair of the APPG on Angling. Lists of supporting MPs will be publicly acknowledged by the Angling Trust in mailings to our members and in the angling press.

There are 3.5 million anglers in the UK generating £3.5 billion for the economy and sustaining nearly 40,000 jobs. They have waited over 15 years for the government to allow them to protect vulnerable fish stocks from unsustainable predation.

7. Cormorants - Key Facts

- The biodiversity of our rivers and still waters is at serious risk from excessive predation from cormorants
- Numbers have exploded in the last two decades to unsustainable levels
- Rivers and waterways are failing under the Water Framework Directive and of those failing over 50% do so due to poor fish stocks.
- Predation is a major factor in the decline of fish populations, particularly in the context of low flows, loss of spawning habitat, barriers to migration and pollution that threaten the regeneration of fish populations
- Waters that have been heavily impacted by cormorants take years to recover under the present system – sometimes failing all together
- Populations of indigenous species like roach on the Hampshire Avon are under serious threat of extinction
- Modification of our rivers by man has resulted in all coarse and game fish species being increasingly vulnerable to cormorants and goosanders as they try to migrate up and down rivers through weirs and hydropower plants to complete their life cycles
- Cormorants pose a direct threat to designated endangered fish species protected under European legislation
- Over wintering cormorants estimated at 23,000. Each individual eats at least one pound of fish EVERY DAY (2,760,000lb of fish each winter), even at the very lowest population estimates cormorants are eating more than 1000 tonnes of fish each winter.
- Numbers have increased by the influx of the migrant European sub-species *Phalacrocorax carbo sinensis* from mainland Europe
- The Eel Management Plans submitted and accepted by the European Commission estimate that between 29 & 43 tonnes of endangered eels are eaten by cormorants every year in England and Wales.
- The government's Moran Committee acknowledged the damage that cormorants can do to inland fisheries

List of Birds already on the General licence

Crow *Corvus corone*

Dove, Collared *Streptopelia decaocto*

Gull, Lesser Black-backed *Larus fuscus*

Jackdaw *Corvus monedula*

Jay *Garrulus glandarius*

Magpie *Pica pica*

Pigeon, Feral *Columba livia*

Rook *Corvus frugilegus*

Woodpigeon *Columba palumbus*

Goose, Canada *Branta canadensis*

Parakeet, Monk *Myiopsitta monachus*

Parakeet, Ring-necked *Psittacula*

8. Picture Gallery

The cormorant is a 'silver fish killer unparalleled in nature' which will slash and damage fish far too big for them to eat leaving them vulnerable to disease and a slow death.



Action on Cormorants – Protect our Fish

9. Case Studies From Around England & Wales

The following are extracts from correspondence and reports submitted to the Angling Trust office and website. The names have been removed to protect the reputation of clubs and businesses.

Dorset:

The owners of a river, once one of the finest roach fisheries in the country with records going back to the 1960s, saw their catch returns decrease in the 1990s at the same time as cormorants appeared on the river. The birds soon became comfortable with human presence and the club stopped re-stocking in 2009 as the fish were quickly consumed by cormorants. Matches stopped in 2011 as no fish were being caught and the local fishing tackle shop was closed due to lack of business. Environment Agency (EA) surveys between 1992 & 1998 throughout much of the river showed total fish biomass decrease by 75%.

Yorkshire:

A 35 acre lake in the grounds of a stately home was once home to large shoals of bream, pike and other species of fish and was a popular venue for many anglers. Cormorants appeared 10 years ago and match fishing has not taken place for 8 years due to there being no fish. The fishery manager has lost his job.

A river which in the 1980s and 90s was a superb mixed fishery with all kinds of species is no longer producing numbers of fish which coincided with the arrival of cormorants. "On the lake I have witnessed up to 25 cormorants fishing in a day and indeed today 18 were seen. No water can sustain that number on a regular basis. I have just stocked the lake in the last couple of weeks with £3,100 worth of bream and roach and I have a horrible feeling that a lot of them will have fed these disgusting birds. I have tried all sorts to reduce this predation, other than shooting, all with limited success. We are also limited to using shotguns to shoot and all the damn things do is move to the other side of the lake. A reduction in the regulation against fishery owners is urgently needed to allow us to deal with the problem more effectively and comprehensively before the collapse of the fisheries in the area and the subsequent loss of livelihoods."

"I help to run a coarse fishery and we are suffering terrible cormorant damage and have been for the last few months although it seems to be worse in the last couple of weeks. I have found 15 dead carp and bream all between 1 and 2 lb in weight and we have witnessed up to 15 of these birds feeding together as a group over the last weekend. We have a licence to shoot a maximum of 3 of them a year. It is a large water so whenever a member attends they just move to the other side of the lake and carry on."

Lancashire:

4 years ago a small landowner excavated a 2 acre pond and stocked it with rainbow trout as a small commercial venture. 2 years later cormorants first appeared and all fish have now been removed, the owner has closed the fishery down as he considers it a waste of money to re-stock with fish.

“I fish my local river most weeks and have a resident population of cormorants roosting in the woods bordering the river. They have decimated the coarse fish populations and who knows what damage they do to the salmon and sea trout parr and smolts. They are always working the pools when I get on the river in the early morning.”

Bedfordshire:

An angling club fish 2 lakes and whilst hold a licence from Natural England and whilst using sensible deterrents they still have on average 11 cormorants a day on the water predated on fish stocks.

Hampshire:

Owners of a fishery on a river report numbers of cormorants have increased steadily since 1988 doing immense damage to salmon parr and other fish.

Somerset:

Years of habitat improvements including improving gravels and working with farmers on one river in this county to improve trout stocks is being negated by increased cormorant predation.

Greater London:

“For several years I and a group of colleagues fished a friendly match annually on this river. The fishing was excellent and a great credit to Thames Water for cleaning up the river. We had large catches of predominately roach and dace – quality fish, but also some big perch, bream and even barbel – on one occasion a salmon! Then the cormorants arrived in huge numbers. I counted in excess of 40. They were seen taking large quantities of fish – it was a massacre. The match was won with a few ounces – most didn’t get a bite. We went again the following year with very poor results and have not been since. This is a tragedy.”

“Standing on the banks of the Thames near the Isle of Dogs my friend and I watched a single cormorant hunt and eat 3 good sized eels in the space of 15 minutes. Every time I visited my friend’s house these cormorants were waiting for eels. They became a permanent feature outside his flat. It was heartbreaking to watch a predator that is so obviously designed for the sea just exterminate a shoal of eels that were clearly on their way to sea.”

“Our local river in the built up area of London is a clear river that up to recently you could see vast groups of quality roach. The fishing was great and the river banks full of Londoners enjoying the little amount of green space we had and spending money in the local tackle

shop. Great days. Now the cormorants have stripped this once glorious river of all fish including wonderful perch, dace and the humble gudgeon. Now the river is not only devoid of fish but there are also no anglers including pensioners enjoying their days fishing. So sad and the same can be said for the river next door. All anglers love wild life but the cormorant has devastated our countryside. Oh yes our little tackle shop where we purchased our bait and chatted. CLOSED.”

“Fishery income has reduced from £70,000 to less than £17,000 per annum. This is only as high as it is because of the loyalty of member clubs. Tackle shops in the valley are closing every year. Since 1995 roach used to shoal under road bridges for protection but unfortunately bridges seem to offer no protection these days. I have also noted this year an increasing number of goosanders on adjacent pits.”

“We have had our lake decimated by cormorants over the last year, even the restock in 2010 around December time. we have very little to show for it, we have had at time two pairs working the lake; we are now down to 2 -3 that come and go on a daily basis.”

Norfolk:

A 50 acre gravel pit now has between 85 – 110 cormorants present during the winter and 10 in the summer and are only allowed to shoot 6 during the year. Fish numbers have decreased.

“My lake was cleared of mostly carp a year ago, the cormorants came in packs, I lost 20 Kilos of fish in one morning. Now only thinking about re-stocking.”

Surrey:

“Fishing on the local river. Not only is this a beautiful and historic river under attack from mink but there are numerous cormorants, the fish we catch often have nasty stab marks and the stretch continues to decline as the cormorants eat their fill.”

Buckinghamshire:

“We have seen a significant increase of cormorant sightings on our river. Numbers this winter have gone up, especially during the cold weather. Normally we find they are most active on the lakes in the valley but this year they have moved their attentions to the river itself. At this time of year the brown trout populations are extremely vulnerable as their focus is on breeding and caution is thrown to the wind.”

South Wales:

A club rents the fishing on a reservoir stocking 4,000 rainbow trout every season costing approximately £14,000 and traditionally had a good head of wild trout together with perch, roach and eels. Cormorant predation in the last 10 years has seen the wild populations

disappear and fish are regularly found severely damaged by a resident team of 10 cormorants. Damage is estimated at £245 per week in the cost of lost fish.

“Our lake has been virtually raped of all silver fish these last couple of seasons by the black plague this season and last season’s match results have reflected this, shockingly low weights, blanks galore .Anything from 5 to 25 birds descend on there every day from October through to March, and it’s getting worse, I feel this is another fishery that's gonna bite the dust in the not too distant future.”

Oxfordshire:

Local angler reported that he had been fishing a lake for many years but now there are 21 resident cormorants and catches are now scarce. Recently, on one day, there were 8 boats out but nobody caught anything.

Shropshire:

“I have been running the open matches on our river for the last 4 years and in the last 2 noticed the rapid decline of coarse fish stocks due to, in my opinion, the massive increase in cormorant and goosander numbers along this stretch of river. The problem is now that bad that no open matches are taking place due to anglers not wanting to fish the venue due to a lack of fish. In my heart of hearts I would like to think this is just a blip but know that it is due to the amount of fish these birds are eating. It breaks my heart to see one of the finest coarse fishing venues in the country suffering this way. I like many others have had some of the best fishing moments on this once superb venue so please help in any way you can.”

“Over the last 25years I’ve been fishing the river and caught many a roach and dace besides many other species of fish and even on the coldest days have had some fantastic catches. The fishing has dropped to such a bad level now that many weeks I leave the bank dry netted, I have seen goosanders in high numbers and this weekend counted 108 cormorants sat in trees. I am starting to lose interest in fishing knowing that I am doing everything right but with no reward.”

Local angling club reports that the increase in cormorant and goosander numbers have caused such a decline in angling visitors to the area that local Public Houses are reporting a 40% drop in angler bookings with local tackle shops concerned for their future survival.

Devon:

A river fishery supporting salmon reported being devastated by goosanders that have appeared since the late 1970s at first in small numbers but now in flocks of up to 22 birds. They are unable to control numbers as they have to provide proof that they are eating salmon smolts and the only way of doing this is to examine a dead bird which is illegal.

Essex:

“My fishing buddy and I fished our local river and watched 4 cormorants work a roach shoal for an hour or so. They averaged 6/7 fish each and then returned to the safety of their haunts. I fail to see how such a large bird with such a substantial appetite can continue to be left alone. I live next to a very small stream and have never seen cormorants on it until this winter. On one tiny stretch I counted 4. It is home to small shoals of rudd, chubb and roach. I do not expect to see many of them this spring.”

“We have a pond of about 1 acre which had healthy self sustaining stocks of what were probably true crucian carp as well as good healthy stocks of sizeable rudd, roach and bream which provided excellent fishing for twelve months of the year. Cormorants had been a minor problem with a slight decline in fish numbers until 2 seasons ago when the water was hit in a substantial way with between 10 and 60 birds seen on the water at any one time. On one occasion on a winter’s day 2 members had counted in excess of sixty birds pushing the fish shoals into a shallow neck of the lake. They could see substantial numbers of dead fish lying on the bottom as a result of the onslaught from the birds. This has left the lake with very few fish in the 3oz to 2lb weight and has become a “hard” water to fish. We do not have a licence to shoot cormorants and the numbers that were attacking the pond were such that culling the odd bird would make little difference. Re-stocking costs are such that, even with no further predation, it is probably going to take 3 to 4 years to return the fishing to previous levels because of the cost of the fish.”

Wiltshire:

“The numbers of cormorants in the area are high, bolstered by roosting and nesting sanctuaries often in nature reserves. Damage to fish is visible through scars and marks as well as evidenced by an unbalanced age group of fish with the easy ones to eat ones being absent. This, if kept up, will lead to a decline in populations. The costs of re-stocking are significant. The licence procedure is time-consuming, complicated and requires a heavy burden of proof.”

Northumberland:

“My river is thick with them at certain times of the year as they target small sea trout entering the river and smolts trying to leave. You can see them 20 or 30 at a time fighting each other over the fish they have caught, it has to be controlled in some way or all the good work we anglers put into the conservation of salmon is a waste of time.”

Kent:

“The cost on the public purse of the licensing of shooting a few cormorants is out of proportion and wholly unnecessary. If cormorants were added to the general licence the cost would be reduced to almost nil. Unless I can be permitted to protect my fishery in a more effective way, I may have to close it down.”

Warwickshire:

“Over the last few years we have suffered the loss of many quality roach, dace and barbel on our river due to predation. As we are a match based river only club the catch returns and match weights have been falling to dismal levels over this time cumulating in the worst winter results in the club’s 123 year history.”

Sussex:

“I own a fishery in Sussex which is being devastated by cormorants, we have put in deterrents which are not working, we have strung wires across the fishery with CDs hanging, this worked as a deterrent for about 2 days .The cormorants are now back, the fish that are left are so distressed they will not feed during daylight hours, anglers are not returning to the fishery as the catch rates are so bad, this is all down to the cormorants. If this persists for much longer we will have no alternative than to shut the fishery down.”

Cambridgeshire:

“During the floods of 2 weeks or so ago many of the roach and bream were shoaled up in slack water on a bend in my river. A ‘flock’ of 22 Cormorants regularly preyed on these vulnerable fish. Although I did not obtain photographs, as birds on the wing could be anywhere, I report what was happening.”

North Wales:

“Over the winter we had up to 6 cormorants on our beat of the river for over two months and needless to say the grayling population was decimated with only large fish being caught: there were few if any small grayling caught. The effect on juvenile salmonid populations is difficult to assess but there have been very few parr caught during the spring and early summer by our members trout fishing.

In addition to cormorants we had a flock of 20+ goosanders on our beat over the winter.

From a recent seminar I understand that an adult goosander requires 350gm of fish per day (cormorants need 400gm). On average a pre smolt salmon parr weights approx 10gm so based on a goosander requiring 350gm per day then each goosander will take up to 4 parr per day which means we were potentially loosing 80 parr per day to the flock of goosanders. Over the winter months (3 months) this can amount to the loss of circa 7,000 parr which have survived from fry that are decimated by goosanders during their breeding period so the overall loses are far greater. Is it any wonder the salmon numbers are in decline! There are also significant problems on the lower river during smolt migration with large flocks of cormorants arriving from the estuary to feed on smolts that get held up at the weir. It is not unusual to see the cormorants fishing above the weir into the large shoals of smolts waiting for a high tide before they will go over the weir. This annual event has become something of a tourist attraction and unfortunately is not unique as smolts refuse

to go over weirs during low flow conditions making them easy prey for avian predators. Improving habitat for salmonids just provides more food for avian predators that increase in numbers year on year let's hope common sense prevails and we are able to bring about a sensible balance between prey and predator. The river is listed as 'at risk' by the EA due to low populations of salmon parr."

County Durham:

"For the last three years there have been at least 5 cormorants on our Reservoir in Co Durham. These birds are decimating the stock of wild and stocked brown trout and catches have suffered dramatically. The angling club running the fishing is in danger of abandoning the fishing."

Nottinghamshire:

"I used to run a local pike fishery. We stocked this water with reject rainbow trout and our pike grew at a nice steady rate. (2 to 4lb pa) Then one year the cormorants arrived, 28 on one pylon nearby. I assumed that they wouldn't eat 1 to 2lb trout. The following winter the pike had not grown at all. I thought it was possible that the cormorants were responsible so I decided the following spring to protect the fishery. Bailer twine was criss-crossed over the entire lake to make it very difficult for a cormorant to land. The following year the pike resumed their growth. Coincidence? Possibly but I like to think we solved the problem with the bailer twine. Such an approach is only practical during the times when a water is not being fished. Once protected the lake could not be fished so what was the point?"

Surrey:

"January/ February of this year on several occasions I could count 45 cormorants roosting in the trees in one area alone at our fishery. I have been holding fishing events for two years once a month with an average of eight disabled veterans each time and in that time apart from the occasional pike and one small perch, try as we will nothing else has ever come out. Getting to the stage they don't wish to come to fish anymore."

10. Impact on Eels

The following analysis is taken from the Environment Agency's Eel Management Plans which were submitted to the European Commission and accepted as part of Member States' obligations under the Eel Regulation. Under this Regulation Eels are now the most protected fish in Europe due to the collapse of their population numbers:

An estimate of the number of eels consumed by cormorants in inland and estuarine waters in England and Wales was derived from the number of breeding birds

This suggests that 29-43 tonnes of eel are consumed in the breeding period in England and Wales alone. This was further assessed by the Environment Agency as to impact in River Basin Districts which is the reporting unit to Europe as follows:

The Northumbria RBD comprised 6% of the freshwater and lake habitat in England and Wales and estimates suggest that 9,000 to 18,000 eels are consumed by cormorants within the Northumbria RBD each year.

The Humber RBD comprises 17% of the freshwater and lake habitat in England and Wales and estimates suggest that 24,000 to 48,000 eels are consumed by cormorants within the Humber RBD each year.

The Anglian RBD comprises 17% of the freshwater and lake habitat in England and Wales and estimates suggest that 25,000 to 50,000 eels are consumed by cormorants within the Anglian RBD each year.

The Thames RBD comprises 11% of the freshwater and lake habitat in England and Wales and estimates suggest that 16,000 to 32,000 eels are consumed by cormorants within the Thames RBD each year.

The South East RBD comprises 3% of the freshwater and lake habitat in England and Wales and estimates suggest that 4,500 to 9,000 eels are consumed by cormorants within the South East RBD each year.

The South West RBD comprises 7% of the freshwater and lake habitat in England and Wales and estimates suggest that 10,000 to 21,000 eels are consumed by cormorants within the South West RBD each year.

The Severn RBD comprises 13% of the freshwater and lake habitat in England and Wales and estimates suggest that 25,000 to 37,000 eels are consumed by cormorants within the Severn RBD each year.

The Western Wales RBD comprises 9% of the freshwater and lake habitat in England and Wales and estimates suggest that 12,000 to 25,000 eels are consumed by cormorants within the Western Wales RBD each year.

The Dee RBD comprises 2% of the freshwater and lake habitat in England and Wales and estimates suggest that 3,000 to 6,000 eels are consumed by cormorants within the Dee RBD each year.

The North West RBD comprises 12% of the freshwater and lake habitat in England and Wales and estimates suggests that 18,000 to 35,000 eels are consumed by cormorants within the North West RBD each year.

The Solway Tweed RBD comprises just over 2% of the freshwater and lake habitat in England and Wales and estimates suggest that 4,000 to 7,000 eels are consumed by cormorants within the Solway Tweed RBD each year.

11.The Decline of the Hampshire Avon Roach – A Case Study

The Hampshire Avon was once the jewel in the crown of UK coarse fishing rivers. As well as producing magnificent chub and barbel it was rightly famous for legendary catches of roach and dace in both numbers and specimen sizes. By the early nineties the impacts of cormorant predation were causing a dramatic decline in silver fish numbers. Water quality remains good and the river still holds larger fish that are too big for avian predators plus vital indicator species such as grayling and bullheads. The only significant factor that has accompanied the decline of the Avon as a world class roach fishery has been the huge increase in cormorant numbers over the last 25 years.



Cormorants flying up the Avon Valley

How good was the Avon ?

A two pound roach would be considered a fish of a lifetime by most anglers in the UK and a catch of ten pounds or more in a single session would represent a nice day's fishing.

Below is some historical roach and general fish catch information regarding the Hants Avon prior to the cormorant invasions.

1980s and 90s

Kevin Grozier

Kevin is a local specialist angler and author who targeted roach in the winter months from the middle reaches of the Avon recording over 120 2lb plus roach from 1982 – 92 with several over three pounds. Other well known roach specialists such as Dave Howes, Dave Swallow, Tim Norman and Terry Lampard had similar success in this period.

Ringwood & District AA match results

1977 – A winning weight of 68lb of roach off Somerleys Estate

1988 – 48lbs off Folds Farm near Fordingbridge

90% of anglers would weigh in roach in winter competitions

Decline began 25 years ago as the cormorants began arriving

Historical: 1900 – 1940

Mr FWK Wallis

As reported in The Fishing Gazette in 1913....On an eight day holiday, Wallis and two others (probably brother in law and friend) fished SEVERALS at RINGWOOD and between them caught over 500 roach. 150 x one pound, 250 x pound and a half and 100x pound and three quarters. Same holiday they had 25 Grayling to three and a quarter pound, 40 Perch to two and three quarters and 250 dace to just under one pound.

Different report in early 1900's reported in 'Angling News' Wallis and three others on an eight day holiday caught 3100 fish from RINGWOOD. One day had 650 roach. Another day had 200 roach, plus dozens of dace to just under one pound.

In 1922 Wallis reported catching 170 roach on his own from the same swim from middle Avon.

In 1924 Wallis plus three others fishing in RINGWOOD over a seven day holiday reported in same mag catching 2000 fish - 350 large roach, some over two pounds, 20 chub between 3 and 5 pounds. On the last day of the holiday they reported catching 650 roach, 16 chub and 4 dace.

1950s and 60s

Angling Times reported in 1960 that John Reynolds took 16 roach over two pounds in five days from the Avon. This was among other bags of fish - he was one of the first to start using bread as bait for the roach.

Capt. LA Parker. (Former landlord of the Bull Hotel, Downton)

Reported in 'Midland Angler' in 1953 - 'Big bag of fish taken from the Avon at Downton.

Many chub to six pounds, dozens of roach to two pounds seven ounces and dozens of dace to just under one pound.

Also reported in the 'Midland Angler', Parker took seven roach over two pounds at Bickton (just south of Fordingbridge) in one day. Then repeated the catch of seven two pound roach further upstream on a different day.

His biggest roach catch reported was from Burgate and weighed one hundred and sixteen pounds of Avon roach.

He said he could quote another 30 to 40 days fishing, in a season, where he would take over twenty pounds of fish.

1970s

Owen Wentworth

In his book 'Coarse Fishing in Wessex' 1978 Owen tells the story of catching forty pounds of roach from Fordingbridge. This was filmed and shown on 'Out of Town' TV programme with Jack Hargreaves.

Owen Wentworth reports his best bag of roach from the Avon at Breamore (just south of Downton) as being ninety seven pounds of Avon roach in 1967.

Gerry Swanton

Never known for reporting his catches, but was ever happy to tell of his astounding achievements in roach fishing. In one bag of fish he reported roach of 2.6, 2.3, four at one pound twelve, three at one pound ten, seven at one pound eight and ten of one pound, plus five chub, dace and grayling.

Throughout his fishing life on the Hants Avon he boasted 373 roach over two pounds.

Britford 1971

LAA report in Angling Times. 203 roach caught that season over two pounds.

Three Longford annual match winners in 1970's. Match held between Salisbury and Downton on the Longford Estate.

1. Billy Lane with 30lb of roach, dace and chub.
2. Brian Thorpe with 56lb of dace.
3. Jack Harrigan with 46lb of roach and dace.

Summary

These verified reports demonstrate beyond any doubt whatsoever that the Hampshire Avon was a highly productive roach fishery for at least the first nine decades of the 20th century.

And the Avon now ?

The 2005 and 2008 EA fish stock survey results show an alarming and dramatic collapse in roach and dace populations in the middle reaches of the river. Silver fish are only present in any numbers in the semi urban environments of Christchurch and Salisbury where cormorants are deterred by human presence.

2005 South Wessex Fisheries Monitoring Survey

Catchment summary

1. Introduction

This document summarises the findings of the 2005 South Wessex monitoring programme by catchment. Many of the sites are sampled annually (temporal programme) for both coarse and salmonid species, the remainder are sampled once every 5 years (spatial/sentinel programme).

In addition to the national programme, a further 30 sites were sampled to look at specific local issues (reactive programme) such as low flows, juvenile coarse fish survival, salmonid recruitment/range etc.

A technical report describing the sampling methodology, data analysis and population statistics employed will be available on request.

Monitoring took place on the following catchments: Hampshire Avon, Dorset Stour, Dorset Frome and River Piddle.

2. Hampshire Avon

Following the dry winter of 2004/05, river flows remained low throughout the survey period. Low flow conditions prevailed throughout the summer and resulted in extensive aquatic plant growth and high water temperatures. A total of 36 sites were fished between 01/04/05 and 31/10/05.

2.1 Coarse fish

The coarse fish programme produced similar results to those recorded in 2004. The highest catch rates were again recorded in the top (A1R, Salisbury) and bottom (A7R, Royalty

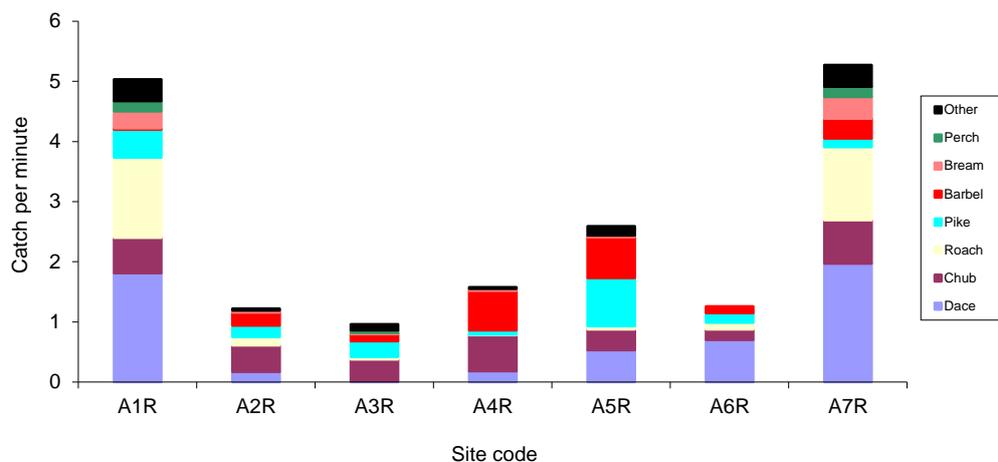


Figure 1. Coarse fish catch rate per minute for the Hampshire Avon, 2005

toClaypool) reaches. The rates were lower on all the middle reaches: A2R (Downton to Breamore), A3R (Fordingbridge to East Mills), A4R (Ibsley to Ringwood), A5R (Severals) and A6R (Avon Turn to Winkton) as summarised in Figure 1 above.

Reach A1R was dominated by roach and dace, as was A7R. Roach made up a very small proportion of the overall catches on all of the remaining reaches. Of the numbers caught, 152 of the 175 came from reaches A1R and A7R (87%) **suggesting a paucity of roach in the middle reaches.**

Chub, dace and roach were the most common species recorded on the survey. Barbel numbers peaked in the Ibsley to Ringwood and Ringwood to Bickerley Millstream reaches, with a large proportion of the fish captured in excess of 55 cm.

This year's programme also included 12 additional sites on the sidestreams and carriers to support the results from the main river. As expected, these sites supported coarse fish communities dominated by juvenile year classes, or in the case of dace, a smaller but similar cross section of the population found in the main river. Roach were caught in insufficient numbers to ascertain anything meaningful on the side streams. Juvenile barbel in their first (0+) and second year (1+) were present at 5 of the sites.

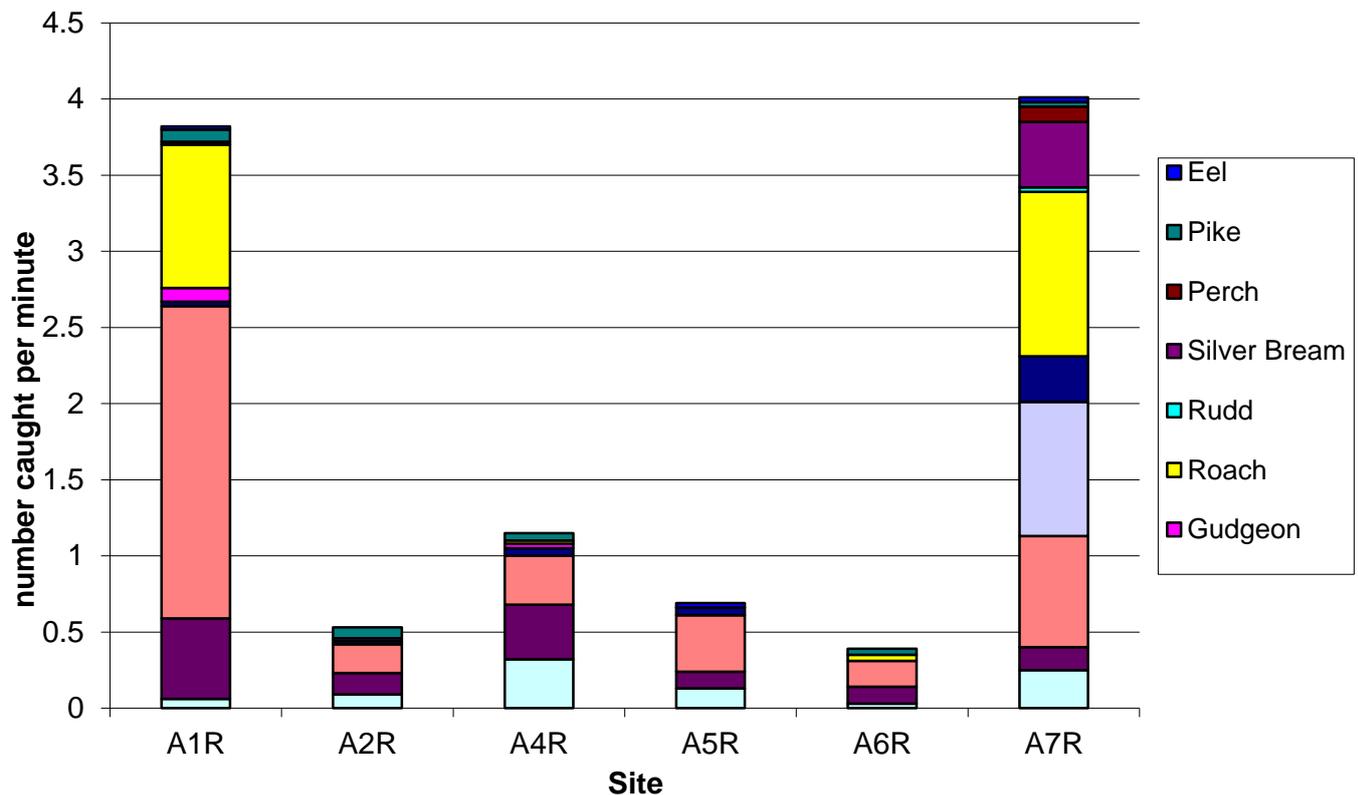
Overall, 26 species were recorded on the survey including 3 minor species, bullheads, minnow and stone loach. Other coarse fish species caught included gudgeon, tench, bleak and carp.

2.2 Salmonids

The Avon salmonid element of the programme consisted of 17 sites fished between 14/7/05 and 18/10/05.

The 2005 salmonid survey programme was affected by high water temperatures and low river flows. This in-turn reduced in-stream habitat and particularly the extent of suitable brown trout and salmon parr habitat. This combined with lack of fish cover **and a potential increase in predation** appeared to impact on the holding capacity, and led to poor results at some survey sites and higher concentrations of fish at others.

2008 Hampshire Avon CPUE survey results (excluding salmonids)



Conclusion

Predation by cormorants over the last 25 years has destroyed one of the finest roach rivers in Britain. This has led to the establishment of the award winning Avon Roach Project, supported by the EA and the Angling Trust, which is seeking to restore healthy roach populations to the middle reaches of the river. Accompanying this work is the campaign for more effective measures to protect fisheries such as the middle Avon from excessive and unsustainable cormorant predation.



Cormorants gathering on the Avon at Ibsley

12. Experience and Data from other Rivers

A trawl through catch data provided by both EA stock surveys and match results shows a similarly depressing picture on the state of silver fish stocks in many rivers and wild fisheries. Roach and dace are clearly the most vulnerable to avian predation by nature of their size and shoaling behaviour. However, wild trout and salmon smolts are regularly taken and, as the pictures show, cormorants will often slash at fish like bream, chub and carp that are too large for them to eat causing severe injury and opening them up to disease.

The Upper Severn at Shrewsbury was until five years ago probably the finest winter roach and dace fishery on the river. Competitions that were regularly won with 20lbs of silver fish have now been abandoned after flocks of cormorants and gosanders decimated the shoals. The Norfolk Wensum

probably rivalled the Hampshire Avon in the seventies and eighties for numbers of specimen roach but a combination of disease and cormorant predation have reduced the numbers of fish to record lows. In Oxfordshire the little river Evenlode has seen its once prolific roach and dace stocks systematically denuded by cormorants from nearby roosts. The situation is repeated in rivers, streams and lakes the length and breadth of the UK.

Environment Agency Surveys

We are grateful to the Environment Agency for allowing us to reproduce extracts from some of their technical reviews of fisheries in a number of different river catchments which includes latest fish stock survey data. The extracted text is taken directly from the EA reviews and is preceded by the Angling Trust comments in italics. There are a great many of these reviews but we have selected these examples to provide a snapshot of the problems occurring in wild fish stocks that are vulnerable to avian predation.

ESSEX

River Chelmer Fisheries Technical Review 2010

Angling Trust Observations:

It is clear that, despite good recruitment, survival rates for roach and dace in the Upper Chelmer are poor once they reach a size that makes them vulnerable to avian predation. Chub are less affected.

2.1.2 Population length-frequency and age distribution

The length of each fish captured in the survey programme is recorded allowing inferences to be made regarding population structure, age, growth and survival for different species. Frequency distributions of fish lengths are presented below for the upper Chelmer for some of the key species within the Chelmer catchment.

Roach

The length-frequency distribution for roach in the upper Chelmer is shown in figure 2.31. Large numbers of roach between 99-215mm were captured, although fewer were recorded above this size they reached a maximum length of 315mm. This suggests that **survival rates of roach in this reach are moderate**. There are also large numbers of roach recorded in the 35-99mm size classes, which bearing in mind the reduced capture efficiency at sizes <99mm, suggests consistently good rates of recruitment.

Chub

The frequency distribution of chub length in the upper Chelmer is illustrated in figure 2.32. There appears to be much greater variability in the distribution compared to that for roach. This is partially a result of the low absolute frequencies compared to roach, but also reflects greater annual

variation in chub recruitment and survival success. The highest frequencies occur in the 105-269mm and 350-480mm size ranges, **reflecting good years for recruitment and survival**. The maximum size recorded was 505mm, which is a good size for chub.

Dace

The dace length-frequency distribution is shown in figure 2.33. Strong recruitment is visible at the 30-99mm size range considering the reduced efficiency of fish <99mm. It appears that in the 100-199mm size range survival rates are reasonably good. **Survival rates in dace above 200mm is of concern with only 2 fish being recorded to a maximum size of 215mm.**

River Colne Fisheries– Technical Review 2011

Angling Trust Observation:

It is clear that, despite good recruitment, habitat and water quality survival rates for roach and dace in the Essex Colne are poor once they reach a size that makes them vulnerable to avian predation.

2. Current status

This section reports on the current status of fish populations in the River Colne based on the results of the detailed fish survey carried out during 2011. A total of 16 sites were surveyed between 9th May 2011 and 30th June 2011. The data presented are based on Carle and Strub population estimates derived from the survey results. Details of the data and its limitations are included in Appendix A.

Roach

The roach length-frequency distribution for the River Colne is shown in Figure 2.42. It can be clearly seen that recruitment appears good particularly in the <99mm size range which are again underrepresented and **that survival rates are poor**. The growth rate of roach in the River Colne is very slow.

Dace

The length-frequency distribution of dace in the River Colne also illustrates good recruitment and **poor survival rates with few fish present over 175mm** in length (Figure 2.43). Again the growth rates of dace in the River Colne like that recorded for roach is very slow but stabilises once the fish reach 3+.

River Blackwater & Pant Fisheries Technical Review 2011

Angling Trust Observations:

Dace in trouble despite good water quality

Summary

The Environment Agency has a duty to maintain, improve and develop fisheries. It is obliged to ensure the conservation and maintenance of the diversity of freshwater fish, salmon, sea trout and eels and to conserve their aquatic environment. The Agency routine fisheries monitoring program is an important contribution to satisfying these duties.

In 2011 a detailed fish survey was carried out in the River Blackwater and Pant as part of the three yearly programme of long-term monitoring. Such monitoring has been carried out on the river since the 1980s and provides an important record of how fish populations in the river have changed over time. This report investigates the outcomes of the 2011 survey and places them in the context of the historical trends observed during the long-term monitoring program. The results of this analysis are then used to make recommendations for the future management of the Blackwater and Pant fish populations.

The results showed considerable spatial and temporal variability in the fish populations of the Blackwater and Pant, reflecting the naturally dynamic character of coarse fish populations and the diversity of habitats present within the catchment. In general, the results of the 2011 fishery survey were negative, indicating a significant decline compared to the long-term mean values. A number of key trends were identified including:

Numbers of dace are in long-term decline throughout the Blackwater & Pant;

Eel numbers are in long-term decline throughout the Blackwater & Pant.

NORTHAMPTONSHIRE

River Nene Fisheries Technical Review 2010

Angling Trust Observation

Significant year on year decline in roach and eel populations with avian predation cited as a factor within the review.

Angling Interest

The Nene is a popular and highly regarded coarse fishery. The river is famous amongst anglers for its winter roach fishing, large carp (in excess of 40lb) are present in many reaches and the barbel stocked during the mid 90's are now being caught into double figures. Fish distribution appears to have changed over the last few years however, anglers report that fish are not present in their usual haunts or that they are difficult to catch and wary. This could be a result of improved water clarity; fish tend to shoal around cover and weed beds in clear water; shoaling behaviour offering protection for individuals from piscine and **avian predators**.

Conclusions & Recommendations

In common with all other European rivers the Nene has suffered a massive decline in its eel population. Only 3 eels were captured during this survey and the level of stocks are now so low as to be practically undetectable (see Fig 6.6). No elvers were captured (or seen) during the 2009 spring / summer migration period. Given the catastrophic decline in numbers it cannot be commercially correct or ethically right to allow commercial eel fishing to continue in the Nene. The Eel Regulations 2009 statutory instrument imposes a close season on eels of less than 12cms that runs from 26th May 2010 – 14th February 2011. For larger eels the close season runs from 1st October 2010 – 31st March 2011, these close seasons must be rigorously enforced. Part 3, section 11 (2) of the Eel regulations give the Agency the power to revoke eel licences, this is worth considering given the gravity of the eel population situation. Full use should be made of any additional powers e.g. The Marine and Coastal Access Act Chapter 3, Part7, section 218 – Limitation of licences; may be of use to try to protect the eel stock. 3000 elvers were stocked into the upper Nene in 2008 and it is proposed to stock again this year. Stocking is endorsed by the Agency Eel Management Plan 2009.

The roach population of the river appears to be at a very low ebb. Although roach are the most numerous fish in the river their numbers are well below the historic mean (Fig 6.2).

The growth of this species is also of concern, at only 85% of the standard growth rate for 'southern' rivers. However anglers catches of roach are still fairly good and it may be that the predator avoidance / clear water shoaling behaviour (mentioned earlier in this report) is causing an under representation of the real stock level. In an effort to understand the factors affecting roach recruitment in the Nene it is proposed to undertake further work to establish if other rivers nationally have declining roach populations and if so to try to understand the reasons for this. Fig. 9.2 illustrates the 'expected' and observed population of roach within the river (taken from the Water Framework Fishery Classification Scheme). Fig 9.3 is an example of a classification for the Nene using the original Fishery Classification Scheme – FCS 1. The D classification is almost the lowest.