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NRA

*National Rivers Authority
Thames Region*

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ANNUAL REVIEW OF FISHERIES

1st April 1990 - 31st March 1991



NRA Thames 183



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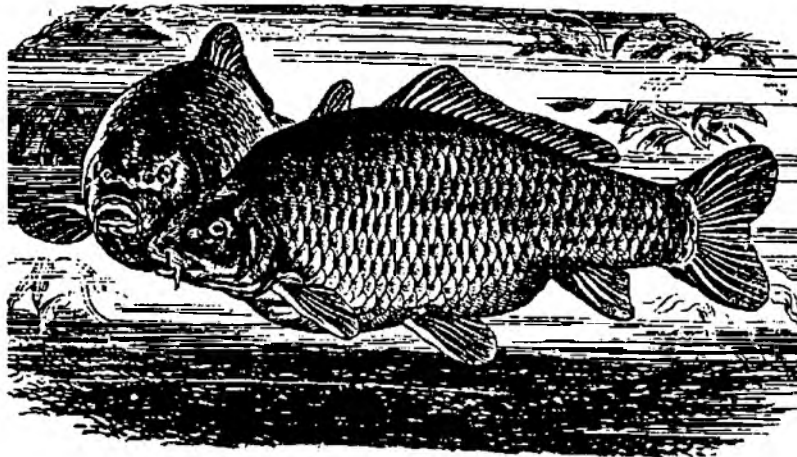
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**NATIONAL RIVERS AUTHORITY
THAMES REGION**

ANNUAL REVIEW OF FISHERIES

1st April 1990 - 31st March 1991



Compiled by A.P.Thomas and N.Buck

**Kings Meadow House
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ENVIRONMENT AGENCY



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1. Introduction

This is the fourth review of the activities of the fisheries section. As expected there are a number of national initiatives: licences, methods of stock assessment, a more coordinated programme of research and development, an overall strategy for fisheries, work on all these has been started, together with a number of lesser matters all intended to ensure that fisheries provides both a value for money service and a consistent outlook on policy and operations throughout England and Wales. These national initiatives have yet to mature, so within the Region there have been no major changes in our operations since the previous year. However, it is likely that in future it will be possible to include a section on achievements against nationally determined targets and levels of service.

The fish farm at Fobney has continued to develop but output was disappointing. Young barbel, dace and chub were all badly affected by low oxygen levels in the hot weather and production at Fobney was only 64% of target, but better results in the cage farm enabled us to record a small overall increase in coarse fish production.

Twelve fishery surveys were completed to the report stage covering 344km of EEC designated fishery compared with coverage of 283km in 1989/90. Reporting of non designated fishery fell from 244km to 169km. The target biomasses were exceeded in 48% of the river length. The failures were due to poor water quality or poor habitat. The section of the Review on surveys shows a complex picture with many surveys extending over more than a year. Next year there will be a drive to speed up the reporting phase, even if this means dividing some of the larger tributaries into sections and reporting them separately.

The numbers of fish available for stocking out from sources other than our own rearing dropped from more than 19 tonnes in the previous year to 11.7 tonnes reflecting a lower yield from rescues carried out. Some of these fish, together with others from the fish farm were used to restock the Rivers Bourne and Roding, following recovery from their pollution problems.

Advisory visits increased again, the bulk of them were to fishery management problems. Another growth area for staff consultation has been planning applications. Fisheries made an input to 756 applications compared with 215 in the previous year. This level of activity is likely to continue and is seen as an important way of avoiding problems rather than having to cure them afterwards. The increase partly underpinned a successful bid for additional staff resources which will be implemented in 1991/2.

The salmon scheme continues to make progress. New fish passes were opened at Sunbury and Chertsey and others are progressing well. The run of salmon was slightly greater than in the previous year, although well short of the best. A start has now been made on the programme for breeding from 'Thames returnee' salmon, and some 135,000 eggs were laid down in our contractors hatchery.

After the fall in bailiffing recorded in the previous year the number of checks on anglers has been increased again. As a result prosecutions have gone up. The great majority of cases are still concerned with licence evasion.

2. The Regional Fisheries Advisory Committee

The Committee met four times during the year with no changes in membership.

At the September meeting increases in Rod Licence duties proposed for April 1991 were submitted. It was noted that the new financial arrangements would mean that unless there was a substantial increase it was unlikely that Treasury funding through grant in aid would be available to fill any remaining shortfall. The consequence would have to be cut in the fisheries service. The proposed increases were eventually approved by a majority decision.

The NRA's Corporate Planning processes and fishery priorities were discussed. The major national priorities, Section 28 orders and licence restructuring, were noted, but not yet ready for general debate. Integrated fisheries enforcement, harmonised close seasons and declining sea trout stocks were primarily issues for the migratory salmonid Regions. The intention to produce a policy on harmonised stock assessment was noted, but the main priority for the Thames Region was considered to be the thorough completion of the rolling five year survey programme. The suggested three year cycle should only be considered if additional staff resources were made available. The Committee also advised that work on planning liaison and the fisheries implications of development were a serious issue for the Region which should also be included in the list of priorities.

The Committee reconsidered the question of the sea fisheries powers in the estuary and supported a new initiative to find an accommodation with the views of the Kent and Essex Sea Fisheries Committee on how the powers presently held by the PLA should be reallocated. The Committee eventually agreed to a proposal that a new line should be drawn from Lower Hope Point to Mucking Creek, and that the NRA should seek only to exercise sea fisheries powers above this. This was agreed by Kent and Essex Sea Fisheries Committee, and a joint approach was being made to the Ministry of Agriculture Fisheries and Food to give effect to the proposal.

The Committee considered a number of national issues, including the research and development programme. This created some concern at a lack of research on the relationship between water quality and fishery quality.

The Committee received at each meeting the quarterly reports on the quality of water and effluents which were also considered by the Rivers Advisory Committee, but supplemented with an appraisal of the fisheries implications. They also received reports on the use of biological monitoring and the use of various chemical criteria to assess chemical quality. Concern was expressed over the current quality objectives particularly for the River Mole. The Committee were assured that they would be consulted when the new statutory Water Quality Objectives were introduced. These reports on water quality and related matters were welcomed as a means of keeping in touch with one of the main influences of the Region's fisheries.

The Committee received regular reports on the progress of salmon rehabilitation work and expressed satisfaction at the eventual total of 154 salmon recorded for the year.

A number of local issues were discussed. The Committee approved the proposed changes in the detailed management of flows in the River Wey. It was hoped that these would satisfactorily resolve more than twenty years of difficulties for fisheries. The proposal to encourage otters to repopulate the Wey system gave rise to some concern, but members wished to await developments. The effects of the late summer drought and low flows were

reported and the Committee supported steps to ensure that as far as possible water was wisely used.

The policy of the NRA towards environmental impact assessment and conservation issues in development were explained, and at each meeting the Committee was informed of the major new development proposals affecting fisheries.

3. Financial Performance

Overall there was a deficit of £ 376,000. This was broadly in line with the expectations of the third year in which licence prices had been held at £ 7.50. There were two main deviations from the original budget; increased income and greater capital expenditure, which largely counter-balanced each other.

Rod licence sales were apparently not affected by the transfer of the Darent and Cray to Southern Region. Second licences showed a further increase in popularity to nearly a 40% take-up by adult anglers.

Capital expenditure was substantially increased because of changes in the accounting system which allowed for the direct identification of internal charges to capital schemes.

The original and final budget are given in Table 1 below.

Table 1. Fisheries - Final Out Turn Compared With Budget 1990-91

	Budget (£000)	Actual (£000)
Income:		
Rod licence sales	960	1070
Other	25	16
Total Income	985	1086
Expenditure:		
Operating costs	1044	1021
Head Office costs	63	55
Capital expenditure	217	386
Total expenditure	1324	1462
Surplus (deficit)	(339)	(376)

4 Review of Operational Fisheries Work

The operational fisheries work carried out by the NRA can be broadly grouped under four headings:-

- Fishery Management
- Fishery Surveys
- Advisory Work
- Response To Emergencies

4.1 Fishery Management

This section details the practical management work undertaken by the NRA Fisheries Department in the Thames Region. These activities come under the heading of Fisheries Management and includes stocking, coarse fish removal and obtaining fish samples for health assessment, disease investigations or the presence of toxins.

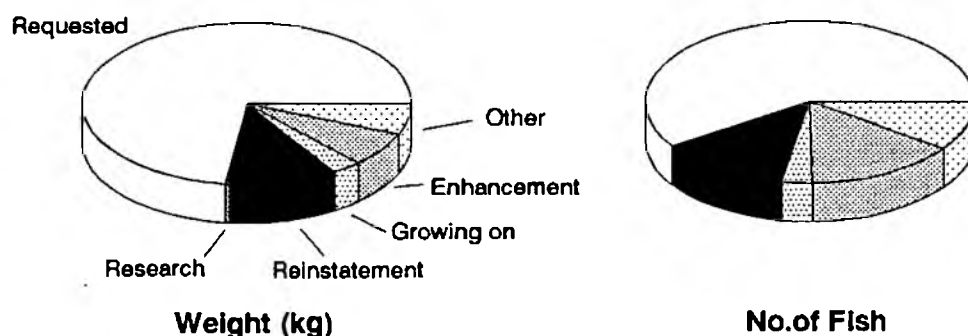
4.1.1 Stocking

All fish stocked out by the Fisheries Department in 1990/91 are summarised in Table 2 and are compared with the previous year's introductions. Each record is categorised into 'reasons for stocking' which fall into five groups as listed below. This excludes all introductions for the Salmon Rehabilitation Scheme which is covered in Section 6 of the Report. A full breakdown of all the Authority's fish stocking activities is provided in Appendix 3.

Table 2. Reasons for Stocking

Reason for Stocking	Weight (kg)			No. of Fish		
	89-90	90-91	%	89-90	90-91	%
Request	13755	8546	72.5	145443	120535	61.0
Research	114	46	0.5	2200	250	0.5
Reinstatement	3301	1260	11.0	58916	26499	13.5
Growing on	1143	340	3.0	8928	6037	3.0
Enhancement	1031	806	7.0	18144	24355	12.0
Other	0	739	6.0	0	20063	10.0
Total	19344	11737		233631	197739	

Figure 1 - Reasons for Stocking



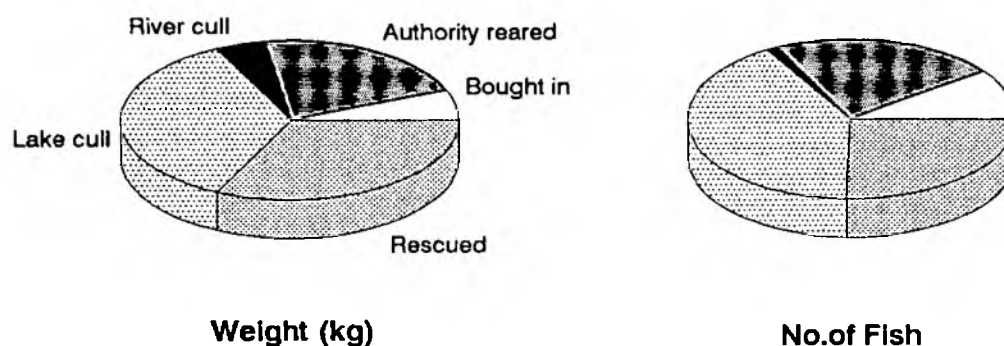
- Requests:** Applications from angling clubs and riparian owners, for stock. The applications are judged on merit, and if justified, free stock is provided if available.
- Research:** Stocking undertaken as part of a specific investigation, e.g. fish movements.
- Reinstatement:** Stocking undertaken after a fishery has suffered a mortality.
- Growing On:** Fish stocked to ponds in which the Authority has an interest. The fish can be retrieved and used at a later date.
- Enhancement:** Stocking undertaken to improve an existing fishery.

Details concerning the source of the stocked fish are provided in Table 3.

Table 3. Source of Stocked Fish

Source of Stocked Fish	Weight (kg)			No. of Fish		
	89-90	90-91	%	89-90	90-91	%
Fish Rescue	9524	3779	32.0	89391	50349	26.0
Lake Cull	6436	4166	36.0	82676	81397	41.0
Authority reared	1538	2507	21.0	42620	43828	22.0
River Cull	1263	575	5.0	12291	2205	1.0
Bought	309	710	6.0	4348	19960	10.0
Other	274	0	0	2305	0	0
Total	19344	11737	-	233631	197739	-

Figure 2 - Source of Stocked Fish



This year has seen a considerable reduction in the weight and number of fish stocked by the Authority. Despite the slight increase in the number of fish rescues undertaken fewer fish were available for restocking with 3.7 tonnes relocated compared with 9.5 tonnes the previous year. Numbers of fish obtained from culling operations were also reduced, reflecting the Authority's lower priority for this type of work. The 4.7 tonnes of fish removed and restocked from lakes and rivers for fishery management purposes was 63% down on last year's figures. However the 2.5 tonnes of fish reared by the Authority made up 21% of the total weight stocked out, which is a 66% increase on last year's production.

As in previous years the main reason for stocking was requests by angling clubs with 8.5 tonnes (120535 fish). This represented 72% by weight and 61% by number of all fish introductions.

The reinstatement of rivers following major pollution incidents has always been a priority. Restocking sections of the River Bourne badly hit by a spillage of wood preservative in 1989 have now started, 4000 dace, 3300 chub and 420 brown trout, all reared by the Authority, were introduced into various sections of the river. In June the River Roding received 16000 chub and dace from Severn Trent Region's Calverton Fish Farm. These fish will help to replace those lost during a major pollution in 1989.

Of the culling operations undertaken one of the largest was again at Coate Water near Swindon. In a two day operation the nature reserve was netted, with good quality carp and pike transferred to the main lake. Approximately 20000 bream (over 1 tonne) were stocked to various other waters. The River Thame received 750kg of bream at Wheatley, Thame and Nether Winchendon. The Aylesbury arm of the Grand Union Canal received a further 130 kg of these Coate Water bream.

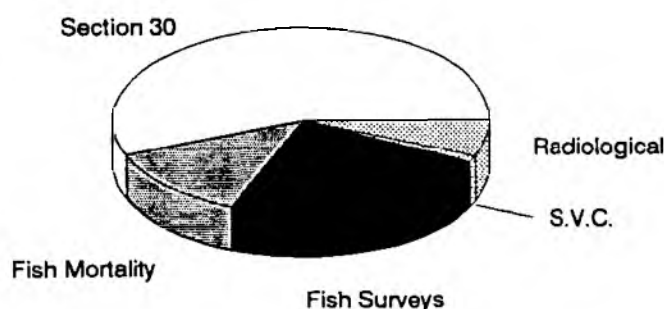
4.1.2 Health Assessment

A summary of NRA Thames Region's reasons for taking health samples is provided in Table 4.

Table 4. Reasons for Taking Health Samples

Reasons for Health Samples	No. of Samples	%
Section 30	52	56
Fish Mortality	12	13
Fish Survey	22	24
S.V.C.	1	1
Radiological	6	6
Total	93	

Figure 3 - Reasons for Taking Health Samples



Section 30	Angling clubs or individuals intending to stock fish into waters in the NRA Thames Region, need to satisfy the Authority that the fish are not carrying any serious disease before consent is given, under Section 30 of the Salmon and Freshwater Fisheries Act.
Fish Mortality	Samples taken where there has been a serious fish mortality.
Fish Survey	Samples taken in association with the Authority's programme of Riverine and Stillwater surveys.
S.V.C.	Samples taken on behalf of MAFF to test for the incidence of Spring Viraemia of Carp (this year the effort was directed towards re-testing previously notified S.V.C. waters).
Radiological	Samples taken for the MAFF radiological testing programme.
Other	Two samples taken in connection with the solvent contamination of a stillwater and a bacterial/viral sample sent to MAFF for their assessment.

A total of 93 fish samples were taken, a reduction of 19% on the previous year. Routine health checks prior to relocating stock, together with samples taken during survey, work made up 74% of the total. A reduction in the number of post-mortem following fish mortalities (13%) and only one sample taken for S.V.C. screening. The main reasons for the overall reduction in the number of fish samples collected were a reduction in post-mortem examinations and only one sample for SVC screening compared with 11 in the previous year.

4.2 Fishery Surveys

Riverine fishery surveys can be divided into the programmed riverine surveys (part of the five year programme), and additional riverine surveys undertaken because of specific or potential problems. Examples of the latter would include post pollution surveys, relaxation of consents at sewage treatment works, or a baseline examination prior to a major river engineering scheme. A number of stillwater surveys are also carried out each year.

4.2.1 Programmed and Additional River Surveys

Data collected from riverine surveys is depicted in Table 5. The EEC Directive 78/659, instructed all member states to designate water courses capable of supporting salmonid (game) and cyprinid (coarse) fisheries. In the Thames region there are 1526 km of EEC designated river (1039.6 km cyprinid, and 486.4 km salmonid). These watercourses are required to comply with stipulated water quality parameters in order to protect fish life. The NRA Thames Region still uses the informal standards of service set by Thames Water for EEC designated fisheries. These are 20gm⁻² for cyprinid waters and 15gm⁻² for salmonid waters. An additional target is for 80% of EEC designated watercourses to comply with the relevant biomass figures. The importance of surveying non-designated waters is also recognised, many of these waters provide excellent fisheries, although these are not within the original formal survey programme.

The river survey programme provides biological monitoring to identify depressed fish populations which may result from factors such as poor water quality, land drainage operations, low flows, pollution incidents or impoverished habitats. The surveys also provide important baseline data which enables both short and long term changes to be assessed.

Following completion of survey reports, issues highlighted in the recommendations can be used to prioritise resources to effect improvements. Poor habitat associated with past over zealous land drainage practices and unstable substrate are problems frequently identified when depressed fish populations are found. Habitat enhancement schemes are planned for several rivers in the Thames Region.

The details of the programmed and additional riverine surveys undertaken are presented in Table 5 and a summary of the results is provided in Table 6.

Table 5. Programmed River Surveys 1990/91

Watercourse	Survey Length (km)	EC Designated (km)	Non EC (km)	No. of Sites	No. of EC Sites	Status
River Coln	27.6	20.3	7.3	8	6	Fieldwork Incomplete
River Thame	76.8	46.	30.8	20	13	Fieldwork Incomplete
River Loddon	45.2	39.8	5.4	12	10	Fieldwork Incomplete
River Blackwater	35.6	7.1	28.5	12	4	Report being Compiled
River Lyde	8.7	5.8	2.9	4	3	Fieldwork Incomplete
River Stort	39.4	28.0	11.4	20	8	Report being Compiled
River Rom, Beam & Ingrebourne	38.6	0.0	38.6	7	0	Report being compiled
River Hart	19.5	11.8	7.7	4	3	Fieldwork Incomplete
TOTAL	261.4	158.8	132.6	87	47	

Surveys Carried Over From Previous Years and Complete

Watercourse	Survey Length (km)	EC Designated (km)	Non EC (km)	No. of Sites	No. of EC Sites	Compliance with Target Biomass (%)
River Kennet system	163.0	135.0	28.0	50	36	78
River Wandle	16.9	7.4	9.5	7	4	0
River Cherwell	93.9	52.1	41.8	15	7	57
River Coln	57.6	38.7	12.9	5	4	100
Cripsey Brook	16.7	6.8	9.9	5	4	50
River Ray(Wilts)	12.0	7.8	13.1	4	2	50
Shill Brook	12.4	0.0	12.4	3	0	N/A
River Windrush - derogated STWs	18.0	59.2	14.1	4	4	0
Oxford Canal	10.0	37.4	0.0	2	2	50
River Ray(Oxon)	27.9	0.0	27.9	8	0	N/A
TOTAL	428.4	344.4	169.6	103	63	48

Uncompleted Surveys Carried Over From The Previous Year

Watercourse	Survey Length (km)	EC Designated (km)	Non EC (km)	No. of Sites	No. of EC Sites	Status
River Wye	15.7	0.0	15.7	4	0	Report Being Compiled
Lower Wey & Navigation	15.0	15.0	0.0	10	10	Report Being Compiled
River Bourne	43.0	6.5	14.5	12	2	Report Being Compiled
River Mole	48.5	22.3	26.2	7	3	Report Under Review
TOTAL	122.2	43.8	56.4	29	15	

Additional Surveys 1990/91

Cotswold Monitoring (Low Flows Key Sites)

Watercourse	Survey Length (km)	EC Designated (km)	Non EC (km)	No. of Sites	No. of EC Sites	Status
River Coln	10.0	10.0	0.0	3	3	Report Being Compiled
R Churn	10.0	10.0	0.0	4	4	Report Being Compiled
Ampney Brook	12.6	0.0	12.6	6	0	Report Being Compiled
TOTAL	32.6	20.0	32.6	13	7	

Special Survey Catchment Plan

Marsh Dykes (inc 6 stillwaters)	17.8	0.0	17.8	7	0	Report complete
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Proposed Culverting

Ock Stream	1.0	0.0	1.0	1	0	Report complete
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During 1990/91 11 programmed and additional surveys were undertaken. Of these, 6 still have fieldwork to complete, 3 are under review or being compiled and 2 have been reported. Of the 14 surveys carried over from previous years, 10 have been reported and 4 are under review or still being compiled.

The reported surveys cover 344.4km of EEC designated river. Fieldwork is complete and reports are being compiled/reviewed on a further 98.9km of EC designated fisheries and 108.9km of non-designated river.

The completed surveys showed that 48% of designated fisheries achieved their target biomass. This is an improvement on the previous year's 26% but still falls short of the NRA Thames Region target of 80%.

The reasons for the failures are detailed below:-

River Kennet	Poor habitat/low flows
River Wandle	Urban run-off/poor habitat
River Ray(Wilts)	Poor water quality
River Windrush	Poor habitat/turbidity
Oxford Canal	Poor water quality/previous mortalities
River Cherwell	Poor water quality/abstraction

Table 6. Summary of Programmed Surveys 1990/1991

Stage of Survey	EC Designated Fisheries	Non-Designated Fisheries
	Length Surveyed (Km)	
Reported Surveys		
1990/91	0.0	0.0
1989/90 (Carried Over)	111.2	92.2
1988/89 (Carried Over)	233.2	77.4
Total	344.4	169.6
Surveys Being Compiled/Received		
1990/91	35.1	39.9
1989/90 (Carried Over)	43.8	56.4
Total	78.9	96.3
Surveys With Fieldwork Incomplete		
1990/91	123.7	54.1
TOTAL 1990/91	547.0	320.0

4.2.2 Stillwater Surveys

In addition to the riverine survey work on a number of stillwater surveys are usually carried out each year. These surveys are often at the request of angling clubs to assess the population structure and health status of their stocks and to provide them with baseline data. Fishery management recommendations are usually included to help formulate a future management policy. As these surveys are considered to be of a low priority they can only be scheduled around the programmed riverine work, therefore only a limited number can be tackled each year.

Stillwater surveys carried out in 1990/91 included Moor Lane Lake, Burgess Park Lake, Gatton Park Lake, Buckhurst Park Lake, and Silvermere Lake.

4.3 Advisory Work

The various types of advisory work undertaken by the Fisheries Department form a major part of its role in maintaining, improving and developing fisheries. Any member of the public can freely seek advice and many queries or potential problems can be answered by a simple telephone call. If the Fisheries Officer decides that a site meeting or visit is required then any riparian owner or tenant can receive one visit free of charge. Angling clubs can also receive a free advisory visit. This Region has an internal standard of service of a 28 day response time to such requests.

Apart from the external advisory work the Fisheries staff uses its expertise to help other departments to fulfil their duties to protect or enhance the fishery. Typically this could involve a site meeting with the Flood Defence and Conservation Departments before a dredging operation is contemplated, thus ensuring that important features such as useful spawning habitats are preserved, and in many cases new ones created.

Another very important advisory role is that of planning liaison. It is only in the last two years that the Fisheries Department has been fully included in the planning process and has the opportunity to comment on any proposed development in the area that could adversely affect fisheries.

4.3.1 External Advisory Work

A full breakdown of the various topics covered in the 282 visits and meetings carried out is listed in Table 7, and the areas of advice are presented in Figure 4. All of these visits were carried out within the 28 day response time which is the internally set standard of service.

Figure 4 - External Advisory Work, Areas of Advice

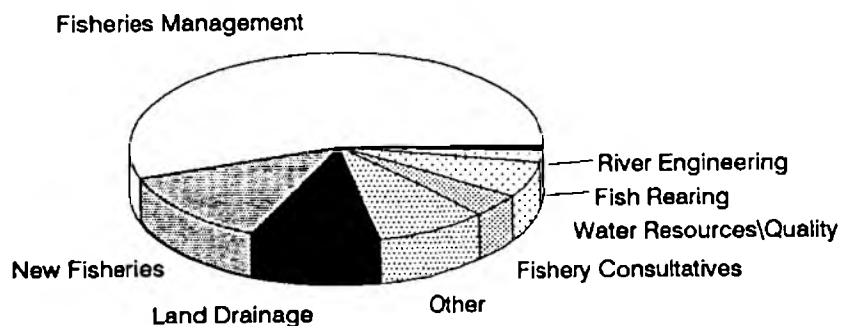


Table 7. External Advisory Work

General Headings	Areas of Advice	No. of Visits	%
Fisheries Management	Stocking/Culling Fishery Surveys Fish Health Weed Control Habitat Enhancement	159	55
Land Drainage	Fishery Protection Measures Remedial Works Habitat Enhancement	28	10
Creation of New Fisheries	Fishery Design Legal Requirements Stocking Water Quality	34	13
Other	Angling Club Meetings/Talks Equipment Demos, Exhibitions, Etc	25	9
Fishery Consultatives	Meetings To Discuss Fishery Matters In Consultative Region	12	4
Water Resource	Abstraction Low Levels Low Flows	11	4
Water Quality	Effects Of Poor Water Quality Pollution Algal Blooms	7	2
River Engineering	Re-Routing Rivers Pipeline Laying etc	2	1
Fish Rearing	Setting Up Fish Farms Growing-On Ponds	4	2
TOTAL		282	100

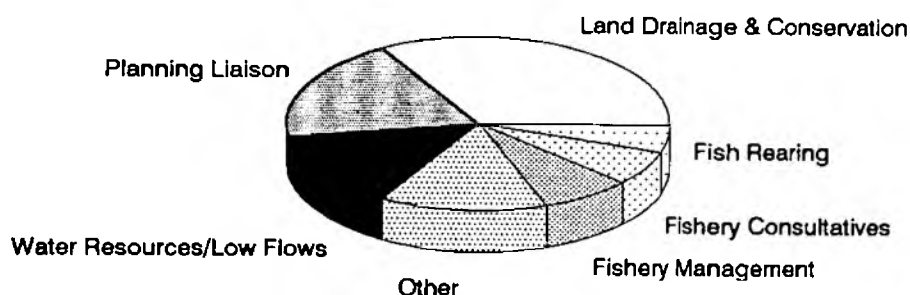
4.3.2 Internal Advisory Work

During 1990/91 172 visits/meetings were attended by the Department to advise other functions on fishery related matters. A breakdown of the various categories and numbers of visits/meetings undertaken is shown in Table 8 and Figure 5.

Table 8. Internal Advisory Work

Areas of Advice	No. of Visits/ Meetings	%
Land Drainage and Conservation	48	29
Planning Liaison	26	15
Water Resources/Low flows	19	11
Other (computing/ hydroacoustics etc.)	19	11
Fishery Management	10	6
Fishery Consultatives	9	5
Fish Rearing	7	4
TOTAL	172	

Figure 5 - Internal Advisory Work, Areas of Advice



One instance of the Fishery Department's liaison with other functions has resulted in a radical change to a 1200m section of the River Blackwater. A chance to experiment with new techniques came when dredging was planned for the Eversley Reach. After consulting with Fishery staff, NRA Engineers set about transforming the river which had suffered from old style land drainage practices. The wide featureless channel, which during the summer months was heavily choked with weed, was reprofiled to form a sinuous central channel, recreating the original shape of the river. Deeper pools and riffles were created improving water quality and providing spawning habitats. It is now three years since the project began and a recent survey of the section revealed an excellent fish population of eight different species.

4.3.3 Planning Liaison

In the 1990/91 reporting year the Fisheries Department received 756 planning applications. The NRA has a duty to maintain, improve and develop fisheries. One of the ways in which it exercises this duty is by providing advice to our Planning Liaison Department, Councils and Developers about the impact of proposed development on fisheries, under the Town and Country Planning Act (1971).

Fisheries staff take part in discussions of all kinds on planning matters. For example, Fisheries staff had considerable input during planning of the Maidenhead Flood Relief Channel, assessing its impact on fish populations in the Thames as well as the potential for creating a balanced natural environment, including a substantial fishery in the new channel.

Major new roads like the Blackwater Valley Route and the newly completed M40 require considerable input. The opening of the M40 marked the end of a 3 year construction period which provided many problems. The construction included five major crossings. Three crossings over the River Cherwell were completed during 1988 and 1989 with very little environmental input into design to limit damage and identify enhancement opportunities. The problems were due partly to the speed at which the scheme was implemented. The two later crossings had significant environmental input by the Fisheries Department resulting in partial success. Design recommendations were produced including the retention of part of the old channels as backwaters, shelving for aquatic vegetation, transplantation of macrophytes and tree and shrub planting. Some of these have been incorporated into the scheme on both crossings and some further tree planting is understood to be planned in the near future.

4.4 Emergency Works

This section broadly covers the Authority's response to reported fish mortalities and rescue operations. Thames Region has an internally set target of performance which requires an incident to be investigated within the following times:-

0900 - 1300	2 hours
1700 - 0900	2.5 hours

Following reports of dead or dying fish if a water quality problem is suspected as a possible cause then Environmental Quality staff are deployed to investigate. The Fisheries Department's role is to assist them in trying to alleviate the problem and to obtain an estimate of the extent of the mortality. Fish samples are usually obtained for autopsy and angling clubs and riparian owners informed.

Not all emergencies warrant the wholesale removal of fish. Low dissolved oxygen problems associated with pollutions or algal blooms can now be tackled with new equipment available at each of the four operational headquarters. The diesel powered Aire-O2 floating aerators are designed to breath new life into rivers or lakes and can be quickly deployed to any location with vehicular access.

It is expected that these new units will enable Fisheries staff to save many thousands of fish following major pollution incidents where oxygen levels are severely depleted.

As was the previous year 1990/91 was drought year with the long hot summer bringing the usual problems of low water levels/flows, algal blooms and extreme water temperatures.

During such conditions the "first flush" effect caused by sporadic thunder storms can also reduce dissolved oxygen to dangerously low levels, particularly in urban watercourses.

Many hours were also spent monitoring waters that were considered to be in imminent danger of drying up. When the Fisheries Officer decided that there was no alternative but to remove the stocks then a rescue operation was mounted. Often rapid loss of water required immediate action taking priority over planned work. When a pound or a canal is drained for maintenance or a gravel pit dewatered for development or landfill purposes the operation would be classified as a "programmed rescue" and scheduled to fit in with the existing operational timetable.

For practical and safety reasons rescues will only be carried out during the hours of daylight. Furthermore, if the Fisheries Officer in charge decides that the site is too dangerous, the rescue will be abandoned.

4.4.1 Fish Rescues

During the last reporting year 56 rescue operations were mounted, an increase of 5.6% on the previous year. 34 of these rescues were planned and 23 were classified as emergencies which was exactly the same number as the previous year. All emergency operations were attended within the target time.

As was the case last year most of the rescues were as a result of low flows/water levels. The prevailing drought conditions assured that many hours were spent monitoring waters at risk and installing emergency aeration equipment and, as a last resort, removing the stock.

A typical rescue last summer was carried out on two ponds in the grounds of the Royal Horticultural Gardens at Wisley. Extremely low water levels left no option but to remove the 750kg of small carp and safely transfer them to a large gravel pit at nearby Send.

Another type of rescue was carried out at Radley in the Upper Thames area where a gravel pit was being reworked for mineral extraction and water levels were being pumped down for access. Due to the topography of the bed various pockets of water became isolated as water levels dropped. As a result several visits were required to remove fish by electrofishing techniques. Approximately 450kg of fish were rescued and stocked in various other waters. These were mainly tench in the 1-2kg size range with some good quality roach and a number of large pike, including three over 10kg. One further example of rescue work occurred in London's docklands where Canary Wharf was being drained for construction works. Metropolitan Fisheries staff rescued in all approximately 400kg of roach, bream, perch, eels, flounder, sprat, smelt and bass. What set this aside from other rescues was the fact that the team and equipment had to be lowered down more than 50ft by crane to the bottom of the wharf and then avoid thick silt beds to effect the rescue operation.

4.4.2 Mortalities

The number of incidents involving fish mortality recorded by the Authority was down by 33% to 98 compared with the previous year. However, the number of dead fish and total weights were remarkably similar with 102000 fish weighing 7644kg compared to 101000 weighing 7791kg in 1989/90. A breakdown of the cause of mortalities is provided in Table 9 and full details are shown in Appendix 3.

Table 9. Cause of Mortalities

Cause of Mortality	No. of Incidents	%	Weight (kg)	%
Unknown	17	17.4	219.8	2.9
Low D.O.	16	16.4	322.0	4.2
Algal Bloom	15	15.4	1356.5	17.7
Low Water/Flows	10	10.3	151.3	2.0
Toxic Chemical	8	8.4	3478.0	45.5
Sewage Treatment Works	8	8.4	159.5	2.1
Disease	5	5.2	1496.6	19.6
Angling Damage	5	5.2	23.0	0.3
Broken Sewer	4	4.2	17.0	0.2
Overstocking	2	2.1	15.0	0.2
Dewatering	1	1.0	295.0	3.9
Low pH	1	1.0	50.0	0.6
Agricultural Discharge	1	1.0	30.0	0.4
High Temperatures	1	1.0	15.0	0.2
Netting Damage	1	1.0	10.0	0.1
Post Stocking Stress	1	1.0	3.0	0.05
High Suspended Solids	1	1.0	3.0	0.05
Total	98	-	7644.7	-

The total number of fish killed was 102,169

As was the case in the last three reporting years, the largest single category of reported mortalities are of an unknown cause. Unlike previous years however, these mystery fish mortalities only accounted for 3% of the total weight of lost fish compared with 22% the previous year. The prolonged hot, dry weather brought the usual spate of fish kills associated with low dissolved oxygen levels caused by high water temperature, algae and low flows. These categories accounted for approximately 25% of the total weight. One positive aspect of the prevailing dry conditions has been the low number of mortalities associated with agricultural discharge. Last year saw only one reported incident resulting in just 30kg of dead fish. Comparing this figure with the 1445kg of fish lost in 1988/9 is testament to responsible attitudes being adopted by farmers and the vigilance of our Pollution Control colleagues.

Analysis of weight of fish killed shows that 45% died as a result of exposure to a toxic chemical. In April 3 tonnes of mainly bream and roach were lost at Folley's Pit near Sonning. Autopsies indicated liver damage, probably as a result of organophosphate poisoning. In February a burst pipeline carrying aviation fuel resulted in the death of approximately 330kg of roach in the River Stort. A rescue operation was mounted by Thames East fishery staff saving approximately 700 good quality roach which have now been returned to the river.

Carp mortalities have also generated a great deal of interest during this last reporting year. Gravel pits near Farnborough and Denham have lost considerable numbers of large carp following introductions of smaller specimens. Although S.V.C. has been ruled out, an infectious agent appears to have been responsible.

5 Operational Investigations

5.1 Salmon

The investigation of potential means of diverting smolts and other fish from reservoir intake channels, which has been ongoing since 1988, has continued during 1990. The small window of time available for the investigation - during the smolt migration period of April and May - together with the operational difficulties associated with water supply during two drought periods have created difficulties in obtaining sufficient data, of a good enough quality, to make reliable conclusions. For this reason the work will be extended at least into 1991 when it is hoped that some meaningful conclusions can be drawn. Results from trials conducted in 1990 continues to suggest that the bubble and strobe light screens constructed at the Walton intake do reduce entrainment of salmon smolts. The overall efficiency of the technique is still however far from clear. During the periods of these trials, data has also been collated on entrainment of coarse fish - which is generally 0+ and 1+ age groups - and it is intended to analyse this data during 1991.

This work will contribute usefully to a national R&D project, led by Thames Region, which is currently reviewing entrapment of fish into water intakes throughout England and Wales.

5.2 Biosonics

Trials with the dual-beam sonar system, acquired to improve our capabilities of sampling larger waterbodies, have been progressing with successful trials at a variety of different locations. This research has now developed into a national R & D project which is being undertaken through Royal Holloway & Bedford New College by Dr Kubecka, supervised by Dr Duncan.

6 Salmon Scheme

The hot summer and low freshwater flows in 1990 were a repeat of the drought conditions which prevailed in 1989 and once again the run of salmon was much less than would have been expected in more usual conditions. Despite the low flows through the tideway, with drought regulation required early in the year to protect London's water supplies, water quality in the tideway was maintained at a high standard, largely through the extra efforts made by Thames Water Utilities, and the reason for low returns was simply lack of flow to stimulate fish to enter the river. Apart from a run of the earliest salmon yet to have entered the Thames and passed Molesey, many of the fish which did enter the tideway were constrained by impassable conditions at Teddington weir.

Despite the adverse conditions the run was the third highest recorded since substantial returns first began in 1982. 154 fish were recorded including 55 two sea-winter fish and our first 2 three sea-winter fish. One of the latter, at 22lb, was the biggest salmon known to have returned to the Thames. The poor grilse run was reflected in many rivers throughout the British Isles in 1990, attributed not only to low flows but also increased marine exploitation (illegal fishing in international waters) and other environmental changes.

The poor economic conditions which also prevailed during 1990 dampened the enthusiasm of potential sponsors of the Thames Salmon Trust. Nevertheless, major sponsors were found for fish passes at Teddington Weir (Shell UK Ltd) and Boveney Weir (Eton College and Sir James Goldsmith). Many smaller contributions were also made to boost the Trust Fund. In May 1990, the fish passes at Sunbury (Howden Group) and Chertsey (Joseph Johnston & Sons Ltd) were opened at a grand ceremony. Although there were then some delays to the construction programme, passes at Bell weir (Kuwait Oil) and Mapledurham weir (Chevron UK and Gulf GB) were virtually completed by the end of the review year. Bray pass is making good progress.

During the year, an important move was made towards using the Thames returnee salmon for breeding thus beginning the process of generating a 'Thames' genetic strain of salmon. It is expected that using stock fish derived from wild parents will result in higher survival rates of juveniles and a larger return rate of adults. We have now established a contract for the early rearing of salmon from our own returnees' eggs and some 135000 eggs were moved to the contractor's hatchery. Fingerlings derived from this work will form a significant part of the stock to be on-grown at our own reservoir cage rearing facility next winter and stocked out in spring 1992. In the early years of this programme it is intended to widen the gene pool returning to the river by obtaining eggs from other wild-source parents and for example our colleagues in South-West region provided fertilised eggs from River Fowey salmon.

Stocking of parr in 1990 was slightly less than planned because of problems at the cage-rearing facility caused by the very mild winter. However, 92000 parr were stocked into nursery streams throughout the area and once again we were indebted to Joseph Johnston & Sons Ltd for the donation of fingerlings and BP Nutrition for the food to grow them on. Some 25000 smolts were also stocked into the Lower Thames and Tideway as a result of our rearing programme. These were supplemented by an estimated additional 13000 escapement from smolts introduced at Sunbury during trials of the smolt diversion screen which is under test at Walton water intake.

On a sad note, Peter Gough and Karen Miller, who have been with us 10 years and 5 years respectively, have both left Thames region to take up new posts in Welsh and Northumbrian Regions of the National Rivers Authority. They have both contributed an enormous

amount to the success of the Thames Salmon Rehabilitation Scheme and will be greatly missed. However, we wish them both well in their new jobs and no doubt we will remain in touch, not least through their honorary membership of the Friends of the Thames Salmon Trust.

Figure 6 - Catch of Thames Salmon 1970-1990

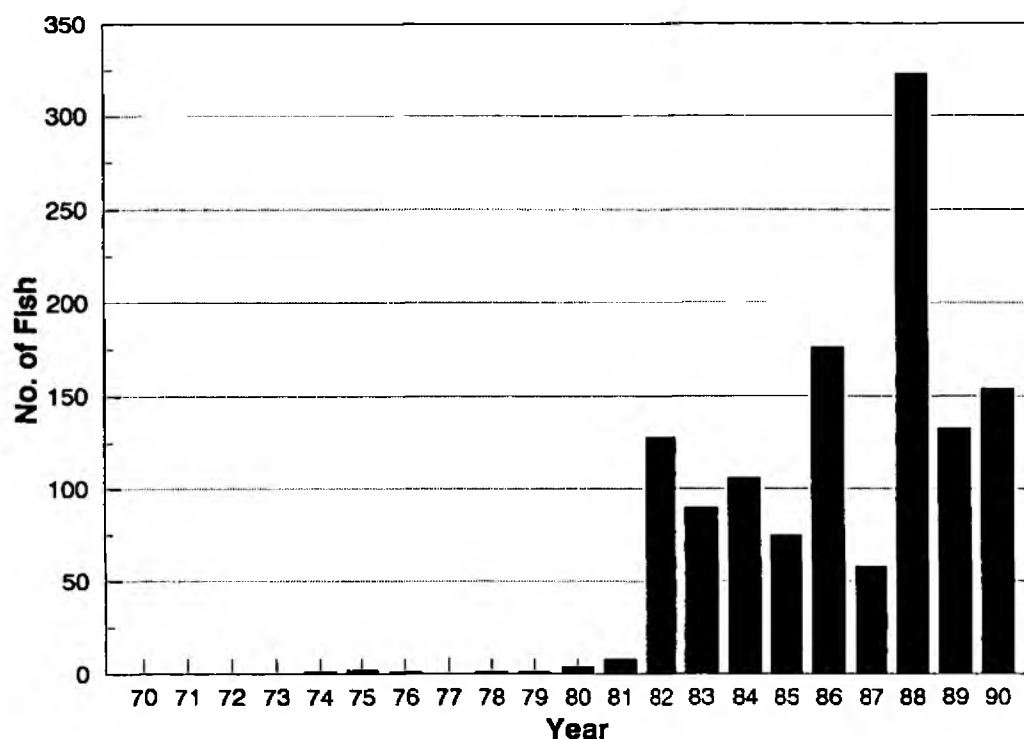
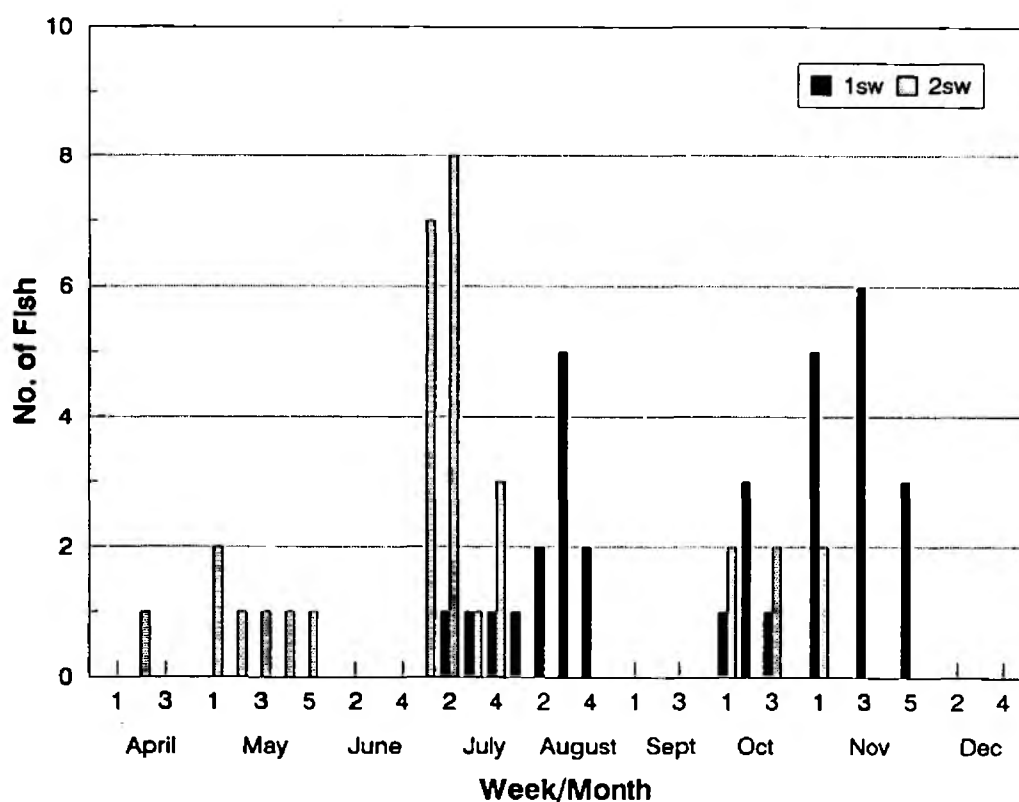


Figure 7 - Molesey Trap Salmon Catch 1990



7 Fish Rearing

Fish rearing operations have been through a difficult period during the last year. As a result of the building of a major new NRA laboratory facility, considerable disruption of the site at Fobney has had to be accommodated. At the same time, developments of the fish farm itself have continued. Completed or ongoing projects have included repairs and improvements to the infrastructure, completion of a Swedish tank holding facility, provision of automatic feeding facilities, and three new 7m circular tanks. At the end of the financial year five new cages were purchased for deployment in time for the next winter rearing cycle at QEII Reservoir thus raising the complement from 20 to 25 cages.

Output of coarse fish from Fobney during 1990 was in some respects disappointing. The hot spring and summer caused unexpected problems with pond stratification and reduced oxygen levels in the ponds, a condition not previously encountered despite equally hot weather the previous year. Resultant mortalities seriously compromised output of the riverine fish species, including barbel, dace and chub, so that the 23000 stocked out was only 64% of target and many fish were also smaller than anticipated. This was made all the worse by the fact that it had been expected to exceed target and have substantial numbers of these fish left over to grow to a larger size in 1991.

On the other hand, conditions in the ponds were not serious enough to affect production of lacustrine species like crucian carp, rudd and tench. Output of these species, totalling some 19000, met the target. The new spawning ponds, constructed the previous year, were put into use for the first time and more than 25000 crucian carp, carp, rudd and tench fry were produced for ongrowing. Some 5000 crucians were swapped for tench fry from the Severn-Trent region. Output was also increased by 4000 tench and rudd cropped from additional growing on ponds near Reading.

At the reservoir cage rearing facility production of fish was generally good. Some 92000 juvenile salmon were produced for stocking in spring 1991. This was less than the 130000 target due to logistics problems with the initial supply of fish rather than rearing problems. The smolt rate was exceptionally high, over 70%, resulting in an output of nearly 67000 S1 smolts into the Thames with the remaining 28000 parr stocked into nursery streams. Holding of adult salmon was successful and 135000 Thames-returnee eggs were obtained from these broodstock to form the basis of the first substantial move towards using this source of fish for future stocking.

The warm summer aided production of carp from the cages and nearly 3000 weighing more than a tonne were stocked out to fisheries around the area. Over 2000 chub were successfully reared to their third year and these larger fish helped make up the shortfall of this species from Fobney. Production of rainbow trout met its target in terms of numbers (2000) and size (1kg) and these were sold to Thames Water Utilities for their put-and- take trout fisheries at Farmoor, Barn Elms and Walthamstow. Some 4000 small brown trout were also produced and stocked out to rivers around the catchment.

Overall output of coarse fish for restocking was 42336 weighing 2013kg representing a small increase on the 39533 (2063kg) output the previous year. Details concerning the species reared during 1990/91 are provided in Figure 8 and Table 10 while Table 11 gives details of coarse fish output since 1985/86.

Most of the riverine species output were used for restocking fisheries which had suffered from pollutions. Dace and chub were stocked in rivers including the Thames, Cole, Loddon, Darent, Wandle, Roding, Cripsey Brook, Leigh Brook and Salfords Stream. Chub

were stocked to enhance populations in the River Blackwater and barbel to enhance populations in the River Thames, Mole and Lee.

Table 10. Fish Output from Reservoir Cages and Fobney Ponds

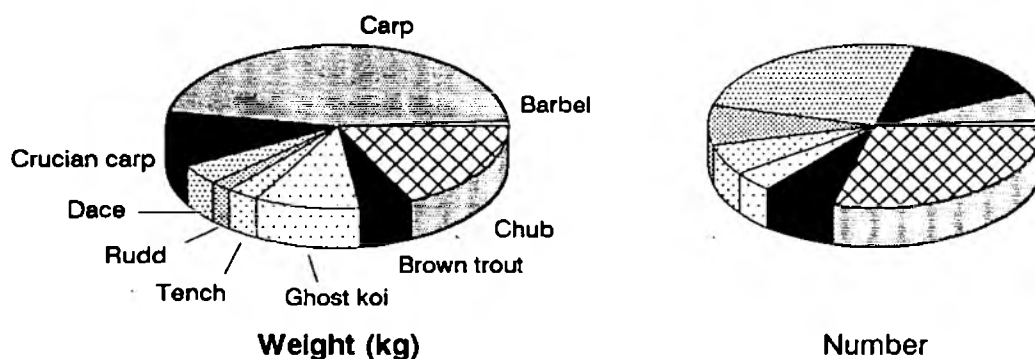
Species	Cage Rearing		Pond Rearing	
	Number	Tot Wt(kg)	Number	Tot Wt(kg)
Salmon eggs	135,000	-	-	-
Salmon parr	27,622	179	-	-
Salmon S1 smolts	64,778	1483	-	-
Rainbow trout	2,000	2093	-	-
Brown trout	3,850	119	-	-
Barbel	-	-	497	33
Carp	2,877	978	22*	72
Chub	2,200	278	11,334	170
Crucians	-	-	6,542	272
Dace	-	-	11,500	94
Rudd	-	-	4,121*	41
Tench	-	-	3,243*	75
Ghost carp (Koi)	1,700	255	-	-
Total	105,027	5,387	37,259	757

Table 11. Coarse Fish Output for Restoration from Rearing Facilities 1985-1991

Year	QE II		Fobney		Total	
	Numbers	Weight	Numbers	Weight	Numbers	Weight
1985-86	34	171	-	-	34	171
1986-87	10,336	495	1,825	51	12,161	546
1987-88	4,910	1,215	4,812	605	10,722	1,820
1988-89	7,720	777	15,505	531	23,225	1,308
1989-90	8,100	1,219	31,433	772	39,533	2,063
1990-91	5,077	1,256	*37,259	757	42,336	2,013

*1990-91 included output from additional stock ponds near Reading.

Figure 8 - Species Reared 1990/91



8 Enforcement of the Salmon and Freshwater Fisheries Act, 1975, and Thames Region Fishery Byelaws

A. REGULATION

Any person wishing to carry out certain fishery related activities requires the prior written consent of the NRA under The Salmon and Freshwater Fisheries Act 1975 or the NRA Thames Region Fishery Byelaws 1978.

The following consents are issued by the Senior Fisheries Officers for the Eastern and Western Areas:-

- * Use of electrofishing equipment.(SFFA, Section 5)
- * Introduction of fish into inland waters.(SFFA, Section 3)
- * Use of prohibited modes of fishing during the annual close season.(Byelaw 5(i))
- * Use of instruments other than rod and line.(Byelaw 6)
- * Taking undersized fish.(Byelaw 8)
- * Removal of crayfish.(Byelaw 14)
- * Use of fixed engines.(Byelaw 17)

Applications for consent are summarised in Tables 12 & 13.

Table 12. Applications for Consent Under the Salmon and Freshwater Fisheries Act, 1975

	Use of Electrical Devices (Section 5)		Introduction of Fish (Section 30)	
	1989/90	1990/91	1989/90	1990/91
Fisheries East	17	22	230	213
Fisheries West	49	44	184	263
Total	66	66	414	476

Table 13. Application for Consents Under NRA Thames Region Fishery Byelaws 1978

Byelaw	5(i)		6 & 8		14		17(D)		9
	89/90	90/91	89/90	90/91	89/90	90/91	89/90	90/91	90/91
East	6	13	70	60	3	5	1	1	1
West	7	16	41	48	3	7	0	0	0
Total	13	29	111	108	6	12	0	0	0

The number of consents issued for electrofishing was the same as in 1989/90, although one application was refused. Numbers of netting consents were also virtually unchanged. There was an increase in applications for introductions, probably reflecting the backlog of work held over by clubs from the previous year when the outbreak of SVC prevented many fish movements. The growing popularity of any-method trout fisheries opening during the close season for freshwater fish is reflected in the large increase in consents issued under Byelaw 5(i).

B. ENFORCEMENT

i. Rod Licences

The bulk of the bailiffing work is carried out by Part-Time Licence Checkers. Each area office employs four, of whom two work throughout the season and two who operate only for the 16 weeks from the start of the freshwater fish season when angling pressure is greatest. Bailiffing is concentrated on free waters, public day ticket fisheries and the more popular club venues.

The part-timers are supervised by full time staff. Honorary Water Bailiffs, who work on a voluntary basis, provide assistance by covering other club waters.

The year showed an overall increase of 20% in the numbers of licences checked. This was the result of a large increase in the West partly countered by a small decrease in the East. The Thames East area had been reduced by the transfer of the Darenth and Cray catchments to Southern Region and their performance was affected by the resignation of two of the Crossness licence checkers in mid season. The Crossness and Waltham Cross offices shared a checker with responsibility for the Lower Lee and Roding catchments. Details of licences checked in the different categories are shown in Table 14.

Table 14. Numbers of Licences Checked and Offence Reports Issued by Part-Time Licence Checkers

	Licence Types					
	Adult	Junior	OAP/Dis	15 day	2nd Lic	Off.Rep
Fisheries East	8626	2505	383	244	3814	1479
Fisheries West	16924	5442	1159	567	5468	2005
Total	25550	7947	1542	811	9282	3484

The Thames Region policy of prosecuting all adult anglers without valid rod licences has continued. The number of prosecutions for offences arising from this general cause was 708, compared with 598 in 1989/90.

Section 27a - fishing without a licence;

Section 27b - possessing a fishing instrument with intent to use it, but without a licence;

Section 35(3) - failing to produce a licence to the Authority within 7 days.

The increase in prosecutions for licence offences reflects an increase in bailiffing rather than an increase in evasion. Numbers of all prosecutions are given in Table 15. Average values for fines and costs just for licence offences are given in Table 16.

Table 15. Successful Prosecution under the Salmon & Freshwater Fisheries Act and Fishery Byelaws.

Offence	Number Prosecuted		Fines(£)	Costs(£)
Fisheries East				
SFFA	1989/90	1990/91	1990/91	
Section:- 19(6)	11	5	100	75
27(a)	204	221	8685	7048
27(b)	0	1	200	50
35(3)	42	20	580	597
NRA Byelaws				
10(1)	13	6	260	190
10(2)	6	2	30	25
Total	276	255	9855	7985
Fisheries West				
SFFA	1989/90	1990/91	1990/91	
Section:- 19(6)	1	12	274	170
27(a)	326	453	14464	12642
27(b)	1	2	25	105
35(3)	25	14	315	279
NRA Byelaws				
10(1)	8	17	545	370
10(2)	2	1	25	-
Total	363	499	15668	13566

Table 16. Average values for fines and costs for all licensing offences

	Fines '90	Fines '91	Costs '91	Costs '91
	£	£	£	£
Fisheries East	34	39	28	34
Fisheries West	28	32	25	32

ii Other Angling Offences

There were 43 prosecutions for other offences. Of these 23 were for fishing with more than two rods (Byelaw 10(1)), 3 for leaving baited tackle unattended in the water (Byelaw 10(2)), and 17 for fishing during the annual close season for freshwater fish (SFFA 19(6)).

iii Eel Licences

Tideway eel fishing is still at a fairly low level and has not recovered from the slump in sales which followed the Dieldrin scare in 1988. Licence sales for fyke nets are 40% lower than for 1989/90.

During the season 14 enforcement patrols were made between Teddington and the Yantlet Line. Illegal fishing was perceived to be very low with 6 pairs of fyke nets being seized at Isleworth and 3 traps in Deptford Creek.

Details of licences and revenue are given in Table 17 and a summary of reported catches since 1982 in Table 18 below.

Table 17. Eel Fishing Licences

	Fykes	Traps	Trawls	Total
Applications for licences	4	3	1	8
Number of Instruments	131	6	1	138
Value (£)	1310	12	100	1422

Table 18. Eel Catch Returns - Thames Tideway 1982-1990

Year	Licenced Instruments	Total Effort (Instrument days)	Total Catch (kg)
1982	565	14004	10513
1983	646	26503	13094
1984	356	30965	10800
1985	360	28361	11340
1986	444	26289	14681
1987*	458	16961	10121
1988*	533	21610	5375
1989*	209	8300	3943
1990	138	8394	3432

* Catches were probably significantly affected by failure to make catch returns. Before 1988 consents were issued under byelaw and provision of a catch return was a condition of issue. Once the licencing system had been introduced this was no longer possible. Returns have therefore been made on a voluntary basis.

9. Staff

The year's complement of managerial and operational staff was 26, an increase of 2 on last year due to the appointment of Jonathan Sellars and Stuart Wallace as Fishery Assistants. Both are based at Fobney Fish Farm. Jonathan works mainly on fish rearing whilst Stuart is part of the Salmon Rehabilitation Scheme. Jonathan and Stuart both completed diplomas at Sparsholt College, and commenced employment with the NRA in October 1990.

Appendix 2 lists all full time, part-time and honorary staff in post up to March 1991.

Appendix 1 The Regional Fisheries Advisory Committee

Terms of reference - "the provision of advice to the Board on the discharge of the Region's duty under paragraph (a) of Section 28(1) of the Salmon and Freshwater Fisheries Act, 1975."

Membership	Nominating body or in respect of
H.P. Parry FCA (Chairman)	NRA
A.E. Hodges FIFM (Vice Chairman)	TFCC
J.S.Alabaster BSc DSc CBiol FIBiol FIFM	Science of Fisheries Management
M. Davies OBE	Regional Flood Defence Committee
Prof. J. George MSc FIBiol	Conservation
M.A. Gregory OBE LLB	Riparian Owners Association
Dr D.G.Jamieson	Water and Sewage Undertakers
D.W. Komrower BA(Hons)	Fish Farming
B. Knights MSc MIBiol MIFM	Commercial Fisheries
G.G. Lee	TFCC
E. J. Macer FIFM	TFCC
A.V. Meddle	Sea Fisheries Committees
D.Wales	TFCC
A.L. Williams MIFM	TFCC
Mrs J.K. Wykes BSc	Regional Rivers Advisory Committee

Appendix 2 Fisheries Personnel

Members of the Full Time Fisheries Staff

Dr J W Banks	Regional Fisheries Manager
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Central Staff

G S Armstrong	Senior Fisheries Officer
P Gough	Fisheries Officer
K Miller	Fisheries Officer
J M Moore	Fisheries Officer
D Readings	Fish Rearing Assistant
J Sellars	Fish Rearing Assistant (Oct 1990)
S Wallace	Fish Rearing Assistant (Oct 1990)

Fisheries East Area

J Reeves	Senior Fisheries Officer
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Thames East

M Pilcher	Area Fisheries Officer
N Buck	Fisheries Officer
R Tyner	Fisheries Officer
N Sampson	Fisheries Assistant

Metropolitan

S Colclough	Area Fisheries Officer
C Dutton	Fisheries Officer
N J Foulkes	Fisheries Officer
J Lyons	Fisheries Assistant

Fisheries West Area

Dr A J Butterworth	Senior Fisheries Officer
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Mid Thames

J Sutton	Area Fisheries Officer
R Preston	Fisheries Officer
A Thomas	Fisheries Officer
S Sheridan	Fisheries Assistant

Upper Thames

V Lewis	Area Fisheries Officer
A Killingbeck	Fisheries Officer
D Willis	Fisheries Officer
E Hopkins	Fisheries Assistant

Administrative Staff

D Miller	Reading
L Blackwood	Reading (Temp)
B Watson	Crossness

Part-Time Licence Checkers

Fisheries East

Thames East	Metropolitan
A Brightley	L Cooper
L Blackwood	E Garrett
G Haynes	M Gubby

D Tait (Thames East & Metropolitan)

Fisheries West

Mid Thames	Upper Thames
P Draper	W Vigor
M Koulermou	S West
E Tysoe	P Willis

Honorary Water Bailiffs

Fisheries East

Thames East		Metropolitan	
T Agar	C Landells	V Alonso	R Jenks
J Arnold	T Mansbridge	T Amos	S Marshall
C Baldwin	R Mitschke	H Blake	P Newman
B Bolton	B Newton	D Bonsels	F Norton
D Buck	D Parkins	T Bovis	D Purton
P Clapp	L Pember	L Budgen	P Ribbon
T Cockfield	R Powell	D Craddock	P Sene
S Davis	H Reid	P Dyer	A Sibley
P Dukes	J Richards	E Etty	D Stephens
R Emery	P Richardson	S Falconer	J Sullivan
J Farley	K Rulton	D Gilbert	P Vecchi
P Fullick	N Rusby	T Gilbert	L Waite
I Groom	K Stredder	D Goldsmith	T Whipps
P Hardy	D Turner	C Halls	A Williams
A Janaway	K Walker	A Hodges	J Whittey
W Johnson	D Wall		
D Keys	A Wheeler		
R Kirk	I Wilson		

Fisheries West

Mid Thames

M Barrass	D Mattison
M Beale	D Metcalf
L Dolton	M Purchase
J Fairbanks	D Tatnall
M Gould	C Watts
S Johnson	L Webber

Upper Thames

M Gausman

APPENDIX 3
FISH STOCKED BY THE AUTHORITY

The following abbreviations are used:

Reason for Stocking:	How Acquired
REQ=Stocking requests	B=Rearred in-house
RES=Research	B=Bought in
REI=Reinstatement	S=Culled from river
GRO=Growing on	C=Culled from lake
ENH=Enhancement	F=Fish rescue
MO = Restitution	

Date	Source	Site	Species	No.	Wt (Kg)	Reason
04-Apr-90	Quanton Stock Pond	Wendover Lake	Mixed	500	130	REI
05-Apr-90	BBC Pond, Caversham	Ox.Canai, A34 bridge	Mixed	1700	50	REI
10-Apr-90	North Wey at Waverly	South Wey at Frensha	Mixed	1000	150	REQ
01-Jun-90	Johnsons Pond	Virginia Water	Mixed	2000	300	REQ
01-Jun-90	Johnsons Pond	Mill Pond	Mixed	500	75	REQ
05-Jun-90	Fobney Fish Farm	Watermead, Aylesbury	Carp	4	20	REQ
05-Jun-90	Fobney Fish Farm	Limes Fishery	Carp	4	20	REQ
06-Jun-90	Johnsons Pond	Virginia Water	Mixed	600	60	REQ
06-Jun-90	Johnsons Pond	Mill Pond	Carp	17	60	REQ
12-Jun-90	Clanfield/Freeth Pd	Kingsey Lake, Thame	Mixed	530	115	REQ
12-Jun-90	Freeth's Pd-M.Meysey	Gt Coxwell Lake	Carp	30	5	REQ
12-Jun-90	Freeth's Pd-M.Meysey	Spindler's Pd-Minety	Carp	30	5	REQ
21-Jun-90	Shirehall Pond	Clanfield	Rudd,tench	154	2	GRO
29-Jun-90	Curtis' pit,Radley	Bull pit,Radley	Mixed	150	85	REQ
03-Jul-90	R.Sul, Pangbourne	Thames, Pangbourne	Chub	30	3	ENH
06-Jul-90	Curtis' Pit, Radley	Dorchester Pit	Mixed	400	180	REQ
07-Jul-90	Sherbourne St. John	Widmead Lake(N.A.A.)	Carp	40	60	REQ
10-Jul-90	A.J.Bull pit Thorpe	Twynnersh Lake 2	Mixed	1000	90	REQ
12-Jul-90	Gennet's Pit	Marcos pit 2	Tench	6	10	REQ
12-Jul-90	A.J.Bull pit Thorpe	Twynnersh Lake 2	Mixed	300	40	REQ
17-Jul-90	A.J.Bull pit Thorpe	Twynnersh Lake 2	Mixed	450	40	REQ
20-Jul-90	River Thame,W'stock	River Thame,W'stock	Mixed.	2000	20	REQ
25-Jul-90	Moat at Chesham	Bradstone A.C. Pit	Rudd & gudgeo	440	15	REQ
25-Jul-90	Moat at Chesham	Bradstone A.C.Pit	Rudd & gudgeo	440	15	REQ
31-Jul-90	Whiphurst Lake,Cran.	West Cran.Nurseries	Carp	90	50	REQ
06-Aug-90	Bas.Canai d/s lock 22	Bas.Canai d/s lock25	Mixed	900	50	ENH
06-Aug-90	South Marston Pond	Swalcliffe Grange Pd	Tench	25	5	REQ
06-Aug-90	R.Windrush.Newbridge	R.Windrush,Newbridge	Mixed	400	150	REQ
06-Aug-90	South Marston Pond	Drayton Lodge Fm Pd	Tench	50	5	REQ
09-Aug-90	Witney Stock Pond	Wendover Pond	Crucian carp	136	7	REI
10-Aug-90	Wisley RHS	Cobbet's Lake, Send	Carp	350	350	REQ
10-Aug-90	R.Windrush, Burford	R.Windrush, Burford	Mixed	200	25	REQ
14-Aug-90	Lovedene Lake, Ascot	Sandhurst Bal.Pond	Carp	70	50	REQ
14-Aug-90	Castle Mill Stream	D/S at confluence	Mixed	365	25	REQ
15-Aug-90	pond,Gt.Rissington	Moreton A/C ponds	Carp	2000	20	REQ
17-Aug-90	Pirbright Vil. Pond	Wey Nav. Send	Rudd	400	25	ENH
06-Sep-90	R.Churn	R.Thames at Lechlade	Mixed	2000	25	REI
12-Sep-90	Wisley RHS	Cobbet's Lake, Send	Carp	400	400	REQ
17-Sep-90	Englemere Pond	Farleymoor Pond	Common carp	800	150	REQ
20-Sep-90	Curtis' Pit Radley	Clanfield small Pond	Roach,tench	200	95	GRO
20-Sep-90	Curtis' Pit Radley	Bull Water Radley	Pike	60	40	REQ
08-Oct-90	R.Coln-Williamstrip	R.Coln-Dudgove Br.	Grayling	250	60	REQ

Date	Source	Site	Species	No.	Wt. (Kg)	Reason
08-Oct-90	R.Cohn-Williamstrip	Thames East Area	Grayling	200	90	REQ
09-Oct-90	Prospect Park, Reading	Wey Nav., Pyrford	Mixed	50	3	ENH
09-Oct-90	Eastwater, Bramley	Surrey Univ. Res. Prk	Tench	20	1	GRO
11-Oct-90	Q.E. II Fish Farm	South Bourne, Row Tow	Chub	300	35	REI
12-Oct-90	Q.E. II Fish Farm	S. Bourne d/s Dunsfd	Brown trout	130	6	ENH
12-Oct-90	Q.E. II Fish Farm	S. Bourne, Crockford	Brown trout	70	3	REI
12-Oct-90	Q.E. II Fish Farm	Grantsbourne, Penny Pt	Brown trout	100	4	ENH
12-Oct-90	Q.E. II Fish Farm	Bourne South, Crockfd	Chub	300	35	REI
12-Oct-90	Q.E. II Fish Farm	Halebourne, U/S Chobm	Brown trout	600	25	ENH
13-Oct-90	Q.E. II Fish Farm	Blackwater, Eversley X	Brown trout	500	20	ENH
15-Oct-90	Wheatley Park Moat	Farmhouse Pd Holton	Mixed	2300	80	REQ
17-Oct-90	Q.E. II Fish Farm	Watermead Lake	Carp	120	30	REQ
17-Oct-90	Q.E. II Fish Farm	Spade Oak Pit	Carp	120	30	REQ
17-Oct-90	Q.E. II Fish Farm	Clanfield, small pond	Carp	211	52	GRO
17-Oct-90	Q.E. II Fish Farm	Marsworth Moat	Carp	60	15	REQ
18-Oct-90	The Drive, Cranleigh	Stock Pond	Mixed	2000	40	REQ
18-Oct-90	Q.E. II Fish Farm	Thames, Castle Eaton	Chub	200	22	REI
18-Oct-90	Q.E. II Fish Farm	R. Thames, Hanington	Chub	200	22	REI
18-Oct-90	Q.E. II Fish Farm	Shill Brook, Carteton	Chub	100	11	REI
19-Oct-90	Q.E. II Fish Farm	Wey Nav Triggs	Carp	70	53	REQ
19-Oct-90	Q.E. II Fish Farm	Pit 1 Hollybush Lane	Carp	100	75	REQ
19-Oct-90	Q.E. II Fish Farm	S. Bourne VI-Row Town	Brown trout	200	8	REI
19-Oct-90	Q.E. II Fish Farm	Grantsbourne - W. End	Brown trout	150	4	REI
22-Oct-90	Q.E. II Fish Farm	R. Windrush, Standlake	Carp	21	5	REQ
26-Oct-90	Odney Club Pond	Thames, Cookham	Mixed	2000	150	ENH
29-Oct-90	Q.E. II Fish Farm	Thorncombe Park	Carp	60	15	REQ
29-Oct-90	Q.E. II Fish Farm	Wey Arun Canal	Carp	350	90	REQ
29-Oct-90	Q.E. II Fish Farm	R. Evenlode, Adlestrop	Brown trout	250	8	REI
29-Oct-90	Q.E. II Fish Farm	Shill Brook, Black-B	Brown trout	250	8	REI
29-Oct-90	R. Cohn-Ernest Cook	R. Evenlode-Combe Mil	Grayling	350	50	REQ
02-Nov-90	Shire Hall	Clanfield	Tench	584	10	GRO
02-Nov-90	Shire Hall	Clanfield	Golden rudd	1568	24	GRO
02-Nov-90	Shire Hall	Marsworth moat	Tench	131	7	REQ
02-Nov-90	Shire Hall	Wendover	Tench	1000	18	REQ
06-Nov-90	Eastwater, Bramley	Wey Nav. Guildford	Roach	150	5	REQ
08-Nov-90	Fobney Fish Farm	Tarn, Cutt Mill	Carp	15	35	REQ
08-Nov-90	Q.E. II Fish Farm	Wey/Arun Canal	Carp	50	10	REQ
08-Nov-90	Fobney Fish Farm	Wey / Arun, Birtley	Rudd	300	4	REQ
08-Nov-90	Fobney Fish Farm	Bowlhead Green Pond	Rudd	250	3	REQ
08-Nov-90	Q.E. II Fish Farm	Bowlhead Green Pond	Carp	50	10	REQ
11-Nov-90	Busbridge Lake	R. Wey - Godalming	Roach	11000	220	ENH
14-Nov-90	Cheam School	Wey Arun - Bramley	Carp	300	10	REQ
14-Nov-90	Q.E. II Fish Farm	Wey Arun - Bramley	Carp	100	25	REQ
14-Nov-90	Prospect Park	Wey Arun - Bramley	Crucian carp	90	27	REQ
14-Nov-90	Q.E. II Fish Farm	River Park Lake	Carp	75	20	GRO
15-Nov-90	Q.E. II Fish Farm	Surrey Univ. Res. Prk	Carp	50	12	GRO
29-Nov-90	Southrop Lake	Watermead, Aylesbury	Carp	33	80	REQ
04-Dec-90	C'field Stock (small)	Southrop Lake	Tench	103	80	REQ
04-Dec-90	Longcott Pond	Brick Kilns, S'holt	Carp	130	25	REQ
04-Dec-90	C'field stock (small)	Southrop Lake	Tench	103	80	REQ
04-Dec-90	Longcott Pond	Clanfield Stock (Big)	Carp	300	35	GRO
06-Dec-90	Brittens Pond	Wey/Arun Canal	Roach	9000	450	REQ
09-Dec-90	RMC Settling Pit	Manor Farm Lake, Send	Tench	30	30	REQ
11-Dec-90	Coate Water	R. Thame @ Thame	Bream	4000	200	REQ

Date	Source	Site	Species	No.	Wt.(Kg)	Reason
11-Dec-90	Coate Water	R.Thame,N.Winchendo	Bream	8000	400	REQ
11-Dec-90	Coate Water	Spade Oak Pit,Marlow	Bream	3000	150	REQ
11-Dec-90	Coate Water	R.Thame,Wheatley	Bream	3000	150	REQ
12-Dec-90	Q.E. II Fish Farm	Winchfield WolmerAS	Carp	75	18	REQ
12-Dec-90	Coate Water	Miswell Farm,Tring	Bream	250	20	REQ
12-Dec-90	Coate Water	Aylesbury Arm,G.U.C	Bream	1300	130	REQ
12-Dec-90	Coate water Nat Res	R.Thames-Sandford	Bream	600	60	REI
12-Dec-90	Coate Nature Reserve	Coate Main Lake	Pike	44	85	REQ
12-Dec-90	Coate Nature Reserve	Coate Main Lake	Carp	4	35	REQ
14-Dec-90	Q.E. II Fish Farm	Ockham Mill Pond	Carp	100	25	£££
18-Dec-90	Wheatley School Moat	R.Thame,Weatley	Mixed	4630	250	REQ
20-Dec-90	Q.E. II Fish Farm	S.Bourne,Rowtwn-Croc	Chub	3000	36	REI
20-Dec-90	Q.E. II Fish Farm	Chalvey Ditch	Chub	1000	12	REI
20-Dec-90	Fobney Fish Farm	Bierton Pond	Crucians/tench	230	10	REQ
20-Dec-90	Fobney Fish Farm	Watermead Lake	Crucians/tench	435	19	REQ
20-Dec-90	Fobney Fish Farm	Southrop Lake	Crucians/tench	435	19	REQ
03-Jan-91	Fobney Fish Farm	Wey/Arun Canal	Crucian carp	300	15	REQ
03-Jan-91	Fobney Fish Farm	Bridge Pond Liphook	Crucian carp	250	13	REQ
04-Jan-91	Fobney Fish Farm	Maiden Erlegh Lake	Crucian carp	250	13	REQ
04-Jan-91	Fobney Fish Farm	Maiden Erlegh Lake	Tench	250	10	REQ
08-Jan-91	Q.E. II Fish Farm	Broomfield Pond	Carp	30	8	REQ
08-Jan-91	Fobney Fish Farm	R.Evenlode,L.Hanboug	Barbel	195	7	REQ
09-Jan-91	Fobney Fish Farm	Shill Brook	Dace	300	3	REI
09-Jan-91	Fobney Fish Farm	Clanfield (small)	Rudd,tench,cru	2700	45	GRO
09-Jan-91	Fobney Fish Farm	King Sutton Stream	Dace	200	2	REI
10-Jan-91	Fobney Fish Farm	Chalvey Ditch	Dace	1000	7	REI
10-Jan-91	Fobney Fish Farm	South Bourne	Dace	4000	28	REI
11-Jan-91	Fobney Fish Farm	Redlands Pit Twyford	Crucian carp	100	5	REQ
13-Jan-91	Oxenford Pond	Bowlhead Green Pond	Mixed	300	15	REQ
14-Jan-91	Fobney Fish Farm	Cranleigh A.S.Lake	Crucian carp	50	3	REQ
14-Jan-91	Fobney Fish Farm	Bowlhead Green Pond	Crucian carp	30	2	REQ
29-Jan-91	Fobney Fish Farm	Blackwater,EversleyX	Barbel	80	3	ENH
01-Feb-91	Radleys	The Bull Water	Mixed	200	20	REQ
04-Feb-91	Radleys	Clanfield (small)	Tench	30	30	GRO
27-Feb-91	River Whitewater	Papercourt Lake	Pike	7	15	REQ
28-Feb-91	Wintershall	R.Wey Godalming	Perch	4000	120	REQ
04-Mar-91	Q.E. II Fish Farm	Radford Park Pond	Carp	70	18	REQ
05-Mar-91	Felix Farm, Binfield	Box Fm,Winkfield Row	Rudd	600	80	REQ
06-Mar-91	Fobney Fish Farm	Hollybush Lane Pit	Tench	350	12	REQ
12-Mar-91	Felix Trout Lake	Clanfield,large pond	Rudd	145	15	GRO
12-Mar-91	Pride Valley F.Farm	Witney A.C.,Standlake	Rudd	3500	18	REQ
15-Mar-91	Barnet Pond Shamley	Cranleigh Waters	Mixed	6000	120	REQ
17-Mar-91	The Limes,H.Wycombe	R.Thames.Bourne End	Roach	2500	60	REQ
22-Mar-91	Whipley Manor	Navy's Hole	Mixed	4000	120	REQ

Summary:

	Total Weight (kg)	Number
REQ	6323	80972
RES	0	0
REI	515	16456
GRO	340	6037
ENH	509	15790
Other	25	100
TOTAL	7712	119355

Date	Source	Site	Species	No.	Wt.(Kg)	Reason
02-Apr-90	Trent Park Enfield	Rowley Lake	Tench	24	45	REI
03-Apr-90	Trent Park Enfield	R.Lee, Enfield Lock	Roach	7000	70	REQ
03-Apr-90	Trent Park Enfield	R.Lee, Hardmead Lock	Roach	7000	70	REQ
03-Apr-90	Trent Park Enfield	R.Stort Nav. Roydon	Roach	7000	70	REQ
04-Apr-90	Boxmoor Trout Lake	R.Beane @ Hertford	Roach	8	10	REQ
04-Apr-90	Boxmoor Trout Lake	Sandersons Lake	Perch	70	50	REQ
04-Apr-90	Trent Park Enfield	R.Beane @ Hertford	Roach	150	15	REQ
04-Apr-90	Trent Park Lake	Sandersons Lake	Roach	250	25	REQ
09-Apr-90	Boxmoor Trout Lake	Wandsworth Common	Perch	78	17	REQ
11-Apr-90	New River @ Ware	Lee Navigation	Pike	100	100	REQ
12-Apr-90	Q.E. II Fish Farm	R.Beane Woodhall Pk.	Rainbow trout	100	55	REI
23-Apr-90	Just Fish	R.Roding Passingford	Chub	75	29	MO2
23-Apr-90	Just Fish	R.Roding Passingford	Dace	310	85	MO2
23-Apr-90	Just Fish	R.Roding Passingford	Roach	575	180	MO2
21-May-90	Paynes Lane Rescue	Paynes Lane Lake	Pike	52	120	REQ
21-May-90	Paynes Lane Rescue	Paynes Lane Lake	Tench	66	120	REQ
21-May-90	Paynes Lane Rescue	Paynes Lane Lake	Roach	66	14	REQ
21-May-90	Paynes Lane Rescue	Paynes Lane Lake	Carp	5	40	REQ
21-May-90	Paynes Lane Rescue	Paynes Lane Lake	Bream	76	275	REQ
05-Jun-90	Fobney Fish Farm	Manor Pond, Cobham	Carp	5	22	REQ
21-Jun-90	Calverton F.F.	Roding,Abridge area	Chub & dace	16000	96	MO2
22-Jun-90	Morleys,B.Stortford	Potten End Common	Rudd	100	3	REQ
29-Jun-90	NRA Southern Reg.	Lee FRC, Edmonsey Sl	Barbel	9	25	REI
13-Jul-90	Rye Meads Lagoons	Tideway @ South Bank	Carp	3	5	AMN
19-Jul-90	Foxboro' Lake	WX Holding Tanks	Crucian carp	200	24	RES
23-Jul-90	Foxboro' Lake	Cstle HI Frm Bletchi	Rudd	300	4	REQ
23-Jul-90	Grn Lne Frm,Newdgate	Reigate Pond	Rudd	1100	16	REQ
03-Aug-90	Castle Fm, Bletchley	Eastwich ponds,(top)	Perch	100	11	REQ
03-Aug-90	Old Rectory,L.Roding	Eastwich Ponds (top)	Rudd	800	11	REQ
08-Aug-90	Old Rectory L.Roding	Pond @ Bookham	Rudd	800	11	REQ
16-Aug-90	Gerrards Cross	Orchard Fm.B.Pelham	Tench	15	10	REQ
17-Aug-90	Castle Hill Farm	Bedfords Park Lake	Perch	100	11	REQ
24-Aug-90	Stamford Green,Esher	Farm Lake, Ashstead	Carp & rudd	52	12	REQ
24-Aug-90	Stamford Grn, Esher	R.Wandle @ Horley Wr	Crucians & carp	120	32	REQ
11-Sep-90	Feltham Gravel Pit	Staines Aquaduct	Perch	50	10	REQ
08-Oct-90	R.Coln (Oxford)	R.Mimram	Grayling	120	27	REQ
08-Oct-90	R.Coln (Oxford)	R.Chess	Grayling	100	20	REI
22-Oct-90	Q.E. II Fish Farm	Upper R.Stort	Brown trout	250	25	REI
22-Oct-90	Q.E. II Fish Farm	R.Chess @ Sarrat	Brown trout	250	25	REI
22-Oct-90	Q.E. II Fish Farm	R.Ver, Smug Oak	Brown trout	250	25	REI
22-Oct-90	Q.E. II Fish Farm	R.Ver @ Redbourne	Brown trout	250	25	REI
24-Oct-90	Q.E. II Fish Farm	Dagenham Park Lake	Carp	100	20	REQ
24-Oct-90	Q.E. II Fish Farm	M25 Lake TQ 034749	Carp	700	140	REQ
24-Oct-90	Q.E. II Fish Farm	St.Edmonds School	Carp	60	12	REQ
29-Oct-90	Q.E. II Fish Farm	R.Wandle, Hackbridge	Brown trout	300	9	ENH
29-Oct-90	Q.E. II Fish Farm	R.Mole @ Longbridge	Carp	50	22	RES
31-Oct-90	Q.E. II Fish Farm	St.Aubyns,Woodford	Carp	30	12	REQ
02-Nov-90	Q.E. II Fish Farm	Hogsmill, Kingston	Chub	250	30	REI
02-Nov-90	Q.E. II Fish Farm	R.Crane, Isleworth	Chub	250	30	REI
02-Nov-90	Q.E. II Fish Farm	R.Stort @ B/Stort'd	Chub	300	60	REI
08-Nov-90	Q.E. II Fish Farm	R.Colne @ Harefield	Chub	300	60	ENH
10-Nov-90	R.Mole, Garsons Farm	Tideway @ Putney	Pike	50	25	ENH
16-Nov-90	Fobney Fish Farm	Salfords Stream	Dace	550	6	ENH

Date	Source	Site	Species	No.	Wt (Kg)	Reason
16-Nov-90	Fobney Fish Farm	Tanners Brook	Chub	200	5	ENH
16-Nov-90	Fobney Fish Farm	Leigh Brook	Dace	550	6	ENH
16-Nov-90	Fobney Fish Farm	R.Mole, Sidlow	Chub	200	5	ENH
16-Nov-90	Fobney Fish Farm	Salfords Stream	Chub	300	7	ENH
16-Nov-90	Fobney Fish Farm	Mole, Gatwick-Horley	Chub	660	16	ENH
16-Nov-90	Fobney Fish Farm	Gatwick Strm. Horley	Chub	330	8	ENH
16-Nov-90	Fobney Fish Farm	R.Mole @ Horley	Dace	700	7	ENH
16-Nov-90	Fobney Fish Farm	R.Mole, Cobham-Pixha	Barbel	225	45	ENH
16-Nov-90	Fobney Fish Farm	Tanners Brook	Dace	200	2	ENH
16-Nov-90	Fobney Fish Farm	Leigh Brook	Chub	300	7	ENH
19-Nov-90	Fobney Fish Farm	Crane Cranfd-Meadwa	Chub	125	3	REI
19-Nov-90	Fobney Fish Farm	Wandle @ Hackbridge	Chub	150	4	ENH
19-Nov-90	Fobney Fish Farm	Crane Cranfd-Meadwa	Dace	1050	16	REI
19-Nov-90	Fobney Fish Farm	Wandle @ Hackbridge	Dace	1050	16	ENH
19-Nov-90	Q.E. II Fish Farm	Raphaels Park Lake	Carp	100	70	REI
23-Nov-90	Fobney Fish Farm	Gerards Cross Pond	Tench	200	10	REI
03-Dec-90	Fobney Fish Farm	Dagenham Park Lake	Crucian carp	200	20	REQ
03-Dec-90	Fobney Fish Farm	Sacombe Park Lake	Crucian carp	200	20	REQ
06-Dec-90	Fobney Fish Farm	London Colney Pit	Crucian carp	400	100	REQ
06-Dec-90	Fobney Fish Farm	R.Stort @ Twyford	Chub	1000	50	REI
06-Dec-90	Fobney Fish Farm	R.Stort @ Spellbrook	Chub	1000	50	REI
13-Dec-90	Hall Fm. N.Ockendon	Raphaels Pk. Romford	Perch	1271	41	REQ
13-Dec-90	Hall Fm. N.Ockendon	Raphaels Pk. Romford	Rudd	101	1	REQ
13-Dec-90	Hall Fm. N.Ockendon	Raphaels Pk, Romford	Roach	1776	37	REQ
17-Dec-90	Fobney Fish Farm	R.Stort @ u/s Harlow	Chub	750	30	ENH
17-Dec-90	Fobney Fish Farm	R.Stort @ Sawbrwth	Chub	750	30	ENH
18-Dec-90	Camley St. Nat. Res.	Green Lane Farm	Perch	13	1	REQ
18-Dec-90	St.Margarets Pd. Epp	Eastwick Drive Ponds	Rudd	425	9	REQ
18-Dec-90	Camley St. Nat. Res.	Green Lane Farm	Rudd	438	9	REQ
18-Dec-90	St.Margarets Pd. Epp	Eastwick Drive Ponds	Tench	43	5	REQ
18-Dec-90	St.Margarets Pd. Epp	Castle Fm. Lake	Tench	40	5	REQ
18-Dec-90	Weston Green Pond	Earlswood Lake	Carp	181	41	REQ
19-Dec-90	Fobney Fish Farm	Cheshunt Nth. Res.	Crucian carp	150	30	REI
19-Dec-90	Grove Pond, Stanmore	Sacombe Park Lake	Perch	100	5	REQ
20-Dec-90	Fobney Fish Farm	Eastwick Drive Ponds	Tench	300	6	REQ
20-Dec-90	Fobney Fish Farm	Reigate M.A.S.Pond	Crucian carp	300	11	REQ
20-Dec-90	Fobney Fish Farm	Manor Pond	Crucian carp	700	25	REQ
20-Dec-90	Fobney Fish Farm	Green Lane Farm	Crucian carp	1000	35	REQ
20-Dec-90	Fobney Fish Farm	Castle Farm Lake	Tench	200	4	REQ
21-Dec-90	Grove Pond, Stanmore	Boxers Lake, Enfield	Carp	25	40	REI
09-Jan-91	Fobney Fish Farm	Woolmer Green Pond	Tench	200	10	REI
09-Jan-91	Fobney Fish Farm	Sacombe Park Lake	Tench	200	20	REQ
10-Jan-91	Fobney Fish Farm	Roding @ Passingford	Chub	250	3	ENH
10-Jan-91	Fobney Fish Farm	Roding @ Abridge	Chub	250	3	ENH
10-Jan-91	Fobney Fish Farm	Roding, Luxboro' Lane	Chub	250	3	ENH
10-Jan-91	Fobney Fish Farm	Roding @ Shonks Mill	Chub	250	3	ENH
11-Jan-91	Fobney Fish Farm	R.Lee Nav @ Broxbne	Dace	1000	10	REQ
11-Jan-91	Fobney Fish Farm	R.Stort, Tedn'y Mill	Chub	200	4	REI
11-Jan-91	Fobney Fish Farm	R.Stor , Tedn'y Mill	Dace	200	2	REI
14-Jan-91	Fobney Fish Farm	R.Colne @ Uxbridge	Dace	150	6	REI
14-Jan-91	Fobney Fish Farm	R.Colne @ Uxbridge	Chub	150	8	REI
14-Jan-91	Fobney Fish Farm	R.Colne @ Uxbridge	Barbel	60	3	REI
18-Jan-91	Fobney Fish Farm	R.Stort, Spellbrook	Dace	1000	10	REI
25-Jan-91	Fobney Fish Farm	Parndon Mill Carrier	Chub	200	8	REI

Date	Source	Site	Species	No.	Wt.(Kg)	Reason
25-Jan-91	Fobney Fish Farm	Old Stort Loop A414	Chub	500	20	REI
25-Jan-91	Fobney Fish Farm	R.Stort,Pardon Mill	Chub	300	12	REI
05-Feb-91	Midland Coarse Fish	R.Roding @ Abridge	Chub & dace	1000	100	MO1
05-Feb-91	Midland Coarse Fish	R.Roding @ Loughton	Roach & perch	500	60	MO1
05-Feb-91	Midland Coarse Fish	R.Roding @ Abridge	Roach & perch	500	60	MO1
05-Feb-91	Midland Coarse Fish	R.Roding @ Loughton	Chub & dace	1000	100	MO1
04-Mar-91	Woolwich Garrison	Becmain AS Ponds	Crucian carp	400	27	REQ
08-Mar-91	RTZ, Aveley	Raphaels Pk.Lake	Carp	22	130	REQ
08-Mar-91	RTZ, Aveley	Raphaels Pk Lake	Tench	62	106	REQ
08-Mar-91	RTZ, Aveley	Raphaels Pk Lake	Bream,roach,ca	180	15	REQ
08-Mar-91	RTZ, Aveley	Woolwich Garrison	Tench	15	25	REQ
12-Mar-91	Boxmoor Bourne End	Limehouse Cut	Rudd	400	8	REI
12-Mar-91	Boxmoor Bourne End	Limehouse Cut	Roach	1000	20	REI
18-Mar-91	R.Beane @ Woodhall	Walthamstow Res.	Pike	23	26	REQ
25-Mar-91	Beggars Hall Lake	Denham Pit	Rudd	800	40	REQ
25-Mar-91	Boxmoor Trout Lake	Fergusons Lake	Perch	200	10	REQ
28-Mar-91	Stansted Hall Lake	Lee Nav @ Mile End	Roach	1000	50	REQ
28-Mar-91	Stansted Hall Lake	Lee Nav @ Mile End	Perch	1000	20	REQ
28-Mar-91	Stansted Hall Lake	Lee Nav @ Mile End	Rudd	500	10	REQ

Summary:

	Total Weight (kg)	Number
REQ	2223	39563
RES	46	250
REI	745	10043
GRO	0	0
ENH	297	8565
Other	714	19963
TOTAL	4025	78384

Appendix 4

FISH MORTALITIES

1. Thames West

Date	Location	Species	Number	Wt. (kg)	Cause
01-Apr-90	Enton Lake (Johnsons)	Mixed coarse	12	10	Ectoparasites
03-Apr-90	Folly's Gravel Pit	Mixed coarse	11000	3000	Unknown toxic pollutant
25-Apr-90	R.Wey at Alton	Brown trout	10	3.5	Failure of Alton STW
04-May-90	Stubbs Fm. Upper Lk.	Brown trout	20	7	Unknown
06-May-90	R.Thames, Sandford	Mixed	500	50	Ammonia toxicity from Oxford STW
14-May-90	Upton House Pond, Edgehill	Mixed	250	30	Low D.O. from algal bloom
14-May-90	Whiphurst Lake	Carp	30	10	Malnutrition
16-May-90	Pyrton Manor, Large Lake	Roach	200	5	Low D.O. from algal bloom
17-May-90	Upper Dornford Farm Lake	Rainbow trout	30	15	Low D.O. from algal bloom
23-May-90	East Horsley - Mrs Austin	Rudd	25	2	Low D.O.
25-May-90	Northfield Brook, Sandford	Mixed	200	10	Low D.O. - Oxford STW effluent
11-Jun-90	Manor, Moreton Pinkney	Carp	10	3	Decaying algal bloom
22-Jun-90	Lakeside, Brimpton Common	Carp	20	40	Argulus sp.
22-Jun-90	R. Leach, Northleach	Bullhead	35	1	Petrol spillage
22-Jun-90	Lakeside, Brimpton Common	Gudgeon	1000	5	Argulus sp.
25-Jun-90	Hanwell Brook, Banbury	Mixed	300	30	Unknown. Toxic agent suspected
25-Jun-90	Marcham Brook, Frilford	Bullhead	200	3	Probable discharge Appleton STW
26-Jun-90	Oxford Canal, Banbury	Mixed	500	30	Organic polln., causing low d.o.
07-Jul-90	G.U.C. Marsworth	Roach	12	1	Angling/boat physical damage
17-Jul-90	Wolverton Hse. Lake	Carp	100	75	Unknown
18-Jul-90	Kingfield Pond, Woking	Carp & a tench	10	5	Low D.O. due to low water level
22-Jul-90	Alderbrook Pond, Cranleigh	Carp	150	250	Low D.O. due to algal bloom
24-Jul-90	Hankley Common Stream	Brown trout	100	6	Stream drying up
31-Jul-90	Pond 2, Tubney Woods	Rainbow trout	16	10	Low d.o. from algal bloom dying off
01-Aug-90	R.Wey Bordon	Bullhead	7500	37	High ammonia
01-Aug-90	R.Wey Bordon	Brown trout	150	40	High ammonia
02-Aug-90	Weston Turville Reservoir	Mixed	300	125	Algal bloom dying off
05-Aug-90	Barne's Lake, Standlake	Rainbow trout	300	600	Argulus infestation
06-Aug-90	Tubney Pond No.1	Rainbow trout	25	15	Low D.O. from algal bloom
06-Aug-90	Pond at Folley Farm.	Rainbow trout	6	10	Low D.O.
06-Aug-90	Rainbow lake, S.Cerney	Rainbow trout	25	15	Extreme temperature
06-Aug-90	Pond @ Wallace Fm, Dinton	Mixed	100	5	Low D.O.
14-Aug-90	Holy Brook, Reading	Mixed	300	40	Drop in Level due to building work
17-Aug-90	West Clandon Stream	Mixed	400	2	Stream drying up.
19-Aug-90	R.Hart U/S Elvethan	Mixed	200	8	Unknown
23-Aug-90	R.Thame	Chub	4	1	Low flows, low D.O.
23-Aug-90	R.Stert, Abingdon	Minnow	150	0.3	Drought and stagnation
25-Aug-90	Shill Brook, Carterton	Bullhead	200	2	Dried up
28-Aug-90	Tench pool, Wolvercote	Mixed	100	20	Low D.O., low water level
29-Aug-90	Winkworth Arboretum	Rainbow trout	6	3	High S.S.
03-Sep-90	Dudgrove Stream	Mixed	150	4	Unknown
22-Sep-90	Ox. Canal, d/s Kidlington	Mixed	200	10	Low D.O., Kidlington STW
02-Oct-90	R.Slea at Sleaford	Mixed	500	7	Sewage main overflow
09-Oct-90	R.Wey & Farnham Prk. Trib.	Mixed	5000	50	Unknown pollution
11-Nov-90	Proveda Lake, Didcot	Mixed	10	5	Sewage contamination, low D.O.
24-Nov-90	Bannister's, Warden Hill	Rainbow trout	200	80	Unknown
28-Nov-90	Lloyds Lake, Kennington	Mixed	100	40	Low D.O.
02-Dec-90	Hollybush Lane pit 4&5	Carp	20	160	Unknown.
21-Jan-91	Knaphill Gdn Centre Ponds	Carp	4	25	Unknown
04-Feb-91	Upper Wasing Lake	Carp	15	50	Unknown
08-Feb-91	Emma's Dyke, Witney	Minnow	2000	7	Unknown toxin
23-Feb-91	Claridge's Pond, Swindon	Tench	100	25	Probably deoxygenation beneath ice
25-Feb-91	R.Wey, Alton	S3, M1, SL, BH	3000	15	Caustic soda
Total number		35795	Total Weight (kg)		5003

2. Thames East

Date	Location	Species	Number	Wt. (kg)	Cause
02-Apr-90	Turkey Brook	Roach	30	3	Resin leakage to road drain
02-Apr-90	Turkey Brook	Minor SL BH GU	2000	20	Resin leakage to road drain.
02-Apr-90	Turkey Brook	Dace	30	3	Resin leakage to road drain.
02-Apr-90	Turkey Brook	Chub	25	3	Resin leakage to road drain.
29-Apr-90	R.Crane, Cranford Park	Roach & Stick'b	1000	2	Detergent Spillage
30-Apr-90	Legion Lk, Finchley Bridge	Roach	500	50	Low DO during hot weather
08-May-90	Rye Meads Lagoons	Carp	50	295	Possible de-watering accident.
15-May-90	GUC Paddington Arm	Roach	40	2	Probable unknown discharge.
15-May-90	Burgess Park Lake	Roach & tench	150	15	High algal bloom & low DO's.
16-May-90	Brent/GUC Confluence	Roach	20	2	Low DO slug - cause unknown.
23-May-90	South Norwood Lake	Roach & carp	30	15	Algal bloom crash & low DO's.
01-Jun-90	Nutfield Priory Lake	Carp	30	5	Poor water quality & overstocking.
01-Jun-90	R.Wandle, Wandsworth	Roach, dace & S3	50	2	Cause unknown.
02-Jun-90	R.Brent	Roach & bream	1000	15	Low DO's following storm runoff.
03-Jun-90	Dukes River, Isleworth	Roach, dace, gud	1000	50	Pollution from Watneys Brewery
05-Jun-90	Lower Lee Flood Channel	Roach	75	10	Storm run-off after heavy rain
05-Jun-90	Lower Lee Flood Channel	Roach	75	10	Storm run-off after heavy rain
05-Jun-90	Lower Lee Flood Channel	Perch	75	10	Storm run-off after heavy rain
05-Jun-90	Lower Lee Flood Channel	Perch	75	10	Storm run-off after heavy rain
06-Jun-90	R.Brent & GUC	Roach & bream	100	2	Low DO's following storm runoff.
15-Jun-90	Bennets Fm. Lake, S. Weald	Roach	30	1	Low DO's.
26-Jun-90	GUC @ Dudswell	Roach	20	2	Secondary fungal infection
01-Jul-90	R.Colne @ Watford	Roach	10	3	Sewage pollution from culvert.
05-Jul-90	Sth Norwood Lake	Bream	30	8	Low DO's & Algal Bloom
14-Jul-90	Turkey Brook @ Enfield	Roach	5	1	Unknown
14-Jul-90	R.Lee Wheathampstead	Roach	200	3	East Hyde STW renovation works.
16-Jul-90	R.Roding @ Gang Bridge	Roach & perch	150	3	Poss. pesticides. Investigation Con'
18-Jul-90	Wandsworth Common Ponds	Pike & bream	6	5	Angling damage
20-Jul-90	R.Gade @ Croxley Grn.	Roach	4	1	Unknown
23-Jul-90	Turkey Brook @ Albany Pk.	Stickleback	200	2	Blocked sewer.
28-Jul-90	GUC Maypole Dock	Roach & bream	200	10	Low DO's & hot weather
30-Jul-90	Cripsey Brook, Shelly	Chub & dace	400	15	False storm discharge from sewer.
30-Jul-90	Bourne Hall Pond, Ewell	Carp & tench	64	31	Urban runoff into very low pond.
31-Jul-90	Wandsworth Common Pond	Pike	5	10	Angling damage suspected.
07-Aug-90	R.Stort Navigation	Perch	100	3	Stocking mortalities
13-Aug-90	D.O.N. Isleworth	Sea trout	1	0.5	Unknown
16-Aug-90	R.Crane @ Crane Park	Chub, dace, roach	500	20	Urban runoff after long dry spell.
17-Aug-90	Lower R.Lee	Mixed coarse	250	50	Low DO's after heavy rainfall.
19-Aug-90	Battersea Park Lake	Roach & bream	2000	350	DO crash after algal bloom die off.
23-Aug-90	Walton on the Hill Pond	Roach	300	30	Algal crash causing very low DO's.
07-Sep-90	Hogsmill	Roach	50	3	Probable NH3 problems @ STW
14-Sep-90	Southmere, Thamesmead	Tench & pike	6	5	Probable angling damage
18-Sep-90	Wandsworth Cmn. Stock Pond	Carp	150	200	Very low DO after algal bloom crash
23-Sep-90	Shadwell Basin	Roach, carp, pike	1000	300	Very low DO after algal bloom crash
18-Oct-90	Thamesmere Lake	Roach	20	2	Unknown
30-Oct-90	Crossness Holding Tanks	Brown trout	200	4	Overnight chlorine problem.
22-Nov-90	Chase Fishery Dagenham	Roach	200	10	Illegal netting suspected.
23-Nov-90	Dartford Creek (Tidal)	Ro, flounder, eel	200	10	Illegal Discharge from Burroughs W.
05-Jan-91	Black Pond, Esher	Roach	10	0.2	Low DO's - cause unknown
10-Jan-91	Chelsea Creek	Dace & roach	50	0.1	Suspect discharge from surface W.S.
24-Feb-91	R.Stort d/s Stortford	Roach	50000	80	Kerosene pollution from pipeline
24-Feb-91	R.Stort d/s Stortford	Roach	2000	57	Kerosene pollution from pipeline
24-Feb-91	R.Stort d/s Stortford	Roach	1000	112	Kerosene pollution from pipeline
25-Feb-91	R.Stort d/s Stortford	Roach	130	56	Kerosene pollution from pipeline
24-Feb-91	R.Stort d/s Stortford	Mixed	500	25	Kerosene pollution from pipeline

Total number 66346 Total Weight (kg) 1937