



Department
for Environment
Food & Rural Affairs

www.gov.uk/defra

Impacts of predation by fish-eating birds on inland fisheries review in England

Final report and recommendations

19 July 2013

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PB 13971

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Executive summary

Valuing angling in England

Angling is an activity that does not tend to attract great attention in the wider world or the media. However, over 4 million people take part in angling in one of its many forms, and economically angling contributes over £3.5 billion to the economy of England and Wales¹.

Anglers are a hugely diverse bunch and the fisheries they enjoy vary widely too, from small clubs run on a voluntary basis to larger inland stillwater fisheries that are very successful businesses. The importance of angling culturally should not be underestimated, and its ability to empower people to become active citizens and bring people of different ages and cultural backgrounds together is enormously valuable. Angling gets people involved in teaching and coaching, and young people learn not just about going fishing but also the life cycles and habitats of species.

Angling delivers benefits for the environment and for people accessing our natural environments. Anglers deliver environmental benefits through the engagement of anglers with conservation, ecosystem monitoring and raising environmental awareness. Anglers and angling organisations help manage and conserve our natural environment through improving aquatic habitats, and also act as an active set of eyes and ears that contribute to the monitoring of our rivers and stillwaters, that in turn helps to ensure their environmental health. Angling also provides a 'gateway' for people to access green spaces and make connections with the natural world, which improves the wellbeing of people and their communities.

Government committed in its white paper, *The Natural Choice: Securing the value of nature (2011)*, to 'mainstream the value of nature'² by:

- Supporting local actions that protect and enhance nature
- Creating a green economy
- Strengthening the connections between people and nature
- Showing international leadership on natural environment matters.

¹ 'Fishing For Answers - The Final Report of the Social and Community Benefits of Angling Project' January 2012.

<http://resources.anglingresearch.org.uk/sites/resources.anglingresearch.org.uk/files/Final%20report.pdf>

² DEFRA (2011) *The Natural Choice: Securing the value of nature*, London: DEFRA

Anglers and angling organisations can play an important role, acting locally to protect and enhance nature, creating angling businesses that contribute to growth in the economy and building on angling's existing cultural importance to strengthen the connections between people and nature.

Anglers and angling organisations need to manage their fisheries. This includes managing wildlife, and may include wild birds that can sometimes have a serious impact on inland fisheries. Cormorant, goosander and red breasted merganser are species which all eat fish, and this can sometimes include the fish anglers want to catch.

Valuing our wild birds

The Wildlife and Countryside Act 1981 provides a robust framework for protecting and conserving our wild birds, reflecting the value people place on healthy bird populations and our biodiversity more widely. The Act also ensures we can deliver our obligations under the EC Wild Birds Directive and other international obligations to conserve and protect our wild birds. In 'Biodiversity 2020: A Strategy for England's Wildlife and Eco System Services', Government made a commitment to deliver by 2020:

'healthy well-functioning ecosystems and establish coherent ecological networks, with more and better places for nature for the benefit of wildlife and people'³

Government is committed to ensuring we have healthy populations of wild birds that help form strong eco systems. In addition Government is committed to ensuring that our places for nature benefit these birds and the people who use and enjoy these spaces. Cormorants, goosanders and red breasted mergansers must therefore continue to be protected and their conservation status maintained to deliver these commitments.

Managing our wildlife

There is a need to protect the economic and cultural value of our inland fisheries from the damage that fish eating birds can cause through predation, when such damage becomes serious. There is good evidence to suggest that non-lethal management of fish eating birds can be effective in addressing the damage they can sometimes cause to inland fisheries. In some circumstances however, lethal control is used to address damage to fisheries that is serious and where alternatives will not work. Defra has published clear wildlife management guidance⁴ that means lethal control of wild birds to protect inland fisheries must only be undertaken as a last resort. The guidance is clear that there must be no reasonable alternatives to lethal control that would address the serious damage, and

³ *Biodiversity 2020: A strategy for England's wildlife and ecosystem services* (Defra, 2011)

⁴ 'Wildlife Management in England - A policy making framework for resolving human-wildlife conflicts' available at - <http://archive.defra.gov.uk/wildlife-pets/wildlife/management/documents/policy-making-framework.pdf>

that the lethal control should not have a significant impact on the conservation of the wild bird species. Further, where lethal control is used it should be clear that it will address the serious damage.

This report provides a summary of the Defra led review and makes recommendations to Defra Ministers regarding how the best balance may be struck to ensure valuable inland fisheries can be protected from fish eating birds in an effective, proportionate and timely way while continuing to conserve and protect our wild birds.

Introduction

In June 2011 Defra published a paper, 'Impacts of Predation by Fish-Eating Birds on Inland Fisheries 2011 Review in England' setting out the terms of reference, scope and timeframes for an evidence led review of Defra's policy in relation to controlling the impact of predation on inland fisheries and fish farms from fish-eating birds, and, specifically, in relation to the threat of serious damage caused by cormorants, goosanders and red-breasted mergansers.

The review has invited evidence and expert opinion in order to ensure the policy continues to be based upon the best available evidence, and is robust and fit for purpose. Defra officials from the Biodiversity Programme led the review, and the Review Group consisted of the following organisations:

- The Angling Trust
- CEFAS
- Defra
- Environment Agency
- FERA
- Natural England
- RSPB

In addition, an independent fisheries management expert was a member of the Review Group, and on occasion the Group invited advice and opinion from other expert individuals and organisations. The Review Group has met seven times during the course of the review and visited inland fisheries to discuss with fishery managers the challenges they face in managing fisheries, to minimise the risk of serious damage caused by fish eating birds. The Group commissioned additional analysis of population data for cormorants, to better inform the modelling of the impacts of lethal control on the cormorant population, and has identified positive changes to the current licensing regime that have already been implemented.

Goosander and Red-Breasted Merganser

The scope of the review included consideration of three species known to predate on inland fisheries; cormorants, goosanders and red breasted mergansers. The evidence presented in this document relates almost exclusively to cormorants because the existing evidence base in relation to fish eating birds is dominated by the impacts cormorants have on inland fisheries. With the paucity of evidence regarding the impact through predation on inland fisheries of goosanders and red breasted mergansers, changes are not

recommended to the way the licensing regime is currently implemented for these species. However, officials consider the recommendations being made will support better management of these species where they are impacting on inland fisheries.

Key findings

These are the key findings of the Group presented as answers to some of the questions that the Group has been charged with answering. For each of these, more information can be found in the Evidence Summary using the references provided.

Are fish-eating birds causing more damage to inland fisheries than in 2004/05?

There is no new scientific evidence to suggest that the frequency and/or scale of serious damage caused by fish-eating birds on inland fisheries has changed since the last policy review in 2004.

Evidence Summary Reference: Page 16, A(i) Key messages

Are there significantly more or fewer fish-eating birds in England than in 2004/5?

Populations of cormorants and goosanders have been relatively stable over the past 7 years, though the overwintering population of cormorants is lower than previously thought following the application of a revised methodology for interpreting the survey data. There has also been some decline in red breasted mergansers

*Evidence Summary Reference: Page 68 C(vi) Key messages;
Page 15 A(i) point 19.*

Did the Group consider a general licence for the lethal control of cormorants?

The Group considered the use of both general and class licences.

Officials are not recommending a move to a general licence for cormorants or other fish eating birds at this time. On balance the evidence for moving to a significantly less precautionary approach, such as a general licence, is not strong enough at this time. Population levels for cormorants have been revised downwards and although some of the criteria for placing a species on a general licence may be met, others are not. A move to a general licence for example could result in a significant increase in the use of lethal control and this could result in a significant impact on the cormorant population

Officials do however recommend a trial of 'catchment area licences' rather than licensing fisheries on an individual site basis. It should be noted the licensing regime under the Wildlife and Countryside Act 1981 allows Natural England considerable flexibility in developing such licences. Any 'catchment area licence' that permitted lethal control would need to ensure all the legislative and policy requirements were met, including the need to work within the national thresholds for lethal control

Evidence Summary Reference: Page 62 C(ii) Natural England appraisal of alternative licensing approaches

Are changes being recommended to the current adaptive resource model used to set the level of lethal control for cormorants?

No - the model used to assess the impact of lethal control of cormorants is regarded as a particularly valuable tool for helping to establish appropriate levels for licensed shooting, and the Group recommends it is retained. It is recognised that the model produces comparatively precautionary assessments and has enabled a good balance to be struck between protecting inland fisheries from serious damage from fish-eating birds, while ensuring the conservation status of cormorants has not been significantly impacted.

The Group recommends that a reasonable balance continues to be struck between protecting fisheries without posing a serious risk to the conservation status of the cormorant population. Based on our understanding and experiences since the last review, a level of licensed shooting at around existing levels (up to 2,000 birds per year) is unlikely to result in a significant decline in the cormorant population but will continue to offer protection for inland fisheries

Evidence Summary Reference: Page 63 C(ii) Key messages

What level of serious damage to inland fisheries do fish-eating birds cause?

Scientific data on the level of damage being caused is very difficult to collect and record, due to the nature of the damage. There is however a belief amongst anglers and fishery managers, supported by expert opinion within the Review Group and the extensive observations of fish-eating birds at fisheries, that fish-eating birds continue to be present at fisheries and in some cases cause serious damage.

Evidence Summary Reference: Page 16 A(i) Key messages

Can more be done to help fisheries manage the impacts of fish eating birds?

Customer feedback shows that more than 90% of responding applicants rate the application process as good or excellent. More can always be done to provide help and support at the grass roots level to support and advise fishery managers. Fishery Managers would benefit from more active guidance and/or consultation at a fishery specific level about how best to safeguard their site. Ideally, this should be at the earliest stage before problems develop and licences are needed. To deliver this, officials are recommending the appointment of appropriately skilled fishery advisors who would need to be familiar with the full range of available management techniques. (Recommendation 2).

Evidence Summary Reference: Page 32 A (iii) and page 35 A(iv) Key messages.

Officials are recommending fishery managers should be encouraged, and supported in, adopting a holistic approach in managing their fisheries to ensure that limiting factors, other than bird predation, are considered alongside any management of fish-eating birds. Management strategies should be targeted appropriately to address key issues/constraints at particular sites, while also ensuring that management where appropriate is considered both at the catchment level and more widely.

Evidence Summary Reference: Page 32 A (iii) and page 35 A(iv) Key messages.

There may be scope in England for increased take-up of best practice for the management of fish-eating birds to protect inland fisheries. There appears for example, to be some scope for increased take-up of fish refuge use, particularly on inland stillwaters. Resources for implementing best practice management varies widely in England among inland fishery managers and groups, and smaller fisheries may be less well placed to adopt best practice management of fish-eating birds. Other than existing guidance material and advice from NE, there appears to be no effective mechanism in place in England for sharing best practice management techniques across fisheries (particularly fisheries of differing types and scale).

Evidence Summary Reference: Page 32 A (iii) and page 35 A(iv) Key messages.

Currently there are a number of sources for best practice and other guidance (from NE, Defra, EA and at an EC level) that could be usefully collated in order to provide a 'one stop shop'. A single website could provide such a function.

Evidence Summary Reference: Page 32 A (iii) Key messages

What is the conservation status of the three wild bird species considered in the review?

All three species considered by the Review Group are green listed and are not nationally or globally threatened.

Species/population	UK winter population estimate
Cormorant	41,000
	24,758 (new BTO assessment for England only)
Red-breasted merganser	9,000
Goosander	12,000

Revised time series of wintering cormorant numbers were derived by the British Trust for Ornithology using an improved methodology developed as part of the review. This has resulted in a lower estimate – i.e. there are approximately 20% fewer cormorants in England than previously thought. The latest estimate of the English wintering population (2010/11) is 24,758 birds, with c.14,700 occurring inland.

Evidence Summary Reference: Page 57 C(i) Key messages

What impact do the existing levels of lethal control of cormorants, red breasted merganser and goosanders have on their conservation status?

There is no scientific evidence suggesting that the level of licensed lethal control authorised since the last review has had a significant detrimental impact on cormorant, red breasted merganser and goosander overwintering populations.

Evidence Summary Reference: Page 63 C(ii), (iii) and (iv) Key messages

Recommendations

This report makes seven recommendations for action to assist in preventing and addressing serious damage from fish eating birds, which inland fisheries in England experience. The recommendations are designed to improve the way fishery managers are able to identify and implement the range of management measures available to them, to manage the impacts from fish eating birds in a timely, sensible and effective way. The recommendations ensure, wherever possible, a strategic approach is promoted to manage fisheries, including management at a catchment level and more widely, and crucially that support is available to deliver this approach through the introduction of three regional Fishery Management Advisors.

Recommendations are also made regarding the benefits of further research in several areas where the Group found a lack of evidence.

This report does not recommend any significant changes to the way the current regime assesses, at the national level, the impact of lethal control of cormorants under the licensing regime administered by Natural England. The current regime adopts an adaptive resource management approach which models the impacts of lethal control on the Cormorant over wintering population each year. This allows Natural England to set a precautionary threshold for the level of lethal control that ensures there is no significant impact on the overwintering cormorant population. The Group acknowledges that the existing approach provides many benefits and recommends it should continue to be employed.

The Recommendations:

Recommendation 1: Establish a Project Group to oversee implementation and monitor progress in delivering recommendations

Recommendation 2: Appointment of Fishery Management Advisors

Recommendation 3: Catchment-based Management Trial

Recommendation 4: The existing adaptive resource management approach for assessing the impacts of lethal control of cormorants to continue

Recommendation 5: Single website for dissemination of management advice for fisheries addressing the impacts of fish eating birds

Recommendation 6: Further research

Recommendation 7: Project Group to consider the value of an Accreditation scheme for fisheries and fishery managers

1. Project Group established to oversee implementation and monitor progress in delivering these recommendations

Why are we recommending a project group be established?

The recommendations below set a direction of travel for ensuring fisheries can reduce the risk of serious damage caused by fish-eating birds. In taking these recommendations forward it will be vital to ensure there is a forum where detailed discussions can take place that ensure angling, conservation and Government bodies can work collaboratively to implement the recommendations. More broadly the project group will provide a forum, that the Review Group has noted currently does not exist, for wider discussions between those with a strong interest in how inland fisheries manage the impact of fish eating birds. The project group:

- should include angling representative bodies, conservation NGOs, Natural England, the Environment Agency and Defra
- will define the role of, and reporting structure for, the three Fishery Management Advisors
- will review the work of the FMAs who will report to the Project Group regularly
- will manage the development and implementation of the three trial catchment schemes
- will be consulted on levels of lethal control established by Natural England annually (noting they will not have regulatory function but will advise and constructively challenge NE on the methodologies being employed, as well as disseminating information to their membership⁵)
- will monitor progress on delivery of all recommendations being taken forward
- will establish open forums (or make use of existing fora) to ensure the wider angling community, and other interested conservation organisations, can discuss progress with the recommendations

5 There is scope for more significant progress in ensuring that regulators open their systems to scrutiny. This would have three effects. Firstly, it would enable business stakeholders to be able to challenge the appropriateness of the risk methodologies used and offer improvements. Secondly, it would enable the regulator to manage the public perception of changes that they may make to the regulatory regime. Regulators need to be able to justify any changes made on the basis of a thorough risk assessment otherwise they are open to accusations of either regulatory creep or cost cutting. Thirdly, it would help business stakeholders ensure they are compliant, as transparent systems make it clearer where improvements could be made. (http://www.hm-treasury.gov.uk/d/hampton_compliance281106.pdf)

2. Appointment of Regional Fishery Management Advisors (FMAs).

Why are we recommending FMAs be appointed?

Currently there is a good deal of variation in the way individual fisheries plan and manage the impact of fish eating birds on their fisheries. This is inevitable since there is a wide range of fishery types that can be impacted, a wide range of management approaches which can be effective, and significant differences in the level of resources available to different fisheries to plan and carry out the management required. This means that a 'one size fits all' approach to managing the impacts of fish eating birds on inland fisheries is unlikely to be effective. There is a need to better support fishery managers in tailoring management approaches that will address the impacts of bird predation for their particular needs.

The Review Group recognised that while there is a wide range of sources of information relating to the management of fish eating birds, in published guidance, online sources, and hands on experience, the take up and application of this guidance and information appears patchy.

Some fisheries are run on a voluntary basis and resources are limited for developing and implementing effective management to address the impacts of fish eating birds. There appears to be no mechanism for sharing best management practice between fisheries or indeed any established mechanism for ensuring, where appropriate, that management across several fisheries is co-ordinated.

Some fishery managers reported struggling with the process for applying for licences administered by Natural England to carry out lethal control, though others reported that the process worked well. Natural England has already made some changes to make this process easier for fishery managers but there is an opportunity to offer greater support to those using the licensing regime as part of their approach to managing the impact of fish eating birds.

There also appears to be an opportunity to encourage a more strategic use of the existing licensing regime under the Wildlife and Countryside Act 1981 (for example considering the impact of management beyond individual fisheries and licensing accordingly). Licences are issued on an individual site basis but there may be merit in, where appropriate, moving towards assessing applications, and implementing licensed lethal control, on a catchment basis as part of an effective management plan. This approach to management and licensing would be consistent with the wider move in farming and water management towards catchment based approaches, including the pilot schemes under the Catchment Based Approach (CaBA)⁶. Regard would still need to be had to the wider impacts which

⁶ <http://www.defra.gov.uk/environment/quality/water/legislation/catchment-approach/>

might be seen outside the catchment area, and FMAs who would be aware of impacts of predation across a wide geographical area would be best placed to judge this.

So while each fishery may be unique in terms of the specific problems they face, there is an opportunity through the appointment of regional FMAs, to ensure that in managing the impact of fish eating birds, fishery managers:

- take a strategic approach
- get better access to the most effective management techniques
- be encouraged to work together and share best practice
- be better supported in identifying non lethal management methods
- be better supported in delivering management measures on the ground
- be supported in making more effective and strategic use of the licensing regime that exists – including lethal control
- be encouraged, where appropriate, to adopt a catchment based approach to management

The role of FMA should be endorsed by Defra, Angling Trust, RSPB, Natural England, and the Environment Agency and FMAs will need to work closely with Natural England, whose role is both statutory nature conservation advisor and the licensing authority, to ensure that the licensing regime provides an effective tool for protecting fisheries and maintaining the conservation of wild bird species. FMA's should be experts in fishery management and be able to gain the confidence of fishery managers. They should have knowledge of conservation issues and be able to ensure good, balanced advice (acting as a critical friend) is given on appropriate non-lethal measures. The Angling Trust or the Environment Agency may be best placed to provide the day to day line management for these roles but in addition the FMAs will make an annual report to the Project Group described in Recommendation 1. FMAs would be appointed for an initial period of three years.

Scoping and developing fully the role of the FMA will be an early task for the Project Group to be established under Recommendation 1.

What will FMAs do?

FMAs will work with fishery managers (on a voluntary basis) and Natural England to draw up individual plans to address the threats of fish eating birds working within the current policy and legal framework. Within the catchment trial schemes (Recommendation 3) the FMAs will develop a catchment area plan, working with several fisheries to deliver this. This plan will take a strategic management approach across as many fisheries as possible within the chosen catchments. It will be submitted to NE and lay out the timing and steps for managing fish eating birds. It will describe, where possible and appropriate, what

management of fish eating birds will take place at a catchment level rather than on an individual fishery basis. Such a plan would also include when and where, and to what level, lethal control is expected to be used. The aim should be a single catchment licence, issued by NE, with agreed levels of lethal control coordinated across several fisheries. In addition, the long-term aim should be to minimise the inspection and compliance monitoring for licences (in line with the principles established under the Hampton Review⁷).

FMA's will provide a knowledgeable face-to-face source of advice for inland fishery managers and guidance on a range of relevant issues. FMA's will:

- offer advice on best practice for non-lethal measures to mitigate problems with fish-eating birds, e.g. how to build and place effective fish refuges, when to increase fish stocks etc.
- assist fishery managers in drawing up bespoke management plans
- offer guidance and support on preventing serious damage to fisheries and support in submitting a Natural England licensing application where required
- provide signposting to other sources of information
- advise fishery managers on how to design fisheries that incorporate the best mitigation measures for addressing the impact of fish-eating birds
- offer advice on wider issues relating to fisheries management, ecology etc.
- act as a project manager in order to establish and implement a catchment management plan on the three trial catchments.
- report to the 'project group' (Recommendation 1) on an agreed basis

⁷ http://www.hm-treasury.gov.uk/d/hampton_compliance281106.pdf

3. Catchment Based Management Trial

Why is this being recommended?

Management of fish eating birds tends to be undertaken on an individual site basis due to the variation in the types of fisheries, resources available to manage impacts. The level of take up of the most effective management techniques to address the impact of fish eating birds appears to vary between inland fisheries. There appears to be no mechanism for fisheries to share experience and best practice, or to consider management across several fisheries.

Three river catchment trial management schemes (conducted over three years) supported by an FMA would allow fisheries within a river catchment (including still waters within those catchments) to:

- develop with Natural England more strategic approaches to licensed control of fish eating birds at the catchment level
- get better access to the most effective management techniques
- work together and share best practice
- be better supported in identifying non lethal management methods
- be better supported in delivering management measures on the ground
- be supported in making more effective and strategic use of the licensing regime that exists – including lethal control

The FMA will be ideally placed as a regional co-ordinator to look more widely than the catchment and to also consider how displacing birds through shooting impacts on other fisheries, both within the catchment and beyond.

In addition, three river catchment trial management schemes supported by an FMA should aim to allow NE to:

- conduct a more strategic assessment of licensing
- reduce costs (for business and NE in the long-term) of determining, issuing and compliance checking licences
- have greater confidence in assessing the impacts of licensed control within the catchments
- extend and enhance the way it works with local partners and communities in order to benefit from local technical expertise and volunteer groups

- reduce the volume of applications failing to meet licensing requirements on first submission

These schemes would run for a period of three years and be overseen by the Project Group proposed under recommendation 1.

4. The existing adaptive resource management approach for assessing the impacts of lethal control of cormorants to continue

Why are we recommending the existing approach to setting the level of lethal control be continued making use of revised population figures?

The Review Group recognises that the existing process has much to recommend it. In the course of conducting the review, the model used to estimate the impacts of the effect of lethal control on cormorants (which underpins the adaptive resource management approach) was reviewed and updated. This resulted in more reliable methodologies being developed for estimating overwintering cormorant numbers.

The current approach and the model that underpins it provide:

- a unique and useful tool for helping to establish appropriate levels of licensed shooting
- an improved methodology for estimating overwinter cormorant populations produced by the British Trust for Ornithology⁸ (that has strengthened the model used)
- short term evaluation of the impact of licensed shooting in order to better deliver effective adaptive resource management

The Review Group recommends therefore that the adaptive resource management approach continues to be used to assess and set the level of lethal control of cormorants together with local assessments of population numbers by NE Wildlife officers as presently occurs. The Review Group also recommends that the revised methodologies for estimating the over wintering populations of cormorants are used in modelling the impacts of lethal control. The Review Group also recommends that the population data used to model the impacts of lethal control are made available to Fera earlier in the year to ensure the level of lethal control set by NE can be done in a timely way.

⁸ Reference BTO research

5. Single website for dissemination of management advice for fisheries addressing the impacts of fish eating birds

Why are we recommending a single website?

There is a large amount of information available on techniques for managing conflicts between fisheries and fish-eating birds, including written and web-based material. The Review Group recognises that this guidance in some cases is not up to date however and is recommending therefore that a single website be created with revised and updated guidance. The Group also recognises that take up of best practice management varies across different inland fisheries and a single source of information provided by a new website may make it easier to adopt best practice. A single website could:

- provide a 'one stop shop' for fishery managers seeking information about managing fish eating birds
- make EC and national guidance regarding best management practice more widely available and more easily accessible
- ensure existing guidance was collated and revised
- improve the take up of the best management techniques to address the impacts of fish eating birds
- support fishery managers in taking a more holistic approach to management
- allow fishery managers to share best practice and experiences of managing fish eating birds

The Review Group recognise that such a single website would support the face to face role provided by FMAs rather than provide an alternative to this role.

6. Further research

Why are we recommending further research be considered?

During the review of the evidence presented to the Group, several evidence gaps were identified. The Group is proposing that further research is considered in these areas:

- impact of licensed control on breeding populations of cormorants – the existing model and adaptive resource management approach for determining levels of lethal control relies on annual counts of over-wintering cormorants. It is not currently possible to assess what impact licensed control may have on breeding populations.
- collation of new evidence of the impacts of fish eating birds on inland fisheries – the review has been constrained by a paucity of reliable current information on the impacts of fish-eating birds on inland fisheries, particularly in respect of goosanders and red-breasted mergansers. Further targeted scientific case studies would be beneficial. It would also be helpful to explore options for building possible impact indicators (e.g. levels of damaged fish) into existing routine monitoring programmes.
- effectiveness and take up of control measures (fish refuges, shooting (to kill) to maximise scaring effect etc)– it is generally accepted that shooting to kill enhances the scaring effect of shooting, however, evidence in respect of cormorants is equivocal. Earlier Defra-funded research found that both shooting to kill and shooting to scare were effective at reducing bird numbers at sites, but was unable to prove or disprove the hypothesis that killing enhances the scaring effect of shooting. It would be valuable to provide further clarification of this issue. In addition, further information is needed on the take-up of different management options, in relation to the efficacy of different management approaches at various sites, and an examination of the factors that would encourage better take-up of different strategies.
- The extent of unlawful killing of fish-eating birds – future model developments and enforcement activities would benefit from some indication of the extent and year-to-year variability in the level of unlawful shooting.
- Relative importance of – and interactions between – predation and other factors affecting fishery performance.

7. Project Group to consider value of an accreditation scheme for fishery managers and fisheries

Why are we recommending consideration of an accreditation scheme for inland fishery managers and fisheries?

Management programmes for controlling the impacts of fish eating birds need to be applied consistently and robustly to be successful, management works best if it is adaptive and employs a variety of techniques.

Some angling clubs are run on a largely voluntary basis while other fisheries are large commercial concerns. The result is that there are considerable differences in the resources available to deliver management of fish-eating birds. It is not clear whether all inland fisheries are well placed to implement a wide range of management techniques to address the predation impacts that can occur.

It is important therefore that there are recognised incentives for implementing effective management programmes. One way to deliver such incentives may be through an accreditation scheme that recognises fisheries that are able to demonstrate a proven track record of planning and delivery of effective management of fish eating birds and/or wider management measures. Any scheme should complement the existing Institute of Fisheries Management scheme aimed at driving upwards the competence of fisheries managers and improving the management of fish in recreational course fisheries (<http://www.ifm.org.uk/what-we-do/accreditation-schemes>). The scheme should not in any way introduce a further level of regulation for fishery managers and would be entirely voluntary in nature.

What would accreditation mean?

Accreditation could be awarded by an FMA and NE where a fishery manager was able to demonstrate they were:

- taking a strategic management approach
- accessing and applying the most appropriate and effective management techniques
- identifying and applying all reasonable non lethal management methods
- delivering effective management measures on the ground
- proactively planning how to make effective use of the licensing regime – including how lethal control might be used
- able to undertake well organised effective, efficient, humane lethal control where required based upon best practice
- providing timely returns to NE on lethal control

Accredited Fisheries could benefit from:

- fast-track determination of licences for lethal control of cormorants
- reduced costs of management of fisheries
- up to date advice on management techniques
- public recognition for adopting best practice