PROTECTING YOUR FISHERY FROM CORMORANTS

Produced for anglers and fishery managers by the Moran Committee Joint Bird Group

FOREWORD

The Moran Committee, which represents 13 of the major fisheries and angling organisations in England and Wales, has been well aware of the polarised positions that have long been associated with cormorants and freshwater fisheries. As a result of constructive dialogue and co-operation between anglers, fishery interests and conservationists, we have produced this booklet which I hope will be seen as a practical guide for those concerned with the management of our fisheries. I would like to thank the following for their contributions: *Bruno Broughton, Louise Byrne, Julian Hughes, David Fraser, Paul Knight, Jo Oldaker, Martin Read, Ian Russell and Adrian Taylor.* I am also grateful to the various Defra officials who have attended our meetings as observers and occasional contributors. Finally I would like to re-assure readers that we are all committed to finding an acceptable solution to what can be a very difficult problem.

Terry Mansbridge MIFM
Chairman, Moran Committee Joint Bird Group

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1. CORMORANT PREDATION ON FISHERIES

For well over a decade, the subject of bird predation on inland fisheries has been a major issue for fisheries and angling interests. The principal concerns have arisen as a result of the sharp rise in the number of cormorants at inland waterbodies in some parts of England and Wales, where they are attracted to feed at freshwater fishery sites, particularly during the winter months. Cormorants regularly frequent stillwater and riverine sites in many parts of the country, and they can affect both coarse and game fisheries. Sawbill ducks (goosanders and red-breasted mergansers) have also extended their breeding range into upland rivers in England and Wales since the 1950s, which has brought them into conflict with salmon and trout interests in particular.

Growing concerns about the impact of avian predators on fish stocks led to a major Government-funded research programme, which began in the mid 1990s, aimed at providing new information on bird/fish conflicts. However, the findings have not always been effectively communicated and it is apparent that some angling clubs, riparian owners and fishery managers are not aware of the actions that may be taken to alleviate the problem caused by these birds.

The Moran Committee was set up in 1997 to provide a co-ordinated platform of organisations to address angling and fisheries issues. The Committee has recently forged links with other nature conservation groups in order to identify common ground on the bird predation issue and to ensure that a reasonable balance is struck between the need to conserve both fish and birds. The Committee continues to address angling and fisheries concerns with Government, but it has also recognised the need to inform anglers about predation issues. With this in mind, the Committee has recently produced two information leaflets. One provides a brief synopsis of the key facts relating to cormorants, and another covers sawbill ducks:

- **Cormorants – The Facts**
- **Goosanders and Red-Breasted Mergansers – The Facts**

Copies of the leaflets are available, free of charge, from the Moran Committee Secretariat on 020 7283 5838, or can be downloaded from the following websites:

www.environment-agency.gov.uk
www.cormorants.info
www.english-nature.org.uk
www.rspb.org.uk
www.salmon-trout.org

The aim of this advisory booklet is to complement the information provided already and to give fishery managers some practical advice on the options for protecting their stocks. Wherever possible, this has been reinforced by reference to specific case studies, where management techniques have been tried and tested, together with diagrams or pictures to illustrate particular deterrents, and contact addresses/websites for further information. Although this booklet concentrates on protecting a fishery from cormorants, many of the management techniques described will be applicable to other fish-eating birds, such as herons and sawbill ducks.

The guidance also provides a simple, step-by-step guide on how to apply for a Defra licence to shoot birds at a site if other means fail. Such licences do not authorise culling (i.e. shooting a large number of birds with the aim of reducing the population), but they do allow a limited number of birds to be shot as an aid to scaring.

2. THE SCALE OF THE PROBLEM

The increased number of cormorants, particularly at inland sites, has resulted in a growing number of conflicts with anglers, fishery managers and owners. Such conflicts can, and do, result in the illegal killing of the birds, which are protected under the Wildlife and Countryside Act 1981 and European Directives, and this can result in prosecution.

Anglers often perceive that cormorants cause a widespread depletion of fish stocks, but while the birds can seriously deplete stocks at some sites, their impact elsewhere can be relatively minor.

Increasing angler frustration has centred on the lack of any co-ordinated attempt to control the bird numbers, but while this may seem to be the simple answer, the situation is in fact much more complicated. Cormorants are highly mobile and are particularly attracted to sites where fish densities are relatively high. Thus, any birds that are removed from such sites soon tend to be replaced by others moving in from other areas. In addition, the number of resident cormorants in the UK is swelled each winter by the arrival of birds from the near continent, so it is pointless to consider controlling the UK population in isolation.

It has been suggested that action be taken to limit the European cormorant population to counter this, but experts have calculated that the numbers would have to be reduced by up to 60,000 birds each year to make a

significant difference. Such action, in any form, would have to be

sanctioned by each government and at EC level. To date, no such actions have been agreed.

There are however a number of actions which can be adopted immediately to protect individual fisheries and particularly stillwaters. The co-ordinated use of deterrents, supported where necessary by licensed shooting, is therefore recommended in order to tackle local problems.

3. POTENTIAL FOR USING DETERRENTS

Reducing the impact of cormorants on an inland fishery requires making that site less attractive to foraging birds. For example, deterrent devices can scare the birds away, or favoured roosting and loafing sites can be removed. Underwater refuges provide cover, and thus shift the predator/prey balance in favour of the fish. However, no techniques are universally applicable, and what works at one site may not elsewhere.

Various deterrents keep birds away from agricultural crops and other sites of economic importance, and some have been effective at scaring away cormorants, in the short term at least. Experience has shown that deterrents are usually best utilised in combination and when moved from site to site. In this way, problems of birds habituating to a particular deterrent are reduced. Deterrents must also be used regularly, to reinforce the scaring effect on any birds newly arrived at a site.

There are practical limitations to the use of deterrents, and many may prove ineffective or impractical on river systems and larger stillwaters. Other factors, such as the proximity of human habitation or potential to disturb local wildlife, may also limit the use of deterrents. Since deterrents are aimed at preventing birds from feeding at specific locations, other key factors in their efficacy are the presence of alternative feeding sites and the proximity of roosts. Where birds are causing serious damage to a fishery, and where deterrent methods are ineffective or impractical, licences can be issued to allow the shooting of some birds as an aid to scaring.

4. THE NEED FOR FEEDBACK

The Committee recognises that this document does not provide the definitive word on deterrents and there are other techniques that might reduce the impact of cormorants. There is ongoing research in the UK, Europe and North America which is likely to provide new information. With

that in mind, this guide will be updated and expanded on the website www.cormorants.info as new information and advice becomes available. However, we would also appreciate your views and would welcome feedback and comments from angling groups, fishery managers and riparian owners with first-hand experience of using different management options. Comments can be sent either by letter to the Moran Committee Secretariat (address on page 23) or via the website.

The section below lists a variety of options that may be suitable for your fishery. All of them have worked at some time in some places. However it has to be acknowledged that many of them are unsuitable for use on rivers.

5. MANAGEMENT TECHNIQUES

If cormorants discover a water suitable for feeding, and they remain undisturbed, they may cause serious damage to fish stocks. A number of techniques are available to fishery managers who want to deter the birds from visiting a fishery, ranging from regular human presence to stock management and fish refuges. It may not be possible to try some, or indeed any, of these ideas at a particular site, but any subsequent application to shoot birds will depend upon evidence being given that scaring was attempted, or that other methods were impractical.

a) Habitat management
Good habitat is vital for successful, healthy fisheries in both rivers and stillwaters. A fisheries management strategy should aim to provide sufficient natural cover from submerged and littoral vegetation for fish to be able to hide out of the way of predators, thus making the provision of artificial refuges unnecessary. The most cost effective way of minimising the impact of predators on any fish population is to ensure that the environment provides fish with the best opportunities to use their natural defence instincts.

Correctly applied habitat enhancements will provide substantial fisheries benefits. Such works could include the creation of marginal reed fringes, permanent overhead and in-stream cover, and off-channel areas (e.g. shallow pools, backwaters and ditches). A reduction in numbers of marked fish found during fisheries surveys of some southern chalk streams has been attributed to habitat enhancement works.

(Useful reference texts on habitat enhancement work can be found in Further Information on page 22.)

b) Human disturbance
This simple approach often represents the most effective means of deterring birds. Unfortunately, birds keep unsocial hours as far as most humans are concerned, normally leaving their roost before first light and feeding most actively just after dawn. Therefore, unless someone is able to mount an early patrol or lives on or very close to the site to be protected, this option may be impractical. However, human presence over a reasonable period will enable you to obtain an accurate count of the numbers of birds affecting the fishery and thus better assess the extent of the problem. This is vital information when applying for a licence.

c) Preventing access
For stock ponds and possibly small fisheries, cross wires stretched over ponds have proved highly effective in keeping cormorants at bay, especially in other parts of Europe. Experience from Germany indicates that, in areas of heavy predation, wires spaced at between 5m and 7.5m are effective at deterring cormorants, and they are being used at carp ponds of up to 4ha (10 acres) in size. This technique is especially useful when there are alternative feeding areas for the birds in close proximity to their roost sites. This is not a cheap option and the unsightly appearance of a wired pond is likely to make any fishery unappealing to anglers and may render it unfishable. There may also be implications for other forms of wildlife (e.g. preventing waterfowl, terns, or herons from using the water, broken fishing lines and hooks tangled in the lines, etc).

This is possibly only a viable method for stock ponds.

d) Roost removal
It may be possible to cut down trees or modify roosting and resting sites used by cormorants to make a site less attractive. However, this will clearly not be appropriate for rivers or larger sites where there are likely to be numerous alternative roost sites available. The adverse environmental impact of removing trees would also need to be considered.

Note that nests are protected under the Wildlife and Countryside Act 1981 when in use or being built and must not be damaged/destroyed without a licence.

e) Stock management
This method has proved fairly successful at trout fisheries where, following the stocking of relatively large trout, the cormorants have subsequently switched their diet to the resident coarse fish populations or have moved to other sites. Both Rutland Water and Grafham Water, two of the best-known trout stillwater reservoirs in England, have followed such a successful stock management programme in recent years. Although the minimum size of the fish stocked has been increased from about 1lb to 1.4lb (with a high proportion above 2lb), the increased rearing costs are reported to have been covered by the better catch return rates and greatly reduced levels of 'scarring' damage. It is also apparent that the size of the cormorant winter roost and breeding population near Grafham has fallen since these measures were introduced.

"Protecting our popular trout fisheries at Rutland Water and Grafham Water from losses through cormorant damage has been a critical issue for us, especially with our commitment to enhancing biodiversity. Raising the minimum size of our stocked fish was an expensive option but it significantly reduced the problem and provided better quality fishing to our customers without any direct action against the birds."

David Moore, Recreation Development Manager for Anglian Water

However, such an approach has limited use for coarse fisheries, especially in rivers. Natural, sustainable fisheries cannot be established if stock regimes are constantly being manipulated. Fish of a size that are too big for cormorants to eat do not occur naturally in many species and are not available commercially in others. The possible exception is stocking with carp of 2lbs and larger but this is not applicable to river fisheries and is regarded by many people as inappropriate for many of our stillwater fisheries, on environmental grounds.

f) Fish refuges

Underwater habitat is a key factor in determining the interaction between fish predators and their prey. Weed cover and other submerged structures are widely used by fish to reduce the risk of predation from pike and other predators. It has been found that the survival of prey species increases, and the growth rate of predators decreases, as vegetation density becomes greater. The extent to which this might apply to cormorant/fish interactions is less well established, but there is good reason to believe that similar factors will operate. Cormorant numbers tend to be highest on inland waters over the winter, when natural cover for fish (e.g. weed beds) is at its lowest level and when fish swimming speeds are least (due to the lower water temperatures). Fish refuges therefore provide fish with additional cover and reduce their accessibility to cormorants at a period of the year when the fish are particularly vulnerable to predation.

Given that cormorants will be able to swim faster than most small fish in winter, refuges should not be viewed as 'bolt holes'. Instead, it will be necessary for any refuge structures to attract and 'hold' fish, while providing protection from predators.

It is not yet possible to provide definitive refuge designs, but it is evident that the key features would be:

- the provision of overhead cover,
- the incorporation of 'structure' to mimic natural habitat features,
- a means of excluding cormorants.

Overhead cover provides shading and this has been shown to attract fish and give them an enhanced ability to detect oncoming predators. 'Structure' might include artificial weed, brushwood bundles, branches, Christmas trees or submerged pipes. It is clearly necessary to exclude predators from the refuge areas, and this could best be achieved by surrounding fish attractants with 10cm mesh netting to make them 'cormorant-proof'. One successful option, providing both structure and cormorant-proofing in a single design, has been the use of small 'reefs,' constructed by joining together coils of mesh made of sheep wire (see Case study 1).

The potential benefits of using refuges are likely to vary with the fish species present and from site to site. Initial evaluation suggests that refuges might be most suitable for fish such as roach and perch, but a range of freshwater species may benefit. The features of a particular fishery are also likely to be important in deciding whether refuges will be effective. For example, the size of the water and the extent of existing natural cover will need to be considered. Refuges may be of particular value in relatively featureless sites, and, in such instances, positioning may be less critical.

However, where some existing cover is available, enhancing natural features may be better than positioning refuges elsewhere. Thus, placing refuges adjacent to emergent vegetation may well be more beneficial than providing alternative refuge areas in open water, well away from any existing cover. Alternatively, protecting existing natural refuge areas, such as marginal emergent vegetation, through the use of fenced and covered enclosures may represent an effective refuge option (see Case study 2).

There will, of course, be a number of constraints and practical limitations to using refuges. These structures may cause fish to aggregate unnaturally, a particular problem where match fishing is practised. There is also the risk that, without appropriate identification, tackle may become snagged, with the resulting loss of gear becoming a hazard for wildlife. It will also be important to ensure that the refuge structures themselves do not pose a risk of entanglement for fish and other wildlife. However, correctly designed to prevent bird ingress, refuges should provide the fish with some protection and help reduce expensive stock loss.

It should also be borne in mind that refuges could be used on a seasonal basis, being deployed only for the winter period, when fish are most vulnerable and there are usually fewer anglers on the bank.

Case study 1 - Ravenfield Park

Ravenfield Park hosts a mixed coarse fishery in Yorkshire at which the main species are roach, perch, bream, rudd, some tench and crucian carp; no pike are present. The site provides very little natural cover, with only sparse marginal vegetation. The club owning the site deployed a number of refuges at the fishery in 2000. These were made up of wire mesh 'cages' comprising several coils of sheep wire attached together (see page 11).

Figure 1. Floating island planted with marginal vegetation.

Subsequently, floating islands/rafts were installed over each refuge to provide overhead cover and to alert anglers to their position. These were made from large plastic drainage pipes, cut and glued to the appropriate size. The

island featured in Figure 1 is 3 x 2.5m and possibly the largest size that is practical. Plastic mesh was tied and suspended from the pipes. This was filled with straw and planted with a variety of marginal plants.

Studies at this site have indicated that high densities of perch, roach and rudd are using the refuge structures in the winter. Anglers are satisfied with the refuges and believe that benefits have resulted from their presence. The refuges are sited in the centre of the lake and have not proved an inconvenience for anglers, although they are often favoured as angling 'marks'. A number of fishing matches have been won by anglers fishing in the immediate vicinity of the fish refuges.

Refuge design

Following discussions with bird conservation interests, the club selected a fixed mesh, with a maximum size of 6 x 6in (approx. 15 x 15cm) and minimum size of 3 x 6in (approx. 7.5 x 15cm). The club purchased their sheep wire from **McArthur** (**Head Office: Foundry Lane, Fishponds Trading Estate, Bristol BSS 7UE Tel: 0117 965 6242 www.mcarthur-group.com**) who have branches UK-wide. Prices were £17-£22 (ex. VAT) per roll.

1. 13 lengths, measuring 3yds (2.75m), were cut from a 50m x 800mm roll.
2. the ends of each length were tied with electric tie wraps to form 13 separate cylinders, about 1yd diameter (0.9m).
3. the cylinders were tied into a unit, see Figure 2.
4. the remainder of the roll was then cut into three pieces and secured on the top to provide a full covered roof.
5. steps 1-4 were then repeated to make a second unit, which was secured as a second storey to unit one. The completed unit measured approx 5 x 3 x 2yds high (4.6 x 2.7 x 1.8m).
6. The refuge was towed into place using four large buoys. A rope was run across the lake and a boat positioned at the point on the rope where the refuge was to go. The refuge was pulled towards the boat and then placed by cutting each buoy in turn.

Figure 2. Assembly of sheep wire cylinders.

Case study 2 - Pound End

Pound End is a mixed coarse fishery in the Norfolk Broads. A bird exclosure was constructed at the site in the mid 1990s to enclose and protect an area of marginal vegetation (Figure 3). This was not intended as a fish refuge but was installed to allow better establishment of aquatic weeds by preventing damage by coots. However, monitoring of the fish populations was also carried out at this site each winter over a number of years and this demonstrated that the bird exclosure was heavily utilised by all the resident species of fish, with significantly higher densities in the exclosure than in the Broad itself. Cormorants regularly frequent this site over the winter months and their presence was suggested as the cause for the apparent use of the exclosure as a refuge. Fish were also recorded moving in and out of the exclosure area, suggesting that they would still be available to anglers.

Figure 3. Bird exclosure at Pound End, Norfolk.

Case study 3 - River Lee

While most refuge trials to date have been at stillwater sites, floating raft refuges of the type outlined in Case study 1 have been successfully installed in relatively narrow sections of the River Lee in North London. These were secured to the steep, sheet-piled banks where there was no natural vegetation. Netting suspended from the rafts provided a refuge for the fish and the roots of the aquatic plants grown on the top extended down into the water column to provide an additional fish spawning medium and protection for fry.

These structures enhanced the general appearance of the area and did not interfere with navigation; there was no opposition from boaters. In theory, provided they are secured correctly, such structures could also be used where water levels vary (e.g. tidal waters).

Research is currently continuing into the potential benefits of fish refuges for inland fisheries and the information provided here will be updated as new information comes to light. As previously indicated, refuge designs can vary and there is unlikely to be a single best option for use at all sites. In

some instances, it may be preferable to enhance or protect existing natural refuge areas, such as emergent vegetation, whereas, elsewhere, installing new artificial structures will be preferable. Refuge designs will also vary and, in many instances, the devices will be constructed on site by volunteers using materials readily available locally from builders' merchants. However, floating rafts incorporating pre-planted reed beds are available 'off the shelf' and further details can be obtained from:

- Spirex Aquatec
  Tel: 01527 821601
  Web: www.spirexaquatec.com

- MMG Civil Engineering Systems Ltd
  St. Germans, King's Lynn, Norfolk PE34 3ES
  Tel: 01553 617791
  Web: www.mmgces.co.uk

- A.G.A. Group
  Tel: 01428 609056
  www.agagroup.org.uk

Refuges can be elaborate constructions, but this is not always the case. The establishment of any weed/reed bed or merely installing branches, small diameter pipes or any other 'obstruction' in the corner of a fishery will help to buffer predation effects.

We would warmly welcome feedback from any angling clubs and fishery managers who may have practical experience or relevant comments on the design, installation and efficacy of fish refuge structures.

g) Automated scarecrows

There are many types of these devices, most of which have been adapted from scarers used in agriculture. It is not really possible to give an overall recommendation on their efficiency as some work in some places at some times. In general, they tend to have a small operating range, but can be most effective if used in conjunction with other deterrents and are moved regularly.

It should be noted, however, that such devices could also impact on other forms of wildlife. In addition, the birds you wish to scare do become used to their presence over time. It really is a matter of trying out the various options to see which one is suitable for your site. The other drawback is that they can be quite expensive to purchase and maintain, and unless you have a secure site (e.g. an inaccessible island) they can be stolen or vandalised.

One of the best-known automated scarecrows is the 'Scareyman'. This is electronically operated and displays and collapses on a controlled time basis. It can be fitted with various extras such as hooters, sirens and

lights. The total cost is in the region of £400. For further information, contact:

- Clarratts Ltd, Hollow Farm, St. Neots, Cambs PE19 6RU
  Tel: 01480 476376
  Web: www.clarratts.com

h) Noise generating scarers

There are a number of such options, which vary considerably in price and efficiency, depending upon your location and security. Probably the most sophisticated is the 'Scatterbird Mk II', a computer driven, electronically operated propane gas gun, which emits very loud pre-set timed or random bangs. They can be very effective, especially on smaller fisheries. These scarers cost £300-£400 each and, of course, they may be socially unacceptable in built up areas, or have an undesirable effect on other wildlife and anglers. It is also wise to advertise the use of such equipment widely to anglers, or others using the site, as the report mimics a shotgun and can be disturbing to those with nervous dispositions or some medical conditions.

A cheaper alternative may be 'banger ropes,' which are simply lengths of slow burning fuse with bangers inserted at intervals, or bird scaring rockets, which are similar to recreational fireworks. These are very easy to use, although they can be dangerous and care must be taken in their storage and transport.

As with visual scarers, birds can become used to their presence over time, and varying the position of the scarer is recommended to reduce this problem. Utilising noise generating scarers in combination with visual scarers is considered to provide a more effective deterrent.

All of these products should be available through local agricultural suppliers. If you experience a problem with getting supplies, contact:

- Portek Ltd
  Bleaze Farm Old Hutton Kendal. LA8 0LU
  Tel: 01539 722628
  Web: www.portek.co.uk

i) Other visual scarers

There are many other types of scarer that are primarily used for scaring birds from farmland, and can be successfully adapted for fisheries. As with

the other visual and audible deterrents, these appear to be most effective when moved regularly and used in conjunction with other deterrents.

Bird-scaring kites can be effective and are designed to a shape that is threatening to birds. The basic type is tethered to the ground and flies on an 80m line. However, this will only operate in a wind and, once they land, they stay there until re-launched. To overcome this problem, there is a model tethered to a 13m pole that will re-launch itself when the wind starts blowing. These are relatively inexpensive, costing under £100. Details from:

- Cochranes of Oxford Ltd., Leafield, Witney, Oxon, OX29 9NY
  Tel: 01993 878641
  Web: www.cochranes.co.uk

Another scaring device is the 'Peaceful Pyramid'. This comprises a rotating reflective pyramid, powered by a small electric motor, that deflects light into the air at the angle of the birds' approach. It is powered by a 12 volt car battery but automatically switches off in the dark, which gives weeks of running time between battery changes. The device costs just over £100 and is obtainable from:

- Peaceful Pyramid Birdscarers, 36, Hurricane Way, Norwich, NR6 6HU
  Tel: 01603 400440
  Web: www.birdscarers.co.uk

A further option is the 'Helikite', a cross between a large helium balloon and a kite, which flies above a pole in the middle of a lake or on an island. The advantage here is that it does not need wind to stay in the air. The contact is Allsopp Helikites, they also supply a number of other wind-powered scaring devices.

- Allsopp Helikites, Southend Farm, Fordingbridge, Hants, SP6 3HW
  Tel: 01752 518750
  Web: www.birdscaring.com

Another option is a wind-powered, constantly revolving scarecrow. These are brightly coloured, human-shaped scarecrows that can be enhanced by the addition of a mirror that flashes as the device revolves. As they are wind operated, there is minimal maintenance and they are relatively inexpensive (£125+). They can be obtained from Phoenix Agritech (UK) Ltd. The same company manufactures a wind-powered, flashing 'hawkeye' with mirrors, which is basically a revolving square with huge predator eyes on it.

- Phoenix Agritech (UK) Ltd., Lower Upton, Ludlow, Shrops, SY8 4BB
  Tel: 01584 711701
  Web: www.scaringbirds.com

Model birds of prey are said to scare cormorants, provided they can be made to look lifelike. However, the only native bird in the UK which has the potential to prey on cormorants is the white tailed eagle, so the practicalities of this technique might require some refining! The flying of live birds of prey across bodies of water by a competent falconer is another option although, again, this will be impractical in the majority of cases.

j) Shooting to scare

It is legal and acceptable to shoot in the air to scare birds away, and this can also be used to reinforce the scaring effect of human presence. The most commonly used weapon is a 12-bore shotgun, although, of course, a relevant certificate is required. If you do not possess a shotgun licence, a starting pistol can be very effective, although care should be taken so that others do not misinterpret your actions. The safest way to use a shotgun for this purpose is to fire blanks, which are available from your local gun dealer. A word of warning, though; some dealers will sell you 'saluting' blanks, which contain black powder and can be very corrosive to your gun, unless it is thoroughly cleaned every time you use it. One recommended cartridge is the Winchester 'Popperload,' which retails at just over £6 for 25 cartridges. These are normally used for dog training, and they make a very loud bang. If they are all you have in your possession when scaring birds, it is obvious that you do not intend to kill the birds.

It is also possible to purchase a variety of special bird-scaring cartridges. However, these are especially designed to be fired through a signal (Verey) pistol sleeved to 12 gauge and NOT through a normal shotgun. For both the cartridges and the gun, firearms certificate will be required. Because of the noise they make and the restrictions on possession and operation, their use will be somewhat limited. Further information can be obtained from:

- Primetake, Reepham Road, Fiskerton, Lincoln, LN3 4EZ
  Tel: 01522 752323
  Web: www.primetake.com

Shooting to scare can be an effective deterrent, and is sometimes the only option available on a river or stillwater to which the public has access. It has been demonstrated in a recent study that shooting to scare can reduce the number of birds present at fisheries (both stillwaters and stretches of river) for the duration of the shooting period and for a 'post-treatment' period. An average bird reduction of 50% was reported, with bird numbers recovering to pre-treatment levels over a period of a few weeks. To be effective in the longer term, it follows that such scaring would need to be repeated at regular intervals. When done properly (e.g. as birds first arrive), and in conjunction with other deterrents, this can be highly effective over a long period of time.

Management in designated nature conservation sites
If a fishery is located within a Site of Special Scientific Interest (SSSI), Special Protection Area (SPA) or Special Area of Conservation (SAC), then the owner/occupier must check with English Nature/Countryside Council for Wales as to whether they would need consent to perform a particular management activity to deter cormorants. If applying for a licence to shoot a limited number of birds, Defra/NAWAD would be required to consult with English Nature/Countryside Council for Wales.

A website, **www.cormorants.info** has been set up to provide further updates and additions to the information contained in this booklet. This website will also contain an electronic version of this booklet as well as some of the other texts mentioned in the Further Information section on page 22.

PLEASE NOTE:
No organisation involved in the production of this booklet is able to endorse any of the products mentioned herein. They are simply listed as an aid to those wishing to use such devices.

6. APPLYING FOR A LICENCE

In England and Wales, where fish-eating birds are causing serious damage to a fishery, and where scaring methods have proved ineffective or impractical, the Department for Environment, Food and Rural Affairs (Defra) or National Assembly for Wales Agriculture Department (NAWAD) may grant a licence to allow the shooting of a limited number of birds. It has to be emphasised that these licences are not to permit culling of the population; licences are only issued to reinforce the effects of scaring measures being carried out at the site. Applying for a licence is not as difficult as many people seem to think. Application forms are available from:

- Defra, Wildlife Management Team, Admin Unit, Burghill Road, Westbury-on-Trym, Bristol, BS10 6NJ
  Tel: 0845 601 4523 (local rate)
  Downloaded from www.defra.gov.uk/wildlife-countryside/vertebrates/piscivorous.htm

- NAWAD, Food Farming Development Division, Yr Hen Ysgol Gymraeg, Ffordd Alexandra, Aberystwyth, Ceredigion SY23 1LD
  Tel: 01970 627762
  (Scotland and Northern Ireland contacts are listed on page 22.)

Each application is considered on its own merits. On receipt of the application form, the applicant will be visited by a member of the Wildlife Management Team. These staff are professional wildlife biologists trained in wildlife management. A decision on whether to issue a licence will be taken by the Wildlife Management Team within 30 days of the application.

Defra/NAWAD also monitors all the licences issued in England and Wales to gather information on the effects of licensed shooting and other fishery protection methods. For England, a summary of this information is available from: www.defra.gov.uk/wildlife-countryside/vertebrates/piscivorous.htm

Completing the form

The following guidelines are provided to help you complete the application form. The intention is not to provide 'word for word' instructions, but to illustrate the types of responses that are required; individual applicants are likely to have other points that can usefully be included. These notes should be read in conjunction with the 'Notes for Guidance' accompanying the application form. The numbers below relate directly to the numbered questions as they appear on the form.

Question No.	Notes
1.	Name and address can be either that of an individual or organisation (i.e. angling club). It should be remembered that the individual signing the form would be responsible for ensuring that the conditions of the licence are met.
2.	If the fishery does not have a postal address, (i.e. if it is a stretch of river or a pond) include a grid reference or state identifying parameters between a bridge and a weir for example. We suggest that you supply a copy of a map.
3.	If not an owner, state 'lessee' or whatever. If not the owner, you will need the owner's permission to shoot and include written permission with the application. If you should have a problem in this regard, please advise the Moran Committee Secretariat (contact on page 23).
4.	Is self-explanatory.
5.	The application may still be granted even if the fishery is a SSSI, in which case Defra/NAWAD is required to consult with English Nature/Countryside Council for Wales.
6a. & 6b.	State the bird species (more than one if appropriate) and location together with a map, indicating where exactly you will be shooting. Remember there are legal requirements relating to shooting within close proximity of paths, roads and dwellings.
6c.	Shooting will not normally be allowed during nesting or rearing of young. Suggest September-March (when cormorant numbers tend to be at their highest) as an appropriate period, unless there is a specific predation problem outside this period.
7.	Is self-explanatory.

Question No.	Notes
	Questions 8, 9 and 10 are where you make your case.
8.	You need to say clearly, with additional pages if required, why the birds need to be shot. The following could be reasons, but remember that you will need to provide evidence. • Predation of fish stocks: birds have been seen taking/ attempting to take fish; catch returns, records and match results deteriorating; dead/dying fish have been found; angler complaints. • Physical damage to fish: fish have been found/caught exhibiting damage such as stab marks (herons), wounds/marks from the fishes back and down its flanks (cormorants); secondary infections/disease as a result of damage. • Observed behavioural changes: reduced fish availability, unusual aggregations of fish.
9a.	Provide information on species of bird, average numbers per day and peak numbers per day. For example: • *Herons - 12 present regularly at the fishery during daylight* • *Cormorants - average 15 per day, but a peak count of 24 birds on December 24th.*
9b.	Explain the behaviour of the birds – roosting and feeding. For example: • *Herons are present throughout daylight hours, each day, returning even after scaring.* • *Cormorants arrive at dawn and feed, remaining at or in the vicinity of the fishery unless scared, and even then they return only days later.*
9c.	If trout, give details of the size and numbers of fish and frequency of stocking. If coarse, give details of fish species present and stock density if known. Photos of damaged fish can be helpful.

Question No.	Notes
9d.	If you have catch or match returns showing a deterioration, include them. If not, obtain signed statements from club members who have witnessed a change. Give as many details as possible. Give details of any reduction in membership/day ticket sales. Include details of any implication of this loss of income e.g. employment of staff (i.e. bailiffs), club security, etc. Also provide any details of restocking, reduction in number of anglers fishing. In short, anything you feel may support your application should be included.
9e.	Other factors affecting the fishery must be outlined (e.g. concerns over water quality, other predators, etc.) These issues would be identified during a site visit anyway.
10a.	Tick the appropriate box (but see 10b).
10b.	Please see previous section for the appropriate methods. Be advised that if you have not tried at least some of the methods recommended it is extremely unlikely that your application will be granted. Give as full a description as possible of the methods you have tried and the reason for failure. Remember: Defra/NAWAD staff are aware of the limitations of most methods of deterring these birds, particularly on rivers and larger sites.
10c.	It may be that shooting is the only option i.e. in "sensitive areas". If so, explain this, and give reasons why.
11.	Is self-explanatory.
12.	Yes.
13.	Own judgement.
14.	Is self-explanatory.

Once completed, the form should be returned to the address shown.

7. FURTHER INFORMATION

Further information on scaring techniques and licences can be obtained by contacting the following:

England: Department for Environment, Food and Rural Affairs (Defra), Wildlife Management Team, Administration Unit, Burghill Road, Westbury-on-Trym, Bristol, BS10 6NJ
Tel: 0845 601 4523 (local rate)

N. Ireland: The Environment and Heritage Service, Commonwealth House, 33 Castle Street, Belfast, BT1 1GH
Tel: 028 9054 6558

Scotland: The Scottish Executive Environment and Rural Affairs Department (SEERAD) Pentland House, 47 Robb's Loan, Edinburgh EH14 1TY
Tel: 0131 556 8400

Wales: National Assembly for Wales Agriculture Department (NAWAD), Food Farming Development Division, Yr Hen Ysgol Gymraeg, Ffordd Alexandra, Aberystwyth, Ceredigion SY23 1LD
Tel: 01970 627762

Useful texts on fish-eating birds:

- **Cormorants – The Facts.** The Moran Committee Joint Bird Group
- **Goosanders and Mergansers – The Facts.** The Moran Committee Joint Bird Group
- **Fisheries and the presence of cormorants, goosanders and herons.** Defra WM14. Tel: 0845 601 4523

The website: **www.cormorants.info**. This website will provide regular updates on the information and advice contained in this booklet.

Useful texts on habitat management for fisheries:

- **Fisheries Habitat Improvement.** The Environment Agency. National Coarse Fisheries Centre. Tel: 01562 68975
- **Freshwater Fisheries and Wildlife Conservation - a good practice guide.** The Environment Agency. Tel: 01454 624400
- **Stillwater Coarse Fisheries Code of Practice.** Institute of Fisheries Management. This can be obtained from www.ifm.org.uk

Membership of the Moran Committee Joint Bird Group:

Moran Committee
c/o The Salmon & Trout Association, Fishmongers' Hall, London EC4R 9EL
Tel: 020 7283 5838

(*The membership of the Moran Committee comprises: Anglers' Conservation Association, Angling Trades Association, Association of Stillwater Game Fishery Managers, Atlantic Salmon Trust, Commercial Coarse Fisheries Association, Institute of Fisheries Management, National Association of Fisheries and Angling Consultatives, National Federation of Anglers, National Federation of Sea Anglers, Salmon & Trout Association, Specialist Anglers' Alliance, Welsh Federation of Coarse Anglers Ltd, Welsh Salmon & Trout Angling Association. Chairman: Lord Moran.)*

Environment Agency
Rio House, Waterside Drive, Aztec West, Almondsbury, Bristol, BS32 4UD
Tel: 01454 624400
Web: www.environment-agency.gov.uk

Royal Society for the Protection of Birds (RSPB)
The Lodge, Sandy, Beds, SG19 2DL
Tel: 01767 680551
Web: www.rspb.org.uk

English Nature
Northminster House, Peterborough, PE1 1UA
Tel: 01733 455000
Web: www.english-nature.org.uk

Observers:

Department for Environment, Food and Rural Affairs (Defra)
Wildlife Management Team, Administration Unit, Burghill Road, Westbury-on-Trym, Bristol, BS10 6NJ
Tel: 0845 601 4523 (local rate)
Web: www.defra.gov.uk/wildlife-countryside/vertebrates

The Centre for Environment, Fisheries & Aquaculture Science (CEFAS)
Lowestoft Laboratory, Pakefield Road, Lowestoft, Suffolk NR33 0HT
Tel: 01502 562244
Web: www.cefas.co.uk

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