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The Regulation of Fish Farming by the National Rivers Authority

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GLOSSARY OF ACRONYMS

ADAS	Agricultural Development and Advisory Service
ADRS	Association of Directors and River Inspectors in Scotland
CCW	Countryside Council for Wales
CEC	Crown Estate Commissioners
EA	Environmental Assessment
EU	European Union
GDO	Town and Country Planning General Development Order 1988
JNCC	Joint Nature Conservation Committee
LPA	Local Planning Authority
MAF	Minimum Acceptable Flow
MAFF	Ministry of Agriculture Fisheries and Food
PPG	Planning Policy Guidance Note
WOAD	Welsh Office Agriculture Department

Enactments referred to

DFA 1983	Diseases of Fish Act 1983
EPA 1990	Environmental Protection Act 1990
SA 1986	Salmon Act 1986
SFFA 1975	Salmon and Freshwater Fisheries Act 1975
TCPA 1990	Town and Country Planning Act 1990
WCA 1981	Wildlife and Countryside Act 1981
WRA 1991	Water Resources Act 1991

1. OBJECTIVES OF THE RESEARCH

The present study is understood to be the first research and development project of a primarily legal nature to be commissioned by the NRA. It focuses upon legal and environmental issues in aquaculture and the role of the NRA in regulating fish farming. It considers the present state of the law, the use of the law in practice and the scope for improvements in the law and legal practice of the NRA.

The Project has sought to achieve the following objectives:

- (a) to provide a statement of the overall range of powers and duties of the NRA, arising under the criminal and civil law, with respect to fish farming;
- (b) to review the powers and duties of the NRA alongside the legal interests of fish farmers and other riparian owners who might be affected by fish farming;
- (c) to ascertain the practical use made by the NRA of the legal provisions relating specifically to: planning authorisations; fish movements and disease control; abstraction licensing; discharge consenting; and crayfish cultivation;
- (d) to comment on variations in practice within the NRA as to the exercise of these powers and duties, and to suggest improvements in practice where possible;
- (e) to evaluate the appropriateness of the existing legal provisions to meet the general environmental duty of the NRA to promote the conservation of aquatic flora and fauna;
- (f) to highlight any perceived shortcomings in the present state of the law relating to fish farming, and propose suitable changes; and
- (g) to evaluate the extent to which legal research can contribute to the effective use of, or identify scope for improvement in, the NRA's duty and powers in achieving its function objectives in specific areas.

3.1 Town and country planning controls

The status of the NRA as a statutory consultee both as regards development planning and development control appears to allow sufficient weight to be given to its concerns in respect both of development planning and control decisions. If only for the avoidance of doubt, the functions of the NRA should expressly include powers as well as duties both under the WRA and other enactments. This would make clear that, in its role as a statutory consultee under planning and other legislation, the NRA is equally subject to the general environmental duties contained in ss.2 and 16 of the WRA 1991.

Development planning

In a number of instances, the development planning system makes specific reference to fish farming in local plans. Usually such references designate areas where further fish farming developments cannot be supported, but matters such as the likely ecological impact of the farming of non-native species may also be provided for. But more restrictively framed policies, e.g., policies seeking to restrict the farming of certain non-native species, have been considered not to conform with central government planning policy guidance.

Indirectly, development plan policies in relation to flood plain development may also help prevent inappropriately located development. Across the regions, however, discrepant approaches to development planning may exist in relation to the level of approach and detail within plans and policies.

Development control

Few new or recent fish farm developments were reported, and no difficulties with the operation of the amended General Development Order were reported. Recent case law, and the publication of central Government planning policy guidance on Planning and Pollution Control, have contributed to a clearer understanding as to the relationship between control functions by planning and pollution control authorities, in particular the limitations on planning controls as a means of preemptively restricting development proposals subject to other administrative authorisations.

Regions adopt differing approaches to planning liaison. Some rely on the Local Planning Authority (LPA) to notify the developer of other authorisations required, while others send a copy of its representation on the planning application to the applicant or his agent. The use of informal means of informing would-be developers of the authorisations they will

2. METHODOLOGY AND CONTENT OF THE REPORT

The project has been carried out by Kent Law School (KLS) at the University of Kent at Canterbury on behalf of the NRA as a one year study. Discussion of the environmental concerns associated with fish farming, and the present state of the law, is based on research work conducted at KLS. Both aspects were commented on during an initial series of meetings in the regions. Findings on the practical use of legal powers are based on initial and then focused meetings in the regions. The latter centred on a pre-interview schedule, for which responses were canvassed from senior representatives of the principal functions concerned. Recommendations as to best practice and necessary legislative reforms are based both on regional meetings and the authors' own views.

The Project Record details the general regulatory framework and the role of those bodies with responsibilities for fish farming, including the nature of the general environmental duties to which the NRA is subject. Basic information on the nature and extent of fish farming in England and Wales is also provided there. Subsequent chapters consider a number of areas of key importance in turn. For present purposes, detailed discussion of the respective environmental concerns and relevant legal framework is largely excluded. This R&D Note, therefore, concentrates primarily upon the practical use made of these powers and duties; recommendations as to how existing powers can best be used; and suggestions as to desirable legislative reforms.

Although this R&D Note largely summarises the key points contained in the Project Record, it has been possible to comment on a small number of developments that have occurred since the Project Record was first submitted. These relate to legislation establishing the Environment Agency which, at the time of writing, was being considered by the House of Lords.

3. PLANNING AND ENVIRONMENTAL ASSESSMENT

Recent legislative changes have helped ease some of the concerns about the control of fish farming development. These have largely brought freshwater fish farming within the town and country planning system. The relatively limited extent of new development in recent years has also reduced concerns about inappropriately sited facilities. Only a very limited amount of coastal fish farming is presently practised in England and Wales.

require from the NRA, however, may help prevent future difficulties, and is **recommended**.

The environmental impact of developments is an appropriate planning matter, and LPAs should be encouraged to give full consideration to the environmental impact of new fish farming developments where planning consent is required. But planning conditions should only be relied on, and will in any event usually only be valid, where the NRA cannot exercise powers given to it under statute.

One instance where this may be the case is in relation to escapes from farms. It is **recommended** that the NRA make representations to LPAs where there is a concern that new developments might give rise to escapes. Planning permissions have been refused on such grounds, and the wide scope for LPAs to take the environmental impact of development into account should be noted. Where conditions are imposed, discretionary enforcement by the LPA must be recognised.

Further legislative amendments were not canvassed to any extent, though this may reflect the relatively small number of new fish farm developments there have been since the GDO was amended.

Pond excavation

LPAs may still permit the excavation of ponds for fish farming without the need for a planning application. "Fish farming" is defined broadly in the Town and Country Planning General Development Order 1988 (GDO) as "the breeding, rearing or keeping of fish". The practical differences may therefore be based on interpretations by LPAs as to whether certain ponds will 'relate to fish farming'. The possibility that ponds may be dug for purposes other than fish farming and subsequently change their use must be considered. In one region, it is strongly suspected that a farm may be being constructed in such an incremental way, so avoiding planning controls.

Where the LPA considers that the pond is not to be used for the purposes of fish farming, then the issue of whether the excavation will amount to an "engineering" operation for the purposes of s.55(1) of the Town and Country Planning Act 1990 (TCPA 1990) is relevant. Here, it seems that LPAs take differing views, some requiring planning consent, others not. Pond construction for *any* purpose should therefore be classed as an "engineering operation" for the purposes of the TCPA 1990, given that change of use to use for agriculture will not require planning permission.

Duty to give reasons

LPAs have a duty to give basic reasons for their determinations. Experience varied both between regions and between LPAs within regions as to the provision of such reasons. Statutory provisions should specifically require LPAs, on request, to give reasons for their decisions. As a statutory consultee, the NRA should be advised of the reasons LPAs have for not following its advice. Prior to such change, the NRA should maintain close links with LPAs.

Article 4 Directions under the GDO

No recent examples of the use of Article 4 Directions, under which defined categories of development may lose the development consent granted to them by Order of the Secretary of State, were encountered. Given the recent changes to the planning legislation that have brought much fish farming development within the scope of development consent provisions, their further use is likely to be relatively uncommon. It is also difficult to envisage circumstances where a direction would now be readily given by the Secretary of State. Alterations to water resource provisions, and proper use of development planning, should make reliance on Article 4 Directions redundant.

3.2 Coastal fish farming

Development below low water mark is outside the jurisdiction of LPAs. Quasi-development planning and control functions over marine farming are exercised by the Crown Estate Commissioners (CEC). Unlike LPAs, the CEC are subject to significant income-generating obligations which, it was felt, have compromised their capacity to grant leases in the most appropriate locations and under the most appropriate conditions. The legitimacy of the public decision-making body having a commercial interest in the outcome of leasing decisions is criticised.

Adequate consultation with the NRA over the leasing of sites may not always have occurred. The CEC in England and Wales may also lack experience in leasing of the sea bed for fish farming.

The view taken by the Government that "Marine fish farming is very infrequent in England and Wales and existing systems are adequate to deal with likely developments" is difficult to sustain. The possibility of an upturn in market prices, resulting in or arising from significant developments in coastal fish farming technology, can be clearly envisaged and should be provided for.

4. WATER SUPPLY REGULATION

Virtually all new inland farms now require an abstraction licence from the NRA. Combined with the forthcoming use of Minimum Acceptable Flows (MAFs), and the present requirement to take minimum flow into account, many of the environmental concerns associated with water resource use at new fish farms should be ameliorated. Respondents expressed general satisfaction with the powers of the NRA in respect of new fish farms.

However, concerns remain with regard to existing operations, principally those utilising licences of entitlement under the Water Act 1989. Technical problem of metering abstraction levels may also present difficulties.

4.1 Definition of "abstraction"

Where, for example, cages are placed, or raceway units built, in the main channel of the river, or where new operations wish to make use of existing channels such as old mill leats for on-line cage farming, the need for an abstraction licence may be queried. Recent case law seems to uphold the view that abstraction requires a positive act of removal of water from a watercourse. Some diversions and bifurcations of river flow may, therefore, not amount to abstractions either in law or in practice, and thus not be subject (legally or practically) to the abstraction requirements of Part II of the WRA 1991. However, advice supplied to the NRA suggests that the re-opening of a former carrier would amount to an "abstraction" for the purposes of s.24 of the WRA 1991.

Clarification as to what in law amounts to an "abstraction" for the purposes of s.24 of the WRA 1991 could usefully be provided. To date the matter has not been directly considered by the courts, and the wording of s.221 of the WRA 1991 (temporary or permanent removal of water from a source of supply) may not be decisive of the matter in many of the situations where fish farming takes place. However, such clarification may be regarded as of a low priority.

4.2 Water supply restrictions through conditions as to volume in discharge consents

A recent judicial review decision of the High Court may support the view that licences of entitlement could be granted with reference to the volume limit then in force. However, the decision is ambiguous on the precise ground for refusal of the judicial review sought,

It is widely considered that the quasi-planning controls over the use of the sea bed presently exercised by the CEC be removed, and full planning controls vested in LPAs. This view is **recommended**.

3.3 Environmental assessment

To date there have been no instances of environmental assessment (EA) being used in respect of fish farming development in England and Wales. At present, only EA for salmon farming, rather than salmonid farming, is provided for in the Regulations concerning EA. This anomaly, which should be rectified, follows the wording of the English language version of the parent Directive which, by referring to salmon farming, differs from other official versions which refer to *salmonid* farming. However, even if the English version of the Directive were worded in conformity with other translations it is unlikely that any new salmonid farms would have fallen within the indicative criteria for EA presently used for freshwater salmon farms since the Regulations came into force in 1988.

The NRA may request developers to support applications for abstraction licences or discharge consents with information on the likely environmental impact of a fish farming proposal. Under s.4(1)(a) of the WRA 1991, the NRA "shall have power to do anything which, in the opinion of the Authority, is calculated to facilitate, or is conducive or incidental to, the carrying out of the Authority's functions". The use of such powers is **recommended**, as is extensive use of the general power to take environmental impact into account as a material planning consideration.

Most officers considered that EA should be required for *all* fish and shellfish farming development, regardless of size, nature or location (ie, added to Annex 1 of Directive 85/337/EEC). If discretionary assessment were to be provided for (as proposed by the European Commission) the importance of locational considerations above others was stressed.

Consideration should therefore be given to the drafting of indicative criteria in respect of all kinds of fish farming development. This might still be used as a guide to internal policy decisions regardless of all fish and shellfish farming being brought within the ambit of the EA Directive. The focus in the present policy guidance on EA for salmon farms on tonnage should be amended to emphasise that locational considerations are of greater importance than annual output. A number of more general criticisms of EAs actually submitted by prospective developers (their quality, consultation with the NRA, and so on) were also made.

in particular the effect that a lease condition requiring adherence to the volume limit may have had in determining the licence of entitlement.

However, throughout the litigation the courts stressed that volume limits in discharge consents must be imposed for reasons of water pollution control. Volume limits set without regard to water quality considerations, or with excessive regard to considerations relating to water supply, will be *ultra vires* (outwith the legal powers) of the NRA and challengeable on appeal.

In any event, the NRA would be obliged to make compensation payments to farmers to whom it had granted licences of entitlement were it to reduce the amount of water that may be abstracted. In practice, therefore, the utility of the High Court judgement may be limited.

4.3 Screening of inlets

Screening appears now to be insisted on in respect of all new licences. No instances of such conditions being challenged on appeal (on the grounds, for example, that they are not related to water resource management so much as with the protection of wild fisheries) were reported. It was suggested that, even where screening could not be justified under the powers and duties relating to water resources, it could nevertheless be justified under the general conservation duties of the NRA.

Screening of inlets should be insisted on in all new licences. Specifically, this should require a suitable means to prevent the ingress of fish into the farm being installed and maintained to the approval of the NRA. But it was not generally thought necessary that screening conditions be imposed in relation to individual ponds and tanks within the farm, unless there are abstraction points for each pond.

Legislative amendment is vitally needed to require the effective screening of all abstraction points. This issue is taken up in ch.7 below. Inlet screening is also considered as an aspect of the NRA's discharge consenting powers in ch.5 below.

4.4 Use of general duties under the WRA 1991

The NRA "shall have power to do anything which, in the opinion of the Authority, is calculated to facilitate, or is conducive or incidental to, the carrying out of the Authority's functions" (see 3.3 above). This power may be used by the NRA to augment the absence of powers given to LPAs to require EA for certain development projects. As long as any action taken or information sought is reasonable and justifiable on appeal, the equivalent

of full environmental statements may be requested from developers seeking abstraction licences.

Similarly, the exercise of the duty imposed on the NRA of "securing the proper use of water resources in England and Wales" (s.19(1)(b), WRA 1991) may be hindered where licences to abstract are granted but not utilised because, for example, planning permission for the proposed activity has been refused. Thus, it may be strongly argued that the NRA is under a positive statutory duty not to licence (or consent) activities in advance of planning permission being granted, and that it would positively be *unreasonable* to licence or consent in such circumstances given the uncertainty as to whether such licences will ever be utilised. Hence, the NRA could not seek to require conditions to be included in planning consents requiring prior approval for a proposed abstraction, as this would be inconsistent with its principal duty under s.19(1)(b) of the WRA 1991.

It is understood that national guidelines on the use of abstraction licensing powers have recently been produced (see ch.4, *National Abstraction Licensing Manual*, July 1994).

4.5 Variation and revocation of licences

The practical use of powers under the WRA 1991 to vary or revoke licences is much, if not entirely, restricted due to the level of compensation payments that would almost certainly have to be made in such situations. In one region, a figure of £250 000 was sought as compensation for variation of a licence for a fish farm. The proposed variation was abandoned. However, although revocation or variation may rarely be possible because of financial restrictions, each case should be determined on its own merits.

Serious environmental damage may arise or worsen during the time taken for a variation or revocation downwards by the NRA to be determined by the Secretary of State. Also, while appeals are being determined, the NRA may not be in a position to enforce licences (and similarly consents) effectively. The NRA may therefore have to await the determination of the appeal before effective enforcement action may be brought.

Some respondents considered that the NRA should be able to vary licences (and also consents) in advance of any determination of an appeal to the Secretary of State. However, opinion was generally against such powers being sought or given. On balance, it is thought that the preservation of the existing situation with regard to licence variation is preferable. Where variation is sought, the NRA should proceed through negotiation and agreement wherever possible.

4.6 Powers to request information

Powers to request information, under s.201 of the WRA 1991, are generally considered adequate, where necessary, for the purposes of gathering information on abstractions. However, concerns were expressed as to the quality of the information supplied about volumes abstracted and residual flow.

Additional powers under ss.4 and 19 of the WRA 1991, to provide for the better provision of information in the process of licence determination, should be used where required. Conditions concerning such matters as the means of measuring water quantity need to be worded sufficiently precisely to prevent avoidance of any such requirements.

It is anomalous that s.201 of the WRA 1991 only relates to the power to request information from someone who *is* abstracting, while s.202(2) of the WRA 1991 relates more generally to the receipt of information in relation to *any* of the NRA's functions under the water pollution provisions of the Act (including, presumably, information sought in order to determine a consent).

While the general powers under s.4 of the WRA 1991 may be of benefit, there is no penalty for not supplying the NRA with information sought under that section. It is therefore **recommended** that s.201 of the WRA 1991 be amended to cover the gathering of information relating to *any* of the NRA's functions under the water resources provisions of the WRA 1991.

The low level of fine for not providing such information may present practical difficulties in certain situations. It is therefore **recommended** that the maximum fine that may be imposed under s.201(5) be increased, bringing it into line with penalties in relation to other offences arising from not providing information to the NRA (such as under s.202(2), WRA 1991).

4.7 Licensing of farms

Given that the NRA may not have control powers associated with abstraction licences in all situations where fish farming may be conducted (see 4.1 above), it is **recommended** that the NRA require licences under s.29 of the Salmon and Freshwater Fisheries Act 1975 (SFFA 1975) for any new fish farming operations which make use of existing channels through which water is diverted where no other means of effectively regulating the environmental impact of such a development exists. The practical use of licensing powers under s.29 are considered more fully in ch.6 below.

5. WATER POLLUTION CONTROL

Generally, the level of water quality problems associated with fish farming has not been as great in recent years as it has been previously. This relates largely to decreases in intensity of production at fish farms due to the general reduction in profitability, though in part relatively wet summers (at least in certain regions) have also alleviated concerns over water quality. Few new consents have been sought for fish farms in recent years.

Following consultation with the British Trout Association and others, internal policy guidance on fish farms has been drafted (see Project Report, Appendix B). Although already used to some extent, its formal adoption should serve to standardise both conditions in new consents and the variation of existing consents, and its model conditions are generally endorsed as minimum best practice.

It is also understood that a national working party is presently reviewing discharge consenting policy generally as movement towards national standards gathers momentum with the coming of the new Environment Agency. However, a number of points may still be made in relation to fish farms.

Some significant differences in the form of existing consents exist, and practical difficulties may remain in the setting of consent levels and monitoring for evidence of breaches of consents. Few consents appear to have been granted by the NRA for coastal farms to date.

Generally, and subject to resources, it is **recommended** that existing consents be reviewed and brought into line at least with those agreed as minimum best practice nationally. Subject to variable water quality objectives, this should ensure greater harmonisation in the regulation of the industry as a whole.

5.1 Consent conditions

Generally, despite conflicting judicial comments referred to in the Project Report, it is **recommended** that a broader view of what may reasonably be provided for in a discharge consent may be taken. There may be circumstances where specified methods, such as the use of settlement ponds, may reasonably be insisted on.

Volume limits

With some notable exceptions, specific volume limits and daily rates appear to be consented. Particularly where a minimum percentage flow requirement is provided for, but also more generally, monitoring adherence to volume limits present serious practical problems. However, these practical problems may be overcome through specific provisions concerning the means by which the discharge is made to the watercourse, eg pipe dimensions. Although finite volume limits should generally be stipulated, percentage flows are equally valid and should be incorporated into the consent wherever necessary.

Look-up tables

Only one instance of provisions allowing for certain numerical quality limits to be exceeded in a specified maximum number of samples, subject to 'upper tiers' beyond which this exception does not apply, was noted (at an NRA-run fish hatchery).

Passage of water abstracted through the discharge point

Some farms make use of a debris separation pond to take out gross debris upstream of the main farm, preventing blockages in the farm. Where this is the case, the model condition stating that "all water abstracted at the inlet for use in the farm must be passed through the point of discharge" may have to be amended accordingly.

Disease-control conditions

In one consent, at a crayfish and freshwater fish farm, it is stipulated that the effluent shall be free from fish disease organisms, and any such effluent is to be treated in a specified manner prior to discharge. It is not known if this conditions has ever been enforced. Such conditions raise issues as to whether the NRA can use what are usually considered to be anti-pollution powers for the distinct purpose of controlling fish disease, and thus whether their use would be within its legal powers.

Although the use of such conditions has been recommended previously the inability at present to monitor and therefore enforce such conditions satisfactorily remains a potential difficulty preventing the effective use of such a condition.

Inlet and outfall screening

Although provisions relating to inlet screening are contained in existing consents, and also provided for in the model consent, the validity of conditions relating to inlet screening in discharge consents is considered to be of doubtful validity. It is apparent that such conditions do not relate to the quality of the effluent leaving the farm. The discharge consent should relate to the quality of the watercourse as it is affected by activities on the farm; the quality of the inflowing watercourse *on its own* is not a relevant consideration (though of course assessment of its quality will be critical for the purposes of assessing compliance with differential parameters). Although it might be argued that any fish stocks which pass through the farm may present a disease risk, it is unclear whether conditions seeking to prevent their control would be valid for the purposes of the WRA 1991.

However, in one case determined by the Secretary of State, detailed screening provisions were incorporated in the consent, though it was agreed that the screen be purchased by the NRA at a substantial cost. Under the agreement the NRA is exempted from liability in damages from the fish farmer for the operation of the screen.

Although *inlet* screening conditions in discharge consents may be invalid, conditions requiring the screening of discharge points are valid and should be insisted on. Screening conditions contained in abstraction licences would also be valid, and their use in respect of new licences is **recommended**.

Conditions might be included in discharge consents stipulating that no fish or spawn of fish be included in the discharge, enabling a prosecution under s.85(6) of the WRA 1991 to be sustained. However, this is not recommended as the primary means through which fish escapes should be prevented.

The 'fish kill' condition

Many consents (and also the model consent) prohibit the discharge of any matter to such an extent as to cause the receiving waters to be poisonous or injurious to fish, their spawning grounds or food. This condition is to apply alongside specific absolute and differential parameters. However, no instances of prosecutions having been brought on the basis of a breach of this condition were reported.

At least in respect of discharges by sewage undertakers the 'fish kill' condition as contained in many fish farm consents has now either been excluded or incorporates a test of 'reasonable practicability'. Its legal validity has always been a matter of debate, and its utility is in some respects diminished where provision is made that the consent is not to be

taken as providing a statutory defence against a charge of pollution in respect of any constituents for which it does not specify limits. This is contained in the draft policy and the general notion that consents are inclusive of what may be discharged rather than exclusive has been upheld by the courts.

In any event it would seem unlikely that a charge based on the 'fish kill' condition would being sustained in practice, and it is therefore **recommended** that reliance on this condition in enforcement action be avoided wherever possible.

Cage farms

Given the present dearth of coastal farming in England and Wales, recommendations for best practice in this area are not readily forthcoming. However, it is **recommended** that the NRA draw upon the recommendations contained in the recent report of the Association of Directors and River Inspectors of Scotland (ADRS) (see Appendix C, Project Record) as a starting point when considering applications for consents in such situations. This report looks in detail at standard setting, consenting and monitoring of caged fish farming. It is also **recommended** that the experience of those regions where cage farms have been consented (notably Welsh region) be drawn upon.

Miscellaneous considerations

Fish farm discharges may fit uneasily in the classification scheme recently introduced under s.82 of the WRA 1991. The Surface Water (River Ecosystem) (Classification) Regulations 1994 only provide for a limited number of parameters to be taken into consideration, and the impact of other quality factors that may be associated with fish farms are excluded from the classification system.

More broadly, it is suggested that in consent setting, greater *direct* emphasis ought to be accorded to the ecology of the receiving watercourse. While this is presently sought through *indirect* means by setting standards (differential or absolute) for particular parameters, use of any descriptive consent condition effectively deprives the discharger of a defence to a charge of pollution of a watercourse. It was also suggested that though there may not be grounds either to refuse abstraction licences or discharge consents, it may be that the overall environmental impact may nevertheless be unacceptable.

5.2 Monitoring of consents

Apparent differences exist between regions regarding the technical ability to monitor certain discharge parameters. Even where parameters are capable of being monitored,

problems exist in monitoring consent compliance due to the infrequency and timing of samples, and the variable nature of fish farm effluent. Continuous monitoring, and moreover a duty to self-monitor as recommended in the report of the NRA policy group on discharge consent and compliance policy (the *Kinnersley Report*, 1990), would eliminate many of these problems.

Those consents examined did not reveal such a duty presently being imposed at any fish farm, which would in any case involve significant cost implications for both the farmer and the NRA. Although conditions requiring this form of self-monitoring have been upheld by the Secretary of State, the extent to which information obtained from self-monitoring may be used in any prosecution against the information-gatherer may also be queried, particularly in light of a recent decision of the European Commission on Human Rights.

The possibility of legal challenge in respect of differential parameters means that consents may have to be formulated so as to stipulate what period of time will elapse between sampling at the intake and outlet points for monitoring purposes. A condition to this effect is not contained in the draft guidance but is **recommended**.

5.3 The provision of information

NRA officers frequently appear to see themselves as having access to insufficient information pertaining to fish farming operations, most notably in respect of the control of disease but also more generally as regards water quality. It was generally agreed that the NRA should have the power to request information from fish farmers concerning such matters as stocking rates, fish feed and other holdings and practices affecting water quality, though most respondents stressed that a pragmatic approach to the gathering of information from most water users was generally sufficient and to be preferred.

Although the draft guidance states that generally the NRA should be notified in advance of an intention to use certain prophylactic and therapeutic chemicals, it is unclear in this context what "intention to use" and "in advance" amount to. It was therefore suggested that, other than chemicals specifically mentioned in the consent, no other prophylactic or therapeutic chemicals should be discharged without the prior written approval of the NRA. Such approval could either be general or specific. To avoid visual disamenity where malachite green is used, however, it is **recommended** that the NRA seek to encourage its use at times when its visual impact will be least unacceptable.

Those sections of the WRA 1991 relating to information gathering may be relevant but would appear to be little used in a fish farming context, and the serving of notices seems

generally to be a course of last resort. There is a clear practical preference that such information should be obtained through more informal routes wherever possible, but greater use of existing statutory provisions may be **recommended** where information concerning the administration of the NRA's functions under the water pollution provisions of the WRA 1991 is required.

It is also **recommended** that the potentially wide ambit of s.202(2) of the WRA 1991 as presently worded be utilised where necessary, particularly as regards water quality aspects to other functions of the NRA such as water resources and fisheries. Ultimately, however, it is **recommended** that the WRA 1991 be amended in respect of information gathering to cover all the functions of the NRA, not merely those relating to water abstraction and pollution.

Provision of information should not only be from farmers to the NRA; the NRA may be in a position to provide useful information to farmers on best practice.

5.4 **Enforcement action**

In respect of off-river farms, it seems clear that any of the principal water pollution offences in the WRA 1991 might be pursued, although it is normal practice for charges to be brought under s.85(1) or (3) of the WRA 1991 unless the discharge is not to "controlled waters".

However, with on-river farms, and cage farms in inland stillwaters and coastal waters, it is less apparent that a "discharge" takes place and there appear to be conflicting decisions of the Magistrates Court on similar questions. The extent to which pollution incidents arising from such operations could be prosecuted other than under s.85(6) (breach of conditions of a consent) may be somewhat uncertain.

As it has yet to be firmly established that fish farms do "discharge" for the purposes of the WRA 1991, it is **recommended** that pollution prosecutions arising from incidents at cage fish farms be brought under ss.85(1) and (6) of the WRA 1991.

Given the higher penalties that may be imposed, there are clear practical advantages in bringing charges under the WRA 1991 as against the SFFA 1975. Where charges under both Acts are contemplated, to avoid the possibility of an autrefois acquit plea, it is **recommended** that both counts be pursued only where there is doubt that charges under s.85 can be sustained. It is therefore **recommended** that charges be brought only under s.85 wherever possible, but that s.4 be considered in the alternative when necessary.

Charges under s.4 of the SFFA 1975 may in some instances be the only one that may be brought. It is therefore **recommended** that the maximum penalties that may be imposed under s.4 of the SFFA 1975 should be brought into line with those relating to offences under s.85 of the WRA 1991.

5.5 The Environment Agency Bill

At an early stage in the life of the Bill to establish the new Environment Agency it was envisaged that the meaning of "pollution" contained in s.1 of the Environmental Protection Act 1990 (EPA 1990) would be extended to all water pollution offences. This would have extended and clarified the meaning of "polluting" for the purposes of s.85(1) of the WRA 1991, and follow the judgement of the Crown Court in the *Egger* case, and would have been welcomed.

However, such an amendment does not appear in the Bill presently before Parliament. Similarly, extension of the language of the EPA 1990 as regards the "release" of substances, which appears to be a broader term than simply "entry" or "discharge", would be welcomed. It is **strongly recommended** that the most all-encompassing form of words be introduced into water pollution provisions at the earliest legislative opportunity.

5.6 Preventing water pollution from fish farms

On balance, most respondents thought there was utility in the NRA having to give its consent for the storage of certain substances at fish farming premises, the exercise of such a power being in line with proactive approaches to water quality regulation already contained in the WRA 1991. Such powers would be of use where the nature of a pollution incident was uncertain, and information concerning potential pollutants might be beneficial.

It is therefore **recommended** that the NRA be given the power to control the location and method of storage of substances at fish farms which, if discharged to the watercourse, would result in damage. The use of threshold criteria may be considered here to exempt the storage of substances in insignificant quantities.

5.7 Code of Good Agricultural Practice for the Protection of Water

Fish farming is regarded as an agricultural activity for most practical purposes and, as such, is subject to certain controls imposed by the Ministry of Agriculture, Fisheries and Food (MAFF). It therefore seems somewhat anomalous that fish farming *may* be excluded from the *Code of Good Agricultural Practice for the Protection of Water* depending upon

the construction of the Code. It is therefore **recommended** that consideration be given to producing a statutory Code of Practice for the Farming of Fish (A 'Code of Good *Aquacultural* Practice for the Protection of Water'). Alternatively, specific provisions relating to fish farming could be included in the next revision of the Code of Good Agricultural Practice, though the former option is preferred.

Until such provisions are drawn up and approved, it is **recommended** that the Code of Good Agricultural Practice be construed so as to apply to fish farming wherever possible. Attention is also drawn to the Code of Good Practice produced by the British Trout Association.

6. FISH MOVEMENTS AND DISEASE CONTROL

The practice of fish farming inevitably involves the movement of fish. This may be between sites in this country, or involve the import and export of live or dead fish and fish viscera. Given that restricting the movement of fish is one of the principal means of preventing the spread of fish disease, the two areas have a large degree of overlap. However, restrictions on fish movements are also imposed for reasons other than disease control, most notably because of the adverse ecological effects that a non-native or introduced species may have on native species and ecosystems.

Legislative changes introduced to give effect to the Single European Market have recently been implemented. However, a number of concerns over the movement of fish for fish farming, and the environmental implications of this, have been raised.

6.1 Fish farm registration

A general concern relates to the lack of available information as to precisely what kinds of operation may be registered as a fish farming business under the Registration of Fish Farming and Shellfish Farming Businesses Order 1985. Although MAFF provides the NRA with lists of names and addresses of fish farm sites these do not give any details as to the precise boundaries of the sites.

Concerns were expressed in most regions that certain bodies of water more properly described as ponds or lake fisheries continue to be registered as fish farms, thereby circumventing controls under s.30 of the SFFA 1975.

It is **recommended** that serious consideration be given to the use of powers contained in s.29 of the SFFA 1975, as suitably amended, either in respect of particular problems at fish farms such as entrapment and escapes, or certain forms of activities such as in-river or cage farms.

As presently worded, s.29 of the SFFA 1975 applies only to the business of farming salmon and trout. It is **recommended** that the licensing power under s.29 should be extended to apply to all species of fish (including shellfish) that may be farmed to ensure better protection than existing controls.

No sanction for breach of a licence condition, other than revocation, is explicitly provided for under s.29 SFFA 1975. It is a matter of present uncertainty, therefore, whether criminal penalties could be attached to the breach of conditions of any licence granted.

To prevent sites improperly benefiting from registration as a fish farm in order to avoid the need for movement controls under s.30 of the SFFA 1975, it is **recommended** that the definitions of "fish farming" and "inland fish farm" contained in s.7(8) of the DFA 1983 be amended to make clear that holding ponds for fish taken from the wild for use in angling do not fall within the ambit of s.7(2) of the DFA 1983 and hence the Registration of Fish Farming and Shellfish Farming Businesses Order 1985.

6.2 Single Market considerations

Despite its safeguards against the spread of disease, the view was unanimously taken that the Single European Market regime for fish movement presents a significant risk to the health status of native wild stocks.

The advent of the Single European Market has prompted a range of concerns surrounding the impact of the Fish Health Directives and implementing legislation on existing national provisions regulating fish movements in the interests of protecting native stocks.

Specified grounds may justify trade restrictions under EU law, including "the protection of health and life of humans, animals or plants" (European Treaty, Article 36), so long as these are not a means of arbitrary discrimination or a disguised restriction on trade between Member States.

A case soon to be brought before the European Court, concerning a ban on the import of live European crayfish into Germany, may clarify what restrictions may be placed on fish movements on pathological and ecological grounds without falling foul of the free trade principle.

6.3 Provision of information to the NRA

Generally, it was felt that the nature of the information which MAFF is obliged to supply to the NRA concerning fish movements and the control of disease is insufficient to enable the NRA adequately to fulfil its functions.

In general, given the intimate relationship between the farmed and wild environments, there appears to be a strong case for closer cooperation between the NRA and MAFF as regards the control of fish disease and the most extensive flow of information between the two bodies possible.

For example, the practical exercise of the duty placed on the NRA in respect of consenting introductions of fish to waters other than fish farms under s.30 of the SFFA 1975 as amended by s.34 of the Salmon Act 1986 (SA 1986) must be frustrated where the precise boundaries of this duty are unclear.

The provision of information to the NRA is clearly frustrated by the present wording of the Diseases of Fish Acts, and limited also by the commercial confidentiality requirements contained both in the Diseases of Fish Acts and in the Environmental Information Regulations.

Respondents strongly agreed that the NRA should be given access to all information held by MAFF relating to fish movements and the control of disease, not merely that which *in the opinion of MAFF* is necessary to allow the NRA to fulfil its functions under the Diseases of Fish Acts.

It is **recommended** that a positive duty on MAFF to notify the NRA of a reasonable suspicion of the presence of listed or notifiable diseases should be considered, and that the NRA be advised of fish imports, and be empowered to check any consignment for the presence of disease or parasites that may have an impact on wild stocks.

6.4 Fish escapes

No prosecutions under s.30 of the SFFA 1975 have been taken in respect of accidental escapes of fish into waters. Some legal officers were of the view that s.30 might be used in such situations in respect of "introducing" fish, though wilfulness would have to be established to prove possession with intent to introduce under s.30.

The practical difficulties surrounding the effective use of s.30 consents, and the unauthorised introductions that may in practice take place, are widely recognised. Where

fish have been transferred between a number of fish farms, it may be almost impossible for the NRA to ascertain the ecological or disease risks presented by their possible introduction.

Discussions with other officers indicated a general concern at the ambiguity of what in law amounts to releasing fish into the "wild" for the purposes of s.14 of the Wildlife and Countryside Act 1981 (WCA 1981) since, in a fish farming context, the status of large ornamental lakes, possibly several hectares in area, causes considerable concern.

It is **recommended** that screening of inlets and outlets should be required at fish farms. These should be installed and maintained by the farmer to ensure that fish cannot escape from the farm, and might be required by the discharge consent or by the extension of requirements under the SFFA 1975 in respect of the provision of screens.

It is **recommended** that representations be made by the NRA to LPAs in respect of planning applications where there is a concern that new developments might give rise to escapes. The NRA should advocate a precautionary approach where it is considered that escaped fish may unduly compete with, or genetically contaminate, wild stocks.

It is **recommended** that the wording of s.30 of the SFFA 1975 be amended to make it clear that a strict liability offence arises in relation to the accidental or negligent escapes of fish into any waters. It should be clear that both the owner of the interest in the watercourse in question and the person who physically makes the introduction are liable for the offence, subject to a defence of showing that the accused neither knew nor could reasonably have been expected to know that a consent had not been obtained for the introduction.

It was generally felt by fisheries and other officers that s.34 of the SA 1986, which exempts movement of fish to fish farms from licensing control under s.30 of the SFFA 1975, should be repealed, or at least amended, so as to give the NRA greater powers to regulate fish movements to fish farms.

6.5 Future research

There is a need for greater understanding of the transmission of diseases from farmed to wild stocks and their ecological impact. It is **recommended** that further resources be channelled into research in this area, including research on the specific impact of diseases not presently found in the UK on native stocks.

The NRA also needs to keep itself fully informed of developments in fish farming technology, particularly the chemicals and medicines used in disease control on farms and their impact on the water environment. It is **recommended** that the NRA establish procedures ensuring that such developments are closely monitored, and the findings adequately disseminated to all relevant officers in the regions.

7. FISH FARMING AND FISHERY LAW

By far the most serious concern in respect of fishery law, at least in particular regions, relate to the entrapment of downstream migrating smolts and other fish fry in water intakes at fish farms and the need to prevent interference with upstream migration by screening.

The requirements of the SFFA 1975 that certain undertakers who divert water from waters frequented by salmon or migratory trout must maintain a grating for the purposes of preventing the descent of fish, and also screen their outfalls, does not apply to fish farms. Under the WRA 1991, screening conditions may be stipulated for in new abstraction licences, though such conditions cannot be imposed on existing licences without compensation being paid to the licence holder. However, the NRA can, at its own expense, place and maintain a grating in any watercourse frequented by salmon or migratory trout.

Related to the issue of regulating fish farming is the unlawful introduction of fish into watercourses without a valid consent, possibly involving the use of registered fish farms as transit stations' between wild and other sources, and eventual sale to angling clubs.

Since, in law, fish are classed as wild creatures subject to a qualified right of ownership, which is relinquished where possession is lost, this raises questions as to what will be a lawful means of recovering fish which have escaped from a fish farm.

7.1 Fishery and fishery-related offences

One recent case, involving the taking of fish from a variety of sites and moving them to registered fish farms, and the fraudulent passing off of fish as free of disease and having valid consents under s.30 SFFA 1975, resulted in the imposition of a prison sentence upon the offender.

7.2 Fish entrapment

The draft guidance on fish farms includes a model condition that "inlet and discharge points on the farm must be adequately screened to prevent ingress of wild fish and escapes of farm stock". However, while such a condition may be imposed in respect of new licences, a greater problem exists with fish entrapment at existing farms.

Given the costs involved in both installing and maintaining screens, it appears that little use is made of the powers of the NRA to install and maintain gratings at its own expense.

The provisions of the SFFA 1975 require the screening of certain abstraction points on salmonid rivers, and it has been suggested that the environmental and fishery duties of the NRA may be sufficient to justify imposition of conditions relating to screening where powers are otherwise unavailable.

Abstraction licences and discharge consents for new farms should contain suitably worded conditions such that inlet and discharge points on the farm are adequately screened to prevent ingress of wild fish and escapes of farm stock. It is **recommended** that the NRA seek to negotiate the installation and maintenance of suitable screening arrangements at existing farms.

7.3 Fish escapes

Most fishery officers view escapees in wild fisheries as an inevitable result of the practice of fish farming. In practice, it does not appear to be an economic use of resources for farmers to seek to recover lost stock unless the escape is a very major one.

Although some unlicensed stock-recovery operations may be undertaken, these are infrequent, and the extent to which the NRA is requested to licence stock-recovery operations is limited.

The possibility that fish escapes may be tackled through conditions in discharge consents was generally supported by legal staff, but the response of fisheries officers was mixed in suggesting that escapes should be controlled in other ways, with consent conditions being used only as a last resort.

Although consideration was given to the granting of general licences to fish farmers to use otherwise unlawful methods to recover escaped stock, rather than issuing licences to the farmer after an escape has taken place, this option was firmly rejected.

Preventing escapes, rather than a prosecution policy, must be the preferred course of action and screening arrangements should therefore be installed and maintained by the farmer to ensure that fish cannot escape from the farm.

There is a need for revision of the legal powers and duties of the NRA in order that escapes of farmed fish into the wider aquatic environment, and the entrapment of wild fish, may be effectively prevented. In order to achieve this, the SFFA 1975 should be amended to require effective screening at fish farm inflows and outflows.

7.4 Section 30, SFFA 1975

Section 30 of the SFFA 1975 appears to relate only to *wilful* introductions of fish and does not seem to extend to situations where fish escape accidentally or negligently. No prosecutions under s.30 of the SFFA 1975 have been taken in respect of such escapes.

Judicial guidance as to the extent to which charges under s.30 of the SFFA 1975 can be brought in respect of 'accidental' escapes from farms would be helpful, as it would be concerning the extent to which s.30 places any liability upon those other than the fishery owner.

It is **recommended** that proceedings be brought both against the fish farmer and the person who ultimately introduces the fish, unless there are good reasons for not doing so. However, evidential difficulties might arise in linking escaped stock to their farm of origin or a particular introduction.

The practice of sending copies of NRA fish introduction consents to both the eventual purchaser of fish to be introduced and the applicant, is **recommended** as best practice.

Given the problems inherent in the present state of the law concerning s.30 consents, consideration should be given to the introduction of a licensing requirement for those involved in fish stocking and fish transfers generally.

8. SHELLFISH AND CRAYFISH CULTIVATION

Because of the lack of coastal fish farming in England and Wales, and the influence of controls administered by the Crown Estate Commissioners, the principal use of the NRA's regulatory powers over aquaculture is in relation to farms located on inland waters. However, a significant amount of aquaculture activity involves the cultivation of shellfish.

Compared to finfish farming, the ecological effects of shellfish culture are relatively insignificant, though a number of concerns have been expressed. Most notably, problems have arisen with the introduction of non-native crayfish species for farming, with the farmed signal crayfish (*Pacifastacus leniusculus*) being shown to be a vector in the transmission of crayfish plague to native populations. The rearing of freshwater crayfish also presents specific legal difficulties and, since they are reared on inland farms, the NRA has a wider range of powers with respect to crayfish cultivation than with other shellfishery operations.

The exercise of powers in respect of shellfish farming appears to give rise to no discernible concerns, and whilst few comments were made on this, there was a general satisfaction as to their sufficiency for the effective regulation of shellfisheries and shellfish farming.

8.1 Crayfish movement restrictions

In practice, the application of the SFFA 1975 to crustacean shellfish is rare and there appear to be no reported cases where this issue has been conclusively determined by a court. Section 30 of the SFFA 1975 relates to the introduction of "any fish" and it is difficult to state with absolute certainty whether the legal status of crayfish as "fish" will be upheld.

This has important practical implications for the purposes of restricting shellfish introductions into waters, including fish farms, under s.30 of the SFFA 1975. Because of this uncertainty, differing approaches were adopted across the regions towards the interpretation of s.30 of the SFFA 1975 and the operation of fishery byelaws made under that Act.

However, it is explicitly stated that s.34 of the SA 1986 applies only in respect of "fish farms", as defined by s.10 of the Diseases of Fish Act 1937, and this *excludes* farms used for the keeping of "crustaceans and molluscs of any kind": consequently, consent for the introduction of crayfish into inland waters, including fish farms, continues to be a legal requirement under s.30 of the SFFA 1975 despite the enactment of s.34 of the SA 1986.

Problems also exist over the application of s.14 of the WCA 1981 to the introduction of certain species of crayfish which may carry disease, since there is no *general* prohibition on the introduction of non-native species of crayfish into the wild and difficulties exist in law as to what amounts to the "wild".

Discussions with some fisheries officers also indicated a lack of awareness that three species of non-native crayfish have now been listed under Sch.9 of the WCA 1981, which provides for the listing of species for which, although ordinarily resident in the UK, controls on their release or escape into the wild are provided for under s.14 of the 1981 Act.

In some regions, NRA officers have been particularly successful in persuading would-be developers not to establish new crayfish farming operations because of the potential environmental impact and in making representations to the LPA as to the adverse environmental effects of involved crayfish farming.

8.2 Action Plan for Crayfish Conservation

Discussions between the Joint Nature Conservation Committee (JNCC), the NRA and Fisheries Departments regarding a future conservation strategy for the native crayfish have produced an *Action Plan for the conservation of the native freshwater crayfish Austropotamobius pallipes in the United Kingdom*.

The Action Plan makes a range of recommendations as to best practice, some of which relate to powers exercised by the NRA, and its use as the standard for "reasonable steps" and "due diligence" under s.14 of the WCA 1981 is also advocated.

Given the preparation of this Action Plan by the JNCC, few specific recommendations for best practice were forthcoming, though this may result in part from over-restrictive views taken of the applicability of the SFFA 1975 to crayfish and of the powers that the NRA may exercise in relation to their movement.

Protected areas for native crayfish, under the Action Plan, will be designated as Special Areas of Conservation under the EU Habitats and Species Directive, and legal controls on the keeping of live crayfish are recommended in the Action Plan.

The Action Plan also proposes the addition of further non-native crayfish species to Sch. 9 WCA 1981, and recommends that "the NRA explores the use of Special Ecosystem Water Quality Objectives and catchment management plans to help protect populations of native crayfish".

Recommendations under the Action Plan are broadly supported as enabling a flexible licensing system to be used to control environmental problems associated with crayfish farms and in recognising the practical difficulties in insulating the farmed from the wild environment.

The harmonisation of regional fisheries byelaws on crayfish should be considered alongside broader issues concerning the harmonisation of fisheries byelaws in general.

9. PREDATOR AND PEST CONTROL

Damage to fish farms may arise either from direct predation, the spreading of disease and parasites, or deterioration in water quality. Although, generally, the control of predators at fish farms is not thought to pose any significant environmental concerns, in some regions concerns were expressed at the measures taken at particular fish farms.

The legal remit of the NRA in respect of predator control at fish farms is uncertain, though its responsibilities in respect of promoting the conservation of fauna dependant on an aquatic environment and its general conservation duties may require involvement in this area.

The WCA 1981 makes it an offence, subject to licensing requirements, intentionally to kill, injure or take any wild bird, and in respect of animals other than birds it is an offence if a person intentionally kills, injures or takes any wild animal listed in a schedule to the Act.

In practice, the licensing scheme under the WCA 1981 is operated by the Agricultural Development and Advisory Service (ADAS) on behalf of MAFF and the Welsh Office Agricultural Department (WOAD). Although English Nature and the Countryside Council for Wales (CCW) are statutory consultees in the licensing process, the NRA is not. It is not thought that any of the regions of the NRA have sought to use their general environmental duties in this context. However, nothing prevents the NRA making representations to MAFF and WOAD in respect of licence applications.

The 1992 NRA *Position Statement* in respect of predation by cormorants and sawbill ducks and its effect on angling interests notes that "the NRA will continue to liaise closely with MAFF, English Nature, WOAD and the CCW with regard to assessing the impact of cormorant and sawbill duck predation, providing relevant information as appropriate".

MAFF has no duty to notify the NRA of the receipt of licence applications, and regional discussions indicated that the NRA may not always be informed of licence applications or the granting by MAFF of predator control licences. However, information may be forthcoming if closer working links are established between MAFF and the NRA in this respect.

A statement from MAFF that it will liaise closely with the NRA as regards the control of predators dependant on an aquatic environment would be most welcome, and closer links with English Nature and the CCW might be fostered.

Most respondents considered that MAFF should retain the lead role in the licensing process, though some legal and fisheries officers considered MAFF to have too great an interest in the commercial aspects of fish farming to provide impartially for species protection of predators at farms.

A minority of respondents considered that the NRA should not become involved in the predator control licensing process in respect of fish farms. However, controlling predation on wild fisheries was recognised as a legitimate concern though many considered that English Nature and the CCW should retain the principal consultative role.

A majority of respondents, however, considered that greater scope existed for the views of the NRA to be taken into account in licensing and it was suggested that this should be in the form of statutory consultation.

In practice, it may be difficult to draw a precise distinction between the control of predators and pests at fish farms and wild fisheries, and the input from the NRA of an assessment of the likely affects on natural fisheries of predator control measures taken at fish farms is desirable in light of its general duties in relation to fisheries and the environment.

It is therefore **recommended** that the NRA be made a statutory consultee in respect of all licence applications to shoot predators, both at fish farms and wild fisheries.

In respect of development at new sites or existing farms for which planning permission is required, the NRA should use its role as a statutory consultee to make representations about the possible impact of the proposed development on populations of potential predator species.

10. RIPARIAN RIGHTS

Riparian rights, possessed by owners of waterside land including the NRA, may be of importance in relation to fish farming activities allowing riparian owners to bring civil legal actions where common law rights have been infringed, or providing private riparian owners with the standing to challenge the actions of the NRA.

Specifically, riparian rights may be utilised where the enjoyment of a watercourse has been impaired by the operation of a fish farm, in relation to the movement of fish and disease control, as well as the abstraction and discharge of water. Such rights must, however, always be construed in the light of the statutory provisions relating to water use.

Providing issues of causation and extent of loss are resolved, and action is not precluded by statute, there are situations where action at civil law *may* be more likely to succeed than criminal proceedings given that only the lower civil standard of proof (on the balance of probabilities, as opposed to proof beyond reasonable doubt as required for a successful criminal prosecution) must be satisfied.

10.1 Water Supply

Water use by riparian fish farmers must not infringe the requirement that the water is substantially undiminished in both quantity and quality, and a lower riparian owner must not divert the flow of water in a river to such an extent as to interfere with the free passage of fish up the river.

The operation of riparian rights may provide a civil remedy where no 'abstraction' has taken place within the meaning of the WRA 1991, or where the powers of the NRA under the SFFA 1975 and under the WRA 1991 are insufficient to prevent the entrapment of fish in fish farm intakes or outfalls.

10.2 Water Quality

A riparian owner has a right of action against anyone who unlawfully does anything which disturbs the enjoyment of the fishery, and s.100 of the WRA 1991 provides that civil claims are unaffected by that Act in respect of water pollution and any other rights either in civil or criminal law.

Riparian rights significantly expand the scope for the legal control of fish farm "discharges" by the NRA and other riparian owners in that actions at common law are not restricted to the discharge of "poisonous, noxious or polluting matter" or "trade effluent", but may arise from the discharge into the watercourse of *any* substance that impairs the riparian rights of others by sensible alteration of natural water quality.

10.3 Fish Movements and Disease Control

Riparian rights may be invoked as a means of preventing or compensating for the spread of disease, or other adverse effects on fisheries of the release of farmed fish. Recent case

law has affirmed that actions in nuisance, where damage to natural rights of property has been caused, proceed on the basis of *strict liability*.

10.4 Practical Use, Best Practice and Recommendations

Reliance upon the exercise of private rights by the NRA, for the purpose of protecting the general water environment, is of uncertain legality. It is clear that civil actions might be upheld *against* the NRA, though no instances of such actions were noted. A distinction is therefore to be drawn between the exercise of riparian rights by the NRA for the purposes of protecting a private interest in land or waters, and for the purposes of carrying out any of its statutory functions.

The exercise of riparian rights held be virtue of the status of the NRA as a regulatory body may not always be appropriate where it is founded upon the general desire to maintain or improve the aquatic environment, rather than to remedy a specific harm. The remedies which are available may not be appropriate to achieve general improvements in the state of the aquatic environment.

Regional discussions did not reveal any instances of riparian rights being used *by the NRA* in the control of fish farming, though actions by private individuals were effectively used to gain an injunction for diminished flow caused by a fish farm and to obtain damages where farmed rainbow trout escaped from a fish farm disrupting the fishing for brown trout.

Since a purpose of national administrative controls of water resource use, water pollution and fisheries is to avoid reliance on common law rights, it was thought preferable that rational guardianship and regulation of the water environment must proceed on the basis of statutory powers and duties rather than private rights in all but the most exceptional circumstances.

The need to resort to common law rights was thought to be indicative of the unsatisfactory state of the statutory law since, as a general principle, a statutory body should be afforded the full range of statutory powers necessary to accomplish its objectives without the need for it to fall back upon private rights to make good deficiencies in its powers.

11. LEGAL RESEARCH AND THE NRA

Many officers of the NRA felt that the research project offered an avenue for particular concerns and observations as to the state of certain aspects of the law to be transmitted and aired at national level where views otherwise might not be registered.

The overwhelming consensus was that the project served as a valuable mechanism for the gathering and evaluation of ideas and the comparative scrutiny of best practice between the regions.

Two particular respects in which legal research may contribute to the effective use of legal powers and duties by the NRA arose in the 'information-gathering' and 'information-dissemination' stages of the project.

11.1 Information Gathering

At the information gathering stage of the research, several occasions arose where the researcher was able beneficially to draw to NRA officers' attention information which was previously unknown or unconsidered, or to the legal practice in other regions.

This communicative role raises issues both about the way that policy is formulated and disseminated within the NRA, and raises the concern that lack of consultation within the NRA may impact on the quality and effectiveness of policy formulation and implementation.

The need for consistency of approach by a national regulatory body across and within regions is well recognised and it seems that scope for further improvements may still exist in this respect.

11.2 Information Dissemination

In respect of the information dissemination stage of the project, representatives of diverse functions remarked on the usefulness of having a concise summary of legal powers and duties in relation to fish farming that could quickly and easily be referred to.

It is essential that the outputs of legal research are adequately and widely disseminated, and consideration should be given to alternative forms of information dissemination, possibly including computer networking, presentations, and review articles in addition to the published Project Record and R&D Note.

11.3 Improvement of Legal Powers and Duties

Although a need exists for further national research and development, it is hoped that the legislative amendments recommended in this study will be seriously considered, and the arguments that have been raised used to support the case for law reforms not merely in respect of fish farming but with regard to the protection of the wider aquatic environment.

11.4 The Benefits of Legal Research to the NRA

Legal research, offering an independent perspective not otherwise available to the NRA, has an essential role to play in the evolution of law and policy relating to the water environment.

Specifically, commissioned research offers a proactive and strategic outlook that may not be readily available from within the legal resources of the NRA and will enable the NRA to take a reflective and objective view as to its legal needs in key areas of environmental concern.

Given the increasing challenges facing the NRA, it is essential that it is staffed with experienced and knowledgeable people who can evaluate and act responsively towards its legal needs of the NRA, and they are assisted by expert researchers in areas where this support is needed.

The challenges facing environmental regulators will not diminish with the imminent reorganisation of environmental regulatory bodies; and the lessons to be learnt from legal research will be of continuing importance in relation to the functioning of the new Environment Agency.