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## **1. INTRODUCTION**

The National Salmon Strategy, launched by the National Rivers Authority in February 1996 and inherited by the Environment Agency (NRA, 1996) sets out four objectives for the management of salmon fisheries in England and Wales:

- 1) Optimise the number of salmon returning to home water fisheries.
- 2) Maintain and improve fitness and diversity of salmon stocks.
- 3) Optimise the total economic value of surplus stocks.
- 4) Ensure beneficiaries meet necessary costs.

These objectives are designed to preserve fish stocks for the future whilst protecting sustainable exploitation and recognising the economic value of the fisheries.

A basic principle of the Strategy is that it will be delivered locally following consultation with local interest groups. Consequently, Salmon Action Plans (SAPs) will be produced for each of the "principal salmon rivers" in England and Wales by the year 2003. On the Ogmore this process started during 2001 with the production of the Ogmore SAP Consultation Document. The Ogmore SAP Consultation Document:

- Set a conservation limit for the river
- Identified the factors affecting the salmon population.
- Suggested methods of addressing these limiting factors and
- Invited feedback from local stakeholders and interest groups

The SAP itself sets out clearly what is required to be done in the next five years or so, how it is to be achieved, who is to be involved, when it will be delivered and how much it will cost. An important element of this Action Plan is that it reflects the feedback received during consultation. Moreover, the SAP will be the means of monitoring progress and reviewing the approaches of salmon management on the Ogmore.

The Ogmore Salmon Action Plan is the final plan in a series of 8 to be produced under Ministerial Directive for what are considered to be the main salmon rivers in South West Wales. The other rivers for which Salmon Action Plans are being produced are the Tywi, the Teifi, the Taf, the Cleddaus, the Tawe, the Nevern and the Rheidol.

## **2. BACKGROUND**

The Atlantic salmon has been declining throughout its range and this is believed to be largely due to cyclical factors impacting on fish during their time at sea. There is little that can be done to directly influence these factors. However, it is possible to address some of the problems facing salmon during the freshwater phase of their lifecycle. It is these latter elements that the SAP concentrates upon, with actions falling into three main categories:

- Measures to increase the number of spawners by reducing legal and illegal exploitation (e.g. Byelaws)
- Measures to improve environmental factors (water quality issues and sustainable land use)
- Measures to improve salmon production (in stream habitat improvements and accessibility).

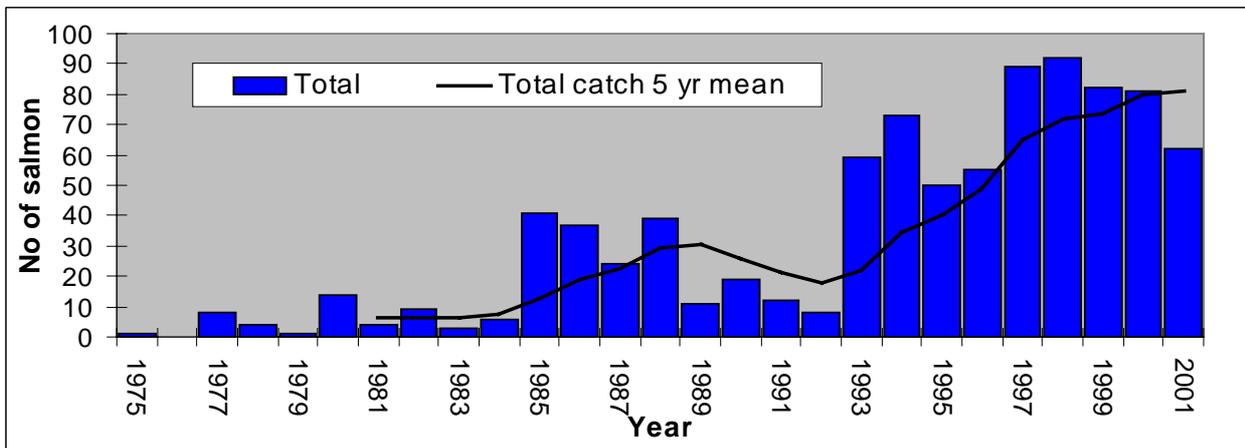
The Ogmore catchments support a locally important salmon and sea trout (sewin) fishery. Sea trout are the predominant salmonid in the catchment, though important numbers of salmon are also present. Although this is a 'salmon action plan', many of the proposed actions will result in benefits for sea trout

as well as salmon.

To help place the salmonid fishery into a National context; the 2001 reported salmon rod catch of 62 from the Ogmore ranked 14<sup>th</sup> out of 33 salmon rivers in Wales, and 35<sup>th</sup> out of 76 salmon rivers in England and Wales, whilst the reported sea trout catch of 547 ranked 12<sup>th</sup> out of 40 sea trout rivers in Wales and 22<sup>nd</sup> out of 105 sea trout rivers in England and Wales.

Figure 1 shows the reported salmon rod catch from 1975 to 2001. Salmon stocks in the Ogmore were extremely low in the 1970s, and gradually increased through the '80s and dropped again in the early '90s; this is likely to be the result, at least in part, of a large scale pollution incident on the Llynfi in 1987, which wiped out virtually all fish stocks in the lower Llynfi and Ogmore. The decrease in catches in 1991-92 also reflects a drop in National Rod Licence return rates following the combination of coarse and salmon licences, and the lack of a reminder. Catches have then shown a steep increase since the early 90s, remaining relatively stable since 1993. Overall, the increasing declared catch is indicative of the improving nature of the river and water quality. The five year average annual catch has increased from 6.2 (1977-1981) to 81.2 (1997-2001), representing a 13 fold increase over the period. Within the past decade, the highest recorded annual catch of salmon was of 92 fish in 1998.

**Figure 1. Ogmore declared salmon rod catch (1975 to 2001).**



**Sea Trout.**

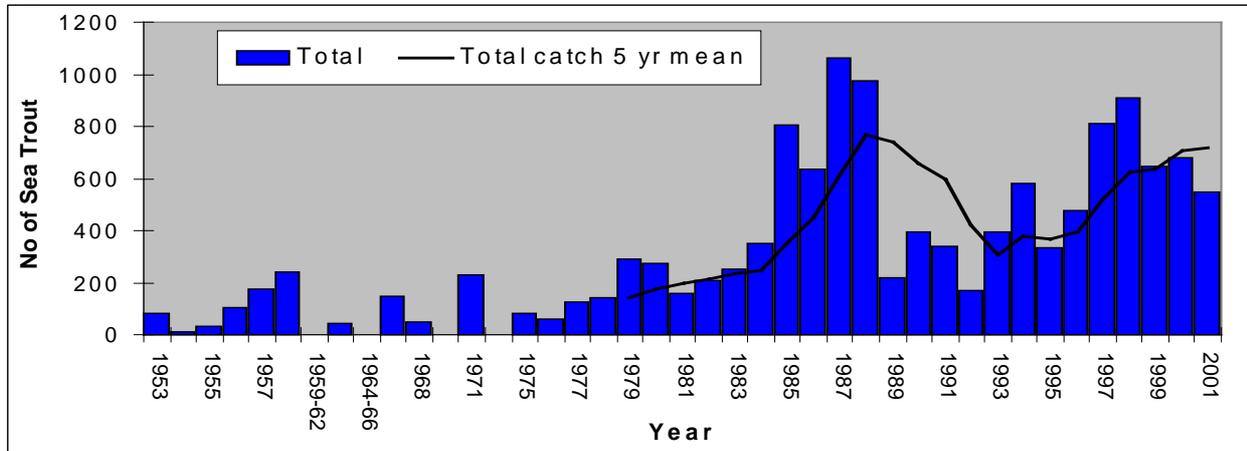
Sea trout constitute a far greater proportion of the reported annual rod catch than salmon. Since 1980, the mean sea trout rod catch has been over 20 times higher than the salmon catch, though this proportion has been decreasing in more recent years as the number of salmon caught on the Ogmore has increased.

Figure 1 shows the reported sea trout rod catch from 1953 to 2001. Reported sea trout catches for the rod fishery were relatively low throughout the fifties, sixties and seventies, and show a gradual and pronounced improvement from the early eighties onward, reflecting water quality improvements in the catchment. Sea trout catches for the Ogmore peak in the mid to late 1980s and 1990s. There has also been variation between peak catches with the most notable decline in the early 1990s following a major pollution incident in 1988. Catches appear to have recovered to pre-incident levels aided by the restocking programme. The highest reported catch during the study period occurred in 1987 when 1061 fish were declared.

The observed variations in both salmon and sea trout catches are dependent on a range of extrinsic factors, such as river flow and fishing effort, but may also reflect cyclical variation in stock performance. The increase in catches from the 1970s to the 1990s may reflect an increase in fishing effort and improvement in techniques over this period. Whilst the decline in catches observed in the

late 1980s and early 1990s is likely to be attributable in part to the large pollution incident on the Llynfi in 1987, as well as an indirect result of successive drought years, which occurred over this period. In addition, exceptionally low reporting rates occurred in 1992 because no reminders were sent out when a new combined national coarse and salmon licence was introduced

Figure 2. Reported Sea trout catches, (1953 to 2001).



### 3. CURRENT ACTIVITIES

A considerable amount of work has already been carried out to protect and improve salmon stocks within the Ogmore catchment. The work carried out in recent years includes the following:

- **Abstractions.** The Agency is currently developing Catchment Abstraction Management Strategies (CAMS) for all its main rivers. CAMS will make more information on water resources publicly available and enable us to establish the needs of abstractors and other water users along with those of the aquatic environment. The strategies will be developed in consultation with the local community and other interested parties. The River Ogmore is included in the Neath, Afan and Ogmore CAMS. Work starts on this CAMS in 2002 and the final strategy will be published in 2004. As with all CAMS, this will be reviewed every six years.
- **Stocking.** A major pollution incident in December 1987 caused a massive fish mortality over 14km of river from the mid reaches of the Llynfi to the Ogmore estuary. As a consequence, the Llynfi/Ogmore Restoration Group (LORG) was established to implement the restoration of the salmon and sea trout fishery with the £200, 000 compensation awarded from the incident.

A stocking programme was agreed by LORG in 1989. Stocking of non-native juvenile salmon was permitted as native stocks had all but disappeared, but sea trout were obtained from catchment broodstock to maintain genetic integrity. The principal Ogmore salmon stocking programme started in 1990, though LORG were able to stock some fish in 1989. The Ogmore sea trout stocking programme commenced in 1991. The Llynfi stocking programme was commenced in 1992 when it was felt that water quality had improved sufficiently to support the fishery. A total of 189, 000 one year old salmon, and 113 000 sea trout were stocked.

A total of 103, 000 juvenile salmon and 103, 000 juvenile trout stocked were also microtagged and adipose fin clipped to enable recognition of recaptured fish. At the end of 1999, a total of 126 salmon had been recaptured off southern Ireland, and a further 79 salmon and 14 sea trout had been recaptured in home waters (including 6 salmon and 1 sea trout taken in rivers other than the Ogmore - Usk, Tywi, Tawe, Taff and Severn).

- **Access to spawning areas.** The upstream migration of salmon on the Ogmore is impeded by very few artificial and natural barriers. Generally obstructions are minor and located high within the

catchment and thus do not markedly affect the usable spawning area available to salmon. A fish pass was constructed on a tributary of the Llynfi (the Sychbant) in 1991. This pass consists of a fish ladder based on Canadian design for use in culverts in remote areas. The fish ladder is, however, prone to debris collection, and requires regular maintenance. An action is included in the SAP to maintain this fish pass, and consider alternative solutions.

- **Monitoring.** Electric fishing surveys have been undertaken annually by the Environment Agency since 1985, as part of the Welsh Regional Juvenile Salmonid Monitoring Programme (RJSMP), to monitor the status of juvenile salmonid populations. A total of 28 sites are currently monitored in the Ogmere catchment. These include 3 quantitative sites to be monitored annually and a further 17 semi-quantitative and 8 five-minute-riffle sites to be monitored on a 5 year rolling programme.
- **Exploitation.** In recent years, the Agency and a section of the angling community have promoted voluntary catch and release as a method of stock enhancement. Catch and release rates have improved substantially since 1993 when only 10% of salmon caught were reported released in England and Wales. For the Ogmere, 35% of salmon caught were released in 2000, and 42% of salmon caught were released in 2001. This is commendable and compares favourably with an average return rate for Wales of 31% in 2000 and 28% in 2001. Nonetheless, given the state of the stocks at present, any salmon exploited will be limiting future stock abundance. We would therefore like to see catch and release rates increased.
- **Legislation.** During 1999, a set of National byelaws were passed by the Minister of Agriculture Fisheries and Food and the Secretary of State for Wales. These are designed to increase spawning escapement of declining spring salmon, and require all anglers to return with least possible injury, any salmon caught before the 16th June. These measures are in place for a period of 10 years, and are subject to review in 2004. An interim review will be carried out next year (2003).

This Action Plan builds upon these achievements and sets out future proposals for the next five years.

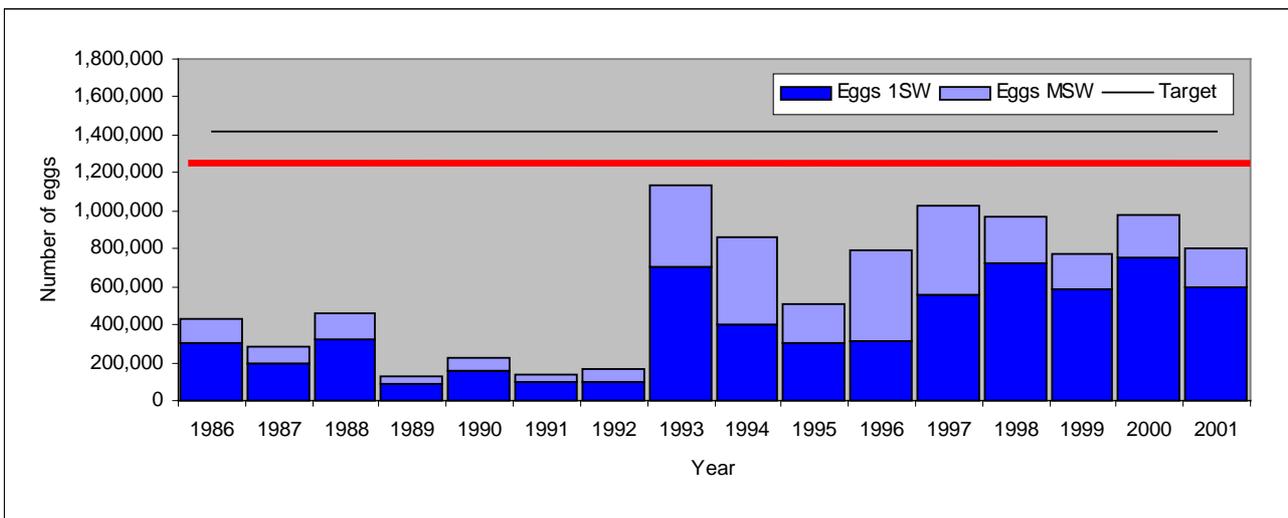
#### 4. ASSESSMENT OF STOCK PERFORMANCE

Assessment of stock performance on the Ogmore (and other SAP rivers) involves the use of Conservation Limits (CL) to indicate the minimum desirable spawning stock level. CLs are set to maximise the total catch but assume ‘benchmark’ levels of freshwater and marine survival which, on many rivers, are likely to be higher than those which prevail today. As a consequence, the CL is weighted towards protecting the spawning stock and avoidance of over-exploitation by the fisheries. This protection is reinforced by a compliance procedure (below) which ensures that a ‘failure’ is registered if spawning levels fall below the CL in more than 1 year in 5, on average.

The setting of CLs has developed in line with the requirements of ICES (International Council for the Exploration of the Seas) and NASCO (North Atlantic Salmon Conservation Organisation). CLs have been used in salmon management in North America for many years but are a relatively recent development in England and Wales. The Agency is working to improve methods to derive and apply conservation limits and related ‘targets’ to salmon fishery management – a process which is likely to result in refinement of methods used in this plan at some point in the future.

The conservation limit for the Ogmore was based on an estimate of 612,070 m<sup>2</sup> of accessible stream area, which equates to an annual egg deposition 1.42 million eggs (231 eggs 100 m<sup>2</sup>). On average, a spawning escapement of 667 salmon will ensure that the conservation limit is met. In assessing performance against the target, annual rod catches coupled with extant exploitation rates have been used.

The trend in egg deposition inevitably reflects the rod catch figures (Figure 4).



**Figure 4. Ogmore estimated egg deposition rates 1975 to 2001**

*Note: ——— Indicates conservation limit failure episodes*

Compliance is assessed by examining performance in blocks of three years, and by use of two rules which describe compliance failure. These are:

- Rule a. *Episodes may last no longer than two years and*
- Rule b. *A clear gap between episodes should be at least two years.*

The sequence of egg shortfall or surplus in each three year block determines whether a “pass”, “failure” or “near miss” has occurred. Figure 3 shows the estimated egg deposition for the Ogmore

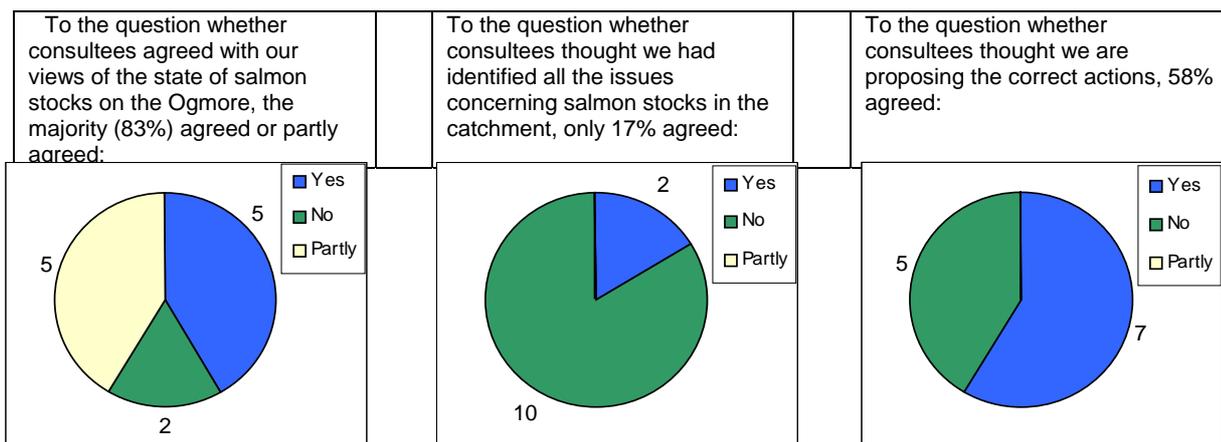
from 1986 to 2001. The red horizontal line indicates failure episodes and shows that since 1986 the Ogmore has failed to comply with the conservation limit. The most recent egg deposition during 2001 was below the CL, with a percentage compliance of 57%.

Salmon numbers in the Ogmore have shown a vast improvement since the early nineties, in line with overall water quality improvements. However, consistent failure to meet the conservation limit sends a clear message that further action is needed to support the Ogmore salmon stocks.

## 5. PUBLIC CONSULTATION

In our Ogmore Salmon Action Plan Consultation Document, published and launched in September 2002, we described details of the Ogmore salmon stocks and their environment. We also highlighted what we believed to be the major constraints acting at present and proposed ways of reducing these to optimise stock levels on a sustainable basis.

In total, we distributed 22 copies to angling interests, and a further 31 copies to statutory consultee. Each copy was accompanied by a short questionnaire, which sought consultees' views on the document. The response rate was good compared to the response rates observed in the consultation process for other Salmon Action Plans. 10 completed questionnaires were received from anglers and riparian owners. 5 formal responses were also received from different consultees. Results of the consultation questionnaire are shown below.



There was some concern amongst respondents that not all the issues currently affecting salmon stocks within the catchment had been identified, although most of the comments received related to a change in emphasis on particular issues, rather than the identification of new issues. 58% of respondents felt that we were proposing the correct actions to deal with these issues.

The main issues identified through the consultation process related to the reliability of rod catch data, exploitation (both high seas fisheries and illegal exploitation), the impact of flood alleviation works and predation issues, with particular reference to cormorants, goosander and mink. Other issues raised included water quality, the spread of Japanese Knotweed, water abstraction, protection of the riparian zone, catch and release, litter and general funding of the plan.

A number of respondents questioned the relevance of a 'salmon action plan' for what is primarily a sea trout river. The main reasoning here is the fact that the Action Plan centres around the compliance against a 'conservation limit' for salmon. The model used in the egg target compliance assessment is currently not applicable to sea trout, due to their more complex life cycle. Nevertheless, many of the actions proposed in the SAP will result in benefits for sea trout as well as salmon.

## 6. ISSUES

- **Reliability of rod catch data.** A number of respondents expressed concern over the potential shortcomings of using rod catch data to estimate run size. The main concerns were that these data do not account for components of the stock that may enter and ascend rivers outside the fishing seasons, and that salmon may be mistaken for sea trout.

It is important to note first of all, that in the absence of traps or counters on a river, rod catch figures provide the best available data for estimating stock abundance, and we are therefore reliant on accurate reporting by anglers. However, current procedures used to derive run size from rod catch are based on estimates of exploitation, which do take into account the out of season run.

The provisional nature of the Conservation Limits (CLs) should be noted. Although CLs have been used in salmon management in North America for many years, they are a relatively recent development in England and Wales.

Egg deposition estimates are likely to be affected by a number of factors. In particular, in recent years, there is likely to have been an overall decrease in effort for salmon, in response to legislative changes. Current procedures for setting CLs (as well as for estimating egg deposition) may also fail to take adequate account of the fact that many rivers, in particular some of the smaller catchments on the West coast of Wales, support relatively small salmon stocks and are principally regarded as sea trout rivers. A number of rivers are also in the process of recovering from previous pollution and may therefore require interim rebuilding targets to be set (CEFAS & Environment Agency, 2001).

The Agency is working to improve methods to derive and apply conservation limits and related 'targets' to salmon fishery management – a process which is likely to result in refinement of methods used in this SAP in the future.

An improved procedure for estimating angling exploitation is currently being developed. This will take account of annual changes in fishing effort, as well as partitioning effort between salmon and sea trout. The new procedure will be available in 2002 and should be able to be applied retrospectively to previous data sets.

Data from the acoustic fish counters installed on the Teifi and Tywi are also currently being used to aid understanding of salmon runs and exploitation rates in SW Wales. The Agency also intends to review the need for a counter on the Ogmore and look for opportunities for funding.

- **Exploitation.** A number of respondents expressed concerns over exploitation of salmon at sea, with particular reference to the Irish drift net fishery. By-catch of salmon in coastal waters was also raised as an issue. Other respondents were also concerned by rumoured 'cuts' to enforcement staff on the Ogmore.

**Irish Drift Nets.** Salmon stocks in England and Wales are exploited in a number of fisheries other than those operating under the jurisdiction of the Environment Agency within National waters. These include the distant water fisheries at Faeroes and West Greenland, and other fisheries such as those operating off Ireland (drift nets) and in homewaters in other parts of the UK. Tagging studies have provided information on the levels of exploitation for English and Welsh stocks in many of these fisheries.

Many respondents expressed particular concerns with respect to the fisheries operating off Ireland. Provisional estimates of the levels of exploitation for this fishery, prior to the introduction of new fisheries regulations in 1997, vary substantially between stocks in different English and Welsh regions, and from year to year. Exploitation rates were low (1%) for stocks in the north east of England, higher ( 5-10%) for rivers on the west coast and in Wales, but highest ( 10-20%) for

stocks from south coast rivers. More recent unpublished data suggest that levels of exploitation have been significantly reduced following the introduction of management measures in Ireland in 1997.

Before realistic pressure can be put on the Irish Government to close their drift net operations, similar approaches must be made to the UK Government to close, with suitable compensation to netsmen, those operating off the North East Coast. The number of drift net licences issued for the north east coast fishery has already been reduced by 51% since 1993. In some cases, fishermen have been paid to give up their licences early and, in December 2000, the Government offered up to £750, 000, subject to matching funds from interested parties, to launch compensation arrangements designed to accelerate the phase out of mixed stock fisheries on a voluntary basis. Negotiations continued in 2001, but to date no agreement has been reached regarding a possible accelerated phase out. The Agency continues to make representations to the UK Government to press for the phasing out of all mixed stock fisheries and also continues to support the control measures currently in operation, including NASCO quotas and buyouts by the NASF (CEFAS & Environment Agency, 2001)

**By-catch by coastal fisheries.** Additional concerns were raised by a number of respondents relating to the taking of salmon and sea trout as by-catch from the sea-fish net fisheries within inshore waters. The impact of these fisheries remains unquantified.

The Agency is currently working with the South Wales Sea Fisheries Committee (SWSFC) to protect migratory salmonids in the marine environment. However, there have recently been moves by local funding authorities to constrain the expenditure of the SWSFC; this could have implications for collaborative working between EAW and SWSFC. The Agency have supported SWSFC's case to maintain an adequate level of expenditure, however this has yet to be resolved.

**Illegal exploitation.** A number of respondents also expressed concern over rumoured plans by the Agency to cut enforcement on the River Ogmore.

The Agency has recently undergone a reorganisation following, amongst other drivers, the Government's quinquennial Financial Management and Performance Review. This reorganisation has resulted in the formation of Environment Management Teams who will be responsible for all environmental outcomes in their area. The Ogmore falls under the jurisdiction of the Neath, Bridgend and Port Talbot Team. Within each of these teams, we have placed fisheries resources to deliver specific parts of the fisheries programme, which includes enforcement. In addition to Environment Management Teams we have a Specialist Enforcement Team which has a wide range of functions concentrating on fisheries and waste enforcement. We have not sought to reduce the number or commitment to fisheries enforcement through this reorganisation, but to provide greater flexibility in the way we work. Enforcement will still be a high priority, and the resources put in will be based on risk to the environment and what is available.

Other comments received related to the relatively small penalties currently imposed for illegal fishing. Respondents felt that magistrates should be encouraged to apply the maximum penalty permitted to offenders. The Agency is currently seeking to introduce fixed penalties for minor fisheries offences, as recommended by the recent Salmon and Freshwater Fisheries Review.

- **Habitat Degradation.** A number of respondents placed emphasis on habitat degradation, and in particular the impact of flood defence schemes.

Widespread flooding occurred within the Ogmore catchment in the 1960s, particularly around Bridgend, and extensive damage resulted. Flood protection schemes have since been constructed in the areas of Bridgend, Aberkenfig, Treoes, Coychurch and Ewenny village. Those in Bridgend, the main town in the catchment, are notable in terms of their scale and visual impact. Regular

maintenance work is undertaken at all sites where formal flood defences are in place. Works may include the removal of gravel shoals, dredging of the river channel and control of bankside vegetation in order to maintain the flow carrying capacity of the existing channel.

Such work is of paramount importance in the protection of property from flooding. In-river work can sometimes disturb fish populations, but a recent assessment on the Ogmore at Bridgend demonstrated that some significant maintenance works were unlikely to have had long term effects on fish populations, and in some cases provided an improved and more varied habitat through construction of small check weirs and pools and a two-stage channel. Other impacts in the catchment relate to loss of cover for fish and disturbance to spawning gravels. Impacts such as siltation of the bed tend to be relieved by winter floods, but can affect angling. Careful planning of such work following consultation with Agency conservation and fisheries staff and mitigation works, such as planting schemes, creation of additional in-river habitats reduces impacts to a minimum. Part of the control of bankside vegetation undertaken for flood defence purposes has involved a programme of spraying of Japanese Knotweed along sections of the river. Although this has been very successful in places, it does require repeated attention and a catchment-wide approach to deal properly with the problem. The vast majority of works are necessary for public safety reasons, and should therefore be regarded as legitimate uses of the river.

- **Predation.** Whilst predation by birds was cited as a limiting factor in the consultation document, predation by other animals such as mink did not receive any coverage. This subject was raised during consultation with various stakeholders and local area staff. Predation is a natural part of salmon ecology, and in most cases both predator and prey have adapted to each other's presence. Salmon and their predators should therefore coexist without there being a serious threat to fish stocks. Indeed predation, through removing weaker individuals, may even benefit stocks. However, this relationship is dynamic, and predators can exert considerable pressure on fish stocks at any one time.

Fish eating birds, particularly cormorants, are often held responsible by fishery owners and anglers for reducing fish stocks, in both coarse and salmonid fisheries. Recent research in England and Wales found that cormorant predation, on the two rivers studied, was mainly focused on coarse fish. The impacts of goosanders on salmonid fisheries were shown to be potentially greater, agreeing with findings from another recent study in Scotland. Both studies however, highlighted the inadequacy of fisheries data in accurately determining the extent of impact.

DEFRA and the National Assembly for Wales have established a licensing procedure for those seeking to control predation by avian predators. Licences to shoot birds are only granted where serious damage can be demonstrated at a specific fishery and where other deterrents have failed. The Agency does not support the killing of birds unless these factors have been addressed. The Agency will continue to provide information, on an impartial basis, to help determine the impact to the fisheries.

A leaflet 'Cormorants – The Facts' has been produced by a partnership of fisheries and conservation organisations to address concerns and to answer some of the questions most often asked about cormorants. The leaflet is not intended to present solutions to the cormorant problem; it provides facts about cormorant numbers, what they eat, damage caused to fisheries, and explains the legal and practical limitations to culling. This leaflet is available on the Agency's website.

The Moran Committee Joint Bird Group has also recently published a booklet entitled 'Protecting Your Fishery From Cormorants'. Further information can be obtained on the Salmon and Trout Association website.

Mink were also cited as a potential problem. Although mink do not appear to be a threat to fish stocks generally, any concentration of prey will attract predators, and mink can therefore cause problems on fish farms and in salmon spawning areas. However, mink are highly opportunistic

predators, and will preferentially hunt for small mammals and waterfowl. Any authorised person can kill or take mink using any legal methods, and although DEFRA has long ended its programme of attempting eradication of mink, ADAS continue to offer advice on control. However the Agency wishes to discourage mink hunting where otters and other wildlife may be disturbed.

There is also a view that, in the countryside generally, mink have found a vacant niche, and that they are settling down to reach a balance with their prey. It is also interesting to note that mink are thought to be displaced by otters (EA, 1996).

#### **Other issues.**

- **Water quality.** Water quality in the catchment was raised in a number of consultation returns. Particular concerns related to sewage and CSO pollution, minewater pollution and industrial discharges.

**Sewerage & CSOs.** There are a number of private and Dŵr Cymru Welsh Water (DCWW) owned sewage treatment works within the catchment. Most are of a relatively small scale, with the exception of Lletty Brongu STW, and Penybont STW which take numerous large trade and industrial discharges, including the Sony Factory, and the Bridgend Creamery. Most works have secondary treatment as a minimum.

The sewage system in the valleys dates back to early last century. There are approximately 85 Combined Sewer Overflows (CSOs) in the system, and these are particularly numerous in urbanised areas (e.g. 17 in Maesteg area alone). The improvement of sewage collection and treatment facilities owned by DCWW is managed through Asset Management Plans (AMPs). These plans are produced by the company in consultation with this Agency, the Drinking Water Inspectorate (for potable water issues), DETR, National Assembly for Wales. The plans are drawn up to ensure compliance with European Directives, at a pace which both meets any relevant statutory timescale and is deemed to be appropriate and affordable to the water company reflecting its customers views.

Improvements in the Garw Valley were completed in 1997. Improvements to both Lletty Brongu STW and some 40 unsatisfactory CSO discharges in the Llynfi, Ogmoredale and Ewenny valleys were scheduled for improvement under the AMP2 programme. Improvements to Lletty Brongu STW, involving modifications to the existing filter beds were completed in 1998; these improvements are currently being assessed to determine whether further work is required. Improvements to the Ogmoredale Valleys CSOs were scheduled for completion by March 2000, however DCWW had insufficient funds available to complete the work, and carryover into the AMP3 programme was therefore necessary. The deadline for completion of these works is currently March 2003. Penybont STW is also scheduled for improvements under the AMP3 programme. A reduction in effluent BOD was achieved by December 2000, and the deadline for all other improvements is currently the 31<sup>st</sup> March, 2003. The Agency will continue to take a proactive approach to pollution prevention and control in the catchment to minimise the risk to the environment from consented and accidental discharges from sewage treatment works, water treatment works, and combined sewer overflows.

**Industrial discharges.** One group of consultees expressed concern about the industrial discharges of the industrial estate at Brynmenyn on the Gawr.

No recent incidents (during the last twelve months) have been forwarded to the Agency with regard to polluting discharges from the surface water outfall for the site. Environment Management officers are not currently aware of any significant issues at Brynmenyn that are likely to pollute the nearby River Ogmoredale.

Under a separate initiative, Agency Environment Management officers are currently contacting each of the Angling clubs in the area with a view to 'walking the river' and identifying issues with them.

**Endocrine disrupters.** One respondent raised concerns in relation to the potential effects of endocrine disrupters from pollutants in the watercourse.

As the Environment Agency has a range of statutory duties that aim to protect the environment, particularly fisheries, through effective control of pollution, it must consider how best to manage endocrine disrupting substances and minimise adverse health effects. The Environment Agency's

position has been to continue to undertake research to understand why endocrine disruption is occurring, to prove what's causing it and to seek better ways of managing these chemicals. Moreover, the Environment Agency has engaged other stakeholders, particularly the water and chemical industries, in order to develop risk management approaches (removal of chemicals such as nonylphenol from use; develop more effective treatment technologies to remove steroid oestrogens).

The belief of the Environment Agency is that there is now a sufficient evidence of harm to fish to develop a risk management strategy for oestrogens in sewage effluent. This strategy is likely to require changes in sewage treatment practices requiring development of new technology for some sewage treatment plants. This has to be carefully targeted, properly costed and funded.

Over the next two years (2002-2003) the Environment Agency will confirm which sewage treatment works should be considered high risk. It will continue its research into setting relevant targets (chemical standards, and biological effects) to protect the environment. It believes that the water industry should now start to investigate treatment technologies for the removal of priority oestrogens. The Environment Agency is calling for an initial study on the feasibility of risk management options in 2003-4, followed by detailed studies on the implementation of these at several priority sites in 2005-2007, within the AMP4 programme. It proposes that these should be undertaken through collaborative programmes with the water industry and other relevant (Brighty G., Environment Agency, 2002).

**Mine effluent.** One group of respondents gave details of an abandoned minewater discharge in the Garw Valley. The Agency currently holds a database of all known abandoned minewater discharges in Wales. Two discharges affecting the River Garw feature on this database – one at Llangeinor and one near Pont-y-Rhyl on the Garw Fechan.

The Agency is currently working in partnership with the Coal Authority and other statutory bodies to develop a prioritised programme of remediation for abandoned mine discharges throughout the UK. The assessment method for assigning priority is being revised, but is currently based on the length of river impacted and the likely benefits of remediation (for instance opening up spawning habitat). Two minewater discharges in the Ogmore catchment currently feature on the National priority listing for the Coal Authority Minewater Remediation Programme, at Nant y Ffyllon and Cwm Cedfw. However, neither discharge is considered to be high priority for remediation. The significance of the impact of the discharges on the Garw is not currently considered great enough for these to feature on the National priority list.

- **Japanese Knotweed.** Some respondents were concerned that not enough is being done in certain parts of the catchment to tackle the spread of Japanese Knotweed. The Agency's Flood Defence function currently use a spraying programme to target Japanese Knotweed growth on land adjacent to watercourses which the Agency either owns or maintains. Spraying techniques have been found to be the most efficient use of resources in combating the spread of Japanese Knotweed. However, in catchments such as the Ogmore where the Knotweed is already widespread, large spraying programmes are simply not feasible. It is hoped that a more sustainable solution will be found for the control of Knotweed using biological control. Early phases of research are promising but much work will need to be completed before this approach becomes a reality.
- **Water abstraction.** Some respondents expressed concerns over the impact of abstractions on the river. The Agency is currently developing Catchment Abstraction Management Strategies (CAMS) for all its main rivers. CAMS will make more information on water resources publicly available and enable

us to establish the needs of abstractors and other water users along with those of the aquatic environment. From a fisheries perspective, the resource assessment part of the Catchment Abstraction Management Strategy process for the Ogmore will involve working out an 'environmental weighting score' (EW) which will help to establish the sensitivity of the river ecology to abstraction. Fisheries data (along with macro-invertebrate, macrophyte and physical habitat data) are used to calculate the EW score. This process helps to identify an objective minimum flow and flow variability required to protect the river ecology. A licensing strategy is then developed based on this information.

The strategies will be developed in consultation with the local community and other interested parties. The River Ogmore is included in the Neath, Afan and Ogmore CAMS. Work starts on this CAMS in 2002 and the final strategy will be published in 2004. As with all CAMS, this will be reviewed every six years.

- **Protection of the riparian zone.** Comments received from Bridgend County Borough Council stressed the importance of the protection and enhancement of the riparian zone in terms of its natural and semi-natural resources. This is fundamental to the promotion of viable salmon stocks.

Bridgend County Borough Council is currently drafting a Riparian Habitat Action Plan for the River Ogmore. This is being prepared in partnership with the Environment Agency Wales, the Countryside Council for Wales and the Wildlife Trust South and West Wales. The plan identifies a series of issues affecting the Ogmore catchment such as river management works, Japanese knotweed and bank erosion.

- **Catch and Release.** A number of consultees expressed support for the practice of 'catch and release'. Current reported catch and release figures are reasonably good for the Ogmore. During 2001, 26 out of 62 salmon caught were released, equating to 42% of the total catch.

The Agency promotes the philosophy of catch and release which studies have shown to be an effective conservation measure. Moreover, catch and release is one of the ways that economically important sport fisheries can continue to operate whilst reducing impact on spawning. The additional contribution of catch and release to egg deposition can be significant. In order to achieve the best results from catch and release, larger fish of both sexes should be returned. Studies by Webb 1998 showed survival rates of 84% for caught and released Atlantic salmon, if fish are handled correctly. A more recent study by Dempson *et al.*, 2002, found only 8.2% mortality in Atlantic Salmon caught and released on the Conne River, Newfoundland. The EA has published a booklet and produced a video to help anglers ensure survival rates are high. Catch and release represents a method whereby anglers can directly improve the spawning success of salmon and sea trout.

- **Funding.** Some respondents raised concerns over the availability of funding for many of the actions proposed in the SAP.

Nationally, the Environment Agency currently spends about £8.5 million on salmon and sea trout fishery management, for which the two main sources of funding are licence income from anglers and grant-in-aid (GiA). In Wales, grant-in-aid has been cut back substantially over the last decade. However, the Agency is very pleased that the National Assembly has recently agreed to an additional £800,000 GiA for each of the next 3 years to support the Agency's fisheries work in Wales. This new money will fund work over the next three years to implement some of the recommendations of the government appointed Review Group's report on Fisheries Policy and Legislation. Funds are earmarked for several priority areas, including conserving and restoring salmon stocks, restoring fish habitats, removing barriers to fish migration and developing and restoring community fisheries.

Another source of funding relevant to the Ogmore is Objective 1, which is aimed at increasing employment opportunities in the most economically depressed areas of Europe. The Environment

Agency is currently progressing a bid for over £5M for fisheries improvements in Wales.

**The Agency would like to thank all those who have contributed to the consultation process of the Action Plan.**

We received several suggestions for alternative actions and for priority adjustments. These have been considered carefully and evaluated, and where appropriate have been assimilated into the Action Plan. Such text has been italicised in the table of actions.

## 6. ACTION PLAN SUMMARY TABLE

ACTION	COST (£K) AND TIMESCALE					FUNDING SOURCES (LEAD IN BOLD)
	EAW Cost £K	2002/ 2003	2003/ 2004	2004/ 2005	2005/ 2006	
<b>ISSUE 1: Abstractions</b> - The Licence of Right issued to Fort James for Bridgend Paper Mill could result in dangerously low flows on the River Llynfi						
Increase the level of monitoring of flows	6	●				<b>EAW</b>
Improvement to operational management and reuse of water	5	Ongoing				Fort James, EAW
Develop a Catchment Abstraction Management Strategy for the Neath, Afan and Ogmore. Review in 2006.	NK	●	●	●	●	<b>EAW</b>
<b>ISSUE 2: Habitat Degradation</b>						
Habitat mapping of catchment, prioritising MSW spawning areas. Develop action plans for enhancing and optimising available habitat for salmon life stages.	2					<b>EAW</b> , fishery owners, angling associations
Produce and implement a programme of works, in collaboration with landowners and relevant organisations, to protect valuable habitats and improve degraded habitats.	5			●		<b>EAW</b> , Landowners, CCW, GWT
Seek to secure collaborative schemes (e.g. to secure European funding) where the need for improvements is identified.	4.3	●				<b>EAW, CCW</b> , fishery owners, angling associations
Review of flood defence maintenance operations at Bridgend.	Ongoing					<b>EAW</b> (F&RTT& FD)
Ensuring the environmental impacts of protecting people and property from flooding are minimised through impact assessment of maintenance schemes.	Ongoing					<b>EAW</b> (F&RTT& FD)
Raise awareness of Japanese Knotweed through distribution of 'invasive plants' leaflets.	3.6	●	●	●	●	<b>EAW</b>
<b>ISSUE 3: Access to spawning areas.</b>						

Access to spawning areas may be partially limited by long culverts on the Llynfi, Ogwr Fawr and Ogwr Fach. Assess options to improve migration. Seek funding if cost effective. Look for opportunities for opening up culverts in restoration scheme.	NK	●	●	●	●	EAW
Regular maintenance of fish pass on Sychbant. Also consider alternative solutions	1	●	●	●	●	EAW
ACTION	COST (£K) AND TIMESCALE					FUNDING SOURCES (LEAD IN BOLD)
	EAW Cost £K	2002/ 2003	2003/ 2004	2004/ 2005	2005/ 2006	
<b>ISSUE 4: Forestry and surface water acidification</b>						
Ensure protocol agreed by Forestry Commission/Agency for forest design plans in sensitive areas is followed.	0.5	●	●	●	●	EAW, FC, FE, Forest owners
Implement revised guidelines, once published, through pollution prevention activities.	4	●	●	●	●	FC, EAW, FE, Forestry industry
<i>Reductions of sulphur dioxide and nitrogen oxide emissions nationally through regulation of industry</i>	NK					<b>Forestry Authority, EAW</b>
<b>ISSUE 5: Illegal exploitation</b>						
Develop and implement an intelligence led enforcement plan.	13	●	●	●	●	EAW, SWSFC.
Develop and implement a scheme to increase the provision of intelligence by anglers, fishery owners, the general public and other enforcement agencies on illegal activities. Maximise use by the public of the 0800 80 70 60 24-hour emergency telephone service.	5.5	●	●	●	●	EAW, SWSFC, Anglers, Fishery owners, Other enforcement agencies.
Promote awareness of illegal fishing and its impact by publicising enforcement successes and briefing influential parties.	5.5	●	●	●	●	EAW.
Continue rod licence enforcement 'blitzes'.	43	●	●	●	●	EAW, Fishery owners.
<b>ISSUE 6: Legal exploitation.</b>						
Implement and monitor national salmon byelaws to protect multi-sea winter salmon stocks and carry out five-year review in 2004.	1.2			●	●	EAW, Consultees.
Through our education programme, promote stock conservation measures, especially those affecting early running fish, e.g. Catch and Release video and leaflet, Salmonid 21C video and magazine, Glas-y-Dorlan, presentations to angling clubs.	12.5	●	●	●	●	EAW, Angling interests, Governing bodies.
<i>Angling clubs to consider a time limited no kill policy of salmon to improve spawning escapement.</i>	NDR					<b>Angling clubs, Fishery owners, EAW.</b>

ISSUE 7: Failures to achieve the Conservation limit in recent years. Also the uncertainty of some of the factors utilised in the egg deposition estimates, such as the 'out of season' run and interspecific competition with sea trout.						
Improve monitoring of adult salmon and sea trout runs through the installation of an acoustic counter on the Tywi (completed) and the use of the counter on the Teifi. Use data to make predictions for the Ogmore.	80	●	●	●	●	EAW, CCW.

ACTION	COST (£k) AND TIMESCALE					FUNDING SOURCES (LEAD IN BOLD)
	EAW cost £K	2001/2002	2002/2003	2003/2004	2004/2005	
<i>Review the need for a counter on the Ogmore and look for opportunities for funding.</i>	1					<b>EAW</b>
R&D project to investigate the effects of interspecific competition between salmon and sea trout on egg deposition rates.						<b>Ongoing – NSTC.</b>
<b>ISSUE 8: Exploitation of mixed salmon stocks in distant water fisheries.</b>						
EAW and others to continue to make representations to UK and Irish government to press for phasing out of Irish drift net fishery.	NDC	●	●	●	●	<b>EAW, NASCO, UK &amp; Irish governments, NASF, Fishery owners, Angling associations.</b>
EAW and others to continue to support the control measures currently in operation, including NASCO quota and buyouts by NASF of Faeroes and Greenland fisheries.	NDC	●	●	●	●	<b>EAW, NASCO, NASF, Fishery owners, Angling associations</b>
<b>ISSUE 9: Avian Predation</b>						
Review findings of R&D report and consult widely with key stakeholders and interested parties before implementing any recommendations in the area.	1					<b>EAW, Anglers, RSPB, NT</b>
<b>ISSUE 10: Sewerage</b>						
Assess improvements to Lletty Brongu STW to determine whether further work is required.	4	●	●			<b>DCWW, EAW.</b>
Complete improvements to CSOs and STWs in line with DCWW investment programme	3	●	●			<b>DCWW, EAW</b>
<b>ISSUE 11: Industrial Estate Discharges</b>						
Complete ongoing pollution prevention campaigns of Bridgend and other industrial estates to identify sources and risks of pollution.	10	●	●	●	●	<b>EAW</b>
<b>ISSUE 12: Minewater Discharges</b>						

Continue to collate information on abandoned minewater discharges and feed into the coal authority programme.	30.1	●	●	●	●	<b>EAW, CA.</b>
<b>ISSUE 13: Litter</b>						
Continue collaborative work with the Keep Wales Tidy Campaign and local voluntary groups to assess extent and sources of litter, clear litter from the river corridor, and support and encourage local groups to adopt a stretch of river.	75	●	●	●	●	<b>EAW, KWTC, FROG, LAs, Industry.</b>

ACTION	COST (£k) AND TIMESCALE					FUNDING SOURCES (LEAD IN BOLD)
	EAW cost £K	2002/2003	2003/2004	2004/2005	2005/2006	
Investigate and support methods of educating the public against littering.	5	●	●	●	●	<b>KWTC, EAW, FROG, LAs, Industry, Public</b>

Key to abbreviations in Table			
Abbreviation	Meaning	Abbreviation	Meaning
CA	Coal Authority	KWTC	Keep Wales Tidy Campaign
CCW	Country side Council for Wales	LA	Local Authority
DCWW	Dwr Cymru Welsh Water	NASCO	North Atlantic Salmon Conservation Organisation
DEFRA	Department for the Environment, Food and Rural Affairs	NASF	North Atlantic Salmon Fund
DCWW	Dŵr Cymru Welsh Water	NAW	National assembly for Wales
EAW	Environment Agency Wales	NFU(W)	National Farmers' Union of Wales
GWT	Glamorgan Wildlife Trust	NK	Not known
FART	Fisheries and Recreation Team	NSTC	National Salmon and Trout Centre
FC	Forestry Commission	NT	National Trust
FE	Forest Enterprise	SWSFC	South Wales Sea Fisheries Committee
FD	Flood Defence	RSPB	Royal Society for the Protection of Birds
FROG	Friends of the River Ogmore	SSSI	Site of Special Scientific Interest

Key to Action Tables	
<b>U</b> (in cost column)	Unknown cost at this time
<b>NDR</b> (in cost column)	No direct cost
<b>●</b> (in financial year columns) indicated	Action in the financial year

## 7. MANAGEMENT OF THE ACTION PLAN

The production of the Ogmore SAP closely follows the conclusion of Local Contribution for SouthWest Area, which identifies how we will achieve our targets for environmental improvement. SAPs will support the salmon element of the Local Contribution at a local level as well as providing the basic information to enable Regional and National overviews of salmon stocks, their fisheries and the issues facing them. Such information is needed to report to Government and to the public on the National Salmon resource and to contribute to international management of salmon fisheries via the International Council for the Exploration of the Sea (ICES) and the North Atlantic Salmon Conservation Organisation (NASCO).

A review of the Action Plan will also be produced after 5 years, with a similar format to this Plan. It will report the progress achieved over the preceding five years and examine the need to revise actions in light of changes to salmon stocks, the state of the Ogmore catchment, as well as advances in our knowledge of the fishery.

Whilst we have every expectation of delivering the SAP actions, the following points should also be noted:

- Many of the costs quoted consist of staff time, and these actions will be carried out in conjunction with our routine work. Actions requiring input other than from in-house staff will be treated as special projects, subject to prioritisation with other initiatives and bidding procedures for available funding.
- Some actions will require feasibility studied and cost-benefit appraisal of options before work starts. Where the costs outweigh the potential benefits, further action may not be viable. The Agency and participating organisations must balance limited resources with prioritised plans. These plans may be subject to change if funding becomes restricted, where there is a change in government policy or where new priorities emerge.

## 8. REFERENCES

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