

**ELECTRICITY ACTS 1979 AND 1989**

**FISHERIES COMMITTEE**

**ANNUAL REPORT TO THE  
SECRETARY OF STATE  
FOR THE YEAR TO MARCH 1999**

*The Scottish Office  
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Freshwater Fisheries Laboratory  
Faskally, Pitlochry PH16 5LB*

*15 10 1999*



# FISHERIES COMMITTEE

## REPORT TO THE SECRETARY OF STATE FOR THE YEAR TO MARCH 1999

### Summary

1. The Fisheries Committee is appointed under the Electricity Act 1989. This report covers the Committee's activities during the year ended 31 March 1999, notably its visits to existing installations, its consideration of proposals for new hydro schemes and its meetings with the major electricity generating companies and with two District Salmon Fishery Boards. It draws attention in particular to:

- a. the Committee's continuing concern with the long standing and serious problems at the Tongland fish pass;
- b. the entrainment of fish at Longannet and the research studies on fish populations in the Forth estuary; and
- c. the importance the Committee attaches to fish count data, fishery research and management.

It concludes by outlining the Committee's proposed activities for the coming year.

### Remit of the Committee

2. The statutory remit of the Fisheries Committee is set out in Schedule 9 to the Electricity Act 1989 (the terms and functions are summarised in Appendix A of this Report). It is specifically confined to "generating stations wholly or mainly driven by water" and to the effect these have on fisheries or the stock of fish in any water. The Committee also advises on intakes and outfalls at some other types of power station. The Committee is independent in its proceedings and may investigate, or advise on, matters at its own initiative or when requested to do so. The way in which the Committee seeks to fulfil its remit is described in Appendix B.

### Current Membership

3. The membership of the Fisheries Committee is given in Appendix C. Members were appointed, or reappointed, in April 1996 for a period of four years.

### Meetings of the Committee

4. During the year the Committee convened on five occasions, two of which included visits to hydro-electric installations. The first meeting was in May in Glasgow at the office of Scottish Power. Later in May the Committee made a site visit to the Tummel/Garry Hydro-Electric scheme and met with representatives of Scottish Hydro-Electric and with representatives of the Spey District Salmon Fishery Board. In September it visited installations of the Galloway Hydro-electric scheme and met with representatives of Scottish Power and with representatives of the Dee District Salmon Fishery Board. In November the Committee met at Scottish Hydro-Electric Headquarters in Perth and held discussions with representatives of that company. In March 1999 the Committee met in Tayside. In addition,



ad-hoc sub-committees, or individual members, met or attended meetings with representatives of generating companies and with other bodies where appropriate. A list of meetings and places visited appears in Appendix E.

### Activities and Matters Considered

5. The activities of the Committee during the year included the following:

a. **Meetings with Scottish Hydro-Electric and Scottish Power**

The Committee held two meetings with Scottish Hydro-Electric and two with Scottish Power to discuss matters of concern, specific issues and the Companies' policies and plans for fish and fisheries. The Committee continued to press both generating companies on their management procedures relating to fish, especially their arrangements for operating and monitoring fish passes and screens, and on their collection, processing and presentation of fish count data.

The Committee welcomed the significant contribution made by Scottish Hydro-Electric in the setting up of a Scottish Fisheries Co-ordination Centre. The Company's fisheries biologist chaired a steering group to attempt to produce better co-operation and co-ordination amongst those involved with fisheries management. The Committee had a presentation at Perth on the work of the Co-ordination Centre which then comprised 10 different Fisheries Trusts and District Salmon Fishery Boards who were invited to participate.

The longstanding and serious problems at the Tongland fish pass in the Galloway Scheme remained a major concern. The Committee was encouraged by Scottish Power's recognition of the extent of this problem and the Company's initiative, but was concerned at the rate of progress. The Committee inspected the temporary works in the top five pools undertaken following model studies commissioned by the company with Glasgow University and advised on various aspects of the studies, the site alterations and the siting of the underwater television cameras. Studies on the effectiveness of the alterations in facilitating the passage of fish will be undertaken. The Committee kept in touch with developments and was provided with some fish count data. The Committee noted that Scottish Power were in discussion with the Dee District Salmon Fishery Board about replacing the screens to prevent salmon moving into the tail race channel of Glenlee Power Station.

The entrainment and mortalities of fish on the screens of the cooling water intake at Longannet Power Station continued to concern the Committee. The monitoring programmes being undertaken by Scottish Power and by the Scottish Environment Protection Agency (SEPA) were noted. Scottish Power has funded a research studentship at Stirling University, in collaboration with SEPA, to assess fish populations in the Forth estuary. The Committee still considers that lighting may be a factor in night entrainment and made further suggestions about it.

The Committee considered the outline proposals for the Cuileig project and gave its preliminary comments to Scottish Hydro-Electric and The Scottish Office Education and Industry Department.



Meetings with both companies followed an established pattern with an agenda of routine, but significant, matters being discussed in a frank and open manner. In addition, issues of particular concern were probed in detail, appropriate advice given and contact maintained to ascertain progress.

**b. Meetings with District Salmon Fishery Boards**

The Committee notifies local District Salmon Fishery Boards (DSFBs) of its visits to hydro-electric schemes and welcomes meetings with their representatives. Although the Committee's statutory remit does not extend to giving advice to these Boards, the Committee has found the meetings helpful in identifying any local problems and matters of concern. In turn the Boards appear to appreciate being given the opportunity to air their views. In general, most of the matters raised are amenable to direct resolution between the Boards and the power companies. This year the Committee met with representatives of the Boards of the Spey and Kirkcudbright Dee (Appendix D).

With the Spey DSFB the Committee noted the Board was in the process of preparing a 5 year management plan. The Dee Board was making progress in implementing suggestions made in an excellent report commissioned by the West Galloway Fisheries Trust. This report had been very helpful in providing a starting point for identifying problems and recommending ways of tackling them.

**c. Other Meetings**

The Chairman attended a seminar organised by The Scottish Office on "River Basin Management". Representatives of the Committee visited the Tongland fish pass to note and advise on the arrangements being made to monitor the movement of fish through the modified fish pass.

**d. Fish Pass Regulations**

The Salmon (Fish Passes and Screens) (Scotland) Regulations 1994 came into force at the beginning of 1995. Notes and guidance on the provision of fish passes and screens were published in July 1995 by The Scottish Office Agriculture, Environment and Fisheries Department (SOAEFD). Regulations apply to all hydro schemes under 1 megawatt capacity. The Committee continues to be concerned that the regulations be properly observed and enforced.

**e. Proposals for New Hydro-Electric Schemes Over 1 megawatt Capacity**

Under a scheme to encourage the development of sources of renewable energy (the Scottish Renewables Obligation) (SRO) it was announced in 1994 that proposals for 15 new small-scale hydro-electric schemes had been accepted for assistance under the initiative. Of these, 5 were over 1 megawatt in capacity and, if proceeded with, would therefore require formal consideration by the Committee. A second tranche in July 1997 included 9 proposals for hydro-electric schemes, 2 of which were over 1 megawatt in capacity. In a third tranche in February 1999, 5 hydro schemes were accepted, none of which were over 1 megawatt in capacity.





Details of only 3 schemes, Shildaig, Inverbroom and Cuileig, have been submitted to the Committee for formal consideration. The expected report of the public inquiry into the scheme proposed for Shildaig was still awaited. The Committee was informed in October that the proposals for the Inverbroom scheme, on the Cuileig river, would not proceed. As indicated at paragraph 5a, the Committee considered and commented on the proposal for the Cuileig scheme which uses the same water as the withdrawn Inverbroom scheme.

Proposed schemes with a capacity of under 1 megawatt need not be submitted to the Committee. They are subject to planning permission and to the requirements of the Fish Passes and Screen Regulations. The Committee continues to be concerned that planners are not well placed to enforce conditions relating to flow provisions for fisheries. In its previous Annual Report the Committee indicated that it had made its views on this matter known to the Environment Protection Unit of The Scottish Office. The Committee continued to watch the situation. However, as with the larger schemes, progress on developing these new hydro schemes appears to be slower than expected.

**f. Fish Count Records**

The work of the Committee is facilitated by fish count records provided by the two major generating companies. These data of fish movements at hydro installations are discussed with the companies. The Committee noted with appreciation the improvements made in the presentation of these reports; the expert comment provided by the fisheries biologist of Scottish Hydro-Electric is particularly helpful.

**g. Research**

The Committee is very supportive of research undertaken by the generating companies and appreciates being kept informed of progress and results. During the year the Committee was told by Scottish Hydro-Electric of studies on the movement of smolts through turbines, adult salmon movements in Borland fish lifts and the way in which these lifts are operated. Studies initiated by Scottish Power are concerned with improving fish passes and with fish populations in the Forth estuary. During discussions with the power companies the Committee offered advice as appropriate.

**h. Advice**

The Committee's statutory remit is to give advice to the Secretary of State and to any person engaging in, or proposing to engage in, the generation of hydro-electric power. From time to time the Committee is asked for advice by others and in general declines such requests. The Committee considered and commented on a draft UK guide to fish screening regulations, policy and practice being prepared by the Energy Technology Support Unit (ETSU) of the Department of Trade and Industry (DTI). It is disappointed that its comments were not sufficiently reflected in the final document and that, in some parts, the guidance may confuse potential users in Scotland.



**i. Environmental Reports**

During the year the Committee noted the Environmental Reports published by each of the major generating companies. While welcoming these reports it commented on the fact that fish and fisheries received minimal treatment.

**j. Consultation Papers**

The Committee from time to time receives Government Consultation Papers and responds where it considers it appropriate to do so. During the year it responded to proposals for a set of 'headline' indicators of sustainable development.

**k. Code of Practice**

In line with Government policy that all advisory Non Departmental Public Bodies (NDPBs) should adopt a members' code of practice and register members' interests, the Committee prepared and submitted to The Scottish Office a 'Code of Practice'. This is given in Appendix D.

**l. Openness**

In response to the Government paper "Quangos Opening the Doors", the Committee gave further consideration to openness but again decided that as in its own meetings, and in meetings with power generating companies, matters of commercial confidentiality frequently arise, it would not be appropriate to hold them in public. The Committee did, however, agree that its Annual Report could be made available. As a matter of course it sends copies to the major generating companies and to District Salmon Fishery Boards it has arranged to meet. The Association of District Salmon Fishery Boards agreed to publicise the Committee's Annual Report.

The Committee was listed in "Public Appointments" on The Scottish Office Website, under "Better Government" ([www.scotland.gov.uk](http://www.scotland.gov.uk)).

Future Activities

6. The Committee will continue to maintain the dialogues with Scottish Hydro-Electric and Scottish Power and respond to approaches from actual and potential hydro power operators. A meeting has been arranged with Scottish Hydro-Electric to consider the modified arrangements at the Peterhead power station. The Committee will advise on any proposals for a hydro electric scheme which may come before it. The Committee will continue to look closely at the alterations being made by Scottish Power at the Tongland fish pass and consider wider issues in the Galloway Scheme. The Committee will continue to watch closely the situation at the cooling water intake at Longannet and advise where necessary on the research studies being undertaken there.

7. The Committee will continue to review the major power companies policies and practices on maintenance, operation, monitoring and improvements in relation to fish and fisheries and the implementation of their environmental policy statements. During visits the Committee will be available to meet with representatives from local District Salmon Fishery



Boards and so seek to keep in touch with local and general concerns. The Committee continues to be prepared to advise on any matters referred to it by the Secretary of State or raised by those generating, or intending to generate, hydro-electricity.

8. The Committee will encourage the generating companies to identify and make innovations and improvements at their installations with a view to protecting and improving fish stocks and fisheries. It will take a keen interest in research projects and advise where necessary or helpful to do so.

#### Acknowledgements

9. The Committee wishes to acknowledge the co-operation it has received throughout from the power generating companies. It also wishes to pay tribute to the good work on its behalf by its Secretary Mrs Lynn Goodbourn over the past 4 years and welcomes its new Secretary, Miss Joy Dunn. The advice and assistance given by Mr D Dunkley, Inspector of Salmon and Freshwater Fisheries, and by Miss D McLafferty, SOAEFD, have been greatly appreciated.



## LEGISLATIVE FRAMEWORK AND FUNCTIONS OF THE FISHERIES COMMITTEE

### Legislative framework

The Fisheries Committee was established under the Hydro-Electric Development (Scotland) Act 1943 to consider schemes proposed by the North of Scotland Hydro-Electric Board for hydro-electric development and advise on possible damage to fisheries or fish stocks. Provisions for the Fisheries Committee were consolidated in the Electricity (Scotland) Act 1979 and extended in 1986 to include any person who wishes to establish or extend a hydro generating scheme. Its continuance was provided for in the Electricity Act 1989.

### Functions under the Electricity Acts

(This brief description is based on the provisions cited in the second column; the Act should be referred to for its detail.)

The Fisheries Committee is appointed by the Secretary of State for Scotland under provisions in the Electricity Acts.	Electricity (Scotland) Act 1979 s.5(2) and Electricity Act 1989 Schd 9, para 5(1) and (2)
Its statutory function is to advise and assist the Secretary of State and any person engaging in, or proposing to engage in, the generation of hydro-electric power on any questions relating to the effect of hydro-electric works on fisheries or stocks of fish. The Committee may give such advice whether asked or not.	1989 Act Schd 9 para 5(1)
Any person engaged in, or proposing to engage in, the generation of hydro-electric power shall give the Committee such information and assistance as it reasonably requires.	1989 Act Schd 9 para 5(4)
Any person wishing to construct or operate a hydro-electric station with a capacity of more than one megawatt must apply to the Secretary of State for consent and, before so applying, must consult the Committee. The Committee may make recommendations to the intending applicant, or to any other person, and there is a procedure for considering those recommendations.	1989 Act s.36 modified by SI 1990/392 1989 Act Schd 9 para 5(5) 1989 Act Schd 9 para 5(6)
The Secretary of State may refuse consent if an applicant does not undertake to implement a recommendation made by the Committee.	1989 Act Schd 9 para 5(7)





### **Additional functions of the Committee**

In addition to the above, the Committee has been asked by the Secretary of State to consider and advise as necessary on the effects that the water systems of thermal, nuclear and diesel generating stations may have on fisheries and stocks of fish and has been a consultee on Government proposals for related legislation and associated matters.



## ROLE OF FISHERIES COMMITTEE

The main purpose of the Fisheries Committee is to consider hydro-electric schemes and to advise how damage to fisheries or fish stocks might best be avoided or mitigated. Although few major schemes have been constructed in recent times, the implementation of the Scottish Renewables Obligation (SRO) in 1995 has brought many proposals for new schemes or extensions to existing ones. In the first tranche 15 hydro proposals were accepted by the Secretary of State for Scotland; in the second tranche there were 9 and in the third there were 5. The proposals and enquiries were essentially for small-scale schemes but 5 proposals in the first tranche and 2 in the second tranche were for schemes of over 1 megawatt in capacity and therefore require statutory submission to the Fisheries Committee. As yet none of these proposed larger schemes have been constructed. Smaller schemes, although subject to the Fish Passes and Screen regulation, can also have a significant impact on fish stocks and the Committee may wish to consider and, if necessary or practicable, advise on such schemes.

The Committee is also interested in the management and operation of existing schemes. Many of these have been in use for a considerable period during which operational procedures and manning levels have changed radically and substantial advances have been made in the development and application of remote and automatic control and other systems. There is a need therefore to ensure that schemes perform effectively in relation to fish and comply with current regulations. There is also a need for continual assessment in the light of additional requirements, current environmental perceptions, operational experience and advances in technology. As an aid to assessing effectiveness the Committee seeks and obtains from the major generating companies data and comment on fish and fisheries affected by their installations. The Committee also takes a keen interest in research studies and in the helpful and valuable information that comes from specific work on fish and fisheries.

In addition the Committee reports to the Secretary of State on specific incidents at installations having an adverse effect on fish and responds to consultations by Departments of The Scottish Office on proposals for legislation, its implementation and casework.



## APPENDIX C

### MEMBERSHIP OF FISHERIES COMMITTEE

The Fisheries Committee consists of members appointed, or reappointed, by the Secretary of State for Scotland in April 1996 for a period of 4 years. Administrative support is given by The Scottish Office Agriculture, Environment and Fisheries Department (SOAEFD).

The members are:

	First appointed to Committee
Mr R McGillivray, Chairman	1992
Mr G N J Smart, Vice-Chairman	1979
Dr P R O Barnett	1975
Mr R N Graham-Campbell	1996
Mr F G Johnson	1992
Dr L M Laird	1992
Mr R B Williamson OBE	1996

Secretary:

Mrs L Goodbourn, SOAEFD (to February 1999)  
Miss J Dunn, SOAEFD (from March 1999)



**CODE OF PRACTICE FOR  
MEMBERS OF THE FISHERIES COMMITTEE  
(ELECTRICITY ACTS)**

*The Committee is appointed by the Secretary of State for Scotland under provisions in the Electricity Acts. Its statutory function is to advise the Secretary of State and any person engaging in the generation of hydro-electric power on any question relating to the effect of hydro-electric works on fisheries or stocks of fish.*

**Public Service Values**

Members of the Committee:

- are accountable to the Secretary of State for the Committee's activities and for the standard of advice it provides;
- must observe the highest standards of impartiality, integrity and objectivity in relation to the advice they provide and the manner in which the Committee conducts its activities; and
- shall, in accordance with Government policy on openness, provide and make available an Annual Report on the Committee's activities.

**Standards in Public Life**

Each member of the Committee must:

- follow the seven principles of public life set out by the Committee on Standards in Public Life (annexed), insofar as they apply to the activities of the Committee;
- comply with this Code, and ensure that he or she is familiar with the function and role of the Committee and understands the duties, rights and responsibilities related to it;
- not misuse information gained in the course of work in the Committee for personal gain or for political purpose, nor seek to use the opportunity of public service to promote their private interests or those of connected persons, firms, businesses or other organisations; and
- not hold any paid or high-profile unpaid posts in a political party, and not engage in specific political activities on matters directly affecting the work of the Committee.

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## **Role of Committee Members**

Members of the Committee have collective responsibility for its operation. They must, so far as is practicable:

- engage fully in collective consideration of the issues, taking account of the full range of relevant factors, including any guidance issued to them by the Secretary of State;
- ensure that the Code of Practice on Access to Government Information is adhered to and agree an Annual Report;
- respond appropriately to complaints, if necessary, with reference to The Scottish Office; and
- ensure that the Committee does not exceed its powers or functions.

## **The Role of the Chairman**

The Chairman has particular responsibility for providing effective leadership on the issues described above. In addition, the Chairman is responsible for:

- ensuring that the Committee meets at appropriate intervals, and that the minutes of meetings, and any reports to the Secretary of State and others, accurately record the decisions taken and, where appropriate, the view of individual members;
- ensuring that new Committee members have been briefed on the functions of the Committee and their duties and rights and responsibilities; and
- representing the views of the Committee to the public, if appropriate.

## **Conflicts of Interests**

Members of the Committee should not participate in the discussion or determination of matters in which they have an interest, and should normally withdraw from the meeting if:

- their interest is direct and pecuniary; or
- their interest is covered in specific guidance issued by the Committee or the Secretary of State which requires them not to participate or to withdraw from the meeting.



**THE SEVEN PRINCIPLES OF PUBLIC LIFE**

*as set out by the Committee on Standards in Public Life*

**Selflessness**

Holders of public office should take decisions solely in terms of the public interest. They should not do so in order to gain financial or other material benefits for themselves, their family, or their friends.

**Integrity**

Holders of public office should not place themselves under any financial or other obligation to outside individuals or organisations that might influence them in the performance of their official duties.

**Objectivity**

In carrying out public business, including making public appointments, awarding contracts, or recommending individuals for rewards and benefits, holders of public office should make choices on merit.

**Accountability**

Holders of public office are accountable for their decisions and actions to the public and must submit themselves to whatever scrutiny is appropriate to their office.

**Openness**

Holders of public office should be as open as possible about all the decisions and actions that they take. They should give reasons for their decisions and restrict information only when the wider public interest clearly demands.

**Honesty**

Holders of public office have a duty to declare any private interests relating to their public duties and to take steps to resolve any conflicts arising in a way that protects the public interests.

**Leadership**

Holders of public office should promote and support these principles by leadership and example.



## APPENDIX E

### LIST OF MEETINGS AND PLACES VISITED

	<u>Places Visited</u>	<u>Contacts</u>
a)	Meetings and visits by Committee:	
12 May 1998	Scottish Power HQ, Glasgow	Scottish Power
26 May 1998	Grantown-on-Spey	Spey DSFB
27 May 1998	Grantown-on-Spey, Tummel/Garry Hydro-Electric Scheme (Spey Section)	Scottish Hydro-Electric
23 September 1998	Glenlee Power Station, Galloway Hydro-Electric Scheme	Scottish Power
24 September 1998	Dumfries	Scottish Power Dee DSFB
24 November 1998	Scottish Hydro-Electric	Scottish Hydro-Electric
23/24 March 1999	-	-
b)	Meetings and visits by members and representatives:	
10 June 1998	Victoria Quay, Leith	The Scottish Office; Environment Protection Unit
19 January 1999	Tongland Fish Pass	Scottish Power
30 March 1999	Tongland Fish Pass	Scottish Power





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**FISHERIES COMMITTEE**  
(appointed under the Electricity Act 1989)

**ANNUAL REPORT**  
For the year to 31 March 2003

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## Membership of the Fisheries Committee

James Cockburn (*Chairman*) - from 1 March 2003

Niall Graham-Campbell

Robert Williamson

Professor Susan Walker

Dr Gary Anderson - from 1 March 2003

Dr Trevor Crisp - from 1 March 2003

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Further details are provided at Appendix B

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**19 SEP 2003**

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# 1. Introduction

- 1.1 The Fisheries Committee is an advisory public body constituted under the Electricity Act 1989. Its statutory remit is to advise and assist Scottish Ministers and any person engaging in, or proposing to engage in, the generation of hydro-electric power on any questions relating to the effect on fisheries or stocks of fish. The Committee also advises on the effects on fish or fisheries of the cooling water systems of thermal generating stations. These functions are more fully described in Appendix A to this Report. The Committee may give advice or assistance on its own initiative or if requested by Scottish Ministers or by a generator or intending generator.
- 1.2 For the first 11 months of the year the Committee had only three members. Three new appointments, made on 1 March, restored the Committee's complement to six and, importantly, re-established the necessary wide base of experience and expertise. Information on members of the Committee and their appointment is given in Appendix B. The Committee is listed on the Scottish Executive Website, in the "Scottish Public Body Directory" ([www.scotland.gov.uk](http://www.scotland.gov.uk)).
- 1.3 The Government's aim of increasing the amount of electricity produced from renewable resources is expressed in the Scottish Renewables Obligation 1994 and the Renewables Obligation (Scotland) 2001. These measures have encouraged increased interest in hydro-electric generation and most of the Committee's work in the year under review has been in relation to proposals stimulated by them. The Committee also continued to give advice on the operation and maintenance of existing schemes in relation to fisheries and stocks of fish.
- 1.4 Points of mutual interest were discussed with Scottish Natural Heritage and with the Scottish Environment Protection Agency during the year.
- 1.5 A list of the Committee's meetings and visits, places visited and persons met with is given at Appendix D. As matters of commercial confidence frequently arise during the Committee's meetings, they are not held in public. However, the Committee's Annual Reports are publicly available and are posted on the Scottish Executive Website ([www.scotland.gov.uk](http://www.scotland.gov.uk)).
- 1.6 The various hydro-electric schemes considered during the year are each separately covered in Chapters 2 to 4 of this Report and the thermal generating station in Chapter 5. The Committee's general liaison and contact with generators, and with public bodies and others is described in Chapter 6.

## 2 Hydro-electric Schemes of More Than 1 Megawatt Capacity

- 2.1 Hydro-electric schemes with a generating capacity of more than one megawatt are exempt from the provisions of the Salmon (Fish Passes and Screens) (Scotland) Regulations 1994 but are subject to consent from Scottish Ministers under section 36 of the Electricity Act 1989, as modified by the Electricity Act 1989 (Requirement of Consent for Hydro-electric Generating Stations) (Scotland) Order 1990. Schedule 9 of the Act provides that, before or on applying for such consent, the applicant must consult the Committee and that the Committee may make recommendations. The Committee prepared a note for guidance on the information required by it in considering new schemes, which is available from its Secretary. Ten schemes were considered during the year, some new, some continuing from previous years: each is described separately below.

### *Shieldaig and Slattadale*

- 2.2 The Shieldaig scheme in Wester Ross was proposed initially as a stand alone development in 1996. However, Highland Light and Power (HLP) notified the Committee of proposals for a revised application for a 3.55 megawatt scheme at Shieldaig (2.3MW) and Slattadale (1.25MW) in October 2001. The scheme affects the Badachro, Kerry and Ewe catchments. The Committee has given the Company advice on various detailed drawings of the proposed fish pass structures and has sought information on the likely hydrological and ecological impacts of the scheme from a fish and fisheries perspective. It was informed by HLP that this information would be supplied in the Environmental Statement along with the results of a fisheries survey. The Committee still awaits this information, as it will need to see HLP's interpretation of the implications of what is proposed before it concludes its own view.

### *Garrogie*

- 2.3 The Committee had forwarded initial comments on the proposed Garrogie Scheme (Inverness-shire) to Innogy and Scottish Ministers in January 2002. It met with Innogy in May and was supplied with further information and plans for the intake weir. The Committee gave further advice and indicated that it was minded to recommend that the intake weir be sited further downstream, thereby reducing the risk to fish migrating between the upper Fechlin and the Garbh-bhac, and to any Loch Killin trout and charr that might spawn in the upper Fechlin. Innogy was reluctant to relocate the intake weir because of information about a potential otter lying-up site at the proposed alternative site. Innogy instead suggested modifications to the weir and intake to mitigate adverse impact on the fish populations of the Fechlin. The Committee met with Scottish Natural Heritage in September to confirm there was a common understanding on fisheries matters. The Committee remained of the view that siting the intake weir downstream offered the better solution and it made a formal recommendation to this effect in September. In November, Innogy advised the Committee that it would give effect to the recommendation.

## *Kingairloch*

- 2.4 Scottish and Southern Energy (SSE) had applied for section 36 consent for a 2.5 megawatt scheme on the Abhainn na Coinnich in Ardgour at Kingairloch, near Fort William, in March 2002. The scheme involves a dam which would raise the level of Loch Uisge by 2 metres.
- 2.5 There has been no reported run of salmon or sea trout up the river in recent years but the facilities are planned on the basis that these fish might return in the future.
- 2.6 The Committee met with SSE in May to discuss: the expected pattern of flows; the provision of smolt screens; spawning in the tributary burns; and the provision of a fish pass, overshoot gate and smolt chute. The Committee wrote to SSE in May with an indication of the recommendations it was minded to make in relation to its proposal. SSE responded that the recommendations would be taken into account. Some further discussion between the Committee and SSE, in relation to the periods of operation of the fish pass, followed.
- 2.7 The Committee made its formal recommendations in August. These were: that smolt screens should be installed as soon as reasonably practicable and appropriate after evidence that there are, or will be, smolts or adult salmon or sea trout upstream of the dam; that the specification for the fish pass be amended to provide that the pass will be operable over the top 2.5 metres and preferably the whole 3 metre range in loch level; that the operating regime for the fish pass and freshets be commenced as soon as the reservoir is commissioned, whether or not there is evidence of salmon or sea trout present at the foot of the dam; and that a training wall be provided to prevent the water of the smolt chute fanning out on the spillway and that, before use, the surfaces of the chute are made sufficiently smooth that smolts will not be damaged in their passage down it.
- 2.8 The Committee also made a recommendation to the Lochaber District Salmon Fishery Board that it should inform SSE of any intention to stock the river system with salmon or sea trout. The Committee provided some further advice in November, in relation to a proposed increase to the scheme's generating capacity to 3.5 megawatts. SSE and the Lochaber Board have since stated they are prepared to give effect to all the Committee's recommendations.

### *Braevallich*

- 2.9 Innogy requested the Committee's comments and recommendations for a 2.2 megawatt run-of-river scheme at Braevallich on the Abhainn a Bhealaich, Argyll, in April. The Committee met with Innogy in May, giving advice. Compensation flow calculations were made available to the Committee, as well as a fish and aquatic impact assessment. An application for section 36 consent, accompanied by an Environmental Statement (ES), was submitted to the Scottish Executive in July; an addendum to the ES was made in August; and in September the Committee advised the Company and Scottish Ministers that it had no recommendations to make in relation to the scheme as described in the section 36 application.

### *River E*

- 2.10 In May, Innogy requested the Committee's comments and recommendations on a proposed 2.0 megawatt run-of-river hydro scheme on the River E, near Lochgarthside, Loch Mhor (Inverness-shire). The Committee was provided with background information including a fisheries report, and met with Innogy in the same month, giving some initial comments on the proposal. The Committee continued to discuss with Innogy, among other subjects, the proposed compensation flow. A section 36 application, enclosing a supporting Environmental Statement, was submitted in December. Once the Committee had received a reply to some further queries regarding the underlying reasons for a variable compensation flow and the size of screen on the tailrace, it issued a formal recommendation in February that a 25mm screen be installed on the tailrace. Innogy has confirmed that it will give effect to the recommendation.

### *Glen Falloch*

- 2.11 The developer approached the Committee in March 2002 with project descriptions for two proposed run-of-river schemes on the Allt Fionn Ghleann (1.2MW) and Ben Glas Burn (1.0MW), in Glen Falloch (Argyll). The Company sought advice and comments on measures necessary to protect fish populations and spawning habitats. The Committee requested further information on a habitat assessment, flows and results of an electro-fishing survey and subsequently some members of the Committee visited the sites in August. It was evident that spawning habitat was of poor quality between the powerhouses and impassable falls at both sites. Ambient Hydro submitted a section 36 application, and a further site visit was arranged for October; this looked at potential impact on populations of sea trout and the affect of the revised powerhouse locations (changes to the proposal since the Committee's earlier visit).

- 2.12 Recommendations were made in November, recommending preference for the original sites of the powerhouses at Ben Glas Burn and at Allt Fionn Ghleann, and also making further recommendations in respect of having adequate compensation flows in both forks of the lower Allt Fionn Ghleann, if the revised site was opted for. Ambient Hydro indicated that changes to the proposals were being made to reflect the comments and recommendations of the consultees, and advising that further assessments were in preparation.

### *Douglas Water*

- 2.13 The Committee was asked for comments on Innogy's proposed run-of-river scheme (2.2MW) on Douglas Water, Inveraray (Argyll) in August. In December it received a fish and aquatic impact assessment and the results of river gauging. Innogy also informed the Committee that, at the suggestion of the Scottish Environment Protection Agency, it was investigating the use of variable compensation flows. The Committee advised Innogy that it had some concerns about protecting continued access of migratory salmonids into the accessible parts of the river upstream from the site for the tailrace. A site inspection has been arranged.

### *Invervar*

- 2.14 In September, Innogy requested preliminary comments on a proposed 1.1 megawatt hydro-electric scheme on the Invervar Burn, which drains into the River Lyon, in Perthshire. The Committee was sent a fish and aquatic impact assessment in relation to the proposal in February and has arranged for a site inspection.

### *Glendoe*

- 2.15 In November 2001, the Committee was told by Scottish and Southern Energy that it was proposing a scheme on the River Tarff that flows into Loch Ness near Fort Augustus. The Committee understands that an Environmental Impact Assessment is being compiled which will include an assessment of the anticipated effects on fish and fisheries, but there was no consultation on this scheme with the Committee during the year.

### *Allt Hallater*

- 2.16 The Committee has received preliminary details of a hydro scheme on the Allt Hallater, between Loch Awe and Loch Etive (Argyll) proposed by Innogy. It may exceed 1 megawatt in capacity and the Committee has provided guidance on the information that it will require from the Company.

### 3 Hydro-electric Schemes of 1 Megawatt Capacity or Less

- 3.1 Hydro-electric schemes of 1 megawatt or less are subject to the Salmon (Fish Passes and Screens) (Scotland) Regulations 1994 and the Committee's advice does not have the same statutory effect as for the schemes over 1 megawatt (which require the Scottish Ministers' consent under section 36 of the Electricity Act – see paragraph 2.1). The Committee was involved in advising on two schemes of 1 megawatt or less during the year.

#### *Loch Poll*

- 3.2 The Committee was invited to make a site visit to Assynt Hydro's scheme at Loch Poll, Sutherland where concern had been expressed about arrangements for the passage of salmon and sea trout. A member of the Committee, Mr Williamson, duly attended a meeting at Loch Poll on 19 July during which the various elements of the scheme were inspected and discussed with representatives of Assynt Hydro and others. Mr Williamson prepared a note of his visit that was endorsed by the Committee at its meeting in September and forwarded to both Assynt Hydro and Scottish Ministers with the Committee's advice in relation to the safe passage of salmon and sea trout past this scheme.

#### *Stanley Mills*

- 3.3 During discussions with Innogy at the Committee meeting on 24 May 2002, at which the Stanley Mills hydro scheme, north of Perth, was mentioned, arrangements were made for a member of the Committee, Mr Graham-Campbell, to visit the site of the development. As the location of the scheme is low down on the Tay system it has the potential for affecting a major part of the smolt run on that river and the Committee felt that it could be advantageous to consider any problems which might result from the installation of this scheme. Following the visit of Mr Graham-Campbell, the Committee gave advice on the proposed design and layout of the screens, the byewash arrangement, and the difficulty of cleaning the system as initially designed. It understands that, subsequent to receipt of the advice given by the Committee, the developer has proposed to make certain changes to the scheme's design.



## 4 Existing Hydro Schemes

- 4.1 The Committee continues to monitor the operation of existing hydro-electric schemes to ensure that arrangements for fish and fisheries are satisfactory; though it visited fewer than in previous years due to pressure of work associated with the development of new schemes. In particular, the fish pass at the Tongland dam continues to cause concern.

### *Tongland*

- 4.2 The effectiveness of the fish pass at the Tongland Dam (Galloway hydro-electric scheme) has given cause for concern over many years. Scottish Power (SP) told the Committee in July that recent modifications to the pass (including the introduction of diagonal cross-walls in the uppermost pools to reduce the effect of 'unnatural' water patterns) appeared to have eased the passage of fish; and that fish were no longer delayed in the top "resting" pool. The Committee also received a copy of SP's Report "Tongland Fish Pass - Review of Optimum Flows". The report looks at assisting the movement of fish through optimisation of the fish pass water flows.
- 4.3 The Committee met with SP in September to discuss these modifications and other aspects relating to the fish pass. The Committee was interested to hear the detail and results of the electronic tagging and tracking work at the fish pass, which had been undertaken by the Scottish Executive's Fisheries Research Services. The Committee also noted that the Galloway Fisheries Trust had been analysing the fish count data at Tongland, and that the Trust would be submitting monthly reports. The Committee is encouraged that this work is being carried out.
- 4.4 In December, the Committee heard that salmon appeared not to be moving into or through the fish pass easily and that fungussed and dead fish had been seen in the pools. The Committee proposed that all the relevant parties should meet to discuss and agree what further investigation and work is required at the Tongland fish pass.

### *Loch Ericht*

- 4.5 Section 36 consent was required for the refurbishment work at Scottish and Southern Energy's dams at Loch Ericht, part of the Tummel/Garry hydro-electric scheme. This triggered a formal consultation with the Committee. Once the Committee had received a reply to its questions on the proposed works and management of water levels, it informed the Company in February that it would not be making any formal recommendations, and so advised Scottish Ministers.

### *Dalnessie*

- 4.6 At its meeting with Scottish and Southern Energy (SSE) on 23 May the Committee was advised of the results of the trapping project designed to test the effectiveness of the new smolt screens – vertical bars instead of mesh – at the Dalnessie intake on the River Brora (part of the Shin scheme). As a result of advice previously provided by the Committee, SSE had concluded that it was not practicable to trap with sufficient efficiency at the originally proposed site, i.e. on the weir behind the screen. It therefore installed a trap further downstream, beyond the penstock.
- 4.7 SSE concluded that the results from the trapping work confirmed that the new screen was effective in excluding salmon smolts from the intake. The Company therefore asked if the Committee would endorse the new design as generally suitable for this purpose. Towards that end, SSE agreed to prepare a paper describing the screen, trap, protocol for the trapping work and the results. The Committee received a copy of that report at the end of the year.

### *Mucomir*

- 4.8 Scottish and Southern Energy (SSE) requested advice in relation to proposals for new fish-screening arrangements at the intake to its Mucomir power station on the River Lochy, near Fort William.
- 4.9 The spacing of the bars of the present screen at the intake was 1.5 inches instead of the 1 inch or less originally recommended when the scheme was proposed and subsequently reflected in the Heads of Agreement between the North of Scotland Hydro-Electric Board and the Lochy District Salmon Fishery Board. SSE's preference was now to provide a screen with a clearance of 12mm between bars to keep out all smolts. By reducing the clearance, the speed of flow through the screen increases (there are limits to the practicable possibilities of increasing the overall dimensions of the screen array at the site). The SSE's preferred solution is to reduce the load on the turbines during the smolt season so that the speed of flow through the screen did not exceed the standard 0.3m per second. Outwith the smolt season, the turbines would be run at normal load and the flow through the screen allowed to rise to a maximum of 0.45m per second.
- 4.10 The Committee advised SSE that in its opinion, in the circumstances at Mucomir, if the finer screens were installed it would be appropriate to permit flows of up to 0.45m per second outwith the period for smolt migration at the site; but only provided that the situation at the screens was closely monitored during the first year of operation to check that fish were not being pinned to the screen and that, thereafter, it was inspected from time to time for the same purpose; and that if it was found that fish were being pinned to the screen, then the load would have to be reduced to bring the water speed down or some other solution be found.

## 5 Thermal Generating Stations

- 5.1 In addition to its statutory functions, the Committee advises as necessary on the effects of the water systems of thermal generating stations on fish and fisheries. During the year it was involved in discussions on one such station, Longannet, about which the Committee has expressed concern over a number of years regarding the entrainment of fish on the screens.

### *Longannet*

- 5.2 In June, Scottish Power (SP) sent the Committee a copy of Marin Greenwood's PhD thesis "The Fish Populations of the Lower Forth Estuary, including the Environmental Impact of Cooling Water Extraction on these Populations" (Dept. of Biological Sciences, University of Stirling, October 2001). The Committee was also informed that fish sampling at the Longannet screens was continuing to the specification provided by the Committee, incorporating additional sampling as requested.
- 5.3 The Committee met with SP in July to discuss the results. The Committee notes with regret that the Report shall not be made publicly available until a period of 5 years has elapsed. The Report confirms that a substantial number of fish are impinged on the screens at Longannet and SP is investigating deterrent measures.
- 5.4 The Committee met with SP again in September and February when it was advised that SP was considering the installation of acoustic screens as a potential solution to the problem. The Committee was informed that a similar system to that proposed for Longannet, in operation at a power station in Doel (Belgium), had a success rate of over 50 per cent - even higher for sprats and herrings (the majority of fish killed at Longannet are sprats, herrings and whiting).
- 5.5 The Committee continues to be concerned about the long standing problem at Longannet and will continue to press the Company for a solution.

## 6 Liaison

- 6.1 In addition to providing specific advice to the various generators and/or making recommendations on particular proposed or existing schemes, the Committee liaises with generators on general policy and plans for fish and fisheries. It may also meet or correspond with District Salmon Fishery Boards and other bodies with a direct or indirect interest in fish or fisheries affected by hydro-electric development. Following a review of its relationship with key organisations, the Committee decided it would be worthwhile giving some consideration to how it engages with bodies other than power companies in the future and to that end further meetings were arranged.

### *Generators*

- 6.2 This reporting year the Committee had general discussions with Innogy and Scottish and Southern Energy (SSE).
- 6.3 The Committee continues to receive fish count data from SSE. The Committee has received and discussed the "Report on the 2001 Fish Count Data and Other Related Topics" as well as an Interim Report for 2002. The work of the Committee is greatly facilitated by the fish count data provided and details of work completed and projects undertaken concerning fish and fisheries. The Committee is concerned that SSE continues to experience some difficulties in maintaining the performance and level of accuracy of some of the fish counters and it recommended that that SSE should continue with a substantial fish-counting programme to test the effectiveness of its fish passes and to assist in monitoring the salmon stocks in the rivers affected by its hydro-electric works.
- 6.4 The Committee encourages generating companies to identify and make innovations and improvements at their installations with a view to protecting and improving fish stocks and fisheries. It continues to take a keen interest in research projects, offering advice where necessary or when helpful to do so.

### *Scottish Environment Protection Agency*

- 6.5 The Committee wrote to the Scottish Environment Protection Agency (SEPA) in July suggesting it would be useful to establish a link and point of contact, especially given the likely interaction of the Committee's statutory remit and the Water Environment and Water Services (Scotland) Act 2003, and therefore the need for on-going discussions on abstraction, impoundment and engineering works relating to hydro-electric stations. SEPA agreed that there would be mutual benefit in the Committee and SEPA speaking specifically on the Water Framework Directive.

- 6.6 The Committee met with SEPA in October to go over the Committee's future interaction with SEPA, as well as matters of casework, mainly regarding its criteria for setting compensation water based on particular percentile flows at different sites and how the calculations are derived. The Committee looks forward to future liaison regarding both casework and wider policy issues regarding implementation of the Act.

### *Scottish Natural Heritage*

- 6.7 The Committee was invited to give a short presentation on its work at a seminar on hydro-electric development organised jointly by Scottish Natural Heritage (SNH) and Scottish and Southern Energy on 2 May. The Committee subsequently wrote to SNH suggesting that it would be useful if there was an established point of contact in relation to the effects of hydro-electric stations (and the cooling water systems of thermal generating stations) on fish and fisheries. This was agreed and appropriate liaison channels have been established.
- 6.8 The Committee met with SNH on 10 September to discuss some aspects of the Garrogie scheme and in November to confer more generally on the Committee's remit and SNH's policies towards hydro developments. The meeting was a useful exchange of views and the Committee looks forwards to further meetings to discuss how the proposed liaison arrangements are working.

### *Scottish Executive Water Environment Unit*

- 6.9 The Committee met with the Water Environment Unit last year and expects ongoing liaison during the development of the Regulations associated with the Water Environment and Water Services (Scotland) Act 2003. The Committee has been kept abreast of developments regarding legislation. The Committee is anxious to ensure the Regulations affecting hydro developments and operations in Scotland complement its own statutory functions. The Committee was invited to a seminar on the Act jointly organised by the Scottish Executive and SEPA, in March.

### *District Salmon Fishery Boards*

- 6.10 The Committee has not met with any of the District Salmon Fishery Boards (DSFBs) this year. However, it has received correspondence from several, including the North & West Board on the Loch Poll Hydro scheme; the Spey Board on the British Alcan operated dam on the Spey; the Forth Board on Longannet; and the Tay Board on the Stanley Mills scheme. The Committee's functions do not extend to giving advice to DSFBs but it is glad to receive representations from them.

## *Others*

- 6.11 The Committee has corresponded with the Loch Lomond Angling Improvement Association on the Glen Falloch schemes and the Galloway Fisheries Trust in respect of Tongland. In addition, the Committee has met with scientists of the Fisheries Research Services to discuss some of the issues highlighted - it appreciates having had this opportunity.

## *Consultation Papers*

- 6.12 The Committee from time to time receives Government consultation papers and responds where it considers it appropriate to do so. During the year the Committee responded to the following:
- i. "The Future for Scotland's Waters - Proposals for Legislation"
  - ii. "The Future for Scotland's Waters - Guiding Principles on the Technical Requirements of the Water Framework Directive"
  - iii. "SEPA Policy and Financial Management Review"
  - iv. "Ofgem Electricity Act Schedule 9 statement"

## **7 Acknowledgements**

- 7.1 The Committee wishes to acknowledge the co-operation it has received from the power generating companies and the Scottish Executive Environment and Rural Affairs and Enterprise and Lifelong Learning Departments, as well as the constructive liaison it has had with SNH, SEPA, DSFBs and the various Fisheries Trusts and Angling Associations. It wishes to pay tribute to the good work throughout the past year and in putting together this report, on its behalf by its Secretary Mr Richard Gustar. The advice and assistance given by Dr John Armstrong and Dr Andy Walker of the Fisheries Research Services Freshwater Laboratory has been greatly appreciated.
- 7.2 The Committee also wishes to express its thanks to Mr Robert McGillivray and Dr Peter Barnett following their retirement from the Committee last year. Dr Barnett was a member of the Committee for 27 years and Mr McGillivray was Chairman from 1992 to 2002. Both devoted a lot of time and hard work throughout their years of service and will be sorely missed as much for their respective personalities as well as expertise.

## APPENDIX A

### Functions of the Committee

The Fisheries Committee was constituted in 1943 to consider hydro schemes proposed by the North of Scotland Hydro-Electric Board and to advise on the effects on fish and fisheries and on ways of preventing or minimising damage. At the same time, schemes approved by the Secretary of State and constructed by the Board were exempted from the statutory Fish Passes and Screens Regulations. The provisions were consolidated in the Electricity (Scotland) Act 1979 and, in 1986, were extended to cover other persons intending to establish or extend a hydro-electric scheme. The functions of the Committee are continued under the Electricity Act 1989.

### **Statutory functions**

The statutory functions of the Committee are set out in Schedule 9 to the 1989 Act and may be summarised as follows:

- to advise and assist Scottish Ministers and any person engaging in, or proposing to engage in, the generation of hydro-electric power on any questions relating to the effect of hydro-electric works on fisheries or stocks of fish; the Committee may give such advice whether asked or not;
- the Schedule provides that any person engaged in, or proposing to engage in, the generation of hydro-electric power has to give the Committee such information and assistance as it reasonably requires;
- section 36 of the Act (as modified by SI 1990/392) provides that any person wishing to construct or operate a hydro station with a capacity of more than one megawatt has to apply to Scottish Ministers for consent; Schedule 9 provides that:
  - before or on making such an application the applicant must consult the Committee;
  - the Committee may make recommendations to the applicant or to any other person; and
  - Scottish Ministers may refuse consent under section 36 if an applicant does not undertake to implement a recommendation made by the Committee.

*N.B. This informal summary of the statutory functions is not a substitute for direct reference to the Act.*

### **Other functions**

In addition to its statutory functions, the Committee has been asked by Ministers to advise as necessary on the effects of the water systems of thermal generating stations on fisheries and stocks of fish.

## APPENDIX B

### Membership of the Fisheries Committee at 31 March 2003

Members of the Fisheries Committee are appointed under Schedule 9 of the Electricity Act 1989 and in accordance with the Code of Practice issued by the Office of the Commissioner for Public Appointments. A copy of a Code of Practice for members of the Fisheries Committee is at Appendix C. Appointments are part-time and unpaid.

Chairman: **James M T Cockburn** BSC, CENG, FICE, FCIWEM  
(appointed 1 March 2003 - 1st Term)

Highly experienced Chartered Civil Engineer acting as a part-time independent consultant and advisor on water industry issues; Fellow of the Institution of Civil Engineers and of the Chartered Institution of Water and Environmental Management; Deputy Convenor of Water Customer Consultation Panel for North West Scotland; currently serves as a Non-executive Board member and Chair of the Audit Committee, Cromarty Firth Port Authority and as a member of the North Regional Board of SEPA. Formerly Managing Director (Water Services), North of Scotland Water Authority (1995-2001).

**R Niall Graham-Campbell** FRICS, NDA, MIFM (appointed 1 April 2000 - 2nd Term)

Chartered surveyor in private practice; managed river fisheries in Highlands since 1963; acts as Expert Witness in fisheries cases; has managed Commercial Salmon Net Fishing Stations and supervised design, construction and operation of fish hatcheries; has been a member, Chairman and Secretary to District Salmon Fishery Boards and a past member of the Tay District Advisory Committee.

**Robert B Williamson** OBE, BSc, FIFM (appointed 1 April 2000 - 2nd Term)

Fisheries biologist and administrator in Scotland and overseas (1958-1978); Inspector of Salmon and Freshwater Fisheries for Scotland (1979-1995); and Chairman of Scottish Fisheries Co-ordination Centre.

**Professor Susan Walker** OBE, BSc, PhD, CENG, FICE, FCIWEM  
(appointed 1 January 2001 - 1st Term)

Twenty years experience in water and environment industry, latterly as Regional Water Manager for Environment Agency, with responsibility for Water Resources, Fisheries, Flood Defence, Conservation and Recreation; currently part-time Professor of Geography and Environment at University of Aberdeen specialising in integrated river basin management; freelance consultant; non executive Board member of Scottish Natural Heritage; Deer Commission for Scotland; Scottish Environment Protection Agency and Cairngorms National Park.

**Dr W Gary Anderson** BSc, PhD, NACWO (appointed 1 March 2003 - 1st Term)

Experience of designing, testing and monitoring fish protection systems; Named Postdoctoral Research Fellow at St. Andrews University; Deputy curator and Named Animal Care and Welfare Officer (NACWO) for the UK Home Office licensed aquarium facility at the Gatty Marine Laboratory.

**Dr D Trevor Crisp** BSc, PhD, DSc, CBIOL, FIBIOL (appointed 1 March 2003 - 1st Term)

Currently retired, following a long and active career in fisheries research, works part-time as a freelance consultant; Fellow of the Institute of Biology, a member of the Institute's "Register of Environmental Biologists", and the British Ecological Society's "Environmental Spokesmen"; member of the Regional Fisheries, Ecology & Recreation Advisory Committee, EA North East Region; co-opted member of the Advisory Committee on Sites of Special Scientific Interest.

Secretary: **Richard Gustar** BSc, MSc  
Scottish Executive Environment and Rural Affairs Department



## **APPENDIX C**

### Code of Practice for Members of the Fisheries Committee

The Committee is appointed by Scottish Ministers under provisions in the Electricity Acts. Its statutory function is to advise Scottish Ministers and any person engaging in the generation of hydro-electric power on any question relating to the effect of hydro-electric works on fisheries or stocks of fish.

### **Public Service Values**

Members of the Committee:

- are accountable to Scottish Ministers for the Committee's activities and for the standard of advice it provides;
- must observe the highest standards of impartiality, integrity and objectivity in relation to the advice they provide and the manner in which the Committee conducts its activities; and
- shall, in accordance with Government policy on openness, provide and make available an Annual Report on the Committee's activities.

### **Standards in Public Life**

Each member of the Committee must:

- follow the seven principles of public life set out by the Committee on Standards in Public Life (annexed), insofar as they apply to the activities of the Committee;
- comply with this Code, and ensure that he or she is familiar with the function and role of the Committee and understands the duties, rights and responsibilities related to it;
- not misuse information gained in the course of work in the Committee for personal gain or for political purpose, nor seek to use the opportunity of public service to promote their private interests or those of connected persons, firms, businesses or other organisations; and
- not hold any paid or high-profile unpaid posts in a political party, and not engage in specific political activities on matters directly affecting the work of the Committee.

## **Role of Committee Members**

Members of the Committee have collective responsibility for its operation. They must, so far as is practicable:

- engage fully in collective consideration of the issues, taking account of the full range of relevant factors, including any guidance issued to them by Scottish Ministers;
- ensure that the Code of Practice on Access to Government Information is adhered to and agree an Annual Report;
- respond appropriately to complaints, if necessary, with reference to The Scottish Executive; and
- ensure that the Committee does not exceed its powers or functions.

## **The Role of the Chairman**

The Chairman has particular responsibility for providing effective leadership on the issues described above. In addition, the Chairman is responsible for:

- ensuring that the Committee meets at appropriate intervals, and that the minutes of meetings, and any reports to Scottish Ministers and others, accurately record the decisions taken and, where appropriate, the views of individual members;
- ensuring that new Committee members have been briefed on the functions of the Committee and their duties and rights and responsibilities; and
- representing the views of the Committee to the public, if appropriate.

## **Conflicts of Interests**

Members of the Committee should not participate in the discussion or determination of matters in which they have an interest, and should normally withdraw from the meeting if:

- their interest is direct and pecuniary; or
- their interest is covered in specific guidance issued by the Committee or Scottish Ministers which requires them not to participate or to withdraw from the meeting.

**THE SEVEN PRINCIPLES OF PUBLIC LIFE**  
(as set out by the Committee on Standards in Public Life)

**Selflessness**

Holders of public office should take decisions solely in terms of the public interest. They should not do so in order to gain financial or other material benefits for themselves, their family, or their friends.

**Integrity**

Holders of public office should not place themselves under any financial or other obligation to outside individuals or organisations that might influence them in the performance of their official duties.

**Objectivity**

In carrying out public business, including making public appointments, awarding contracts, or recommending individuals for rewards and benefits, holders of public office should make choices on merit.

**Accountability**

Holders of public office are accountable for their decisions and actions to the public and must submit themselves to whatever scrutiny is appropriate to their office.

**Openness**

Holders of public office should be as open as possible about all the decisions and actions that they take. They should give reasons for their decisions and restrict information only when the wider public interest clearly demands.

**Honesty**

Holders of public office have a duty to declare any private interests relating to their public duties and to take steps to resolve any conflicts arising in a way that protects the public interests.

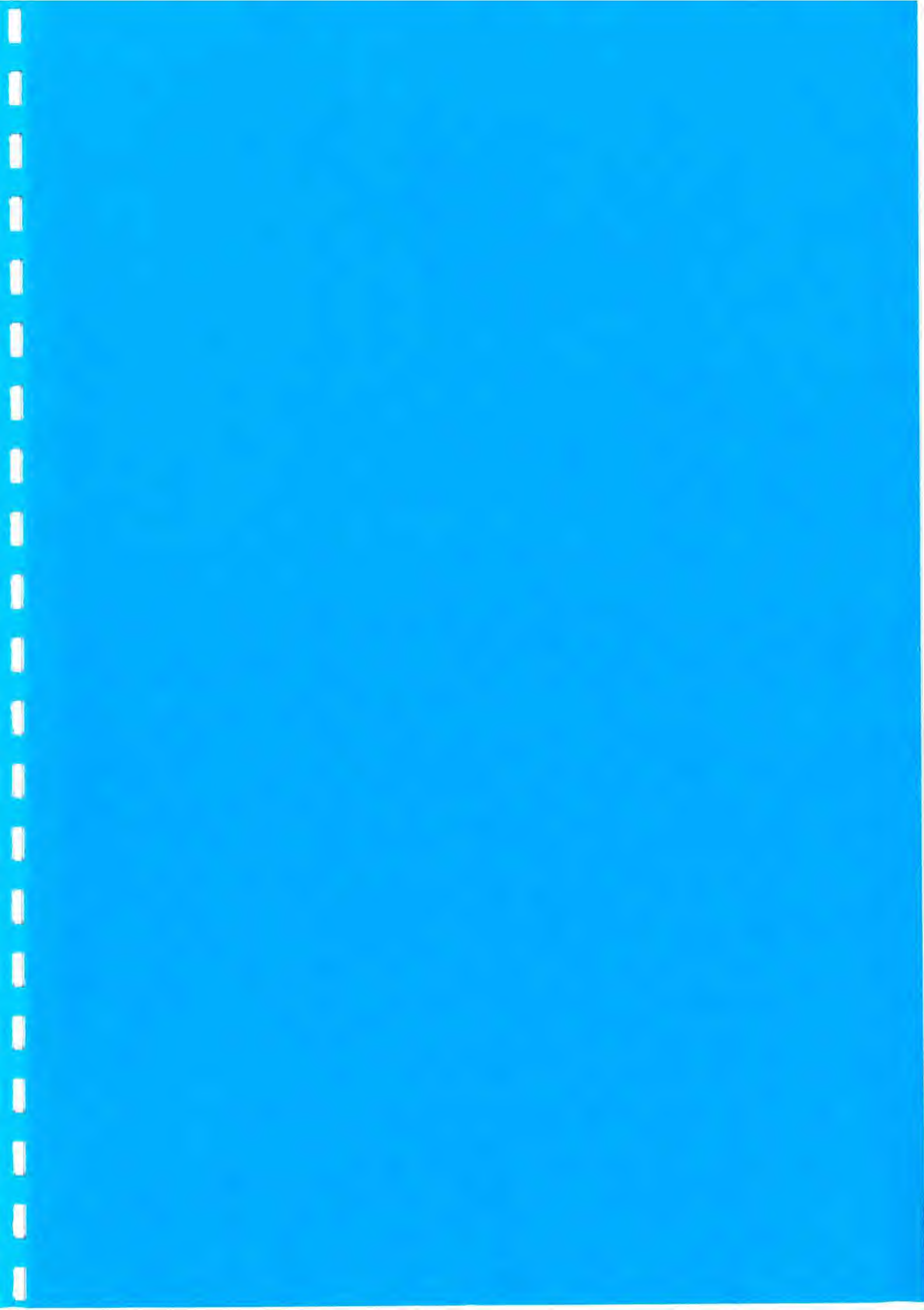
**Leadership**

Holders of public office should promote and support these principles by leadership and example.

## APPENDIX D

### List of Seminars/Meetings/Visits and Key Organisations Met With

<b>Date</b>	<b>Location</b>	<b>Purpose</b>
2 May 2002	Perth	Attendance and participation at SNH/SSE Joint Seminar on 'Hydro Developments and the Environment'
23 May 2002	Perth	Meeting with Scottish and Southern Energy and business meeting
24 May 2002	Perth	Meeting with Innogy and continuation of business meeting from previous day
17 July 2002	Perth	Meeting with Scottish Power and business meeting
18 July 2002	Stanley, River Tay	Visit to Stanley Mills and discussion with Innogy
19 July 2002	Near Drumbeg, Sutherland	Visit to and discussion on Loch Poll hydro-electric station [Assynt Hydro]
8 August 2002	Glen Falloch, Loch Lomond	Visit to proposed sites of hydro-electric schemes – Allt Fionn Ghleann and Ben Glas Burn
10 September 2002	Perth	Meeting with Scottish Natural Heritage (am). Meeting with Scottish Power (pm) and business meeting
7 October 2002	SEPA Offices, Perth	Meeting with Scottish Environment Protection Agency
21 November 2002	Perth	Meeting with Scottish Natural Heritage
10 December 2002	Clunie Power Station, Pitlochry	Meeting with Scottish and Southern Energy
5 February 2003	FRS Freshwater Laboratory, Pitlochry	Meeting with Scottish Power and business meeting
12 March 2003	University of Glasgow	Attendance at Scottish Hydrological Group meeting on Hydro Developments in Scotland presented by SSE
28 March 2003	Edinburgh City Chambers	Attendance and participation at SE/SEPA Conference on 'Implementing the Water Environment and Water Services Bill'





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**FISHERIES COMMITTEE**  
(appointed under the Electricity Act 1989)

**ANNUAL REPORT**  
For the year to 31 March 2007

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Electricity (Scotland) Act 1989

## FISHERIES COMMITTEE

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12 October 2007

*Dear Minister*

I have pleasure in presenting the Annual Report of the Fisheries Committee for 2006/07. It provides a summary of the work undertaken by the Committee during the twelve months to 31 March 2007.

The Committee has an established track record of contributing to the development of renewable energy whilst protecting fish stocks and associated fisheries that are so important to the biodiversity and economy of much of Scotland. The commercial importance of wild salmon and sea-trout fisheries is well recognised but market values are only part of the overall value of these resources. The wider conservation value of both salmon and sea trout and other species of native fish to sustaining Scotland's biodiversity must not be overlooked. For example, distinct populations of brown trout especially in upland tributaries, Arctic charr, and lampreys and their critical habitats must also be afforded reasonable protection as must eels that are increasingly at risk of further population reduction. The Committee is pleased to harness the broad collective expertise of its members to continue to advise Scottish Ministers, their agencies, and hydro-developers on the protection of all stocks of fish and fisheries.

This has been another very busy and challenging year for the Committee during which it has a) considered a number of important policy and strategy issues relevant to its statutory function under the Electricity Act 1989, b) responded to fourteen new or ongoing applications for Section 36 consents (in terms of its statutory function) and/or CAR licences (in terms of the Water Environment (Controlled Activities) (Scotland) Regulations), c) inspected and/or advised on aspects of the operation of seven existing hydro schemes and one thermal generating station, and d) liaised with other stakeholders having an interest in the protection of fish and fisheries in the context of the Committee's role.

Following confirmation of its ongoing distinct statutory function alongside the new authorisation regime associated with the Water Environment (Controlled Activities) (Scotland) Regulations (CAR) that came into effect on 1 April 2006, the Committee worked closely with SEPA to develop a Memorandum of Understanding (MOU) that aims to align, as much as possible, the processes for discharging their respective, but different, statutory functions so as to avoid wasteful duplication of effort by both developers and public agencies and to minimise the risk of developers being given conflicting advice. Initially, progress was slower than both parties would have wished but, latterly, once SEPA had resolved various internal and external policy issues, more rapid progress was achieved and, by the end of the year, the draft MOU was sufficiently well developed for consideration by the Scottish Government ahead of wider consultation with the Hydro Industry and other relevant stakeholders. Meanwhile, the Committee was pleased that, under CAR, it was able to provide advice and recommendations pertaining to fish and fisheries to SEPA drawing on its considerable specialist expertise that is not presently available in-house to SEPA.

The Committee was pleased that the emerging CAR licensing regime recognised the importance of gathering data on fish populations and related factors both before and after the installation of new hydro schemes to ensure that the design and operation including mitigation measures is appropriate and effective. Information gleaned from such monitoring should assist both developers and regulators to broaden understandings of impacts and ensure mitigation uses best practice.

Previously, the Committee has expressed its concern at aspects of the regulation of small hydro schemes which have not always appeared to provide adequate protection to fish and fisheries. However, the new CAR regime has provided an opportunity to rectify the perceived deficiencies of the preceding arrangements and the Committee is encouraged that proper scrutiny of small schemes by way of the CAR licensing process, will begin to address its concerns.

The Committee continued to be concerned at the possible cumulative impact on fish and fisheries of the proposed development of numerous new hydro schemes within single river catchments. This concern became more acute during 2006/7 when the Committee became aware of widespread investigations into possible run-of-river hydro schemes on various tributaries of the River Tay, an important salmon SAC, that is already impacted by a significant number of existing hydro schemes, both large and small. The Committee learned that up to twelve new schemes were at various stages of development including up to six on streams feeding the River Lyon. In these circumstances the Committee continued to advocate a precautionary approach to the design and operation of schemes that, as far as is reasonably possible, avoids impacting on the lower reaches of the affected streams that, frequently, contain valuable spawning and juvenile rearing habitats for both migratory fish and resident brown trout populations. The Committee's concerns were shared by other relevant agencies with whom it worked to better understand this issue and to agree an acceptable way forward.

As a designated Responsible Authority in terms of the Water Environment etc (Scotland) Act 2003, the Committee contributed to the ongoing work of developing Scotland's River Basin planning process by way of its participation in national and local advisory groups. The Committee noted the difficulty of striking an acceptable



balance between the implementation, in Scotland, of the EU Water Framework Directive and the Scottish Government's renewable energy objectives. It looks forward to this tension being clarified in the forthcoming consultations on the first River Basin Plan so as to continue the promotion of a sustainable water environment including fish and fisheries.

Towards the end of 2006/7, the Committee accepted an invitation to join the newly formed hydropower sub-group of the Forum for Renewable Energy Development in Scotland (FREDS) and looks forward to contributing to its deliberations.

In an earlier paragraph of this letter, I made reference to the importance the Committee attaches to gathering data on the impacts of new hydro on fish and fisheries. The Committee understands that data on the impacts of existing hydro is not universally available and is concerned that this might be detrimental to the identification of future improvement needs and priorities. Accordingly, it urges that provision is made in the first River Basin Plan to allow a start to a structured and data-based audit of the cumulative impacts on fish and fisheries of existing major hydro schemes to better inform future decisions of both operators and regulators in this regard.

As to research, the Committee reiterates what it has said in previous Annual Reports and, again, requests the Scottish Government's support for reasonable public funding of research into establishing the levels of river flow required to sustain healthy and productive fish and fisheries resources in a Scottish context.

I should like to record my thanks to the Committee and its Secretary, Andrew Dailly, for their support and commitment to our continuing busy work schedule in 2006/7.

Finally, it is sometime since the Committee met Scottish Ministers and I know that its members would welcome an opportunity to discuss and elaborate on some of the issues contained in this letter and the accompanying Annual Report.

I commend the work of the Committee and this Report to you.

*Yours sincerely*

*James M. Cockburn*

Jim Cockburn  
Chairman



## Membership of the Fisheries Committee – 31 March 2007

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Further details are provided at Appendix B.

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## 1. Introduction

- 1.1 This Report describes the work of the Fisheries Committee for the period from 1 April 2006 to 31 March 2007.
- 1.2 The Fisheries Committee is an advisory public body constituted under the Electricity Act 1989. Its statutory remit is to make recommendations to Scottish Ministers and any person engaging in, or proposing to engage in, the generation of hydro-electric power on any questions relating to the effect on fisheries or stocks of fish. The Committee may give advice or assistance on its own initiative or if requested by Scottish Ministers or by a generator or intending generator.
- 1.3 The Scottish Executive has notified the Committee that installations which generate electricity from tidal or wave energy fall within the meaning of the phrase “generating stations wholly or mainly driven by water” as used in the North of Scotland Hydro-Electric Development (Scotland) Act 1943 and its successors and, therefore, that wave and tidal schemes are also within the Committee’s remit.
- 1.4 The Committee also advises on the effects on fish or fisheries of the cooling water systems of thermal generating stations.
- 1.5 As a public body, the Committee has a statutory duty to further the conservation of biodiversity in accordance with the Nature Conservation (Scotland) Act 2004.
- 1.6 On 1 April 2006, the Water Environment (Controlled Activities) (Scotland) Regulations 2005 (otherwise known as CAR) came into effect with the Scottish Environment Protection Agency (SEPA) designated as the CAR regulator responsible for protecting Scotland’s water environment from the impacts of controlled activities. However, that statutory function is distinct from the statutory function of the Committee under Schedule 9 to the Electricity Act 1989 and so, to avoid conflicting advice to Ministers and industry, Schedule 9 to the 1989 Act has been modified by way of the WEWS (Consequential Provisions and Modifications) Order 2006, such that the Committee is now required to consult SEPA on matters pertaining to the water environment before issuing advice or making recommendations to Ministers or industry under the 1989 Act. In addition, the Committee’s advice or recommendations concerning the water environment will, in future, be given and pursued as part of the CAR process. Any other advice or recommendations will continue to be given and pursued by way of the Ministerial consent under the 1989 Act.
- 1.7 During 2006/7, the Committee and SEPA have been working closely together to put in place appropriate administrative arrangements, including a Memorandum of Understanding, to give effect to the above and to formalise their existing good working relationship thus ensuring further co-operation and the provision of joined-up advice. The Committee has been pleased that, under CAR, it has been able to provide advice and recommendations pertaining to fish and fisheries to SEPA across the full range of hydro schemes, drawing on its considerable specialist expertise that is not presently available in-house to SEPA.



- 1.8 Also, in terms of the Water Environment and Water Services (Scotland) Act 2003, the Committee has been designated as a Responsible Authority thereby requiring it to exercise its statutory functions in a way that secures compliance with the objectives of the Water Framework Directive. In doing so, the Committee will act to support SEPA in its lead role for river basin management planning.
- 1.9 The functions of the Committee are more fully described in Appendix A.
- 1.10 Mr Gordon Jubb was appointed to the Committee with effect from 1 April 2006 to succeed Mr N Graham-Campbell. Information on members of the Committee is given in Appendix B. The Committee is listed on the Scottish Government Website, in the "Scottish Public Body Directory" ([www.scotland.gov.uk](http://www.scotland.gov.uk)).
- 1.11 The Government's aim of increasing the amount of electricity produced from renewable resources is expressed in the Scottish Renewables Obligation 1994 and the Renewables Obligation (Scotland) 2001 (ROS). These measures have continued to encourage increased interest in hydro-electric generation and much of the Committee's work in 2006-07 has been in relation to proposals stimulated by them. The ROS initiative has been extended to 2015.
- 1.12 In February 2007, the Committee accepted an invitation to participate in the work of the Hydro sub-group of the Forum for Renewable Energy Development in Scotland (FREDS).
- 1.13 Hydro-electric schemes with a generating capacity of more than 1 megawatt (MW) are exempt from the provisions of the Salmon (Fish Passes and Screens) (Scotland) Regulations 1994 but are subject to consent from Scottish Ministers under Section 36 of the Electricity Act 1989, as modified by the Electricity Act 1989 (Requirement of Consent for Hydro-electric Generating Stations) (Scotland) Order 1990. Schedule 9 of the Act provides that, before or on applying for such consent, the applicant must consult the Committee and that the Committee may make recommendations. With effect from 1 April 2006, these schemes also require a CAR authorisation. The various new schemes greater than 1 MW scrutinised during the year are each separately covered in Chapter 2.
- 1.14 Hydro-electric schemes of 1 MW or less are subject to the Salmon (Fish Passes and Screens) (Scotland) Regulations 1994. Developers are not required to consult the Committee, but may do, and the Committee may give advice whether consulted or not. With effect from 1 April 2006, these schemes also require a CAR authorisation. Chapter 3 refers to new small-scale hydro schemes.
- 1.15 Guidance on the information required by the Committee in considering new schemes is available from its Secretary. The guidance document was updated at the beginning of 2007. In future, the Committee and SEPA aim to develop and publish joint guidance. Notwithstanding, it is important that developers consult the Committee and SEPA as early as possible when planning new hydro-electric schemes.
- 1.16 The Committee continues to monitor the operation and maintenance of existing hydro-electric schemes, including site inspections, to ensure that arrangements for fish and fisheries are satisfactory. This aspect of its work is reported in Chapter 4.
- 1.17 Chapters 5 and 6 refer to wave, tidal and thermal generating stations respectively.
- 1.18 The Committee's liaison and contact with specified bodies is described in Chapter 7.

1.19 Chapter 8 refers to policy and strategic issues that were considered by the Committee in the course of the year.

1.20 A list of the Committee's meetings and visits, sites inspected and persons met with is given at Appendix D. As matters of commercial confidence frequently arise during the Committee's meetings, they are not held in public. The Committee's Annual Reports are publicly available and are posted on the Scottish Government Website at:

[www.scotland.gov.uk/about/ERADFF/FFAME/00017604/Committee.aspx](http://www.scotland.gov.uk/about/ERADFF/FFAME/00017604/Committee.aspx)

Further details about the Committee and hydro-electric power in general and its effects on fish can also be found here.

1.21 As a public body, the Committee is subject to the Freedom of Information legislation. Its Publication Scheme is available from its Secretary and is posted on the Scottish Government website.

## **2. New hydro electric schemes of more than 1 megawatt capacity.**

### ***Black Rock***

- 2.1 The Committee was consulted by RWE Npower in December regarding the proposed 3.5MW Black Rock hydro scheme on the River Glass, near Evanton (Highland). Having obtained the views of other stakeholders, the Committee visited the site in February and held discussions with the developer about the possible impact of the scheme on the lower reach of the river below the Black Rock gorge. By the year-end, the Committee was close to formulating its advice and draft recommendations which would be forwarded to SEPA for comment under CAR.

### ***Carnoch***

- 2.2 In October 2005, RWE Npower formally consulted the Committee on a revised scheme greater than 1MW. Initial comments, seeking amplification and explanation of some of the information contained in the Environmental Statement, were provided by the Committee early in 2006 and a site visit took place in May. Subsequently, the Committee received some additional hydrological information and, after further discussions with the developer about several aspects of the scheme, the Committee issued its recommendations in November which were accepted by the developer. In March 2007, the developer submitted the results of the further set of pre-construction electro-fishing surveys requested by the Committee. The Committee liaised with SEPA regarding the development of the CAR licence for this scheme.

### ***Douglas Water***

- 2.3 Following the granting of Section 36 consent for this scheme near Inveraray (Argyll) by Scottish Ministers, the Committee gave further advice to RWE Npower regarding the turbine ramping regime, the detailed design of the intake and outfall, and sediment management during construction. Representatives of the Committee visited the site in September in connection with these issues and to inspect the construction works. The Committee liaised with SEPA regarding the development of the CAR licence for this scheme.

### ***Glendoe***

- 2.4 Following approval of the scheme by Scottish Ministers, the Committee provided advice to Scottish & Southern Energy on aspects of the detailed design of the scheme. This included a site inspection in August. The Committee liaised with SEPA regarding the development of the CAR licence for this Scheme.

### ***Innerhadden***

- 2.5 The developer, Innerhadden Hydro Ltd, formally consulted the Committee on this scheme at Kinloch Rannoch (Perthshire) in January 2006. Following a site visit and the receipt of some additional information requested by the Committee, it issued its draft recommendations to the developer in April 2006. Subsequently, further advice was given in respect of the draft recommendations and, in June, the Committee issued its formal

Recommendations regarding the positioning of the outfall, aspects of the design of the intake and outfall, the turbine operating regime, sediment management and ongoing monitoring of hydrology and fish populations affected by the scheme. The developer has not yet confirmed acceptance of the Recommendations.

The Committee liaised with SEPA regarding the development of the CAR licence for this Scheme.

### ***Inverlael***

- 2.6 At the end of 2005/6, the Committee issued its formal Recommendations for this scheme near Ullapool (Highland) which were accepted by the developer, RWE Npower. Towards the end of 2006, the developer sought the advice of the Committee regarding a proposal from the Wester Ross Area Salmon Fisheries Board for stocking of the River Lael as mitigation of the expected impact of the planned hydro scheme. The Committee was satisfied that, for the purposes of its statutory responsibilities, its Recommendations provided sufficient mitigation of the impact of the hydro installation and advised that it did not support the Board's proposal for the purpose of mitigation. In February 2007, the developer requested that the Committee relax its requirement that the Allt Mor intake should be capable of enabling the upstream movement of resident brown trout. Having reviewed the supporting information, the Committee agreed to delete that requirement. The Committee liaised with SEPA regarding the development of the CAR licence for this Scheme.

### ***Invervar***

- 2.7 In June, Invervar Hydro Ltd, through its agent Shawater Ltd, submitted a request for a Scoping Opinion to the Scottish Executive regarding a proposed 1.2MW hydro scheme on the Invervar Burn in Glen Lyon (Perthshire). The Committee provided a copy of its Guidance to the developer and advised early engagement with the Committee on issues relating to fish and fisheries.

### ***Keltney Burn***

- 2.8 The Committee issued its formal Recommendations for this scheme near Aberfeldy (Perthshire) being developed by Keltneyburn Hydro Ltd in June 2005. During 2006/7, it received further reports from the developer regarding construction/operation proposals and fish surveys and provided further advice on these matters. Confirmation that the developer accepted the Committee's formal Recommendations was still awaited at the end of the year.  
The Committee liaised with SEPA regarding the development of the CAR licence for this Scheme.

### ***Kingairloch***

- 2.9 The Committee visited this recently commissioned scheme in May 2006 and identified aspects of its design and operation that were of concern in respect of the protection of fish and fisheries. Advice on remedial measures was provided to the operator, SSE, and, periodically thereafter, further discussions took place on specific improvement measures proposed by SSE to address the Committee's concerns.

***Reay Forest (Maldie Burn & Glen Dhu Schemes)***

- 2.10 The Committee welcomed the initiative of the developer, RWE Npower, to engage with it at an early stage of the development of these two schemes and provided advice on fish surveys and related matters.

***River Braan***

- 2.11 RWE Npower, the developer of this scheme near Dunkeld (Perthshire), confirmed its acceptance of the Committee's formal Recommendations in March 2006. However, later in the year, SEPA advised the Committee that it had refused a CAR licence for reasons that did not concern fish and fisheries.

***River E***

- 2.12 The Committee provided advice to RWE Npower regarding the operating regime for ramping up/down the turbine.

***Consents granted by Scottish Ministers***

- 2.13 During the year, no schemes, for which consent had been sought under Section 36 of the Electricity Act 1989 and on which the Committee had provided recommendations, were consented to by Scottish Ministers:

### **3. New hydro-electric schemes of 1 megawatt capacity or less**

#### ***Cluden Water***

- 3.1 The Committee was asked to give guidance to the developer's agent, MannPower Consulting Ltd, on this scheme on a tributary of the River Nith, near Dumfries and, following a site visit in November 2006, it provided advice in January 2007. Subsequently, it corresponded, also, with the Nith DSFB.

#### ***Kinnaird***

- 3.2 In March 2007, the Committee was consulted by SEPA on an application for a CAR licence for this scheme on a tributary of the River Tummel near Pitlochry. On receipt of the Environmental Statement, it will give advice to SEPA.

## 4. Existing hydro schemes

### *Conon Hydro Scheme*

#### *Glen Beag*

- 4.1 In September, the Committee received a report from Kyle of Sutherland DSFB seeking its views on the possible opening of the Glen Beag dam on the upper reaches of the River Carron to migratory fish. The Committee discussed the implications of so doing at a liaison meeting with Scottish and Southern Energy in October and, thereafter, advised the Board that this proposal should be pursued with SEPA by way of the CAR licencing and River Basin Planning processes. It was likely that substantial benefits would have to be demonstrated in view of the anticipated high costs of implementing the desired improvements.

### *Galloway Hydros Scheme*

#### *Tongland*

- 4.2 The long-term decline in the run of adult salmon in the River Dee (Kirkcudbrightshire) remains a cause of considerable concern to the Committee as is the longstanding doubt about the effectiveness of the fish pass at the Tongland dam.
- 4.3 Throughout the year, the Committee maintained a close interest in progress towards implementing the study to evaluate the effectiveness of the fish pass that was agreed by all the main stakeholders in 2003. After the disappointingly slow progress in 2004 and 2005, it was pleasing that, this year, good progress was achieved with the installation of the monitoring equipment in the fish pass and the construction of the fish trap. Later in the year, some preliminary trials were conducted ahead of proper data collection commencing in 2007.

#### *Other Parts of the Galloway Scheme*

- 4.4 Following the Committee's inspection of the Scheme in August 2005 and the subsequent provision of advice to Scottish Power, the Dee DSFB, and the Ayrshire Rivers Trust, it was pleased to hear from Scottish Power, in April 2006, that it was working closely with the Board to produce a development strategy and prioritised action plan to conserve and improve the migratory salmonid fisheries of the Dee catchment. The Committee looks forward to receiving a copy of the report and action plan in due course.

#### *Garrogie*

- 4.5 The Committee inspected this relatively new scheme of RWE Npower in August and provided advice on an outstanding brown trout survey and other aspects of its design and operation.

#### *Loch Poll*

- 4.6 At the end of March 2007, the Committee was pleased to receive the long-awaited final report of the 3-year monitoring study of the impact of building the hydro scheme on environmental matters including fish from Highland Light and Power Ltd and will comment thereon once it has considered the findings.

- 4.7 The Committee remains of the view that the scheme should be subject to the Salmon (Fish Passes and Screens) (Scotland) Regulations 1994.

### *Stanley Mills*

- 4.8 This RWE NPower scheme (<1MW) is on the lower River Tay (North of Perth) and, although of small capacity, the scheme has the potential to impact the smolt migration of the whole Tay system. Subsequent to the Committee's site inspection and advice to the operator at the beginning of 2006, it was pleased to receive a report from Npower in May explaining what was being done to address its concerns. The Committee agreed to continue to monitor developments.

### *Tay (Tummel) Scheme*

#### *Pitlochry Dam*

- 4.9 In August, the Committee was concerned to learn that a large number of small grilse had gained access to the turbine outlet by passing through the screen array below the dam and sought an explanation from the operator, Scottish and Southern Energy. In response, SSE advised that it had been alert to the incident and, working closely with the Tay DSFB, had temporarily removed some of the screens allowing the trapped fish to escape. At a subsequent meeting with the Tay DSFB, the Committee was advised that the Board was agreeable to the entrapment of small grilse being resolved in this way but the Committee continues to have concerns about the operational effectiveness of the screens at the Pitlochry dam and will continue to monitor developments.

### *Shin Hydro Scheme*

#### *Shin Diversion Dam*

- 4.10 The Committee noted plans by SSE to replace the worn-out existing screens with a flat-bar screen array that would be cleaned automatically and advised that it had no objections, in principle, but wished to be consulted on the final design details.



## **5. Wave and tidal generating stations**

### ***European Marine Energy Centre***

- 5.1 The Committee responded to a Scottish Executive consultation on a proposal to exempt the Centre from S 36 of the Electricity Act

### ***Marine Renewables – Strategic Environmental Assessment***

- 5.2 The Committee was concerned that it was omitted from this Scottish Executive consultation.

### ***Siadar Wave Energy Scheme***

- 5.3 The Committee provided guidance to RWE Npower regarding fish and fisheries considerations of a proposed wave energy scheme at Siadar, Isle of Lewis

## 6. Thermal generating stations

### *Longannet*

- 6.1 The Committee continued to liaise closely with and to press Scottish Power to resolve the longstanding and serious problem of the massive entrainment and subsequent loss of a wide variety of fish in the cooling water intake of Longannet Power Station on the Forth estuary which is acknowledged to be an important nursery for sensitive North Sea fish stocks.
- 6.2 The Committee had written to the Chief Executive of Scottish Power in February 2006 about its concerns and had received a reassuring response to the effect that Scottish Power was committed to finding and implementing a solution. Subsequently, it was advised of plans to trial a system to recover entrained fish (along with other material) and return them to the estuary in a viable condition. The proposed system, including the methodology of the trials and assessment of impacts on fish, was discussed in detail with Scottish Power at a meeting in April. If the trials progressed satisfactorily, Scottish Power hoped to implement the full-scale system early in 2007 subject to obtaining regulatory approval from SEPA. The Committee, while stressing its continuing preference for a solution that prevented entrainment in the first place, nevertheless, agreed to support the trials while reserving its overall approval of the proposed solution pending the findings of the rigorous trials.
- 6.3 In November, Scottish Power advised that the trials were due to start shortly but, subsequent operational circumstances at the power station caused a postponement. Nevertheless, the Committee visited Longannet in February 2007 to further discuss the trials and assessment of impacts on fish. At the end of March, Scottish Power advised that the ongoing operational issues at Longannet would require the postponement of the trials until July.
- 6.4 Also at the end of March, Scottish Power advised that it was investigating the feasibility of a new type of bubble screen mechanism and would keep the Committee advised of developments.

### *Peterhead Power Station*

- 6.5 In June, the Committee was consulted on a S 36 application concerning a proposed development of Peterhead power station. The Committee was concerned that the supporting Environmental Statement largely ignored consideration of impacts on fish but noted that any additional sea water abstractions for cooling purposes would be within the total allowable sea water abstraction approved by way of the S 36 Consent given when the power station was first constructed and upon which the Committee had been consulted and had made recommendations at that time. Accordingly, the Committee decided not to make any recommendations in response to the current S 36 consultation but may provide advice to SEPA when the power station's transitional CAR licence is reviewed in due course.

## **7. Relationships with other organisations**

The Committee from time to time met and corresponded with divisions of the Scottish Executive, a number of District Salmon Fisheries Boards, Scottish Natural Heritage, the Scottish Environment Protection Agency and the Association of Salmon Fishery Boards. The Committee submitted responses to various consultations of relevance to its statutory function.

### ***Scottish Executive***

#### ***Energy and Telecommunications Division***

- 7.1 The Committee had discussions with the Energy and Telecommunications Division regarding its concerns about the regulation of small hydro schemes and the possible cumulative impact of the widespread development of hydro schemes within a single catchment. The progress of the development of the Memorandum of Understanding between the Committee and SEPA regarding the alignment, as far as is reasonably possible, of the processes for discharging their respective statutory functions (pertaining to the Electricity Act 1989 and the Controlled Activities Regulations) was also reviewed from time to time.

#### ***Water Framework Directive Team and Freshwater Fisheries and Aquaculture Division of the Marine Directorate***

- 7.2 The Committee was involved in discussions with the Water Framework Directive Team and the Freshwater Fisheries and Aquaculture (FF&A) Division of the Marine Directorate regarding the drafting of the Memorandum of Understanding between the Committee and SEPA concerning the alignment, as far as is reasonably possible, of the processes for discharging their respective statutory functions (pertaining to the Electricity Act 1989 and the Controlled Activities Regulations) and related matters. In addition, the Committee sought guidance from the FF&A Division in relation to the stocking of fish as a means of mitigating the impact of hydro schemes, and on aspects of the protection of fish and fisheries in the context of wave and tidal energy schemes.

### ***Scottish Environment Protection Agency***

- 7.3 During the year, the Committee met SEPA on a number of occasions to develop the Memorandum of Understanding between the parties concerning the alignment, as far as is reasonably possible, of the processes for discharging their respective, but different, statutory functions (pertaining to the Electricity Act 1989 and the Controlled Activities Regulations) and related matters. Initially, progress was slower than both parties would have wished but, eventually, once SEPA had resolved various internal and external policy issues, more rapid progress was achieved and, by the end of the year, the draft MOU was nearly sufficiently well developed for submission to the Scottish Executive. Towards the year-end, the Committee provided advice on fish and fisheries issues to SEPA in relation to the development of CAR licence templates and draft CAR licences for specific hydro schemes. Also during the year, in connection with the development of Scotland's first River Basin Plan, the Committee, being a Responsible Authority, took up membership of the RBP National Advisory Group and the associated Area Advisory Groups. The Committee has some concerns about potential mismatches pertaining to the implementation of the

requirements of the EU Water Framework Directive and national policy regarding renewable energy.

### ***Scottish Natural Heritage***

- 7.4 Liaison took place with Scottish Natural Heritage on a number of proposed and existing schemes during the year.

### ***District Salmon Fisheries Boards***

- 7.5 During the year, the Committee corresponded with and held meetings with relevant District Salmon Fisheries Boards in relation to specific new and existing schemes in their areas and opportunities to develop sustainable fish stocks and fisheries arising from River Basin Planning considerations. The Committee encourages operators and developers to have proactive dialogue with local DSFBs.

### ***Developers and Operators***

- 7.6 As in previous years, the Committee met, as required, with individual developers and/or operators of new and existing hydro schemes to discuss specific concerns and to clarify or review guidance on the development of new schemes. Also, it corresponded with Alba Energy Ltd and the British Hydropower Association on related matters. The Committee is grateful for the cooperation of the Hydro Industry and hopes that its discussions have been helpful to developers and operators.

### ***Forum for Renewable Energy Development in Scotland (FREDS)***

- 7.7 In February, the Committee accepted an invitation to join a new hydro sub-group of FREDS that would investigate and report on the potential hydro resource available in Scotland, the constraints to its development, and how such barriers might be overcome. It looks forward to attending the first meeting.

### ***Consultation Responses***

- 7.8 The Committee responded to the Scottish Executive's consultations on SPP6: Renewable Energy & Strategic Environmental Assessment expressing its concerns about significant omissions in relation to hydro schemes.

The Committee strives to keep abreast of developments relating to hydro and fisheries and has attended a number of scientific meetings and seminars during the year as set out in Appendix D.

## 8. Policy and strategic issues

### *Information Provided by Developers in Support of Applications for New Schemes.*

- 8.1 The Committee remains concerned that the hydrological and fisheries information provided in support of applications for new schemes is not always adequate for its purpose. The Committee produces detailed guidelines that fully explain the information it requires to assess proposals and these are widely circulated to all interested parties including developers. It has been grateful for feedback which is considered when updating the guidelines, normally on an annual basis. However, regrettably, some developers choose not to adhere to the guidelines and this can delay the consideration of their schemes pending provision of the requisite information (and the supporting data). In future, it is intended that the Committee's guidance will be incorporated into broader guidance for developers wishing to submit applications to SEPA for CAR licences.

### *Regulation of Schemes Equal to and Below One Megawatt in Capacity*

- 8.2 The Committee continued to be concerned about the effectiveness of the pre-CAR arrangements for the approval and subsequent regulation of hydro schemes equal to or less than 1 MW. However, following the coming into effect of the Controlled Activities Regulations on 1 April 2006, all new schemes require to have a CAR licence issued by SEPA and this should ensure both better scrutiny of proposed schemes at the CAR authorisation stage and more effective monitoring of impacts during the subsequent operational stage coupled with an effective mechanism for requiring unsatisfactory performance to be rectified if necessary. The Committee is pleased to use its expertise and specialist knowledge to provide advice to SEPA on all schemes. Any scheme, irrespective of size, if designed and/or operated without adequate protection for adult fish access, and important spawning and juvenile rearing habitats, will have the potential to cause significant, long term damage to fish stocks and fisheries. Small schemes constructed in small streams and tributaries containing such habitats can be as significant as larger schemes on major watercourses. As always, the Committee expects any application for a S 36 consent/CAR licence to be supported by sufficient information to allow its impact on fish and fisheries to be properly assessed. It is concerning that some applications for the authorisation of small schemes continue to provide scant information on fish and fisheries. It is expected that SEPA, through its monitoring process, will start to address this issue and the Committee will be pleased to provide advice to assist in this matter.

### *Cumulative Impact of Hydro Schemes*

- 8.3 The Committee has sought to highlight its concerns about the potential cumulative impact of hydro schemes and is pleased that considerable debate has been initiated with interested parties regarding this important issue. The Committee is strongly of the view, supported by other agencies and stakeholders, that there is a long term risk to the production potential of important areas of river systems by the cumulative reduction or degradation of multiple spawning and nursery areas within single catchments. This concern arises even in the context of a large catchment such as the Tay where there are numerous applications for development on the many side tributaries feeding the main stem and larger tributaries. It is important that the consenting and licensing of new schemes takes account of the cumulative risk of such development bearing in mind the importance of the wider bio-diversity issues. In addition to the effect on migratory salmonids there are other important species such as trout populations,

lampreys, charr and eels to be considered. There is a duty to observe the Habitats Directive and also have regard to the various designations that are in place.

Fish and fisheries are important economic, cultural and ecological elements of Scotland's heritage. The Committee continues to recommend, therefore, that the impact of hydro schemes on all fish species should be minimised as far as is reasonably possible by way of the carefully controlled siting, design, operation and monitoring of schemes; with a particular emphasis on locating the tailrace of run-of-river schemes at or as close to the natural upstream migration limit of migratory fish as is reasonably possible

### ***Monitoring Impacts of Hydro Schemes***

- 8.4 The Committee is of the opinion that, for many schemes, it is not possible to predict with certainty how they might affect hydrology, fish and fisheries and other matters of potential concern and so it supports pre- and post-intervention characterisation and monitoring. This will enable the longer-term checking of the initial assessment of impacts and the effectiveness of any mitigation measures provided. In the case of fish surveys this does not mean continuous monitoring over long periods but, rather, a series of carefully designed spot surveys repeated at the same time of year. Consequently, it believes that it is ultimately in the best interests of a developer to gather as much pre-construction data and information as is reasonably possible to establish a robust and representative baseline against which any longer term checking of the impacts that is undertaken subsequent to the scheme becoming operational, utilising data from post-commissioning monitoring, can be judged. Otherwise, and especially with regard to fish populations where year on year variations in numbers, distribution and age structure are not uncommon, there is a greater risk of overestimating an impact and requiring remedial measures to be taken unnecessarily. The extent to which monitoring for data collection should be undertaken will be dependant on individual schemes and the perceived potential for putting the well-being of the environment and ecology at risk of unacceptable damage via degradation. The Committee recommends, as a general rule, more than one year of pre-construction monitoring is necessary so as to capture as much of the natural pre-scheme variations that might occur. It also encourages developers to discuss their proposals with it and SEPA at a very early stage of the development process to ensure that the scope and quality of any pre-scheme surveys and data gathering that the Committee/SEPA might require is agreed timeously. Its guidance document provides further advice on surveys and data collection/reporting. The Committee, generally, recommends that post-construction fish surveys are carried out every second year for a period of twelve years. The Committee is pleased that CAR licences for hydro schemes will usually include a requirement for the provision of a fish monitoring plan that takes account of the above considerations.
- 8.5 The Committee very much appreciates the fish counter information that is provided in relation to some existing hydro-electric schemes.

### ***Research and Asset Information***

- 8.6 Against the background of significant numbers of new, albeit generally smaller, run-of-river hydro schemes being planned and developed in addition to the widespread presence of long established major impounding and water transfer schemes, the Committee continued to be concerned that little research effort is being focussed on establishing the necessary flow regimes to sustain fish and fisheries in a Scottish context. To date, in-stream flow (and loch

level) requirements associated with hydro-electric schemes focus largely on the more or less arbitrary process of establishing compensation flows or flows to be maintained in watercourses during dry weather. It is felt that insufficient attention is currently being given to establishing the needs of fish and fisheries across the whole flow range and in different river and loch types. In particular, in rivers, the value of spates and medium to high flows in relation to adult and juvenile fish behaviour, sediment movement, hydromorphology and the maintenance of features of critical habitats required by fish at different stages of their lifecycles. The Committee is keen to encourage the use of the River Basin Planning mechanism to provide funding for research into these important issues.

Also, the Committee recommends that resources should be made available by way of the same mechanism to undertake studies to assess the impact of existing schemes on fish and fisheries so as to better inform the identification of improvement priorities and measures. In the first instance, the Committee recommends that strategic studies be undertaken to identify the cumulative impacts of all of the features of each of the existing larger hydro impoundment schemes on Scottish rivers and lochs including compensation flows, water transfers and the efficiency of fish migration and protection measures (this would be in the nature of an asset performance audit). The Committee will continue to encourage the various public bodies with an interest to take this work forward in partnership with the owners and operators of the schemes.

## 9. Acknowledgements

- 9.1 The Committee wishes to acknowledge the co-operation it has received from the existing hydro scheme and other power station operators and the developers of new hydro schemes together with their agents. Also, it thanks the Scottish Executive Environment and Rural Affairs and Enterprise, Transport and Lifelong Learning Departments for their support and co-operation. The Committee welcomes the constructive liaison it continues to enjoy with the Scottish Environment Protection Agency, Scottish Natural Heritage, the Association of Salmon Fishery Boards and fisheries trusts. The Committee would also like to thank the Fisheries Research Services Freshwater Laboratory for their continued assistance and support.
- 9.2 Last but by no means least, the Committee wishes to pay tribute to the good work of its Secretary Mr Andrew Dailly.



## APPENDIX A – Functions of the Committee

The Fisheries Committee was constituted in 1943 to consider hydro schemes proposed by the North of Scotland Hydro-Electric Board and to advise on the effects on fish and fisheries and on ways of preventing or minimising damage. At the same time, schemes approved by the Secretary of State and constructed by the Board were exempted from the statutory Fish Passes and Screens Regulations. The provisions were consolidated in the Electricity (Scotland) Act 1979 and, in 1986, were extended to cover other persons intending to establish or extend a hydro-electric scheme. The functions of the Committee are continued under the Electricity Act 1989.

### Statutory functions

The statutory functions of the Committee are set out in Schedule 9 to the 1989 Act and may be summarised as follows:

- to advise and assist Scottish Ministers and any person engaging in, or proposing to engage in, the generation of hydro-electric power (including wave and tidal power) on any questions relating to the effect of hydro-electric works on fisheries or stocks of fish; the Committee may give such advice whether asked or not;
- the Schedule provides that any person engaged in, or proposing to engage in, the generation of hydro-electric power has to give the Committee such information and assistance as it reasonably requires;
- Section 36 of the Act (as modified by SI 1990/392) provides that any person wishing to construct or operate a hydro station with a capacity of more than one megawatt has to apply to Scottish Ministers for consent; Schedule 9 provides that:
  - before or on making such an application the applicant must consult the Committee;
  - the Committee may make recommendations to the applicant or to any other person; and
  - Scottish Ministers may refuse consent under section 36 if an applicant does not undertake to implement a recommendation made by the Committee.

*N.B. This informal summary of the statutory functions is not a substitute for direct reference to the Act.*

### Other functions

In addition to its statutory functions, the Committee has been asked by Ministers to advise as necessary on the effects of the water systems of thermal generating stations on fisheries and stocks of fish.

## **APPENDIX B – Membership of the Committee at 31 March 2007**

Members of the Fisheries Committee are appointed under the terms of the Electricity Act 1989 and in accordance with the Code of Practice issued by the Office of the Commissioner for Public Appointments in Scotland. A copy of a Code of Practice for members of the Fisheries Committee is at Appendix C. Appointments are part-time and attract a level of remuneration of £137 (members) or £188 (chairman) per meeting. None of the members of the Committee have been politically active in the last five years.

**Chairman: James M T Cockburn** BSC, CENG, FICE, FCIWEM  
(appointed 1 March 2003 – 2nd Term)

Chartered Civil Engineer. Fellow of the Institution of Civil Engineers and of the Chartered Institution of Water and Environmental Management. Nearly thirty years experience in water and environment industry, including consultancy and senior management positions. A Non-executive Board member, Cromarty Firth Port Authority, and Trustee of Caledonia Community Leisure Ltd.

**Dr Susan Walker** OBE, BSc, PHD, CENG, FICE.  
(appointed 1 January 2001 – 2nd Term)

Thirty years experience in water and environment sector. non executive Board member of; Deer Commission for Scotland; Scottish Environment Protection Agency and Cairngorms National Park Authority. Member Waterwatch Scotland and the Scottish Executive Strategic Science Advisory Panel.

**Dr D Trevor Crisp** BSc, PHD, DSc, CBIOL, FIBIOL  
(appointed 1 March 2003 – 2nd Term)

Currently retired, following a long and active career in fisheries research, works part-time as a freelance consultant; Fellow of the Institute of Biology, member of the British Ecological Society, member of the Fish Society of the British Isles and member of the Advisory Committee on Sites of Special Scientific Interest.

**John H Webb** BSc, MSc, MIFM  
(appointed 27 February 2004 – 1st Term)

Senior field and research biologist and fisheries management advisor sponsored by Atlantic Salmon Trust (AST), based at the Fisheries Research Services Marine Laboratory (FRS ML), Aberdeen; extensive experience of research and management of salmon and trout resources in UK rivers; currently Tripartite Working Group Conservation and Restoration Coordinator; a member of AST's Honorary Scientific Advisory Panel; member of the Institute of Fisheries Management.

**Nick Mardall** BSc MSc DipFM  
(appointed 1 February 2005 – 1st Term)

Is currently a fish farm owner and fisheries consultant with fisheries and aquaculture management experience in Asia, Africa and Europe as well as the UK. He currently works on river and loch enhancement, including salmon and sea trout rehabilitation work.

**J Gordon Jubb** FRICS  
(appointed 1 April 2006 - 1st Term)

Chartered Surveyor (Rural Faculty) with over forty years experience in rural land management latterly as Regional Manager for Scottish Rural Business & Property Association/Scottish Land Owner's Federation after many years as Estates & Wayleaves Manager for Hydro Electric.

Secretary: **Andrew Dailly**  
Scottish Government – Marine Directorate

## **APPENDIX C – Code of Practice for members of the Committee**

The Committee is appointed by Scottish Ministers under provisions in the Electricity Acts. Its statutory function is to advise Scottish Ministers and any person engaging in the generation of hydro-electric power on any question relating to the effect of hydro-electric works on fisheries or stocks of fish.

### **Public Service Values**

Members of the Committee:

- are accountable to Scottish Ministers for the Committee's activities and for the standard of advice it provides;
- must observe the highest standards of impartiality, integrity and objectivity in relation to the advice they provide and the manner in which the Committee conducts its activities; and
- shall, in accordance with Government policy on openness, provide and make available an Annual Report on the Committee's activities.

### **Standards in Public Life**

Each member of the Committee must:

- follow the seven principles of public life set out by the Committee on Standards in Public Life (annexed), insofar as they apply to the activities of the Committee;
- comply with this Code, and ensure that he or she is familiar with the function and role of the Committee and understands the duties, rights and responsibilities related to it;
- not misuse information gained in the course of work in the Committee for personal gain or for political purpose, nor seek to use the opportunity of public service to promote their private interests or those of connected persons, firms, businesses or other organisations; and
- not hold any paid or high-profile unpaid posts in a political party, and not engage in specific political activities on matters directly affecting the work of the Committee.

## **Role of Committee Members**

Members of the Committee have collective responsibility for its operation. They must, so far as is practicable:

- engage fully in collective consideration of the issues, taking account of the full range of relevant factors, including any guidance issued to them by Scottish Ministers;
- ensure that the Code of Practice on Access to Government Information is adhered to and agree an Annual Report;
- respond appropriately to complaints, if necessary, with reference to the Scottish Government; and
- ensure that the Committee does not exceed its powers or functions.

## **The Role of the Chairman**

The Chairman has particular responsibility for providing effective leadership on the issues described above. In addition, the Chairman is responsible for:

- ensuring that the Committee meets at appropriate intervals, and that the minutes of meetings, and any reports to Scottish Ministers and others, accurately record the decisions taken and, where appropriate, the views of individual members;
- ensuring that new Committee members have been briefed on the functions of the Committee and their duties and rights and responsibilities; and
- representing the views of the Committee to the public, if appropriate.

## **Conflicts of Interests**

Members of the Committee should not participate in the discussion or determination of matters in which they have an interest, and should normally withdraw from the meeting if:

- their interest is direct and pecuniary; or
- their interest is covered in specific guidance issued by the Committee or Scottish Ministers which requires them not to participate or to withdraw from the meeting.

**THE SEVEN PRINCIPLES OF PUBLIC LIFE**  
(as set out by the Committee on Standards in Public Life)

**Selflessness**

Holders of public office should take decisions solely in terms of the public interest. They should not do so in order to gain financial or other material benefits for themselves, their family, or their friends.

**Integrity**

Holders of public office should not place themselves under any financial or other obligation to outside individuals or organisations that might influence them in the performance of their official duties.

**Objectivity**

In carrying out public business, including making public appointments, awarding contracts, or recommending individuals for rewards and benefits, holders of public office should make choices on merit.

**Accountability**

Holders of public office are accountable for their decisions and actions to the public and must submit themselves to whatever scrutiny is appropriate to their office.

**Openness**

Holders of public office should be as open as possible about all the decisions and actions that they take. They should give reasons for their decisions and restrict information only when the wider public interest clearly demands.

**Honesty**

Holders of public office have a duty to declare any private interests relating to their public duties and to take steps to resolve any conflicts arising in a way that protects the public interests.

**Leadership**

Holders of public office should promote and support these principles by leadership and example.

**APPENDIX D - List of seminars/meetings/visits and key organisations met with for the year to 31 March 2007:**

<b>Date</b>	<b>Location</b>	<b>Purpose</b>
20 April 2006	SEERAD, Pentland House, Edinburgh	Meeting with Scottish Power
27 April 2006	CKD Galbraith, Perth	Business meeting
11 May 2006	Strontian, Argyll	Site visit to Carnoch Hydro
12 May 2006	Kingairloch, Argyll	Site visit to Kingairloch Hydro
25 May 2006	SEERAD, Broxden, Perth	Business meeting
8&9 June 2006	Crieff	Hydroenergia Conference. Gordon Jubb and John Webb
29 June 2006	SEERAD, Broxden, Perth	Business meeting
7&8 August 2006	Fort Augustus	Site visit to Garrogie and Glendoe Hydros
9 August 2006	Inveraray, Argyll	Site visit to Douglas Water Hydro
24 August 2006	SEERAD, Broxden, Perth	Business meeting
13 September 2006	Birmingham	Water Framework Directive Abstraction Workshop. John Webb
21 September 2006	London	Marine Energy Conference. Gordon Jubb
21 September 2006	Birnam	SEPA/SNH River Engineering/Restoration Meeting John Webb
27 September 2006	Inveraray, Argyll	Site visit by Dr Crisp and John Webb to Douglas Water Hydro
28 September 2007	SEERAD, Pentland House, Edinburgh	Business meeting
4 October 2006	Scottish Executive, Meridian Court, Glasgow	Meeting with SEERAD
12 October 2006	CKD Galbraith, Perth	Meeting with Tom Shaw of Shawater Ltd
27 October 2006	SEERAD, Broxden, Perth	Business meeting
3 December 2006	Inveraray	Site visit to Douglas Water Hydro John Webb
14 December 2006	SEERAD, Broxden, Perth	Business meeting
12 February 2007	Longannet, Fife	Site visit to Longannet Power Station
22&23 February	Evanton near Dingwall	Business meeting and site visit to Black Rock Hydro

2007		
29 March 2007	SEERAD, Broxden, Perth	Business meeting and meeting with the Tay District Salmon Fishery Board

## APPENDIX E – Glossary

### Abstraction

The drawing off of water from a river or reservoir for example.

### Acoustic deterrent

A device (sometimes referred to as a 'pinger') that generates sound waves to deter fish or other animals.

### Algal bloom

A relatively rapid increase in the population of (usually) phytoplankton algae in an aquatic system. Typically only one or a few species are involved and the bloom is recognized by discoloration of the water resulting from the high density of pigmented cells.

### Aqueduct

An artificial (man-made) channel that is constructed to convey water from one location to another.

### Arctic Charr

A native salmonid fish of Scotland where over 200 populations are known to exist. The species was probably the first fish to re-enter freshwater when the last ice-age ended. Local variants exist and in some instances two or more forms may inhabit the same loch. The species is now considered as threatened or declining in range due to climate change, land use changes and species introductions.

### Autumn Parr

A salmon parr that migrates (usually downstream) during the early autumn and winter months. The migration usually consists of a mixture of immature males and female parr, together with sexually mature ('precocious') males. Many autumn parr enter the sea as smolts in the following spring.

### Compensation flow

The flow which must be left in the river at the point of abstraction or diversion.

### Compensation Flow Gauge

A gauge that shows that compensation flows are being maintained.

### Entrainment

The process by which fish and debris are drawn into power station intakes.

### Flood stage

The elevation at which overflow of the natural banks of a stream or body of water begins in the reach or area in which the elevation is measured.

### Freshet

A rise or overflowing of a stream caused by the release of stored water, rainfall or melted snow.

### Headwater(s)—

(1) the source and upper reaches of a stream; also the upper reaches of a reservoir. (2) the water upstream from a structure or point on a stream. (3) the small streams that come together to form a river. Also may be thought of as any and all parts of a river basin except the main stream river and main tributaries.

### High-head plant

Takes advantage of the force of falling water. Large-scale facilities like the Hoover Dam and Grand Coulee Dam are examples of high-head hydro plants. Dams are built along major rivers to create reservoirs; the utility controls the flow of water through the dam in response to the demand for electricity.

### Hydro

A prefix meaning produced by or derived from water or the movement of water, as in hydroelectricity.

### Hydroelectric power

Electrical power generated by the force of moving water. Hydroelectric power (H.E.P.) is normally associated with dams and reservoirs.



#### Hydropower

See hydroelectric power.

#### Kilowatt (kW)

One thousand watts

#### Megawatt (MW)

One million watts

#### Needle valve

A valve which allows fine control over the rate of liquid flowing through it. The valve contains a thin needle with a point that fits into a conical cup. When the valve is closed, the needle blocks an orifice in the bottom of the cup.

#### PIT tag(s)

Passive Integrated Transponder tags, or PIT-tags, allow scientists and managers to monitor the movements and survival of fish moving through areas impacted by hydropower schemes. The staple-sized tags are implanted into the body cavity. Each tag is unique and identifies an individual fish. Detectors at dams can read the tags as the young fish move downstream and when the adult fish return to spawn, telling us how many fish survive as they move from one life stage to the next or from one location to the next.

#### Pumped-Storage Hydroelectric Power scheme

A power generating facility that uses falling water from an elevated reservoir to generate electricity during high demand then pumps the water back to the reservoir during times of the day when demand is low.

#### Renewable energy resources

An energy source that is more or less permanently available (such as sunshine) or can be easily replaced over a short timescale (such as wood).

#### Run of the river plant/scheme.

Relies on the flow of the river to spin the turbines. Water is not stored. These plants produce relatively small amounts of electricity.

#### Smolt(s)

Silvery coloured, migratory form of juvenile salmon or trout (at least one year old) that has adapted to the marine environment.

#### Smolt trap

A permanent or temporary trap designed to intercept downstream migrating smolts.

#### Suspended sediment

Very fine soil particles that remain in suspension in water for a considerable period of time without contact with the bottom. Such material remains in suspension due to the upward components of turbulence and currents and/or by suspension.

#### Tailrace

The tailrace is the downstream part of a dam where the impounded water re-enters the river

#### Tributary

A smaller river or stream that flows into a larger river or stream. Usually, a number of smaller tributaries merge to form a river.

#### VAKI Fish Counter

A comparatively new fish counting system that is installed in fish ladders, pools, traps or similar places where fish have to pass. Fish pass through a scanner with a net of infra-red light beams, the resulting silhouette image is used to count and estimate the size of each fish. Each individual image is stored within a control unit so that the counting can be verified afterwards.



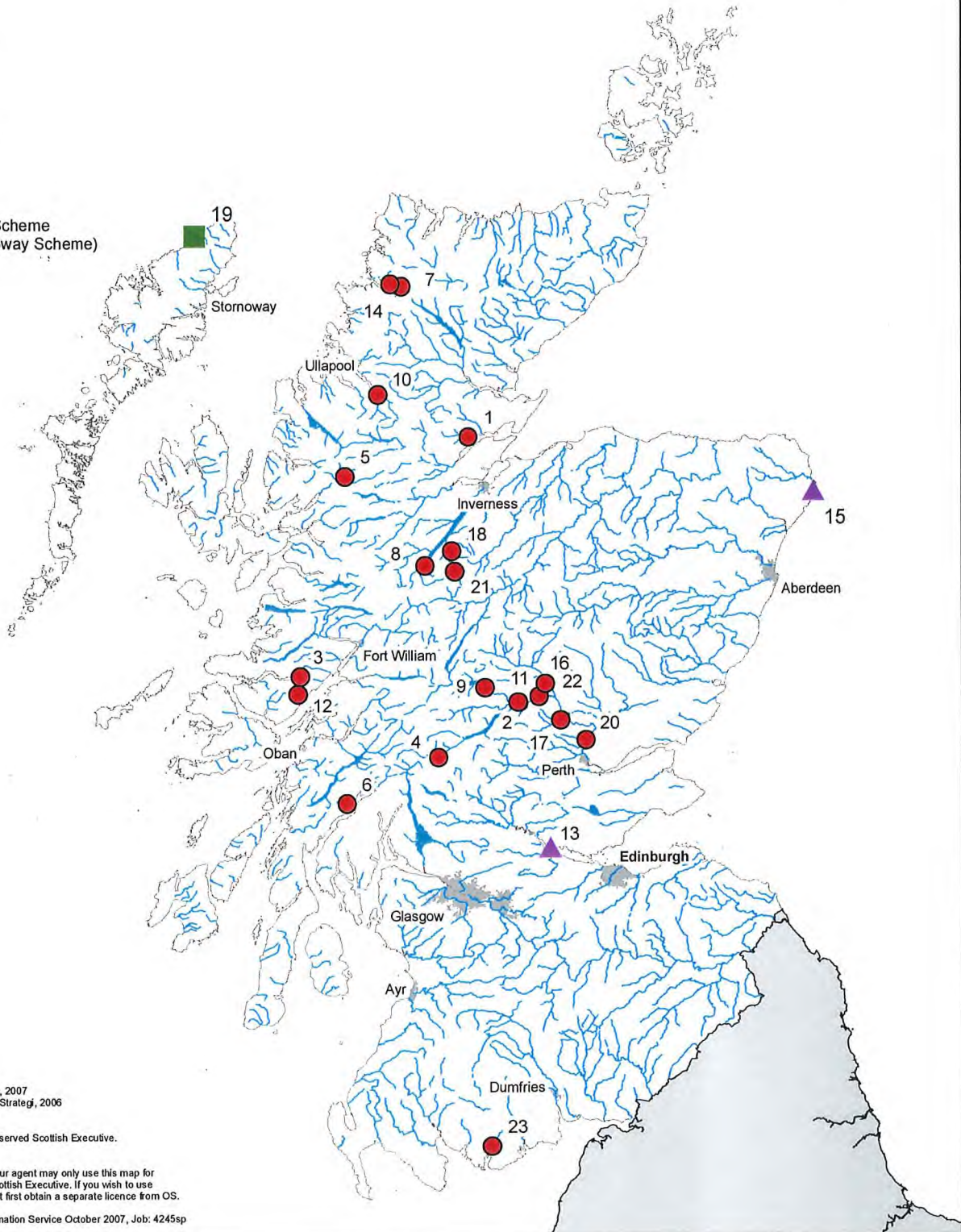
# Appendix F - Map showing the schemes considered by the Fisheries Committee during 2006/7

- Hydro Sites
- ▲ Thermal Sites
- Wave Energy Sites
- Main Rivers
- Lochs

- 1, Black Rock
- 2, Camserney
- 3, Carnoch
- 4, Chaorach
- 5, Chonais
- 6, Douglas Water
- 7, Glendhu
- 8, Glen Doe
- 9, Innerhadden
- 10, Inverlael
- 11, Keltney Burn
- 12, Kingairloch
- 14, Maldie Burn
- 16, Pitlochry Dam
- 17, River Braan
- 18, River E
- 20, Stanley Mills
- 21, Stronelairg
- 22, Tay (Tummel) Scheme
- 23, Tongland (Galloway Scheme)

- 13, Longannet (Thermal)
- 15, Peterhead Power Station

- 19, Siadar Wave Energy Project



Sources:  
 Generation sites - Scottish Executive, 2007  
 Rivers and lochs - Ordnance Survey Strateg, 2006  
 Settlements - GROS, 2003.

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Scottish Executive Geographic Information Service October 2007, Job: 4245sp

