

NATIONAL RIVERS AUTHORITY

SOUTH WEST REGION

REGIONAL REVIEW 1989/90

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FOREWORD

The last year witnessed a fundamental change as the South West Region of the National Rivers Authority evolved from the framework of the Rivers Unit of South West Water.

The successful creation of the regional organisation of the NRA represented a big enough challenge on its own, but this was made even more difficult by the 1989 drought, followed by a sequence of major storms and floods.

Despite these difficulties the challenge has been met and the new regional organisation is operational, thanks to the hard work of employees and committee members alike.

We can look forward to consolidating the achievements of our first year and clearly establishing our role as the Guardians of the Water Environment.

Gordon Bielby
Regional General Manager

SUMMARY OF KEY ACHIEVEMENTS

The major achievement has been the setting up of the regional organisation of the Authority, whilst still providing an effective and efficient service to the public during times of both drought and flood.

The expectations of the new organisation are high and we have so far maintained a high public profile, which has been fostered by careful handling of public relations and contact with the media.

We recruited over 80 staff during the year and arranged for the training of both new and existing employees undertaking new jobs.

In order to provide adequate operational accommodation, a new wing was added to the offices at Manley House, and plans drawn up for the refurbishment of both the original building and the Western Area office in Bodmin.

Construction of a laboratory complex on the Manley House site to be operated jointly with Wessex Region has begun. When this is operational, it will provide a specialist centre for viruses and low level metals and will be capable of handling over 1.25 million tests each year.

A major part of the setting up exercise involved the drawing up of the formal Scheme of Transfer involving considerable negotiation.

The drought last summer, lasting until mid-September involved a major diversion of resources into reviewing the effects of nearly 40 Drought Order applications, of which 20 were approved. A report of the Drought has been commissioned and will produce data and guidance for similar events in the future.

The emphasis on the control of pollution has been confirmed by continuing the Farm Pollution Campaign. Media coverage of major pollution incidents and our response has increased public awareness of the NRA's role.

The withdrawal of Aldrin from the list of approved products was achieved after research arising from its use in west Cornwall to control narcissus fly in the bulb fields.

The effectiveness of the Region's Flood Defence arrangements was put to the test during severe storms between December and February. Many completed schemes were tested to their design limits and functioned well. In the majority of areas which did suffer, schemes to provide protection were already included in forward programmes. The in-house workforce assisted in instances of coastal flooding, including those at north Devon and Beesands which achieved national prominence.

Major works were commenced in Truro, which had twice suffered serious flooding in 1988. The scheme had been brought into the capital programme and designed in a relatively short timescale.

A 24-hour Communication Centre has been set up at Manley House.

A series of improvements have been made to rivers to encourage the rehabilitation of fisheries. At Camelford a new fish pass has been installed and in other rivers netting bans have been imposed and fishing rights bought to encourage the enhancement of fish stocks. Vigorous patrolling has been effective in recovering a number of illegal nets in the Plym estuary.

Consultation with riparian owners and other interested parties has led to the production of a rehabilitation programme for the Rivers Taw and Torridge, where the declining river quality had been giving concern.

REGIONAL COMMITTEE REPORTS

REGIONAL ADVISORY BOARD

The Regional Advisory Board has met monthly and considered a wide range of topics. Members have fostered a team approach to the challenges and opportunities of the Region and, of course, as a priority, have been keen to see the establishment of NRA South West as a viable and effective organisation.

Members have been concerned too for the morale and motivation of the region's employees who were coping not only with creating the new body but with a succession of serious events and incidents, both natural and man-made. Members were appreciative and supportive of the special efforts being made in this difficult setting-up year and they took an active interest in this aspect of the region's business at all their meetings.

The Board has been kept fully briefed on the various emergencies that have occurred and they have received a number of presentations on important topics. They have also considered and advised upon a variety of issues and problems raised by the three statutory committees.

Following excellent media coverage of the 1 September 1989 launch, regional media interest in the NRA has continued unabated. It has been generally, but not exclusively, most favourable in content. The Board has been keen that good relationships with the media should be maintained and fostered: indeed, public relations matters generally have been of close interest to them throughout the year.

Wider community relations have not been neglected. For example, a series of successful meetings have been held to explain and discuss NRA-related matters with such bodies as the Country Landowners Association, the Confederation of British Industry, the National Farmers Union and the Devon and Cornwall Development Corporation. These and similar meetings will be repeated at appropriate intervals.

In all its varied deliberations and activities, the Board has most effectively fulfilled its primary function of providing advice and support to one of its members, the Regional General Manager.

REGIONAL RIVERS ADVISORY COMMITTEE

The Regional Rivers Advisory Committee held its first meeting in October 1989 and has now met three times.

The Committee has considered the results of the River Water Quality Classification for the three year period 1987-89. This shows a reduction in quality, particularly in respect of those reaches of river previously classified as Class 1A, where achievement of objectives was low. It is however accepted that the 1989 drought had some effect on these results. Committee members have expressed their determination to redress the deterioration in river water quality.

A major cause for concern is the pollution of watercourses and, in particular, members are pleased that the Authority's vigorous farm pollution campaign has resulted in a reduction in farm related incidents. However, oil and sewage- derived pollution have increased and this aspect will receive close attention.

In the light of experience and discussions with farming interests it has been found that potential pollution problems have arisen where new farm equipment, installed with grant-aid, has unexpectedly failed. As a positive move to minimise pollution, the Committee has decided to notify MAFF of such failures with a view to the suppliers of persistently faulty equipment being removed from their recommended list of suppliers.

Representations have been made to MAFF that the level of penalties imposed by the Courts for pollution offences should reflect the cost of the necessary remedial work to the watercourse.

The results of the 1989 classification of estuary quality have been discussed. This indicates that 19 of the region's 22 estuaries comply with their Class "A" quality objective. On the basis of the subjective assessment made, no changes in quality were reported for any of the estuaries in 1989 compared with previous years.

The 1989 Survey of Bathing Water Quality has been considered by the Committee, which indicated that only 19 of the region's 133 waters monitored during 1989 failed to comply with the principal bacteriological standards of the Directive. However, high sunshine levels in the summer of 1989 might have presented an optimistic picture of bathing water quality. In 1990 and subsequent years, spot checks for Salmonella and entero-viruses will be carried out twice in the season at all EC identified bathing waters.

A proposal has been made to monitor the quality of a further 80 popular non-identified bathing waters on a three-year rolling programme.

REGIONAL FISHERIES ADVISORY COMMITTEE

Since September, the Regional Fisheries Advisory Committee has met on three occasions. At the first meeting in November the Committee considered the deleterious effect of the drought on fisheries in the region. While noting the measures taken to mitigate drought damage, members stressed the need for additional measures to be taken to alleviate the situation. These included the limiting of water abstraction, the promotion of sanctuary spawning areas to aid salmon conservation, the carrying out of detailed scientific investigations to establish at what stage fish survival is affected and the consideration of hatcheries to rear fish for rehabilitation and mitigation purposes. The need for a dialogue between all parties concerned with fish farms was established, in order to safeguard the future of rivers and the environment generally.

With reference to pollution, the committee has monitored the success of the Farm Campaign and supports its continuance. Concern was expressed about the major loss to the Torridge system following the pollution of the Okement at the end of the drought. In addition, consideration was given to proposals for bass nursery areas, salmon dealer licensing and the Tamar closure byelaw designed to assist the rehabilitation of the fisheries in the region.

A special meeting of the committee was convened in December to consider the significant environmental deterioration of the River Torridge and to a lesser extent, the River Taw. Members were invited to express views on remedial measures necessary to rehabilitate the Torridge. A comprehensive report is planned for the May 1990 meeting of the Committee.

The meeting in February took the form of a workshop to consider policies covering all aspects of fisheries work. Members were invited to consider which elements of the inherited policies should be retained and to determine issues needing to be addressed.

REGIONAL FLOOD DEFENCE COMMITTEE

During the year the Regional Flood Defence Committee and the former Regional Land Drainage Committee met on three occasions. The April 1989 meeting concentrated on proposals for alleviating the type of flooding that occurred twice in 1988 in Truro and members approved a flood storage option for the River Kenwyn.

Following local government elections in May there were changes in membership of the Regional and Local Advisory Committees.

The Committee approved a medium term plan for the five year period 1990/91 to 1994/95.

At the January meeting members considered the revised budget for 1989, and following detailed discussions unanimously approved the budget and the capital programme for 1990/91.

A report on the possible consequences of the greenhouse effect on rivers and coastal zones was considered. It was agreed that this matter required urgent consideration and that the NRA should take it up both nationally and internationally.

Following the December storms, the Committee received detailed reports on the extensive tidal and river flooding which had taken place throughout the region. It was noted that generally flood defence schemes had performed satisfactorily and had prevented even more extensive damage occurring. Members recorded their appreciation of the efforts of all members of staff during this difficult time.

Progress reports on land drainage works carried out throughout the region, including the Truro/River Kenwyn Scheme were presented. Since the meeting in January, instances of extreme weather conditions were experienced in the region and members were kept informed of the effects of flooding and the performance of defence works.

FUNCTIONAL REVIEWS

WATER RESOURCES

Key Achievements

Drought Report

A report has been produced which includes a summary of the impact of the drought, its severity, and the effectiveness of management procedures. This will allow NRA staff to prepare management procedures to help meet any drought difficulties, taking account of the 1989 experience.

Roadford Study

An Operational and Environmental Study has been commissioned on the likely impact of the SWWS Roadford Scheme on water interests, including the prominent salmonid fisheries of the region. SWWS and NRA SW are contributing to the exercise, and consultants will be reporting back during 1990. Full consultations are being undertaken with relevant environmental interests.

This study will enable specific licence and operating conditions to be formulated to protect water interests and the environment.

Completed Projects

Reservoir Operating Agreements

Six agreements were drawn up prior to vesting day covering Roadford, Burrator, Wimbleball, Meldon, Porth, Colliford and Siblyback reservoirs.

Low Flows Review

A groundwater resources model of the Otter Valley Triassic Aquifer was completed during the year. This was used to assess the impact of proposed new borehole sources on base flows in the river Otter, prior to a licence application being made by SWWS. As a result, the proposal was modified to include a concomitant reduction in licenced volumes from other sources further up the catchment, reducing their future impact on the base flow in the river and providing future benefits to flows in the lower reaches.

Aquifer Protection

Modifications to the existing Aquifer Protection Policy have been drafted and will be incorporated into the policy during 1990. Discharges to soakaway were given particular attention and efficient working practices developed.

Abstraction Licensing

Negotiations are continuing with SWWS to ensure that relevant impact assessments are undertaken prior to application for licences, for all sources likely to have a significant impact on the environment or other water interests.

Major Incidents and Events

Drought

Intensive work was necessary to ensure that proper consideration was given to the many Drought Orders sought to meet public supplies.

The drought began with the driest May for 50 years and continued until mid-September. The severity appears to have been on a return period of between 1 in 25 and 1 in 30 years in the South West region, having more in common with the 1984 than the 1976 drought (the severest drought recorded in the South West).

River flows were below their Q95 level for between 50 and 80 days, which is two to three times longer than is expected in a normal year.

Groundwater levels were generally low, though higher than in 1976 except in areas close to major groundwater abstractions.

Despite the imposition of restrictions, including bans on non-essential uses of water, 37 Drought Orders were sought to enable supplies to be maintained, of which 20 were approved. These included many reductions to compensation releases from reservoirs and reductions to prescribed flows in rivers downstream of public water supply intakes.

The impact of the drought on water resources was mitigated by the winter rainfall - January and February being particularly wet. All major reservoirs were at least 90% full by the end of March, and Roadford had already impounded over 18000 Ml, 55% of its net capacity.

WATER QUALITY

Key Achievements

Catchment Investigations

Investigations of the Fowey and Madford catchments identified substantial unbanded storage of high risk chemicals. In the Madford catchment, the number of polluting farms was found to be five times greater than the number of incidents actually reported during the period of survey. A national strategy to assist farmers in reducing these risks to water quality is now being developed.

Farm Campaign

The farm campaign 'Pollution - Together We Can Beat It' continued through 1989, highlighting the level of unreported pollution which occurs in controlled waters. So far a total of 5,000 farms have been visited.

Pollution Incidents

Of the 2,720 reported incidents which were investigated during the period, 75% were responded to within 2 hours and 83% within 4 hours. Speed of attendance is considered vital and steps are being taken further to reduce these response times.

Aldrin in the Newlyn River Catchment

High concentrations of Aldrin in the Newlyn River in west Cornwall were shown to be due indirectly to its use in controlling narcissus fly in the bulbfields. This investigation was considered by the Advisory Committee on Pesticides and resulted in the withdrawal of Aldrin from the list of approved products.

Completed Projects

Annual Classification of Estuary Quality

The classification in 1989, as in previous years, has been based on a subjective appraisal of quality. On this basis no change in quality was reported for any of the estuaries in 1989. A protocol has been established for a more objective assessment of the causes of non-compliance to be made during 1990.

Annual Classification of River Water Quality

The 1989 River Quality Classification was undertaken as follows :

Class	km	%
1A	419.9	15.1
1B	998.2	35.8
2	1,002.4	35.9
3	330.5	11.9
4	<u>37.5</u>	<u>1.3</u>
	<u>2,788.5</u>	<u>100.0</u>

Compliance with River Quality Objectives has fallen from 50% in 1987 and 47% in 1988 to 43% in 1989. Whilst the majority of failures are by only one NWC Class, this trend is giving cause for concern and a detailed action plan has been prepared.

Bathing Waters

Of the region's 133 EC bathing waters 19 failed to meet the Directive's principal mandatory standards during 1989. Overall, 69 of the region's waters have failed to comply with these standards during the past 4 years. No scheme designed to ensure compliance with these standards is yet fully operational. Discussions are being held with SWWS to ensure the earliest possible completion of schemes which will enable compliance.

A second aerial survey of the usage of the region's bathing waters has been completed.

Aesthetic pollution of South West beaches was particularly widespread during the summer of 1989. This resulted from the calm conditions and poor dispersion of discharged sewage and related debris.

Discharge Applications and Consents

Over 900 applications were received for consent to discharge and by the year end 466 consents had been processed. For the period prior to vesting, the region was heavily committed to the assessment of interim and long-term consent conditions for SWWS discharges from 81 sewage treatment works, 27 descriptive sewage treatment works and the granting of temporary consent conditions for 40 water treatment works and 700 storm and emergency overflows. Available resources should be sufficient to accommodate the inflow of future applications and deal with the backlog of consents requiring review.

EC Dangerous Substances Directive

Although the EC Dangerous Substances Directive monitoring results from 1989 showed no problems with mercury, cadmium and List II metals continued to occur in west Cornwall, the principal cause being extant and abandoned mine workings. There was total compliance with HCH standards.

Groundwater Quality

Consultants will provide support until a groundwater section is set up in 1991 and have already set up a database for a register of contaminated land in the region. The current register includes entries for over 200 waste disposal sites licensed since 1974. Future work will include registering waste disposal sites abandoned prior to 1974 and other sites of contaminated land, including over 2000 disused metal mines.

Sewage Disinfection Trials

A collaborative venture, managed by NRA, SWWS, MAFF and WRC has successfully completed trials into the use of the disinfectant peroxyacetic acid at a conventional secondary treatment sewage works, to test its efficiency in removing micro-organisms.

Shellfish Waters

Monitoring has revealed that the quality of the region's three EC designated shellfish waters, was satisfactory during 1989.

Water Act Register

A full verification of all consent and monitoring data entries is nearing completion and transfer to the NRA computer is planned for 1990. This information system has also been designed to serve as a database for the discharge charging scheme.

Major Incidents and Events

Algal Bloom

Algal blooms occurred during the drought throughout the region interfering with water treatment processes, recreation, amenity and conservation activities.

Blooms of blue-green algae were assessed for toxicity and a proportion was found to pose a risk to various water users. Information was given to owners, MAFF, Environmental Health Officers and Medical Officers of Health. A small number of sites continued to exhibit high densities of algae throughout the mild winter of 1989/90.

Marine algal phenomena, aggravated by warm conditions, caused localised problems during the summer of 1989. Areas affected included estuaries (notably the Dart) and coastal waters. The presence and impact of a substantial bloom of marine dinoflagellates (a 'red tide') was investigated in Mounts Bay.

Laboratory Services

The chemical and microbiological analytical service for both South West and Wessex regions of the NRA is to be provided by a joint laboratory located at Manley House, Exeter. The laboratory has been designed and construction began in March with full operation expected in early summer 1991. Once completed, it will be capable of dealing with over 1.25 million tests each year with special expertise for viruses and low level metals.

Pollution Incidents

During the year a number of successful prosecutions were taken and other cases await trial.

In April 1989 thousands of gallons of silty water were released, which polluted 16 km of the River Axe in East Devon over several days. Invertebrate and fish life were significantly affected and a successful prosecution resulted.

A dozen serious farm slurry incidents occurred in the year, most notably the release of 50,000 plus gallons of slurry from a pig farm in Dunkeswell. Nearly 30 miles of river were affected and some 3,700 fish including 600 salmonids were killed. The polluting effect of this discharge was reduced by a fish rescue, damming of the stream and injection of oxygen.

Water supply intakes across the region were closed as a result of pollutions at Pynes and Allers on the Exe and on the Axe at Whitford, due to industrial and farm pollution. Pollution occurred in the Drift Reservoir and Newlyn catchment, where pentachlorophenol was found and traced to a temporary fabric pipeline used to transfer water during the drought.

The River Erme suffered three major incidents with associated fish kills in August.

Following the end of the drought in mid September, heavy rain and spate conditions in the River Okement catchment produced acid water metalliferous run-off which killed an estimated 100,000 salmonids over 9 kms of river. A detailed study of the problem is underway.

FLOOD DEFENCE

Key Achievements

Despite the inevitable disruption caused by the creation of NRA SW, compounded by the problems caused by one of the worst winters for many years, the Department performed well. It provided an effective flood forecasting and warning service, reacted to the emergencies, undertook the necessary remedial work and repairs where appropriate and managed to complete the majority of the planned capital and maintenance works.

Fluvial/Tidal Flooding

The period April to August 1989 was noted for the very low rainfall figures, leading to rivers falling by early September to levels last experienced during the 1976 drought.

Heavy rainfall during late September and October saw a return to more normal conditions, including some reports of localised flooding. On 16 December 1989 the combination of high tides, severe gales and surges resulted in extensive tidal flooding with the south coast being the worst affected. The Meteorological Office estimated the return periods of the tide levels as high as 50 years at Newlyn and, in addition, windspeeds were recorded with an estimated return period of up to 200 years. Incidents of tidal flooding and storm damage were reported along the region's entire south coast and, in particular, serious flooding was reported at Seaton (Devon), Sidmouth, Teignmouth, Salcombe, Kingsbridge, Plymouth, Saltash, East and West Looe, Polperro, Pentewan, Truro, Porthleven, Marazion, Long Rock, Penzance and Newlyn. At Porthleven, spectacular seas breached the harbour defences and 20 -30 properties were damaged by rocks and spray thrown up by the severe wave action.

During the morning and afternoon of 20 December 1989 a band of intense rainfall passed across the southern part of Devon. Rainfall of between 25 - 40 mm were experienced in a relatively short period of 1 - 2 hours in a band stretching from the South Hams through to east Devon, with north Devon and Cornwall being relatively unaffected. Because of the intensity of the rainfall, extensive flooding was suffered mainly from minor watercourses, with the main river system being less affected. Significant flooding was suffered at Chard Junction, Sidmouth, Sidford, Sidbury, Ottery St Mary, Otterton, Tipton St John, Gittisham, Newton Poppleford, Lympstone and Kingsteignton.

Very high tides with severe surges were again experienced on 26 and 28 February 1990, this time the major effects being felt on the north coast of Devon and Cornwall. Extensive property flooding was suffered principally in those towns bordering the Estuary of the Rivers Taw and Torridge, with Bideford, Appledore, Instow and Weare Gifford being most affected. Further along the coast, at Ilfracombe, part of an existing sea wall collapsed in the harbour area causing some property flooding and damage to the Wilder Beach sea wall. Damage was also caused to a sea wall protecting a highway at Lynmouth.

As well as the more notable events, rainfall during the winter period was well in excess of average causing less severe flooding on a number of other occasions. The gales throughout the period severely added to the problems with many fallen trees, some very large, blocking main rivers with a lot more located beyond the limit of 'main' river ready to be swept downstream by subsequent high flows.

At many locations, completed flood alleviation and sea defence schemes have been tested up to design conditions. In all cases, the defences have functioned well and had it not been for these defences several thousand people throughout the region would have been flooded. At most of the locations where flooding was suffered, schemes are included within the forward capital programme which will provide protection in due course.

Emergency Works

This has been the most severe winter for creating emergency conditions for many years. The Flood Warning Office has had to be manned for a considerable period outside normal office hours during the period December to February. The in-house workforce has been required to work long hours in arduous and difficult conditions, assisting in the alleviation of flood damage and in remedial works.

Expenditure to deal with the winter's emergencies amounted to approximately £200,000, with over half of the total required for repairs to a blockstone revetment protecting the village of Beesands on the south Devon coast. The in-house workforce carried out emergency repairs to the revetment which involved, in addition to rebuilding of the existing blockstone, the importing of a further 6,000 tonnes to stabilise the revetment in areas where the beach levels had fallen by as much as 3 metres.

Even though a large number of fallen trees have been removed from the rivers, there is back-log of works that will take the specialist teams until September 1990 to clear.

Emergency work was also carried out in Ilfracombe by the in-house workforce to the collapsed wall in the inner harbour, and repairs to the Wilder Beach sea wall were undertaken by North Devon District Council. Devon County Council carried out the repairs to the sea wall at Lynmouth.

Capital Schemes

During the summer, works were completed on flood alleviation schemes at Buckfastleigh, the Westcombe Stream at Bideford and on the major tidal defence scheme at Padstow. The scheme at Padstow was put into use to prevent flooding from both the December 1989 and February 1990 tidal events. In August 1989, work commenced on the flood alleviation scheme on the River Kenwyn at Truro. This complex scheme was brought into the capital programme at short notice following the extensive flooding of Truro in January and November 1988 and it has been a considerable achievement to commence work within this relatively short period of time.

Post vesting, work has commenced on major tidal defence schemes at Bideford and Wadebridge. Both of these schemes are estimated to cost in excess of £4M and will take several years to complete.

Technical Developments

The flood warning system makes extensive use of weather radar for the detection of approaching precipitation. In a consortium with Wessex and Welsh regions, Devon County Council and the Meteorological Office, the region is promoting a further weather radar site in the mid Devon area to improve coverage over the eastern part of our region. Discussions have been held with the Planning Officer and it is hoped that a suitable site will shortly be identified. Once constructed, quantitative information from weather radar will be available for the whole of the region for input into flood modelling programmes to improve the accuracy and timeliness of flood predictions.

FISHERIES

Key Achievements

Camel Rehabilitation Programme

A three year rehabilitation programme for the River Camel was instigated, following the Lowermoor pollution in June 1988. Measures include; compensating netmen for ceasing to take fish, the introduction of voluntary bag limits for rod fishing, reductions in the rod season, the setting up of sanctuary areas, the construction of new fish passes and improvements to spawning and nursery areas.

1989 Drought

The South West was affected by a serious drought which involved staff in considerable additional work. Fisheries staff dealt with 37 Drought Order applications by South West Water and attended 8 hearings.

Fisheries Surveys

Seven major fishery surveys were completed on the Rivers Camel, Tavy, Plym, Torridge, Okement, Taw and Culm. Additional minor surveys were undertaken on the Erme, Yealm and Torridge following fish mortalities.

Salmon Pool Fishery - River Exe

The region purchased the sole and several netting rights at Salmon Pool on the River Exe, a fishery that has been in existence for seven hundred years. The netting station situated at the head of tide will no longer be fished allowing some five hundred additional salmon annually the run the river, substantially increasing the spawning stock.

Taw and Torridge Rehabilitation Programme

Agreement has been reached with riparian owners and the Taw and Torridge Netsmen's Associations on a package of measures designed to rehabilitate the Torridge salmon stocks. The measures will include controls on rod and net catches, habitat improvement, restocking, additional enforcement measures and efforts to improve water quality.

Tamar Closure Byelaw

In March, a new byelaw received Ministerial approval restricting netting activities in the estuaries of the Tamar, Tavy, Lynher, Plym and Yealm. The byelaw, advertised by Devon Sea Fisheries Committee at the request of the NRA, represents the culmination of three years of work by NRA staff to protect game fish in the joint estuaries.

Completed Projects

Hartley Fish Pass/Trap

A major reconstruction of the fish pass and trapping arrangements was completed at Hartley Weir on the River Lyd; a tributary of the River Tamar. This is the main trapping site for adult salmon required in connection with the region's rehabilitation and mitigation rearing programme.

Camelford Fish Pass

In connection with the Camel rehabilitation programme, a new Denil fish pass was installed at Camelford Weir and work was undertaken upstream to improve spawning gravel and nursery areas.

Major Incidents - Events

In August, 200 salmon and sea trout were lost in the Tamar estuary as a result of asphyxiation caused by high suspended solids, high spring tides and low freshwater flows during the drought period.

The drought reduced river flows to such an extent that fish migrations virtually ceased, nursery areas dried out and spawning gravels became compacted. The overall effects of the drought will not be fully known until after the survey programme planned for 1990.

During the November/December period 39 fixed nets, set to take late running salmon, were seized in the approaches to the estuary of the River Plym.

Initiatives

Bass Nursery Areas

In negotiation with MAFF, bass nursery areas will be established in the majority of estuaries in Devon and Cornwall. The region will be responsible for enforcing these measures in Cornish and north Devon estuaries, where the NRA is the Sea Fisheries Authority. Associated legislation, introduced on 1 January, with regard to minimum mesh and landing size will also be enforced by the region.

River Plym Rehabilitation Scheme

Following a period of declining salmon catches and reductions in juvenile salmon production in the River Plym, a project has been started to rehabilitate the stocks by fish pass improvements, limited artificial propagation and increased enforcement effort.

New Byelaws

Closure byelaws are to be advertised for estuaries in the Camel and Fowey fishery districts, salmon fishing seasons changed and byelaws controlling eel fishing introduced.

CONSERVATION

The new position of Conservation Officer was filled at the end of September.

Conservation activities have so far been limited to those of determining the terms of reference of the post and establishing a conservation input into all the relevant functions of the Authority.

Areas of work include :-

- Establishing a biological/conservation data-base for the region.
- Regional and national consultation on the NRA's conservation role.
- Review and modification of the consultation procedures to ensure implementation of the Code of Practice.
- Participation in the production of national and regional policy statements, procedures and methods relating to conservation practices.
- Implementation of conservation protection and enhancement measures relating to:-
 - Capital works
 - Abstractions
 - Discharges
 - Planning consultations
- Planning regional biological surveys.

RECREATION

The region has extensive natural waters and a number of reservoirs, managed by SWWS, which cater for a wide range of recreational pursuits. The NRA owns, or leases, a number of rod fisheries and other land and water holdings largely associated with flood defence schemes in the region.

Work has started on the production of a regional strategy to identify present and potential recreational use for land and waters under the control of the NRA to be reported by September 1990.

CROSS FUNCTIONAL AND SUPPORT SERVICES REVIEWS

Administration

Objectives achieved include :-

- The major task of setting up a Support Service Unit. Staff were recruited and the services provided include a central registry, library, typing, secretarial, administrative support including reception, and building facilities management.
- Several office moves have been planned and implemented including the occupation of an extension to the Region's Headquarters.
- A telephone system has been installed linking the Region's Headquarters to the Western Area office in Bodmin.
- The first phase of the introduction of a new central filing system has been completed.

Legal Services

The Legal Section has provided advice and assistance to colleagues and public alike on the provisions of the Water Act 1989, particularly in relation to abstractions and discharges. With the increasing emphasis on the prosecution of offenders for pollution, the section has been active with the increased court work involved. Formal training on evidential requirements by the legal staff is now in progress for wardens and inspectors. The levels of fines imposed continue to show considerable variation throughout the region.

Estates Management

Work proceeds on the region's capital works programme which includes the Truro Flood Alleviation Scheme, where properties have been purchased in advance of major construction work on the flood control system on the River Kenwyn upstream of the city. There is also considerable activity in connection with the Bideford Tidal Defence Scheme.

Public and Media Relations

The Region got off to an excellent start with successful press conferences held in Exeter and Bodmin on vesting day. The regional brochure was sent to numerous organisations with an introductory letter underlining our willingness to come and meet or give presentations to their representatives or members. Many subsequently took up this offer.

Throughout the year, the Public Relations Section has given pollution work a high profile and has co-ordinated extensive media coverage of our anti-pollution image. Extensive TV, radio and press interest - including nationals - was given to the Madford River pollution in July. A farm pollution in north Devon drew sizeable interest in December as it coincided with the start of a crackdown on farmers still illegally discharging despite repeated warnings.

From September through to December there was high media coverage of the blue-green algae phenomenon and 18 press releases were issued during the year on the topic.

The official opening of the Camelford fish pass in November was used to publicise the NRA's comprehensive River Camel recovery programme. There was widespread interest and the story was lead item on local television.

Flooding was the major media issue in December, January and February and the Section dealt with numerous media enquiries about the weather and used every opportunity to promote the work of the flood warning office and our schemes.

A number of positive press releases have been issued to maintain the good public profile the NRA is enjoying. These include the commissioning of a report on the 1989 drought, the launch of a project to boost salmon in the River Plym, the start date for the construction of the new laboratory in Exeter, the appointment of a new team to police over-abstraction and the launch of a waste tip study.

The region's participation in Spring Clean Day in March, when Engineering staff cleared rubbish from six rivers, was promoted.

The NRA's input to the Forum Feeds/Dairy Farmer 'Safer Silage' competition has been co-ordinated by the Section.

Since vesting day the Section has issued 74 press releases, answered more than 600 media enquiries, arranged 93 media interviews and overseen 66 talks/exhibitions.

The Section has published six regional news-sheets during the year, leaflets on sheep dip and silage, a regional booklet and a regional leaflet for mass distribution.

The year culminated in the major press conference held during Lord Crickhowell's visit to Manley House for the official opening of the new wing. The press conference was a great success, with widespread media interest. Two television stations, two radio stations and several newspaper reporters attended and the announcement of the first national survey of sea defences was well covered.

Planning

Corporate Planning

The evolution of the corporate planning process involved the setting up of a Corporate Planning Group, with representatives from all departments, under the chairmanship of the Finance Manager. In October a Corporate Planning and Technical Officer was appointed to carry out the day to day preparations. Input has been made to the Corporate Plan and Regional Summaries, and arrangements made for the dissemination of information relating to the implementation of the Plan.

Emergency Planning

The emergency procedures inherited from South West Water have been reviewed by a small working group. The necessary changes to reflect the independence of the NRA and the establishment of the 24-hour communications centre now operational at Manley House have been made.

Town and Country Planning

A Planning Liaison Unit was set up under the Support Services Manager to monitor all planning applications in the region (approximately 29,000 per annum), of which some 16% were required for detailed functional referral. The unit also responded to resulting appeals and attended appropriate site meetings and public enquiries. Comments have also been made on the first alterations to county structure plans and specific advice on district councils' local plans has been given.

Research and Development

During the year staff have taken part in research projects as topic or project leaders. Working through the functional groups it is intended to determine priorities for research, and to provide resources in those areas particularly important to this region.

Information Systems

In the early days of the organisation, South West Water provided all computing facilities on their ICL and DEC computers.

A strategic decision was made for the region to acquire its own independent computer capability. This facility meant that core activities could be processed in-house with a reduction in the potential cost of the SWWS bureau service.

The set up of this equipment took the form of providing comprehensive and better integrated end-user facilities and a rapid growth in the installation of terminals, printers and personal computers within the new offices and depots. Financial and technical modelling facilities were also established and preparatory work related to the new joint South West/Wessex laboratory was begun.

Local initiatives included work on the Farm Survey Campaign, Integrated Payroll and Personnel, Electronic Office, Abstraction Billing and Laboratory Information Systems, whilst work was carried out on a national programme for Discharge Billing where the region is responsible for defining the functional and data requirements models.

Personnel

More than 80 staff were recruited during 1989/90. This has required considerable effort and planning to begin the training and development of these new employees, in addition to retraining many existing staff who have been appointed to new posts.

A highlight has been the involvement of staff in a Regional Staff Council. Relations have been good and a constructive attitude on both sides has led to the resolution of a number of issues relating to staff appointments and accommodation.

Since his appointment, the Safety Adviser has been heavily involved in ensuring that the region complies with Health and Safety legislation, in particular the requirements relating to the Control of Substances Hazardous to Health. Regular checks have been carried out and reports issued.

Meetings of all staff have been held to mark the launch of the Authority and to build contact between the manual and office staff. It is intended that this process will be continued in future years as a means of improving staff awareness of the issues facing the Authority.

Finance

The main activity in the early part of the year was the establishment of a new department necessary for the provision of financial services for the Rivers Unit and, from vesting, the NRA region. This involved the recruitment of staff to perform accounting, payments, payroll, income collection etc functions plus the setting up of new systems and procedures necessary to allow the region to operate independently from South West Water.

The separation involved financial negotiations with staff of the former water authority concerning the transfer of assets and the provision of short term contracts for laboratory and information technology services. This also entailed significant work in finalising the formal Scheme of Transfer and the Funds Flow Statement.

Arrangements for the production of budgetary control information for senior management, committees and spending departments have been implemented plus the continuous provision of financial returns to Head Office including the production of quarterly accounts.

Significant financial input has been provided in the production of the 1990/91 Corporate Plan and has resulted in a detailed regional budget for the coming year plus planned figures for the following three years.

The budget exercise has culminated in the approval of Flood Defence Levies and the level of Abstraction Licence Charges for the coming year.

The implementation of a new combined Payroll and Personnel system operating on the region's own DEC hardware was successfully completed in March 1990.

Regional staff have contributed to national initiatives including Charging for Discharges.

Communications

The need to be independent of the SWW communications network led to a decision to set up a 24-hour communications centre at Manley House. Staff have been appointed and trained and the equipment has been undergoing trials.

In addition to this project, an experiment using mobile telephones was completed. This has proved successful and a number of instruments are being fitted in vehicles.

Transport

The Vehicle and Plant fleet which was inherited has been reviewed and a number of items replaced. Consideration is being given to the option of leasing vehicles.

REGIONAL ADVISORY BOARD

Mr Dennis Mitchell	NRA Board Member with special responsibility for the South West and Chairman of the RAB
Mr Peter Edwards	Chairman - Regional Rivers Advisory Committee
Mrs Anne Voss-Bark	Chairman - Regional Fisheries Advisory Committee
Mr Gerald Manning	Chairman - Regional Flood Defence Committee
Mr Gordon Bielby	Regional General Manager

Regional Rivers Advisory Committee

Mr P D Edwards	Chairman
Mrs A Voss-Bark	Chairman Regional Fisheries Advisory Committee
Mr G C Manning	Chairman Regional Flood Defence Committee
Mr P G Barson	Sports Council
Dr P Beale	Council for the Protection of Rural England
Mr R Bull	Countryside Commission
Mr R J Chappell	South West Riparian Owners Association
Mr A Coulter	Dartmoor National Park
Mr W J Dickens	South West Water
Lt Col W J Elliott	Devon County Council
Mr F R Gomm	Nature Conservancy Council
Mr E J Hughes	National Anglers Council Friends of the Earth Central Council of Physical Recreation
Dr F McAllister	Cornish Chamber of Mines
Mr E J Newton	Confederation of British Industry
Dr M J Pemberton	Confederation of British Industry
Mr J M Philp	Association of Sea Fisheries Committees
Mrs J A Thomson	Cornwall County Council
Mr P D Tuckett	Country Landowners Association
Mr M C Turner	National Farmers Union
Miss C Steel	Royal Society for Nature Conservation

Regional Fisheries Advisory Committee

Mrs A Voss-Bark	Chairman
Mr P D Edwards	Chairman Regional Rivers Advisory Committee
Mr G C Manning	Chairman Regional Flood Defence Committee
Mr B G Wilson	Chairman Western Fisheries Advisory Committee
Lt Col G P Badham	Chairman Eastern Fisheries Advisory Committee
Mr A M Baker	Commercial Fisheries
Lord Clinton	Riparian Owners
Mr S J Day	Devon Sea Fisheries Committee
Miss J M Edwards	Conservation Interests
Prof C R Kennedy	Academic Bodies
Mr H G Maund	NFU Fish Farming
Mr M Mountjoy	Commercial Fisheries
Mr T E F Mutton	Game Angling
Mr J Stevens	Cornwall Sea Fisheries Committee
Mr M L Weaver	Westcountry Tourist Board

Regional Flood Defence Committee

Mr G C Manning - Chairman	Ministry of Agriculture, Fisheries and Food
Lt Col Sir Arscott Molesworth-St Aubyn, Bt MBE	Ministry of Agriculture, Fisheries and Food
Mr R H Sampson	Ministry of Agriculture, Fisheries and Food
Mr R Stratton	Ministry of Agriculture, Fisheries and Food
Mr P D Edwards	NRA
Mrs A Voss-Bark	NRA
Mr T H E Laity	Cornwall County Council
Mr H Northcott	Cornwall County Council
Mr H A Bell	Devon County Council
Mr B R Costello	Devon County Council
Mr R K Taylor	Devon County Council
Mr R A Westlake	Devon County Council
Fl Lt B W Wills-Pope	Devon County Council

SENIOR OFFICERS

Gordon Bielby

Clem Davies
 Geoff Bateman
 Stuart Bray
 Malcolm Chudley
 Barry Milford
 Cliff Tubb
 Chris Triner

Graham Bull
 Bob Hatton
 John Woods
 Norman Grundy
 David Western

Mark Walmsley
 Robin Mounsher

David Horwood
 Alec Colton
 Ian Gurr
 David Glenn
 Tony Hill
 Phil Cranch
 Andy Heathwood
 Ken Rowley
 John Wilkie

Quentin Gray
 Mrs Jo Tyler
 Edward Strouts
 Colin Waugh
 Paul Jones
 Martin Weiler

Regional General Manager

Environmental Protection Manager
 Pollution Controller
 Fisheries Controller
 Field Controller
 Water Quality Planner
 Water Resource Planner
 Laboratory Controller

Engineering Manager
 Chief Engineer
 Operations Engineer (Bodmin)
 Operations Engineer (Exeter)
 Principal Engineer (Electronics &
 Communications)
 Transport Officer
 Productivity Services Officer

Finance Manager
 Principal Accountant
 Accountant
 Information Technology Manager
 Systems Controller
 Principal Analyst
 Data and Information Officer
 Treasury Officer
 Corporate Planning and Technical Officer

Secretary and Solicitor
 Support Services Manager
 Solicitor
 Estates Officer
 Personnel Officer
 Public Relations Officer

AUTHORITY PUBLICATIONS AND PUBLICITY MATERIAL

Produced 1 April 1989 - 31 August 1989 (River Unit)

Publications

1. South West Rivers Unit - An Introduction (Booklet)
2. Farmers : Pollution - Together We Can Beat It (Leaflet)
3. Rivers News (Staff Newsletter) 3 issues

Produced 1 September 1989 - 31 March 1990 (NRA)

Publications

1. Guardians of the Water Environment (Regional Brochure)
2. Danger - Sheep Dip Can Kill (Leaflet)
3. Danger - Sheep Dip Can Kill (Poster)
4. Silage Liquor Can Kill (Leaflet)
5. Guardians of the Water Environment (Regional Brochure in Leaflet Form)
6. The Guardians (Staff Newsletter) 3 issues

Videos

1. Farm Pollution - Together We Can Beat It
2. The Water Guardians (Regional Corporate Programme)