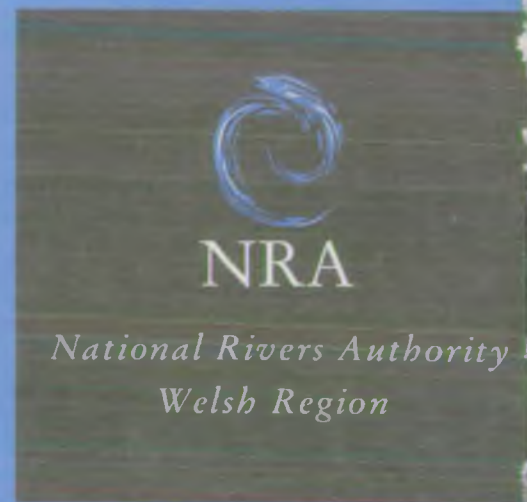


# AFAN & KENFIG CATCHMENT MANAGEMENT PLAN ACTION PLAN MARCH 1996

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## KEY DETAILS

### GENERAL

<i>Area</i>	208 km <sup>2</sup>
<i>Population (1991 Census)</i>	64,643
<i>Population Density</i>	310 /km <sup>2</sup>

### TOPOGRAPHY

<i>Ground Levels</i>	Max height	568 m AOD
<i>Sea Levels (Port Talbot)</i>	Mean High Water Springs	4.4 m AOD
	Mean Low Water Springs	-4.2 m AOD

### WATER QUALITY

<i>Length of Classified River in 1994</i>	Class A	52.3 km	
<i>General Quality Assessment (GQA)</i>	Class B	7.3 km	
	Class C	4.0 km	
<i>Estuary Quality (1990 Survey):</i>	Afan	Class B	2.0 km
	Kenfig	Class A	1.9 km

### WATER RESOURCES

<i>Annual Average Rainfall</i>	1790 mm	
<i>Primary Gauging Stations</i>	Afan at Marcroft Weir	
	Cwm Wernderi	218MI
	Eglwys Nunydd	3600MI

### FLOOD DEFENCE

<i>Length of Designated Main River</i>	55 km
<i>Length of River on which Flood Alleviation/Drainage Schemes implemented</i>	1.98 km
<i>Length of River covered by a Flood Warning Scheme</i>	5 km

### FISHERIES

<i>Rod Catches of Migratory Fish (10 year annual average 1982-1991 inclusive)</i>	Salmon	Sea trout
	2	121

NOTE: The first salmon to be caught in the Afan this century was in 1986.

## OUR VISION FOR THE AFAN AND KENFIG CATCHMENT

The Afan and Kenfig catchments show markedly different characteristics from one another. The upper parts of the Afan are significantly afforested, giving way to concentrated urban areas and heavy industry, most noticeably British Steel, on the coast. The Kenfig, by contrast, is largely rural, with comparatively little industry. It has a high conservation value, containing seven Sites of Special Scientific Interest and a National Nature Reserve, Kenfig Pool and Dunes. Both catchments bear evidence of past mining activity, in the form of iron rich acidic discharges present in many rivers.

Following the production of the Consultation Report in July 1995, and consideration of the responses we received, our aim is to manage the catchment in a way that provides significant progress in:

- **improving water quality** - the most damaging discharges of acidic, iron-rich minewaters from historical mining activities in the catchment will be addressed by a major EC and WDA funded collaborative project to provide treatment solutions and restore water quality to the River Pelenna. The technology developed by this demonstration scheme should assist with developing solutions for similar problems locally, throughout the South Wales coalfield and further afield. Further understanding of the acidification problems in the catchment will help develop responses to future emission and land use proposals which could impact on the catchment.
- **developing the migratory fishery** - our objective is to continue the rapid improvements in salmon and sea trout populations in the Afan, by increasing natural production, particularly through the construction of fish passage facilities at some man-made obstructions.
- **protecting river corridors and floodplains** - our key objectives are: (i) to protect and encourage the formation of natural river corridor habitats where waterside flora and fauna can thrive, particularly by promoting the creation of "buffer zones" alongside watercourses in rural and urban areas and (ii) to

influence developers and planning authorities to direct new development away from floodplains. Appropriate flood defence works or alleviation works should form part of the proposal.

- **maintaining flood protection for urban areas** - significant development has taken place in the flood plain in the past and this development is at risk from flooding. Flood defences have been constructed at various sites to improve flood protection standards and a programme of river maintenance works, which includes removal of gravel shoals, is undertaken by the NRA in order to maintain these defences and to maximise the flow carrying capacity of the channel. Our objective is to undertake further investigations to determine the feasibility of improving existing defences and to increase the effectiveness and efficiency of the maintenance operations.

- **balancing abstraction with the needs of the environment** - industry has long-standing rights to abstract water from various locations within the catchment, at rates which may adversely affect fisheries and the wider water environment. Abstraction uses must be balanced against the environmental needs of the river system, and we will implement an objective methodology for assessing the state of the catchment in water quantity terms, and for regulating new abstraction licences and any changes to existing licences.

The realisation of our vision, which we expect to take forward into the Environment Agency, will be achieved through a balanced management approach to all activities. We will encourage imaginative proposals to allow sustainable economic and community development to proceed whilst ensuring protection and improvement of the water environment. We will collaborate actively with all users of the catchment and all those statutory bodies that can contribute to the achievement of this vision.



D.G. WALKER  
AREA MANAGER - SOUTH WEST WALES

# THE AFAN AND KENFIG CATCHMENT



PORT TALBOT

BRITISH STEEL

SWANSEA BAY

NEATH AND PORT TALBOT UNITARY AUTHORITY

BRIDGEND UNITARY AUTHORITY

**KEY**

- Rivers
- CMP Boundary
- Unitary Authority Boundary
- Motorway
- 'A' Road
- 'B' Road
- Railway Line
- Land 0-200ft
- Land Above 200-600ft
- Land Above 600-1000ft
- Land Above 1000ft

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## The Environment Agency

The new Environment Agency for England and Wales will be created in April 1996 by the merger of the NRA, Her Majesty's Inspectorate of Pollution and the Waste Regulation Authorities. It will be the largest environmental protection agency in Europe. While it will incorporate the full role of the NRA there will be wider responsibilities for integrated pollution prevention and control, of air, land and water. One of the Agency's principal aims will be to contribute towards attaining the governmental objective of achieving sustainable development by protecting or enhancing the whole environment.

The government has recognised both the success of integrated river basin management, as developed and practised by the NRA, and the importance of CMPs as an integral part of that philosophy. It is therefore anticipated that CMPs will continue as the focus for river basin management in the Agency, although they may be developed in the context of wider management plans for the protection and enhancement of water, land and air.

## INTRODUCTION

### THE CONCEPT OF CATCHMENT MANAGEMENT PLANNING

The rivers, lakes, estuaries and coastal waters of England and Wales have never before been subject to such large and rapidly increasing demands from the users of water. Many different uses interact, or compete for water or water space, and will inevitably come into conflict with one another. The National Rivers Authority (NRA) aims to protect and improve the water environment in England and Wales and to harmonise conflicts between competing water users. Our Mission Statement expresses the following principles:

'We will protect and improve the water environment by the effective management of water resources and by substantial reductions in pollution. We will aim to provide effective defence for people and property against flooding from rivers and the sea. In discharging our duties we will operate openly and balance the interests of all who benefit from and use rivers, groundwaters, estuaries and coastal waters. We will be businesslike, efficient and caring towards our employees'.



*The Afan at Pontrhydyfen*

We have chosen to use Catchment Management Plans (CMPs) to translate these principles into action. The plans describe our vision for each catchment, identify problems and issues and propose actions that may be taken to resolve them. The plans also provide the means of promoting two key aspects of environmental management - land use planning and water quality objectives.

### THE RELATIONSHIP BETWEEN LAND USE PLANNING AND CATCHMENT MANAGEMENT PLANNING

The broad objectives of catchment management planning are to conserve and enhance the total river environment through effective land and resource management. However, while we are well placed to influence some of the factors affecting the water environment, particularly in relation to the river corridor itself, we have very little control over the mechanisms which determine land use change on a catchment-wide basis. This is largely the responsibility of local planning authorities through the implementation of the Town and Country Planning Acts. However, we are a statutory consultee under this legislation.

The policies in statutory development plans set out the framework for land use change, and provide the key reference in determining development applications. We encourage the inclusion of policies which reflect our concerns and responsibilities.

As guidance for local authorities, we have prepared a set of statements relating to the broad headings of water quality and water resources, flood defence, fisheries, conservation, recreation and mineral workings and waste disposal. These statements are summarised in our "Guidance Notes for Local Planning Authorities on the Methods of Protecting the Water Environment through Development Plans".

This Action Plan sets out Issues and Actions specific to the Afan and Kenfig catchment which have been agreed within the framework of these Guidance Notes. This plan also outlines how the concerns of the water environment should influence the location and nature of development and land use change within the catchment.

The second Dŵr Cymru Welsh Water Asset Management Plan (known as AMP2) for the period

1995 to 2000 is currently being finalised. The phased programme of improvements to sewerage infrastructure and sewage treatment works identified within AMP2 will determine the pace of future remedial measures in line with legislative requirements. This will have an important influence on both improvements in water quality and development/planning control as indicated within the Actions identified within this plan.

### WATER QUALITY OBJECTIVES

The Statutory Water Quality Objectives (SWQO) scheme, introduced under the Water Resources Act 1991, is a new system for water quality planning which places water quality targets on a statutory footing. The scheme is based upon the recognised uses to which a river stretch may be put and is consistent with the principles of CMPs. These uses will include:

- River Ecosystem

- Special Ecosystem
- Abstraction for Potable Supply
- Agricultural/Industrial Abstraction
- Watersports.

At present, only the standards for the River Ecosystem Use have been developed on a formal basis and, as a result, this is the first SWQO Use to be introduced by the Government through The Surface Waters (River Ecosystem) (Classification) Regulations 1994. For each classified stretch within the Afan and Kenfig catchment a River Ecosystem Use class target has been proposed. This Action Plan identifies, where appropriate, the actions required to achieve these targets. At present, these targets will only be applied informally although it is hoped that, in the near future, they may be established as Statutory WQOs by the Secretaries of State for the Environment and Welsh Office.

## REVIEW OF THE CONSULTATION PROCESS

We published the Afan and Kenfig Catchment Management Plan (CMP) Consultation Report in July 1995. The plan was a consultative document seeking comments from all those interested in the water environment. Approximately 400 copies of the report have been circulated to interested organisations and the public.

Around 50 individuals representing various key organisations attended the launch which was held on Tuesday 11th July at the Afon Lido Leisure Centre in Port Talbot. The launch received good media coverage, appearing on the HTV Wales News that evening. Following the launch, a display explaining the CMP process and the key details and issues in the catchment, and

consultation report summaries, were placed in local libraries to raise public awareness. The display was moved from Cwmafan Library to Sandfields, Cymmer Afon, Pyle and Porthcawl Libraries. The report was placed in all libraries and local council offices within the catchment for members of the public to read.

The official consultation period ran for two months from the 11th July to the 11th September. 20 replies were received within this period. A further 22 responses were received following the dispatch of 88 reminder letters which set a final date for responses of the 22nd September. A total of 42 responses were received from the following individuals and organisations:

Mr J. Morris M.P.

Mr L.E. Taylor

Mr D.T. John

Mr R. Davies

Afan Valley Angling Club

Associated British Ports

BOC Foundation

British Steel

CADW

Celtic Energy

Coal Authority

Countryside Council for Wales

Cynffig Comprehensive School

Dŵr Cymru Welsh Water

Forest Enterprise

Forestry Authority (2)

Friends of the Earth  
Glyncorrwg Ponds Co-Operative  
HMIP  
Kenfig National Nature Reserve  
Land Authority for Wales  
Margam Park  
Mid Glamorgan County Council (2)  
National Farmers Union  
National Trust  
Ogwr Borough Council  
Pelenna Community Council  
Port Talbot Borough Council

Porthcawl Town Council  
Ramblers Association  
Royal Commission on the Ancient and  
Historical Monuments of Wales  
South Wales Sea Fisheries Committee  
Sports Council  
Sustainable Wales  
Welsh Office Agricultural Dept.  
Welsh Office  
Welsh Development Agency  
Welsh Canoeing Association  
West Glamorgan County Council (2)

Where a number occurs in brackets after an organisation, that number of responses was received from different departments or area offices.

A brief paper, the 'Statement of Public Consultation' is included with this plan detailing

the list of consultees who responded to the consultation report, their summarised comments, and how we incorporated them into the production of this plan.

## AN OVERVIEW OF THE AFAN AND KENFIG CATCHMENT

### GENERAL

For the purposes of this Action Plan, the "catchment" refers to the catchment area of the rivers Afan and Kenfig, two distinct hydrological catchments, unless specifically stated otherwise. The Ffrwd Wylt, once a tributary of the Afan until the creation of Port Talbot docks, now discharges to the mouth of the Afan Estuary via the docks.

The Afan flows in a southwesterly direction from the Rhigos Mountains (highest point 568m) to Port Talbot, whilst the Kenfig flows south to Kenfig Hill before turning westward to pass north of Pyle, through an area of sand dunes to the sea. The highest elevation in the Kenfig catchment is 319m. The catchment area includes a narrow lowland coastal strip, which is widest to the south, behind which lie steep sided, extensively afforested valleys.

The M4 motorway, part of a Euroroute linking London with Fishguard, traverses the catchment behind the coastal strip. The major road artery serving the Afan catchment is the A4107, hugging

the river for much of its length. Several 'A' and 'B' class roads criss-cross the Kenfig catchment. The main railway link is the line between London and Swansea, which continues westward to Fishguard and links with the ferry route to the Irish Republic.

The once thriving Port Talbot docks have been temporarily sealed and boats are unable to pass to and from the sea. Large vessels, carrying cargoes of coal, oil and ore, berth adjacent to the mouth of the Afan at the British Steel complex.

The catchment, particularly that of the Afan, contains major developed areas along the lowland coastal strip, especially around Port Talbot. There is much heavy industry in this area, most noticeable of which is the British Steel complex at Margam. Small towns are located throughout the Afan Valley and in the middle reaches of the Kenfig, and as such are at risk from flooding

The majority of the Afan catchment is used for coniferous forestry, with some rearing of sheep and cattle on the high ground in the headwaters. The Kenfig supports more intensive agriculture on generally better quality land around Margam.



Evidence of man's past activities in the mid and upper reaches of the catchment is provided by abandoned mine sites and associated discharges of acidified, iron rich water. Metal smelting used to occur in the Afan valley and areas of contaminated land in Cwmafan, around the estuary and at British Steel have been located, but there is no evidence of any significant pollution as a result.

### FLOOD DEFENCE

Both the Afan and Kenfig catchments contain areas of flood plain upon which developments have taken place and which are now at risk of flooding. Flood defence operations relate primarily to these areas and aim to provide and maintain standards of flood protection commensurate with their usage. These operations include maintaining channel capacity by dredging and removing obstructions from the channel, managing bankside vegetation to prevent trees being dislodged under flood conditions and creating blockages, and maintaining flood defences. These operations will continue, although they will be regularly reviewed to ensure a cost-effective service. Expenditure for flood defence maintenance works within the catchment is on average £140k per annum.

Flood protection standards at Taibach and Cwmafan are considered to be below the indicative standard for residential land use. Studies will be undertaken at these sites to determine whether improvements can be achieved. If improvements are deemed feasible, and funds are available, then such work will be undertaken and an appropriate maintenance programme implemented.

Flood warnings for the Port Talbot area are currently generated by ourselves and are disseminated to the "at-risk" public via the police. From the 1st September 1996 the Environment Agency will take on the lead role in the dissemination process and planning for this change is currently taking place within the NRA. Flood warnings generated for the Port Talbot area, while providing advanced notice of flooding, do not comply with our target standards. Existing procedures will therefore be reviewed to determine whether improvements can be made.

### WATER QUALITY

Water quality in the main freshwater watercourses is generally high, 94% of classified reaches were



*Peledda Mine Water Treatment Project*

within Classes A and B in the 1994 River Quality Survey. Approximately 16km of the Afan is designated under the EC Freshwater Fishery Directive. Population and industry are concentrated along the coast, and the dilution available at sea is sufficient for the discharges from these sources not to have a significant impact.

Sewage from almost the whole catchment is now disposed of via the Afan long sea outfall, and water quality in the rivers is no longer affected by continuous discharges of sewage effluent. There are intermittent problems in parts of the catchment, caused by discharges from inadequate sewerage systems and Combined Sewer Overflows (CSOs). Pollution has also been caused in a few instances by releases of farm effluent.

There are no significant industrial discharges to freshwater. The once thriving collieries within the catchment have now closed, leaving numerous discharges from the abandoned workings which result in pollution of receiving waters. Typically, these streams are stained with orange deposits of ochre (iron). Many parts of the Afan catchment are also affected by surface water acidification, caused by acidic deposition from the atmosphere and influenced by land management practices.

We are collaborating with West Glamorgan County Council in a major scheme in the Peledda sub-catchment, funded by the EC LIFE programme and the Welsh Development Agency, with additional financial support from the BOC Foundation for the Environment. A treatment system based on constructed wetlands is to be used to treat five discharges from abandoned mines. The scheme is intended to benefit the Peledda but also to act as a demonstration project for the whole

of Europe.

## WATER RESOURCES

Annual rainfall in the catchment ranges from approximately 1440 mm near the coast to 2140 mm in the upland catchment area. The average rainfall of 1790 mm is relatively high compared with the Welsh Region average of 1310 mm and the England and Wales average of 909 mm.

The catchment is located on the southern edge of the South Wales coalfield syncline and the predominant rock types are Middle and Upper Coal Measures and Carboniferous Limestone. Although these can yield substantial quantities of water, the disturbance resulting from mining can lead to local variations in reliability. The groundwater held in glacial deposits overlying the solid geology is used as source of supply.

The main demand placed on water resources within the catchment is for use by industry.

## FISHERIES

The quality of salmon and sea trout fisheries in the Afan has dramatically improved in recent years, since the virtual elimination of the fishery in the early 19th century, with anglers catching increasing numbers of both species each year. Improvements have been brought about by a number of factors, including the alleviation of several obstructions to fish, a restocking programme by the NRA and our predecessor organisations, and improvements to water quality throughout much of the catchment.

The Ffrwd Wylt is predominantly a brown trout fishery although small numbers of sea trout are known to ascend the river from the docks in order to spawn. The much smaller Kenfig supports a predominantly brown trout fishery with some sea trout entering the river when flows permit in the summer months. In

many tributaries of the Afan, Ffrwd Wylt and Kenfig, obstructions to the passage of migratory fish, together with minewater problems and acidification, are likely to result in stocks being sub-optimal.

The fisheries of the Afan, Ffrwd Wylt and the Kenfig are controlled by local angling organisations which have taken an active role in assisting with improvements to the fishery.

## CONSERVATION

Within the catchment, there are seven sites of Sites of Special Scientific Interest, including Kenfig Pool (also a National Nature Reserve) and Eglwys Nunydd Reservoir. Kenfig is an important site for several species including the Fen Orchid and medicinal leech. In recognition of the importance of this site, Kenfig Pool has been identified by the Welsh Office as a candidate Special Area of Conservation under the EC Habitats Directive. All of these designated sites are located in the Kenfig catchment.

Whilst there are no formal records of otters in recent times, they are present in neighbouring catchments and it is believed that it is only a matter of time before they migrate into the catchment, which should have the capacity to sustain them given the predominantly rural nature and improving water quality. It is for this reason that the catchment is listed as a priority catchment in the 'Conservation Strategy for Otters in Wales' and will be targeted to facilitate the recovery of the otter population.

Invasive plants, such as Japanese Knotweed and Himalayan Balsam, are present throughout the middle and lower reaches of the Afan and the Kenfig, reducing bankside diversity and restricting native plants in localised areas.

## RECREATION

Large numbers of visitors are attracted to this area of scenic beauty which is suitable for many leisure activities including rambling, birdwatching and pony-trekking. An extensive footpath network is supplemented by a high quality cyclepath along the length of the Afan Valley, with access from Glynccorwg to Port Talbot. Country parks at Margam and Afan Argoed are popular for many types of recreation.

A number of stillwater trout fisheries exist, including those in Margam Park and the largest at Eglwys



*Afan Docks Weir*



*Kenfig Pool*

Nunydd reservoir, which is controlled by a section of the sports club at British Steel. Angling on the Afan and Ffrwd Wyllt is controlled by the Afan Valley Angling Club and membership is restricted to members of the local community. Angling on the Kenfig is controlled by Kenfig Hill and District Angling Association which also leases the fishing rights for Kenfig Pool.

Coastal water sports are concentrated mainly in the

Porthcawl area and at Aberavon Sands, where both surfing and jet-skiing taking place. Two EC Identified Bathing Waters, at Aberavon Slip and Rest Bay, are frequented by swimmers, especially in the summer months. Currently, no canoeing is allowed upstream of the tidal limit in the freshwater reaches by the controlling fishing interests. A large sailing club operates at Eglwys Nunydd and pleasure boats of all types are used in coastal waters.



*Eglwys Nunydd Reservoir*

## THE INTERACTION BETWEEN LAND USE AND THE WATER ENVIRONMENT

### INTRODUCTION

Man's use of land, whether for residential, farming, industry, amenity or infrastructure developments, is likely to impact on the water environment, either directly or indirectly. This Catchment Management Plan (CMP) aims to address existing problems, seek general environmental improvement and protect the catchment from future damage.

The diverse range of land uses of the Afan and Kenfig

catchment presents different management challenges. The upper afforested slopes of the Afan contrast with the concentrated urban areas and heavy industry of the coast. The Kenfig catchment is largely rural with a high conservation value. Issues of particular concern to us within the catchment include:

- the impact of water from abandoned mines on the river ecosystem
- the risks associated with developing in flood plains

- the deficiencies in infrastructure, especially sewerage
- the protection of a catchment with a high conservation value
- balancing abstraction with the needs of the environment
- the protection of groundwater resources

Our stance on all new development is that it is the responsibility of developers to assess the impact of their proposals on the water environment, and provide suitable mitigation works where necessary. In order to ensure that the right issues are addressed, and the relevant consents applied for, the developer should consult with us at the earliest opportunity.

## INFRASTRUCTURE

**Sewerage and Sewage Disposal.** It is clearly important that, wherever new development or redevelopment is proposed, the local authorities and Dŵr Cymru Welsh Water ensure that adequate and suitable drainage and treatment systems are available.

Extensive improvement works were carried out to the Afan Valley sewerage system during the late 1980s and early 1990s, bringing about significant improvements in the river quality. The abandonment of Marlas sewage treatment works in 1993 brought about a major improvement to the lower Kenfig.

There are still problems on some sections of the Afan and Kenfig sewerage systems, such as overloading and frequent blockages leading to unsatisfactory discharges from sewer overflows. The worst of these problems have been included in the Dŵr Cymru Welsh Water programme for improvement by the end of the century. In other cases, the sewerage system may be inadequate to support significant development.

Sewage from most of the catchment is disposed of via the Afan Long Sea Outfall. Work has recently been completed to improve screening of the sewage, which removes solid materials and other items such as plastics. Dŵr Cymru Welsh Water plan to install at least primary treatment by 2000 to comply with the appropriate terms of the EC Urban Waste Water Treatment Directive, which have yet to be confirmed.

**Roads.** Construction of the Port Talbot Peripheral Distributor Road, diverting traffic along a new coastal road between the Afan Estuary and the M4 at Margam, is expected to begin during 1996. It will involve extensive works around the Afan Estuary and near Margam Moors, and adequate safeguards will have to

be incorporated to protect these sites.

It is important that all road improvements are undertaken in an environmentally sympathetic manner so as to protect water quality, the landscape and the flora and fauna within the river corridor, and to ensure flooding problems are not created or exacerbated.

## DEVELOPMENT IN FLOOD RISK AREAS

Development situated within a floodplain is generally at risk from flooding. In our capacity as statutory consultees in the planning process, we are obliged to advise the local planning authorities, in accordance with Welsh Office Circular 68/92, on flood risk. Since 1995 we have been undertaking major surveys of all river catchments, on a phased basis and with the agreement of the local authorities. These surveys will identify more accurately the extent of the floodplain and the impact of future development on flood risk throughout the catchment. This work will take several years to complete and will concentrate initially on those areas where flooding is seen as a major issue.

Development may affect rivers and flood defences directly, or affect the risk of flooding. It is government policy that new development should be directed away from the floodplain whenever possible. When this is not possible then flood defences or mitigation works should be provided as part of any development proposal. Where alleviation works are necessary, the onus is on the developer to investigate the flood risk, and to design and construct necessary mitigation works as part of the planning application/consent. Such works must be undertaken in a manner which is environmentally acceptable. In view of the complex and lengthy discussions that may ensue, developers should consult with us prior to making an application.

## CONTAMINATED LAND

When promoting redevelopment plans, developers need to be mindful of the past use of sites. The area has a long history of industrial activity, leading to widespread problems with contaminated land, particularly in the Port Talbot area. Whilst such sites present a potential hazard, they do not appear to be having a significant impact at present, unless disturbed. Some problem sites have been identified; inevitably others will be found at sites where developments are being considered.

It is always the developer's responsibility to assess the problem and implement appropriate remedial works in close consultation with the NRA.

## GROUNDWATER

The use of groundwater for water supply is mainly confined to the Kenfig Industrial Estate. This area is close to the Kenfig Pools and Dunes SSSI, a site dependent on the maintenance of water levels.

The preservation of groundwater quality and quantity is a major objective for us, and we have produced a document "Policy and Practice for the Protection of Groundwater", which provides advice on the management and protection of groundwater on a sustainable basis. This policy deals with the concept of vulnerability and risk to groundwater from a range of human activities.

We look to the planning authorities to have regard to the protection of groundwater where it exists, as a material consideration in the determination of planning applications.

## RIVER CORRIDORS

Development space, particularly in the Afan Valley, is limited and consequently development has taken place on the valley floor and in some cases in close proximity to watercourses. Such development can have a significant impact on river corridors by reducing the extent and variety of habitats, restricting access to the river for recreational purposes and in some cases by assisting the spread of invasive weed species. Existing flood defence schemes, which are designed to protect such development from flooding, and other structures in the river channel require regular maintenance. Such activity often disturbs the river corridor, albeit temporarily, and can sometimes have longer term impacts. Flood defence works are therefore carefully managed in order to minimise these impacts.

**Buffer Zones.** River corridors provide important interconnections between habitats and are used extensively by wildlife. We would wish to see buffer zones created along all watercourses, in both rural and urban areas, to help protect the water environment from the impact of potentially damaging activities on adjacent land, and to provide access to the watercourse for river management purposes. These zones would have to be fenced where livestock are present, to avoid damage to river banks which could lead to channel instability, increased flood risk and a reduction in fisheries and conservation value.

**Culverts, River Diversions and Wetlands.** The construction of culverts to direct and convey watercourses must have consent from ourselves.

Whilst the installation of culverts, of suitable dimensions, for small river crossings is generally an acceptable practice, we do not support the widespread use of culverts to enable a change in land use - this would be contrary to our conservation duties. For instance, the practice of culverting streams in order to use their valleys as landfill sites, and the infilling of wetlands, is generally unacceptable. Similarly, we would usually oppose the diversion of established watercourses in order to permit development, and would wish the original natural course to be retained as a feature, wherever possible.

## AGRICULTURE

The most intensive agriculture in the plan area is in the Kenfig catchment around Margam and Pyle, where there are arable, dairy, sheep and beef operations. Elsewhere the agricultural activity is dominated by plantations of coniferous trees, accompanied by extensive sheep and beef production in upland areas, which tend to present a low risk of pollution.

The lack of adequate investment in effluent management facilities occasionally causes problems. The Control of Pollution (Silage, Slurry and Agricultural Fuel Oil) Regulations 1991 have set minimum standards of construction for new or substantially altered systems. We are using these regulations, and our well established contacts within farming organisations, to secure more effective, long term solutions.

**Forestry.** The planting and felling of trees can impact on the water environment if not carefully managed. We comment on future proposals received from the Forest Authority and County Councils in order to help reduce any potential adverse impacts. Of particular concern to us is the risk to water quality, the increase in surface water run-off rates, protection of natural riparian



*Cum Peleenna*

habitats, and the installation of inappropriate stream crossings. We support the recommendations of 'The Forests and Water Guidelines', published by the Forestry Authority, which lay down standards for best practice designed to minimise the impact of forest management on the water environment.

### **BARRAGES, MARINAS AND TIDAL WEIRS**

This type of development, which is usually proposed to

improve amenity and recreational value, can cause a variety of problems. These may include flooding, a deterioration in water quality (sometimes leading to odours and toxic algal blooms) and obstruction to movement of migrating fish. Since future problems are often difficult to predict for such developments, we look to the planning authorities to adopt a robust precautionary approach when considering any new proposals.

## **ISSUES AND ACTIONS**

The following section outlines the actions that have been agreed in order to tackle the problems identified within the Afan and Kenfig Catchment Management Plan (CMP) Consultation Report. The organisation(s) responsible for implementing the actions, the costs involved, and the agreed timescales within which the actions are to be undertaken are shown. Actions are only included where they have been agreed by the body responsible for undertaking the work/investment. Where an action is subject to constraint or is awaiting approval, this is made clear within the action table.

The Action Plan looks largely to the five year period from publication of the Consultation Report ie. to the end of 2000. Where Issues are unlikely to be resolved within this timescale, this is indicated clearly within the tables. CMPs should be seen to be continually evolving, and therefore if priorities change or new opportunities for improvements present themselves, they will be reflected in future reviews of the plan.

In the Consultation Report, 31 issues were identified where targets were not being achieved and therefore requiring some action in order to resolve them. These issues were presented, together with various management options, for discussion as part of the consultation process. All of the responses received from external interests have been considered, and

where necessary further discussions have been held to resolve issues and to agree appropriate, realistic and affordable actions. A 'Statement of Public Consultation' has been produced which summarises all of the comments we have received and our responses to them. This is included with this plan.

All of the 31 issues identified within the Consultation Report have been retained within this Action Plan although some have been amended in the light of comments made during the consultation period and the re-examination of the water quality data. The numbering system for Issues from the Consultation Report has been retained in this Action Plan for ease of reference and 4 new issues have been added as a result of the consultation process; Issues 32 to 35.

Within the costs column of the Action tables care has been taken to identify to whom the predicted costs apply. Where there is a lone responsibility, the costs will be borne by that organisation/interest. Where responsibility is shared (lead or other), but the costs are only available for the NRA input to that Action, this is clarified by "NRA costs". Where responsibility is shared but the costs will only be incurred by one organisation/interest, this is shown by e.g. "NRA costs only".

The following abbreviations have been used in the main text and tables:

ABP	Associated British Ports	OIW	Otters In Wales
BOD	Biochemical Oxygen Demand	PTBC	Port Talbot Borough Council
BS	British Steel	RE	River Ecosystem
CCW	Countryside Council for Wales	RCS	River Corridor Survey
CSO	Combined Sewer Overflow	RHS	River Habitat Survey
DCWW	Dŵr Cymru Welsh Water	RSPB	The Royal Society for the Protection of Birds
EC	European Community	SBCG	Swansea Bay Coastal Group
HMIP	Her Majesty's Inspectorate of Pollution	SSSI	Site of Special Scientific Interest
LA	Local Authority	SWSFC	South Wales Sea Fisheries Committee
LPA	Local Planning Authority	WCA	Welsh Canoeing Association
LTRQO	Long Term River Quality Objective	WDA	Welsh Development Agency
MGCC	Mid Glamorgan County Council	WGCC	West Glamorgan County Council
MPA	Mineral Planning Authority	WO	Welsh Office
OBC	Ogwr Borough Council		

## ISSUES AND ACTIONS

ISSUE 1		Blockages in a sewer have led to discharges of sewage from a CSO. This has caused the Pelenna immediately upstream of its confluence with the Afan to fail the RE Class 1 targets due to BOD concentrations.							
ACTIONS	RESPONSIBILITY		COST £	1995	1996	1997	1998	1999	FUTURE
	LEAD	OTHER							
Improve and maintain the CSO and the sewer to prevent blockages.	DCWW		Un-known	█					
Inspect the sewer more regularly so that blockages can be identified and cleared more quickly.	DCWW		Un-known	█	█	█	█	█	Ongoing
ISSUE 2		The most upstream stretch of the Kenfig fails to meet RE Class 1 targets due to BOD concentrations.							
Identify problems and discuss remedial measures.	NRA	Farners	1k		█				
Undertake improvements to farm effluent management systems.	Farmers		Depend-ent on a).		█	█	█	█	
ISSUE 3		The lower reaches of the Iorwerth Goch fall into RE Class 2, failing to achieve the LTRQO of RE Class 1.							
Improve Bedford Road CSO and associated sewers to reduce its' impact.	DCWW		Subject to invest-igation		█	█	█	█	
ISSUE 4		Poor biological quality caused by surface water acidification in the upstream stretches of the Gwenffrwd, Blaenpelenna, Nant Du, Nant Y Ffin, Cwm Wernderi and Cwm Y Garn.							
Subject to approval of funding, investigate the cause of the acidification and the possible impact of unusual local circumstances.	NRA		c20k		█				
In the light of the results of the above study, implement remedial actions.	HMIP/ Industry		Depend-ent on a).			█	█	█	
Continue to pursue and support initiatives to reduce emissions of acidic gasses.	NRA		Ongoing	█	█	█	█	█	Ongoing



## ISSUES AND ACTIONS

ISSUE 5									
<p>Poor biological and aesthetic quality in parts of the Afan, Pelenna, Corrwg, Corrwg Fechan, a tributary of the Cregan, Gwynfi, Nant Y Fedw, Nant Y Boda, Cwm Cerdinen, Ffrwd Wyllt, Kenfig and Nant Iorwerth Goch, caused by discharges from abandoned mines. There is a possibility that these discharges may be masking the impact of surface water acidification in some sub catchments.</p>									
ACTIONS	RESPONSIBILITY		COST £	1995	1996	1997	1998	1999	FUTURE
	LEAD	OTHER							
Carry out further survey work to differentiate between the impact of mine waters and surface water acidification.	NRA		3k		■				
Develop methods for treating mine waters, and address the problems on the Pelenna, by continuing to implement the Pelenna Scheme.	WGCC/ NRA	WDA, EC	1.3m	■	■	■	■		
Seek sources of funding to treat other mine water discharges.	NRA	Government, industry, private funding agencies	Un- own		■	■	■	■	
ISSUE 6									
Unsatisfactory biological quality in parts of the Afan.									
Undertake a survey of the Afan to confirm the poor biological quality, to establish its extent and to identify possible causes and solutions.	NRA		2k			■			
ISSUE 7									
Unsatisfactory biological quality in the lower Kenfig.									
Undertake a survey to confirm the poor biological quality, to establish its extent and to identify possible causes and solutions.	NRA		2k				■		
ISSUE 8									
Caustic leachate from contaminated land below Kenfig Industrial Estate discharges into the Kenfig.									
Investigate the causes and impact of the discharge, and consider plans for amelioration.	NRA/ WDA		2.5k		■	■			
Implement remedial actions as appropriate.	WDA		Depend- ent on a).						

## ISSUES AND ACTIONS

ISSUE 9									
The site of the old Mechema Chemicals plant (now closed) continues to produce a very small discharge containing toxic metals.									
ACTIONS	RESPONSIBILITY		COST £	1995	1996	1997	1998	1999	FUTURE
	LEAD	OTHER							
Continue to monitor the discharge and its impact to ensure the encapsulation of the contaminated site is successful.	NRA		2k	█	█				
ISSUE 10									
Improvements to the Afan Sewage Outfall are required under the terms of the EC Urban Waste Water Treatment Directive (UWWTD).									
Carry out works to improve screening of sewage before discharge.	DCWW		60k	█	█				
Install at least primary sewage treatment by 2000, as required by the EC UWWTD.	DCWW		c8m			█	█		
Carry out further studies, to a standard to be defined by the EC, to establish if further treatment is necessary.	DCWW		Scope and time-scale yet to be defined						
ISSUE 11									
There is some evidence that leachate from the Morfa Landfill Site is contaminating ground water.									
Investigate the extent and severity of any escapes of material, and identify methods of addressing any problems identified.	BS		17k	█					
Implement solutions as appropriate.	BS		Dependent on a).	█	█				
Considering the results of the above, incorporate conditions requiring improved monitoring and management in the Waste Disposal Licence.	PTBC	NRA	2.5k			█	█		

## ISSUES AND ACTIONS

<b>ISSUE 12</b>		Monitoring at Stormy Down Landfill site has identified some contamination of ground water with tip leachate.							
ACTIONS	RESPONSIBILITY		COST £	1995	1996	1997	1998	1999	FUTURE
	LEAD	OTHER							
Improve monitoring to ascertain the extent and the severity of the contamination.	Spring-field Disposal		10k	█					
Install an impermeable cap to reduce the ingress of rain water into the waste.	Spring-field Disposal		Subject to design		█				
Considering the results of the above, incorporate conditions in the Waste Disposal Licence requiring improved monitoring and management, and measures to control the discharge.	OBC	NRA	2.5k			█			
<b>ISSUE 13</b>		British Steel is authorised to abstract quantities of water which may be detrimental to the aquatic environment.							
Undertake a study to assess the impact of the abstractions on the watercourses concerned and use the abstraction licence policy procedure, when available, to determine acceptable flow regimes.	NRA	BS/ABP	8k			█			
Investigate and cost possible options for providing additional water resources to meet the target flow regimes taking into consideration British Steel requirements. Assess the benefits of feasible options.	NRA	BS/ABP	30k				█		
Implement any cost-effective solution identified.	NRA	BS/ABP	Un-known						By 2005
<b>ISSUE 14</b>		There is an inadequate hydrometric monitoring network within the catchment.							
Undertake a hydrometric review of the catchment to assess benefits and costs of installing monitoring facilities.	NRA		4k			█			
Install monitoring stations shown to be cost-effective.	NRA		Un-known						Ongoing

## ISSUES AND ACTIONS

ISSUE 15		Impaired migration for salmonids due to man-made obstructions.							
ACTIONS	RESPONSIBILITY		COST £	1995	1996	1997	1998	1999	FUTURE
	LEAD	OTHER							
Identify easements required.	NRA		0.2k	█					
Negotiate with riparian owners, the possibility of easement.	NRA	Riparian Owners	0.2k		█				
Agree and produce detailed designs.	NRA	As above	Un-known			█			
Construct facilities when opportunities arise	NRA	As Above	Un-known						Ongoing
ISSUE 16		Availability of suitable spawning substrates for migratory fish.							
Identify areas deficient in suitable spawning grounds.	NRA		2k		█				
Plan remedial measures in conjunction with riparian interests.	NRA	Riparian Owners	0.5K			█			
Instigate remedial measures as and when opportunities arise (will require third party co-operation).	NRA	Riparian Owners/ Devel- opers	Un-known				█		Ongoing
ISSUE 17		Invasive weeds are present throughout the plan area.							
Continue to implement and co- ordinate effective control measures within the catchment.	NRA	LPAs, Riparian Owners							Ongoing
Refine methods and adopt "best practice".	NRA	LPAs							Ongoing
Increase public awareness about invasive weeds and control measures by the distribution of the NRA leaflet 'Guidance for the Control of Invasive Plants near Watercourses'.	NRA		0.2k p.a.						Ongoing

**ISSUES AND ACTIONS**

<b>ISSUE 18</b>		There is a need to review the recently completed River Corridor Survey (RCS) data to identify habitats in need of restoration/improvement/protection.							
ACTIONS	RESPONSIBILITY		COST £	1995	1996	1997	1998	1999	FUTURE
	LEAD	OTHER							
Review RCS data to identify sites.	NRA		0.5k			█			
Undertake River Habitat Survey in order to assess riverine value.	NRA		4k				█	█	
Recommend remedial/protective works that could be undertaken.	NRA		Un-known				█	█	
Incorporate appropriate measures within the NRA's routine work programme to ensure compliance with NRA's conservation duty.	NRA		Un-known	█	█	█	█	█	
Seek to secure collaborative schemes where improvements are identified.	NRA	LPAs, Angling Clubs Riparian Owners					█	█	
<b>ISSUE 19</b>		Standards of Service for SSSIs and Memoranda of Understanding (MoU) for Special Areas of Conservation have yet to be formally agreed with CCW.							
Agree "Standards of Service" for each identified SSSI of NRA interest.	NRA	CCW	0.5k		█				
Implement the agreed standards.	NRA	CCW	0.5k			█	█	█	Ongoing
Assist CCW to produce MoU.	CCW	NRA	0.5k		█	█			
Implement the agreed MoU.	CCW	NRA	0.5k			█	█	█	Ongoing
<b>ISSUE 20</b>		Illegal fishing reduces stocks of fish for bonafide angling and spawning.							
Continue enforcement of legislation in an effective and co-ordinated manner.	NRA		30k	█	█	█	█	█	Ongoing
Review effectiveness of all byelaws and introduce new proposals where necessary.	NRA	Angling Club	1k				█		

## ISSUES AND ACTIONS

ISSUE 21		Loss of smolts from River Afan into Port Talbot Docks.							
ACTIONS	RESPONSIBILITY		COST £	1995	1996	1997	1998	1999	FUTURE
	LEAD	OTHER							
Erect a removable smolt exclusion grid in agreement with site owners.	NRA	ABP	0.5k						Ongoing
Monitor the effectiveness of the grid and identify appropriate operating timescales.	NRA	ABP	0.2k						
ISSUE 22		There is a need to reduce gravel removal costs and assess the impact of this activity on the water environment.							
Review existing operations and identify sites where gravel catchpits can be constructed	NRA		5k			■			
ISSUE 23		Flood Protection Standards at Cwmafon and Taibach are believed to be below the indicative standards for residential areas.							
Determine existing levels of flood protection and feasibility of undertaking improvement works	NRA		5k			■			
Undertake improvement works if possible and if funds are available	NRA		Dependent on a).				■		
ISSUE 24		Increased flood risk caused by fallen trees.							
Develop tree management programme	NRA		2k		■				
Implement programme	NRA		Dependent on a).			■			
ISSUE 25		Section 105 surveys are required to identify the extent of land liable to flood.							
Undertake Section 105 surveys for the Afan and Kenfig catchments	NRA		50k					■	
ISSUE 26		Land is being lost from beaches in Swansea Bay including Port Talbot, threatening the stability of coastal structures and defences.							
To undertake further studies to help explain physical processes within Swansea Bay	SBCG	WO/LA/ NRA/ Private Sector	Un- known					■	
Adopt precautionary approach to dredging applications	NRA/ WO/LA		On- going					■	

## ISSUES AND ACTIONS

ISSUE 27 Standards of Service for flood warnings in Port Talbot area may be below our target standard.									
ACTIONS	RESPONSIBILITY		COST £	1995	1996	1997	1998	1999	FUTURE
	LEAD	OTHER							
Review existing levels of service for the catchment and develop and implement flood forecasting model if appropriate and cost effective	NRA		5k			■			
ISSUE 28 Flood protection standards at Pyle are below our target standard due to poor screening arrangements.									
Design and replace existing screen	Rail-track	NRA	10k		■				
ISSUE 29 Development on flood plains conflicts with flood defence requirements.									
Maintain close liaison between NRA and LPAs to ensure protection standards are not compromised.	NRA/ LPAs/ WO		On-going	■	■	■	■	■	
Keep flood plain free from development	NRA/ WO/ NRA		On-going	■	■	■	■	■	
ISSUE 30 Opencast workings, land reclamation schemes and other major developments may render important habitats vulnerable to degradation and these habitats should be protected and/or reinstated. Such schemes may also impact upon anglers legal rights of amenity downstream.									
Ensure that pre and post scheme environmental appraisals are undertaken on major schemes prior to issuing Land Drainage Consents.	Devel- oper (eg. MGCC)	NRA	Un- known	■	■	■	■	■	Ongoing
Agree mitigation prior to issuing Land Drainage Consent.	NRA	Devel- oper	Un- known	■	■	■	■	■	Ongoing
Ensure sensitive areas are clearly highlighted.	NRA	Devel- oper	Un- known	■	■	■	■	■	Ongoing
Monitor schemes closely in consultation with all interested parties ensuring that any problems are highlighted without delay and solutions sought.	NRA	Devel- oper	Un- known	■	■	■	■	■	Ongoing
Educate developers and anglers about each others requirements and the objectives of the respective organisations.	NRA	Devel- opers/ Anglers	0.5k	■	■	■	■	■	Ongoing
Ensure suitable conditions are incorporated into any planning applications to protect the environment.	MPA/ LPA	NRA	Un- known	■	■	■	■	■	Ongoing

## ISSUES AND ACTIONS

ISSUE 31      There is little canoeing access throughout the catchment area.										
ACTIONS	RESPONSIBILITY		COST £	1995	1996	1997	1998	1999	FUTURE	
	LEAD	OTHER								
WCA to establish contacts with angling clubs and riparian owners in order to pursue access arrangements.	WCA	NRA/ Angling Clubs/ Riparian Owners	0.2k		████████████████████					Ongoing
ISSUE 32      Need to minimise conflict between different recreational users and between recreational users and conservation.										
Review current recreational facilities in close proximity to river corridor in order to identify "best" and "worst" practices.	NRA	LAs/ Riparian Owners/ Devel- opers	0.5k			████				
Ensure future recreational developments do not impinge on the conservation value of the corridor.	NRA		0.2k	████████████████████					Ongoing	
ISSUE 33      Archaeological sites, within the river corridor or associated with aquatic habitats, require protection from some NRA operational activities.										
Liaise with interested parties in order to identify sites requiring protection.	NRA	CADW/ Archae- ological Trusts/ LAs/ Riparian Owners	0.5k		████					
Develop a database of such sites.			Un- known			████████████				
Agree "Standards of Service" in relation to sites.			0.2k				████			



**ISSUES AND ACTIONS**

**ISSUE 34**

The appearance and the biological quality of the Afan Fach in Pyle is affected by intermittent polluting discharges from units on the Village Farm Industrial Estate.

ACTIONS	RESPONSIBILITY		COST £	1995	1996	1997	1998	1999	FUTURE
	LEAD	OTHER							
Carry out a campaign to promote pollution prevention and responsible operating practices on the estate.	NRA	OBC	2k		█				
Continue to investigate pollution incidents arising from the estate, and take appropriate measures.	NRA		Un-known	█	█	█	█	█	Ongoing

**ISSUE 35**

A priority Otter Catchment Management Plan is required for the area where otter populations are considered to be unsustainable. A Species Action Plan has been produced but a Local Biodiversity Action Plan is required for the otter and other 'Short List' species i.e. those listed in the 'Short List of Globally Threatened /Declining Species' in "Biodiversity: The UK Steering Group Report 1995".

Establish contact with all relevant organisations within catchment area	OIW	NRA/ Riparian Owners/ Voluntary Groups	0.5k			█			
Collate and research all relevant information	OIW	NRA/ Voluntary Groups	2k		█	█	█	█	Ongoing
Assess the ability of the catchment to support otters	OIW	NRA	0.5k				█	█	
Plan and implement a programme to protect and enhance otter habitats	OIW	NRA/ LAs/ Land owners/ Voluntary Groups	5k				█	█	
Audit Plan	OIW	NRA/ Voluntary Groups	1k						Future
Identify 'Short List' species.	LA	NRA/ CCW	Un-known						
Prepare Local Biodiversity Action Plan.	LA	NRA/ CCW	Un-known						

## FUTURE REVIEW AND MONITORING

The NRA will be jointly responsible, with other identified organisations and individuals, for implementing this Action Plan. Progress will be monitored and normally reported annually. These reviews will examine the need to update the CMP in the light of changes in the catchment. The period between major revisions will normally be five years.

The annual review, which will be made widely available, will take the form of a short progress report, to include work achieved compared with that planned, and to highlight any changes to the plan.

Further copies of this Action plan, and copies of the original Consultation Report, can be obtained from:

## CONTACTING THE NRA

*Further copies can be obtained from:*  
The Catchment Planning Co-ordinator  
National Rivers Authority  
Welsh Region  
Rivers House  
St Mellons Business Park  
St Mellons  
Cardiff  
CF3 0TL  
Telephone Enquiries:  
Cardiff (01222) 770088

The Area Catchment Planner  
National Rivers Authority\*  
Llys Afon  
Hawthorn Rise  
Haverfordwest  
Dyfed  
SA61 2BQ  
Telephone Enquiries : Haverfordwest  
(01437) 760081

\* Please note the NRA joins the Environment Agency on the 1st April 1996.  
However, enquiries may still be directed to the above address.

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