

INTRODUCTION

This report presents the results of the biological river quality investigations carried out in the year 2001 in which 864 locations on 298 rivers and streams were surveyed in those Hydrometric Areas indicated on the facing page (Fig. 1).

For each Hydrometric Area (HA) the total number of locations surveyed and the numbers and percentages falling into the four biological quality classes A, B, C and D is shown in Table 1 overleaf.

Water quality was assessed as being satisfactory (Class A) at 509 (59%) surveyed locations, some 176 sites (20%) indicated slight pollution (Class B), 161 (19%) were moderately polluted (Class C) and serious pollution (Class D) was recorded at 18 (2%) surveyed locations.

This is the first in the current 3-year cycle of investigation (2001–2003) in which the national baseline of some 13,100 km of river channel is to be reassessed. All available biological and physico-chemical data acquired in the previous (1998–2000) cycle are set out and discussed in a two-part report published by the Environmental Protection Agency (EPA) in February 2001 (McGarrigle et al., 2001)

POLLUTION TYPES AND SOURCES

The commonest type of pollution - organic pollution - is caused by sewage, animal manure slurries and food processing wastes: as the waste is consumed by the organisms of decay the oxygen in the water is used up and the breakdown products (including phosphorus and nitrogen compounds) are released into the water. The main effects of organic pollution are therefore, the depletion of oxygen in the area immediately below the discharge and eutrophication (i.e., enrichment) in the recovery zone further downstream. Eutrophication, which is also caused by the inappropriate and/or excessive application of organic (slurry) and inorganic (artificial) manure to agricultural and forestry lands, has become very widespread in recent years and in the period 1998- 2000 it was estimated that approximately one third of river channel length surveyed was affected to some degree. The characteristic symptom of eutrophication in rivers is abnormally luxuriant

growths of water weed and filamentous algae which cause a variety of problems in affected waters.

Toxic pollution is commonly caused by poisons such as sheep dip, mining wastes and industrial discharges and its effects are recognisably different to those caused by organic wastes. Physical pollution refers to siltation arising from quarrying, bog and forestry development and arterial drainage.

Some wastes (e.g., sewage and manure slurries) commonly exert the three effects viz. organic, toxic and physical.

WATER QUALITY ASSESSMENT

As more fully discussed in Appendix I, water quality and water pollution assessment methods fall into two main categories - biological methods and chemical methods. Each approach has its own particular applications, strengths and weaknesses but ideally a combination of both is preferable to either on its own.

Biological Surveys: General

Biological surveys are usually undertaken in the summer–autumn period (June–September) when flows are likely to be relatively low and water temperatures highest. Surveys during this period are likely, therefore, to coincide with the worst conditions to be expected in those reaches affected by waste inputs. Material for examination is obtained by a 'kick' sampling technique in the faster-flowing areas of the river or stream (riffles) and the examination and assessment of water quality is made on site.

Measurements of DO saturation and water temperature, as well as observations on macrophyte and algal abundance, substratum type, water appearance and other biological and physical features are also recorded.

The Survey of 2001

In the pages which follow the biotic index ascribed to each location surveyed in the current year is set out together with the Q values recorded in the previous surveys and following this is a brief assessment of the current quality position. A summary and explanation of the terminology employed in these assessments is set out in Appendix I.

Table 1. The 2001 survey results summarised.
Table shows the number of surveyed locations in each Hydrometric Area (see Fig. 1) classified as being either:- A Unpolluted, B Slightly polluted and/or eutrophic, C Moderately polluted and/or hypertrophic or D Seriously polluted.

| Hydrometric Area No. | Number of Sampling Stations in Biological Quality Class:- | | | | | TOTAL |
|----------------------|---|-----|-----|-----|----|-------|
| | | A | B | C | D | |
| 01 | No. | 25 | 3 | 6 | 0 | 34 |
| | % | 74 | 9 | 18 | 0 | |
| 03 | No. | 7 | 0 | 11 | 0 | 18 |
| | % | 39 | 0 | 61 | 0 | |
| 08 | No. | 2 | 6 | 20 | 1 | 29 |
| | % | 7 | 21 | 69 | 3 | |
| 11 | No. | 5 | 4 | 12 | 1 | 22 |
| | % | 23 | 18 | 55 | 5 | |
| 12 | No. | 67 | 29 | 7 | 0 | 103 |
| | % | 65 | 28 | 7 | 0 | |
| 15 | No. | 47 | 53 | 17 | 4 | 121 |
| | % | 39 | 44 | 14 | 3 | |
| 17 | No. | 18 | 6 | 2 | 0 | 26 |
| | % | 69 | 23 | 8 | 0 | |
| 22 | No. | 51 | 8 | 4 | 0 | 63 |
| | % | 81 | 13 | 6 | 0 | |
| 23 | No. | 38 | 10 | 8 | 1 | 57 |
| | % | 67 | 18 | 14 | 2 | |
| 27 | No. | 53 | 10 | 25 | 1 | 89 |
| | % | 60 | 11 | 28 | 1 | |
| 34 | No. | 104 | 15 | 7 | 2 | 128 |
| | % | 81 | 12 | 5 | 2 | |
| 36 | No. | 43 | 27 | 37 | 2 | 109 |
| | % | 39 | 25 | 34 | 2 | |
| 39 | No. | 26 | 5 | 3 | 1 | 35 |
| | % | 74 | 14 | 9 | 3 | |
| 40 | No. | 23 | 0 | 2 | 5 | 30 |
| | % | 77 | 0 | 7 | 17 | |
| Totals | No. | 509 | 176 | 161 | 18 | 864 |
| | % | 59 | 20 | 19 | 2 | |

THE PHOSPHORUS REGULATIONS

Government Regulations (S.I. No. 258 of 1998) intended to counter eutrophication have been introduced in recent years. In order to comply with the requirements of the Regulations and also with the Dangerous Substances in Water Directive (CEC 1976) phosphorus inputs to surface waters must be curtailed. The effectiveness or otherwise of measures designed to achieve this objective must be assessed and the Regulations allow for either chemical or biological assessment methods to be used. This approach is proposed because of the statistically robust cause-effect relationship which has been established between P concentrations and eutrophication status (McGarrigle *et. al.*, 1992).

As stated above, quality ratings of Q4 and higher represent satisfactory conditions where eutrophication is unlikely to be a problem. Because annual median P values in such waters rarely exceed 30 µg P/l this concentration has been adopted as the target value to be achieved by 2007. Because of the relationship between P values and eutrophication, progress towards achieving the specified targets may be assessed with reference to EPA biological surveys or by chemical analysis. Table 2 below summarises the requirements of Regulations. Only those rivers and streams biologically surveyed by EPA in the period 1995-1997 are covered by the Regulations: these are set out in the floppy disc which accompanies the National Water Quality Report for that period (Lucey *et. al.*, 1999).

TABLE 2. Phosphorus Standards Regulations target values for Irish Rivers

| <i>If</i> | <i>Then</i> | |
|---|--|---|
| The current Q-Value ¹ falls into the category below: | <i>Either</i> The minimum Q-Value ¹ to be achieved is: | <i>Or</i> The annual median orthophosphate concentration ² (µgP/l) to be achieved is: |
| 5 | 5 | 15 |
| 4-5 | 4-5 | 20 |
| 4 | 4 | 30 |
| 3-4 | 4 | 30 |
| 3 | 3-4 | 50 |
| 2-3 | 3-4 | 50 |
| ≤2 | 3 | 70 |

¹ Biological Quality Rating (Q-Value) as assessed by EPA staff during National River Monitoring Programmes.

² Molybdate-Reactive Phosphate (MRP) Median concentration to be determined as a minimum of 10 samples taken at intervals of four weeks or longer in any twelve consecutive month period. Where the requisite number of samples has not been taken within such period, the median concentration shall be determined from sampling conducted over such period, being a period not exceeding 24 months, as required to obtain a minimum of 15 samples taken at intervals of four weeks or longer.

HYDROMETRIC AREA 01 (PART)

Foyle

| | |
|--------------------|---------|
| Bunadaowen | 01B01 |
| Burn Darnett | 01B02 |
| (Carrigans) | (01C01) |
| Clogher (Finn) | 01C06 |
| Cloghroe | 01C05 |
| Cross Roads Stream | 01C04 |
| Cummirk | 01C03 |
| Deele (Donegal) | 01D01 |
| Elatagh | 01E02 |
| Finn (Donegal) | 01F01 |
| Mourne beg | 01M01 |
| Reelan | 01R01 |
| Rough Burn | 01R02 |
| (St. Johnston) | (01S01) |
| Stranagappoge | 01S02 |
| (Swilly Burn) | (01S03) |

Note: Due to time constraints rivers shown in brackets could not be sampled in 2001: these will be surveyed in 2002

River and Code : **BUNADAOWEN** **01/B/01**
Tributary of : Mourne Beg OS Catchment No: 63
OS Grid Ref : H 082 879 Date(s) Surveyed : 21/8/01

| Sampling Stations | | Biological Quality Ratings (Q Values) | | | | |
|-------------------|-------------------------|---------------------------------------|------|------|------|------|
| No. | Location | 1990 | 1994 | 1997 | 1998 | 2001 |
| 0100 | Br u/s Mourne Beg confl | 4* | 3 | 4* | 3 | 3* |

Assessment: The Bunadownen is extremely acidic in nature with low diversity and lack of sensitive species. A conductivity of 30µS was recorded at the sampling site. The catchment is extensively afforested. *Acid impacts

River and Code : **BURN DAURNETT** **01/B/02**
Tributary of : Finn (Donegal) OS Catchment No: 62
OS Grid Ref : H 143 944 Date(s) Surveyed : 21/8/01

| Sampling Stations | | Biological Quality Ratings (Q Values) | | | | | | | | |
|-------------------|---------------------------|---------------------------------------|------|------|------|------|------|------|------|------|
| No. | Location | 1975 | 1979 | 1987 | 1988 | 1990 | 1994 | 1997 | 1998 | 2001 |
| 0010 | Blackburn Bridge | - | - | 4-5 | - | 3 | 3 | 3 | 2-3 | 2-3 |
| 0100 | Burn Daurnett Bridge | - | 4-5 | 4 | - | 3-4 | - | - | - | - |
| 0200 | Bridge N.W. of Daisy Hill | 1/0 | - | 1-2 | 2-3 | 1 | 2-3 | 2-3 | 2-3 | 2-3 |

Assessment: The Burn Daurnett is polluted by water works effluent in the upper section (0010) and a combination of discharges affect the lower site (0200) in Ballybofey.

River and Code : **CLOGHER (FINN)** **01/C/06**
Tributary of : Reelan OS Catchment No: 62
OS Grid Ref : H 018 964 Date(s) Surveyed : 22/8/01

| Sampling Stations | | Biological Quality Ratings (Q Values) | | | | |
|-------------------|-----------------------------|---------------------------------------|------|------|------|------|
| No. | Location | 1990 | 1994 | 1997 | 1998 | 2001 |
| 0100 | Bridge N.E. of Letterkillew | 4-5 | 3-4 | 3-4 | 3 | 3-4 |

Assessment: The Clogher is impacted by forestry activities in the upper catchment causing extensive algal mats on the substratum due to iron pan disruption. Algal abundance is moderate and the river is significantly degraded in comparison with 1990 when it was first surveyed.

River and Code : **CLOGHROE** **01/C/05**
Tributary of : Deelee (Donegal) OS Catchment No: 61
OS Grid Ref : C 170 008 Date(s) Surveyed : 23/8/01

| Sampling Stations No. Location | Biological Quality Ratings (Q Values) | | | | |
|-----------------------------------|---------------------------------------|------|------|------|------|
| | 1990 | 1994 | 1997 | 1998 | 2001 |
| 0200 Cloghroe Bridge | 4 | 4 | 4 | 4 | 4 |
| 0300 Callan Bridge | 5 | 4 | - | - | - |
| 0400 Br d/s Callan Br | - | - | 5 | 4-5 | 4 |

Assessment: The Cloghroe was satisfactory in August 2001. A drop in quality was noted, however, at Station 0400.

River and Code : **CROSS ROADS STREAM** **01/C/04**
Tributary of : Finn (Donegal) OS Catchment No: 62
OS Grid Ref : H 207 935 Date(s) Surveyed : 21/8/01

| Sampling Stations No. Location | Biological Quality Ratings (Q Values) | | | | |
|-----------------------------------|---------------------------------------|------|------|------|------|
| | 1990 | 1994 | 1997 | 1998 | 2001 |
| 0200 Br at Monellan Ho | - | - | 4 | 4 | 4-5 |
| 0300 Bridge W. of Avaltygort Hill | 4 | 4 | - | - | - |
| 0400 Bridge at Cross Roads | 2-3 | 3-4 | - | - | - |
| 0500 0.2 km d/s Br at Cross Roads | - | - | 3-4 | 3-4 | 3-4 |

Assessment: The Cross Roads Stream was satisfactory at the upper site (0200) but slightly polluted upstream of the Finn River (0500) where it is apparently affected by industrial discharges.

River and Code : **CUMMIRK** **01/C/03**
Tributary of : Finn (Donegal) OS Catchment No: 62
OS Grid Ref : B 993 018 Date(s) Surveyed : 22/8/01

| Sampling Stations No. Location | Biological Quality Ratings (Q Values) | | | | |
|-----------------------------------|---------------------------------------|------|------|------|------|
| | 1990 | 1994 | 1997 | 1998 | 2001 |
| 0100 Cummirk Bridge (Upper) | 5 | 4 | 4 | 4 | 4-5 |
| 0300 Cummirk Bridge (Lower) | 4-5 | 4 | 4 | 4 | 4 |

Assessment: Satisfactory.

River and Code : **DEELE (DONEGAL)** **01/D/01**
Tributary of : Foyle OS Catchment No: 61
OS Grid Ref : C 340 002 Date(s) Surveyed : 23/8/01

| Sampling Stations No. | Location | Biological Quality Ratings (Q Values) | | | | | | | | |
|--------------------------|------------------------------|---------------------------------------|------|------|------|------|------|------|------|------|
| | | 1973 | 1977 | 1980 | 1985 | 1990 | 1994 | 1997 | 1998 | 2001 |
| 0040 | Bridge N. of Aughkeely | - | - | - | - | 5 | 4-5 | 4-5 | 4 | 4-5 |
| 0100 | Bridge near Newtown | - | - | 5 | 5 | 5 | - | - | - | 4-5 |
| 0150 | 1st Br d/s Br near Newtown | 5 | 5 | 4-5 | 5 | 5 | 4 | 4 | - | - |
| 0200 | 2nd Br d/s Br near Newtown | - | - | 4-5 | 5 | 4 | - | - | 4-5 | 4 |
| 0300 | Glasly Bridge | 4-5 | 5 | 5 | 5 | 5 | 4 | 3-4 | 4 | 4-5 |
| 0400 | Bridge in Convoy | - | - | 5 | - | 4-5 | - | - | - | - |
| 0410 | 200 m d/s Bridge in Convoy | - | 3-4 | - | 3-4 | 4-5 | - | - | - | - |
| 0500 | Bridge 1.5 km S.E. of Convoy | 5 | 3-4 | 5 | 3 | 4-5 | 2-3 | 2-3 | 2-3 | 3 |
| 0520 | Ford W. of Milltown | - | - | - | - | 4 | 4 | - | - | - |
| 0540 | Br S. of Milltown | - | - | - | - | - | - | - | 4 | 4 |
| 0600 | Ballymonaster Bridge | 4-5 | 4 | 4 | 3-4 | 4 | 4-5 | 4 | 4 | 4 |
| 0650 | Bridge in Ballindrait | 5 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | - |

Assessment: The Deele was in satisfactory condition over its length with the exception of the section downstream of the town of Convoy (0500). A slight improvement was noted there in comparison with the situation in 1998.

River and Code : **ELATAGH** **01/E/02**
Tributary of : Finn (Donegal) OS Catchment No: 62
OS Grid Ref : C 021 012 Date(s) Surveyed : 22/8/01

| Sampling Stations No. | Location | Biological Quality Ratings (Q Values) | | | | |
|--------------------------|---------------------------|---------------------------------------|------|------|------|------|
| | | 1990 | 1994 | 1997 | 1998 | 2001 |
| 0100 | Br N of Stranabrack Lr | - | 3 | 4-5 | 3-4 | 4 |
| 0200 | Bridge E. of Abratt Lower | 5 | - | - | - | - |
| 0300 | Elatagh Bridge | 5 | 4 | 4 | 4-5 | 4-5 |

Assessment: The upper Elatagh (0100) had improved in comparison with 1998. The lower reaches (0300) continued in satisfactory condition.

| | | | |
|----------------|-------------------------|--------------------|----------------|
| River and Code | : FINN (DONEGAL) | | 01/F/01 |
| Tributary of | : Foyle | OS Catchment No: | 62 |
| OS Grid Ref | : H 332 980 | Date(s) Surveyed : | 22/8/01 |

| Stations No. | Biological Quality Ratings (Q Values) | | | | | | | | | |
|-----------------|---------------------------------------|------|------|------|------|------|------|------|------|------|
| | 1971 | 1973 | 1977 | 1980 | 1984 | 1990 | 1994 | 1997 | 1998 | 2001 |
| 0100 | - | - | - | 5 | 5 | 5 | - | - | - | - |
| 0200 | - | 5 | - | 5 | 4-5 | 4-5 | 4 | 4 | 4-5 | 4-5 |
| 0300 | - | - | - | 5 | 5 | 5 | 4-5 | - | - | - |
| 0350 | - | - | - | - | - | - | - | 4-5 | 4-5 | 4-5 |
| 0400 | 5 | 5 | 5 | 5 | 5 | 5 | 4-5 | 4-5 | 4-5 | 4-5 |
| 0500 | 5 | 5 | 4-5 | 5 | 5 | 4-5 | 4 | 4-5 | 4-5 | 4 |
| 0600 | 5 | 5 | 4-5 | 4 | 4-5 | 4-5 | 4-5 | 4-5 | 5 | 3 |
| 0800 | 4-5 | 4 | 3 | 4 | 3-4 | 3 | 3 | 3 | 2 | 4 |
| 0900 | 4 | 4 | 4 | 4 | 4 | 3-4 | 4 | 4 | 4 | 4 |
| 1100 | 4-5 | 4-5 | 4 | 4 | 4 | 4 | 4 | - | 4-5 | 4 |

| Sampling Station | | Sampling Station | |
|------------------|---------------------------------|------------------|--------------------------------------|
| No. | Location | No. | Location |
| 0100 | Bridge S. of Scallan Bridge | 0500 | Bridge near Glenmore Railway Station |
| 0200 | Bridge S. of Bellanamore | 0600 | Bridge 2.5 km u/s Ballybofey |
| 0300 | Between Cummirk R and Elatagh R | 0800 | Bridge S. of Stranorlar |
| 0350 | Br 100 m u/s Elatagh R confl | 0900 | Bridge S. of Killygordon |
| 0400 | Bridge due S. of Cloghan | 1100 | Castlefin Bridge |

Assessment: The upper reaches of the Finn (200, 0350, 0400) were satisfactory in 2001. Nonetheless evidence of the impact of the extensive afforestation in the catchment was apparent particularly at Stations 0350 and 0400 where algal mats were noted on the substratum. Upstream of Stranorlar/Ballybofey (0500) a serious decline in quality was noted with no sensitive invertebrate species found for the first time since surveys began in 1971. The cause of this problem was not evident at the time of sampling. The river is some 30 to 40 m wide at this point so it is of some concern that all pollution-sensitive species had been eliminated from this fast-flowing stretch. Downstream of Ballybofey (0800) a significant improvement was noted both in comparison with the upstream stretch and also in comparison with the 1998 survey when serious sewage pollution was evident. The lower Finn (0900, 1100) was also satisfactory.

River and Code : **MOURNE BEG** **01/M/01**
Tributary of : Derg OS Catchment No: 63
OS Grid Ref : H 230 827 Date(s) Surveyed : 21/8/01

| Sampling Stations No. Location | Biological Quality Ratings (Q Values) | | | | |
|-----------------------------------|---------------------------------------|------|------|------|------|
| | 1990 | 1994 | 1997 | 1998 | 2001 |
| 0100 Red Burn Bridge | 4 | 4 | 4* | 3-4* | 3-4* |
| 0200 Bridge S.W. of Tonreagh | 4 | 4 | 4* | 4* | 4* |

Assessment: The Mourne Beg is one of the most acidic rivers in the West and North West of Ireland. Coniferous forestry plantations in the catchment probably enhance the acidic nature of the river. Faunal diversity is very low with no ephemeropteran species noted at either site surveyed. Conductivity measured 20µS at Station 0100 and 30µS at Station 0200. Little change since 1998.

River and Code : **REELAN** **01/R/01**
Tributary of : Finn (Donegal) OS Catchment No: 62
OS Grid Ref : H 042 979 Date(s) Surveyed : 22/8/01

| Sampling Stations No. Location | Biological Quality Ratings (Q Values) | | | | |
|-----------------------------------|---------------------------------------|------|------|------|------|
| | 1990 | 1994 | 1997 | 1998 | 2001 |
| 0200 Ford W. of Carrickagh | 5 | 4 | 4-5 | 4 | 4-5 |
| 0500 Reelan Bridge | 5 | 4-5 | 4 | 3-4 | 4-5 |

Assessment: Satisfactory at both sites sampled. A significant improvement was noted in the lower section which was impacted by forestry drainage when surveyed in 1998.

River and Code : **ROUGH BURN** **01/R/02**
 Tributary of : Finn (Donegal) OS Catchment No: 62
 OS Grid Ref : H 092 962 Date(s) Surveyed : 23/8/01

| Sampling Stations No. Location | Biological Quality Ratings (Q Values) | | | | |
|-----------------------------------|---------------------------------------|------|------|------|------|
| | 1989 | 1994 | 1997 | 1998 | 2001 |
| 0200 Bridge u/s Finn River confl | 4-5 | 4 | 4-5 | 3 | 3 |

Assessment: The Rough Burn was still moderately polluted in 2001. A major drop in quality was first noted in the 1998 survey. This Finn tributary enters the main Finn River upstream of Site 0650 on the Finn (qv) which was noted as being polluted for the first time since 1971. The upper catchment of the Rough Burn is heavily forested.

River and Code : **STRANAGOPPOGE** **01/S/02**
 Tributary of : Finn (Donegal) OS Catchment No: 62
 OS Grid Ref : B 963 024 Date(s) Surveyed : 22/8/01

| Sampling Stations No. Location | Biological Quality Ratings (Q Values) | | | | |
|-----------------------------------|---------------------------------------|------|------|------|------|
| | 1990 | 1994 | 1997 | 1998 | 2001 |
| 0100 Br W Tieveragh | - | 3-4 | 3-4 | 3-4 | 4-5 |
| 0200 Bridge u/s Finn River confl | 5 | 4 | 4 | 4-5 | 4-5 |

Assessment: Satisfactory.

HYDROMETRIC AREA 03

Bann (Ulster)

| | |
|-----------------------|-------|
| Blackwater (Monaghan) | 03B01 |
| Clontibret Stream | 03C01 |
| Conawary (Lower) | 03C02 |
| Mountain Water | 03M01 |
| Scotstown | 03S02 |

River and Code : **BLACKWATER (MONAGHAN)** **03/B/01**
 Tributary of : Lough Neagh OS Catchment No: 68
 OS Grid Ref : H 922 637 Date(s) Surveyed : 17/07/01

| Stations No. | Biological Quality Ratings (Q Values) | | | | | | | | | | |
|-----------------|---------------------------------------|------|------|------|------|------|------|------|------|------|------|
| | 1971 | 1973 | 1977 | 1981 | 1983 | 1985 | 1989 | 1993 | 1996 | 1998 | 2001 |
| 0130 | - | - | - | - | - | - | 3-4 | 4 | 4 | 4 | 3 |
| 0300 | 4 | 4 | 3-4 | 4 | 4 | 3-4 | 3-4 | 4 | 4 | 4 | 4 |
| 0510 | - | - | - | - | - | - | 3 | 3 | 3-4 | 3 | 3 |
| 0650 | - | - | - | - | - | - | 2-3 | - | 2-3 | 3 | 3/0 |
| 0800 | 4 | 3-4 | 3-4 | 3 | 3 | 3 | 3 | 3 | 2-3 | 3 | 3 |

| Sampling Station | | Sampling Station | |
|------------------|-------------------------|------------------|--------------------|
| No. | Location | No. | Location |
| 0130 | 1.5 km d/s Scotstown Br | 0650 | Faulkland Br (Upr) |
| 0300 | 1st Br d/s Ballinode | 0800 | Newmills Br |
| 0510 | 250m d/s Br nr Milltown | | |

Assessment: A substantial deterioration was recorded in the reach below Scotstown (0130) where the river was heavily silted in mid July 2001; the cause of this is not clear. The Ballinode area (0300) continued to reflect satisfactory quality conditions but, as in previous surveys, the reach from Milltown (0510) to Newmills (0800) remained in a significantly polluted condition and there were indications of toxicity (i.e., extremely low faunal diversity plus bleaching of the substratum), at Faulkland Br Upper (0650). Sewage and industrial discharges are suspected.

River and Code : **CLONTIBRET STREAM** **03/C/01**
 Tributary of : Blackwater (Monaghan) OS Catchment No: 68
 OS Grid Ref : H 734 381 Date(s) Surveyed : 16/07/01

| Sampling Stations No. | Location | Biological Quality Ratings (Q Values) | | | | | |
|--------------------------|----------------------------|---------------------------------------|------|------|------|------|------|
| | | 1989 | 1990 | 1993 | 1996 | 1998 | 2001 |
| 0600 | Br in Clontibret | 3 | - | 3 | 3 | 3 | 3 |
| 1100 | Br SW of Clerran | 2-3 | 3 | - | - | - | 3 |
| 1400 | Br E of Killyneill X-Roads | 3 | - | 3-4 | 4 | 3 | 3 |

Assessment: This small stream was again considerably polluted by suspected agriculture and sewage in July 2001 when none of the three locations surveyed was of a satisfactory quality standard.

River and Code : **CONAWARY (LOWER)** **03/C/02**
Tributary of : Blackwater (Monaghan) OS Catchment No: 68
OS Grid Ref : H 658 348 Date(s) Surveyed : 17/07/01

| Sampling Stations No. Location | Biological Quality Ratings (Q Values) | | | | | |
|-----------------------------------|---------------------------------------|------|------|------|------|------|
| | 1989 | 1990 | 1993 | 1996 | 1998 | 2001 |
| 1100 White Br | 3 | - | 3 | 3 | 3 | 3 |
| 1300 Br u/s Blackwater R confl | 2-3 | - | - | 3 | 3 | 3 |

Assessment: Agriculture is suspected as the cause of the unsatisfactory condition of the Lower Conawary which was again considerably polluted at the time of this survey in July 2001 when DO was reduced to 54% at White Bridge (1100) and to 74% in the lower reaches (1300).

River and Code : **MOUNTAIN WATER** **03/M/01**
Tributary of : Blackwater (Ulster) OS Catchment No: 68
OS Grid Ref : H 678 438 Date(s) Surveyed : 18/07/01

| Stations No. | Biological Quality Ratings (Q Values) | | | | | | | | | | | |
|-----------------|---------------------------------------|------|------|------|------|------|------|------|------|------|------|------|
| | 1971 | 1973 | 1977 | 1981 | 1983 | 1985 | 1989 | 1993 | 1994 | 1996 | 1998 | 2001 |
| 0100 | - | 5 | 5 | 5 | 5 | 5 | 5 | 4-5 | 5 | 4-5 | 4-5 | 4-5 |
| 0200 | 4-5 | 5 | 4-5 | 4-5 | 5 | 5 | 5 | 1/0 | 3-4 | 4-5 | 4-5 | 4-5 |
| 0400 | 4-5 | 4-5 | 4 | 4-5 | 4-5 | 4-5 | 4-5 | 2/0 | 3-4 | 4 | 4-5 | 4 |
| 0500 | 4 | 4 | 2 | 3-4 | 3 | 3 | 3 | 3/0 | 3 | 3-4 | 3 | 3 |
| 0650 | - | - | - | 4 | 4-5 | 3 | 3 | 3/0 | 3 | 3 | 3 | 3 |

| Sampling Station | | Sampling Station | |
|------------------|--------------------|------------------|-----------------------|
| No. | Location | No. | Location |
| 0100 | Coyle's Br | 0500 | Br 1.1 km d/s Emyvale |
| 0200 | Br NE of Golan | 0650 | Br N of Glaslough |
| 0400 | 1st Br u/s Emyvale | | |

Assessment: Water levels were very low and the river was heavily silted at all points surveyed but despite this the variety of sensitive macroinvertebrates present indicated satisfactory conditions at the three locations in the reach above Emyvale in 2001. Downstream of this town (0500, 0650) the river continued to be considerably polluted by suspected sewage and possibly other discharges.

| | | |
|----------------|-------------------------|-----------------------------|
| River and Code | : SCOTSTOWN | 03/S/02 |
| Tributary of | : Blackwater (Monaghan) | OS Catchment No: 68 |
| OS Grid Ref | : H 608 369 | Date(s) Surveyed : 17/07/01 |

| Sampling Stations No. | Location | Biological Quality Ratings (Q Values) | | | | |
|--------------------------|---------------------------|---------------------------------------|------|------|------|------|
| | | 1989 | 1993 | 1996 | 1998 | 2001 |
| 0200 | Br S of Knockballyroney | 5 | 5 | 5 | 4-5 | 4-5 |
| 0400 | Br at Mill, S of Dromscor | 5 | 4-5 | 4-5 | 4 | 4-5 |
| 0500 | Br u/s Scotstown Br | 4-5 | 4-5 | 4-5 | 4-5 | 4 |

Assessment: From the variety of the more sensitive macroinvertebrates recorded at Stations 0200 and 0400 the upper and middle reaches of the Scotstown River were assessed as highly satisfactory in July 2001. Enhanced growths of filamentous algae (*Cladophora* sp.) at 0500, however, indicated some nutrient enrichment in the Scotstown area.

HYDROMETRIC AREA 08

Nanny - Devlin

| | |
|-------------------|-------|
| Ballough Stream | 08B03 |
| Ballyboghil | 08B01 |
| Broadmeadow | 08B02 |
| Delvin | 08D01 |
| Fairyhouse Stream | 08F01 |
| Hurley | 08H01 |
| Mosney | 08M02 |
| # Nanny (Meath) | 08N01 |
| Ward | 08W01 |

Rivers denoted thus had seriously polluted stretch(es) at the time of this survey.

River and Code : **BALLOUGH STREAM** **08/B/03**
 Tributary of : Ballyboghil OS Catchment No: 163
 OS Grid Ref : O 204 515 Date(s) Surveyed : 25/07/01

| Sampling Stations No. Location | Biological Quality Ratings (Q Values) | | | | |
|-----------------------------------|---------------------------------------|------|------|------|------|
| | 1988 | 1991 | 1996 | 1998 | 2001 |
| 1400 Br W of the Five Rds | - | - | 3 | 3 | 3-4 |
| 1600 Corduff Br | 3 | 3 | 3 | 3 | 3-4 |

Assessment: Following minor improvements since 1998 this small stream was assessed as just slightly polluted at both locations surveyed in July 2001.

River and Code : **BALLYBOGHIL** **08/B/01**
 Tributary of : Rogerstown Estuary, Rush OS Catchment No: 163
 OS Grid Ref : O 203 514 Date(s) Surveyed : 24/07/01

| Sampling Stations No. Location | Biological Quality Ratings (Q Values) | | | |
|-----------------------------------|---------------------------------------|------|------|------|
| | 1991 | 1996 | 1998 | 2001 |
| 1900 Br S of Trallie Lodge | - | 2 | 3 | 3-4 |
| 2200 Br in Ballyboghil | 3 | 3 | 3 | 3/0 |

Assessment: A slight improvement since 1998 was recorded in Wyanstown area (1900) but there were signs of toxicity in Ballyboghil (2200) where insect nymphs were not observed at the time of this survey in late July 2001.

River and Code : **BROADMEADOW** **08/B/02**
Tributary of : Sea - Malahide Estuary OS Catchment No: 164
OS Grid Ref : O 192 423 Date(s) Surveyed : 24/07/01

| Stations No. | Biological Quality Ratings (Q Values) | | | | | | | | | | | | | |
|-----------------|---------------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|-------|
| | 1971 | 1973 | 1974 | 1976 | 1981 | 1983 | 1985 | 1988 | 1989 | 1991 | 1994 | 1996 | 1998 | 2001 |
| 0150 | - | - | - | - | - | - | - | 2 | 2 | 2 | 2 | 2 | 2 | 2-3 |
| 0300 | 2 | 3 | 2 | 2 | 2 | 2-3 | 2 | 3 | 2-3 | - | - | 1-2 | 3 | 2-3/0 |
| 0400 | - | - | - | - | 3 | 3 | 2-3 | 3 | 2-3 | 2 | 3 | 3 | 2-3 | 2-3 |
| 0500 | 2 | 3 | 2-3 | 2 | 3 | 1 | 2-3 | 2 | 2-3 | 1-2 | 2-3 | 1-2 | 1 | 2-3 |
| 0600 | - | - | - | - | 3 | 2-3 | 3-4 | 3-4 | - | 3 | - | 3 | 2-3 | 3 |
| 0700 | 3 | 3-4 | 3 | 3 | 3-4 | 2-3 | 3-4 | 3-4 | - | 3 | - | 3-4 | 3-4 | 3 |
| 0800 | 3-4 | 4 | 3-4 | 3 | 3-4 | 3 | 3 | 3 | - | 3 | - | 3 | 2-3 | 3 |

| Sampling Station | | Sampling Station | |
|------------------|---------------------------|------------------|------------------------------------|
| No. | Location | No. | Location |
| 0150 | Br in Ratoath | 0600 | Greenoge Br (WSW of Fieldstown Ho) |
| 0300 | Cookstown Br | 0700 | Lispopple Br |
| 0400 | Br 0.5km u/s Ashbourne Br | 0800 | Br nr Waterworks |
| 0500 | Milltown Br | | |

Assessment: A very considerable improvement was recorded in the Broadmeadow below Ashbourne (0500) in late July 2001; the serious pollution, evident in previous surveys, was no longer apparent there but, as elsewhere on the Main Channel, extreme eutrophication and moderate organic pollution continued unabated. Although still distinctly polluted by suspected sewage, the Ratoath Branch (0150) showed some signs of recovery below the village while the North (Dunshaughlin) Branch, in addition to being affected by extreme eutrophication was being polluted by oil at Cookstown Bridge (0300) at the time of this survey. Overall condition – despite the improvements – quite unsatisfactory.

River and Code : **DELVIN** **08/D/01**
Tributary of : Sea - Gormanston OS Catchment No: 162
OS Grid Ref : O 182 664 Date(s) Surveyed : 27/07/01

| Sampling Stations No. | Location | Biological Quality Ratings (Q Values) | | | | | | | | |
|--------------------------|------------------------|---------------------------------------|------|------|------|------|------|------|------|------|
| | | 1978 | 1980 | 1982 | 1986 | 1988 | 1991 | 1996 | 1998 | 2001 |
| 0080 | Br W of Naul | - | - | - | - | 3 | 3-4 | 3-4 | 3 | 3 |
| 0250 | Br NW of Forty Acres | - | - | - | - | - | - | 3 | 4 | 4 |
| 0400 | Br nr Bridgefoot House | 3 | 3-4 | 3-4 | 3-4 | 3 | 3-4 | 3 | 4 | 3 |

Assessment: The absence of the more sensitive macroinvertebrates plus heavy bottom siltation and marked turbidity indicated distinctly unsatisfactory conditions in the Naul area (0080) in late July 2001. Deep banks of silt were again observed at Station 0250 but the biota
Continued

DELVIN *Continued*

there were such as to reflect “Fair” quality at that location. The improvement recorded in the lower reaches (0400) in 1998 was not maintained and once again this area was assessed as moderately polluted.

River and Code : **FAIRYHOUSE STREAM** **08/F/01**
Tributary of : Broadmeadow OS Catchment No: 164
OS Grid Ref : O 089 504 Date(s) Surveyed : 24/07/01

| Sampling Stations No. Location | Biological Quality Ratings (Q Values) | | | | |
|-----------------------------------|---------------------------------------|------|------|-------|------|
| | 1988 | 1991 | 1996 | 1998 | 2001 |
| 0500 Br at Donaghmore X-Rds | 3 | 3 | 3 | 2-3/0 | 2-3 |

Assessment: Poor to bad quality was indicated in the lower reaches of the Fairyhouse Stream in 2001. The location previously surveyed upstream (0200) has been discontinued as flows are inadequate for biological assessment procedures at that point.

River and Code : **HURLEY** **08/H/01**
Tributary of : Nanny (Meath) OS Catchment No: 160
OS Grid Ref : O 003 655 Date(s) Surveyed : 25/07/01

| Sampling Stations No. Location | Biological Quality Ratings (Q Values) | | | | |
|-----------------------------------|---------------------------------------|------|------|------|------|
| | 1988 | 1991 | 1996 | 1998 | 2001 |
| 0060 Br S of Borranstown House | - | - | 3 | 3/0 | 3 |
| 0200 Br at Painestown | 3 | 3 | 3-4 | 3-4 | 3-4 |
| 0280 Rathfeigh Old Bridge | 3 | 3 | 3-4 | 4 | 4 |
| 0400 Just u/s Nanny R confl | 3-4 | 3 | 3-4 | 3-4 | 3 |

Assessment: As in 1998 just one of the four locations surveyed was satisfactory in 2001: this was at Rathfeigh (0280) in the lower reaches: elsewhere heavy algal growths and reduced faunal diversity indicated considerable eutrophication. Overall condition unsatisfactory. Agriculture suspected.

River and Code : **MOSNEY** **08/M/02**
Tributary of : Sea - North of Benhead OS Catchment No: 161
OS Grid Ref : O 168 698 Date(s) Surveyed : 26/07/01

| Sampling Stations No. Location | Biological Quality Ratings (Q Values) | | | | | | | |
|-----------------------------------|---------------------------------------|------|------|------|------|------|------|------|
| | 1978 | 1983 | 1986 | 1988 | 1991 | 1996 | 1998 | 2001 |
| 0100 Br S of Mosney Ho | 3-4 | 3-4 | 4 | 3-4 | 3 | 3 | 3-4 | 3 |

Assessment: Groundwater input may account for the reduced DO (68%) recorded but the absence of some sensitive mayfly nymphs (Heptageniidae) which were there in 1998 point to the likelihood of some organic pollution. Unsatisfactory. Has deteriorated slightly.

River and Code : **NANNY (MEATH)** **08/N/01**
Tributary of : Sea - Laytown OS Catchment No: 160
OS Grid Ref : O 163 712 Date(s) Surveyed : 25/07/01

| Stations No. | Biological Quality Ratings (Q Values) | | | | | | | | | | |
|-----------------|---------------------------------------|------|------|------|------|------|------|------|------|------|------|
| | 1971 | 1974 | 1978 | 1980 | 1982 | 1986 | 1988 | 1991 | 1996 | 1998 | 2001 |
| 0040 | - | - | - | - | - | - | - | - | 2-3 | 2-3 | 2 |
| 0110 | - | - | - | - | - | - | 3 | 3 | 3 | 2-3 | 2-3 |
| 0280 | - | - | - | - | - | - | 3 | 3 | 3 | 3-4 | 3-4 |
| 0500 | 3 | 1-2 | 3 | 3 | 3-4 | 3-4 | 3 | 3-4 | 3 | 3-4 | 3-4 |
| 0650 | - | - | - | - | - | 3-4 | 3-4 | 3-4 | 4 | 4 | 3 |
| 0700 | 4 | 3-4 | 3 | 3 | 3-4 | 3-4 | 3-4 | 3 | 3-4 | 3-4 | 3 |

| Sampling Station | | Sampling Station | |
|------------------|-------------------|------------------|-------------------------|
| No. | Location | No. | Location |
| 0040 | Folistown Br | 0500 | Br NE of Bellewstown Ho |
| 0110 | East Br Kentstown | 0650 | Dardistown Br |
| 0280 | Br d/s Nanny Br | 0700 | Br at Julianstown |

Assessment: Following a widespread deterioration since 1998 the Nanny river was in an unsatisfactory quality condition at all points surveyed in late July 2001: serious pollution was recorded in the Navan area (0040) where DO was reduced to just 39% and conditions at Kentstown (0110) were only marginally better. As in 1998 the middle reaches (0280) were overgrown and silted and the reach below Duleek (0500, 0650) showed a marked deterioration due to an intensification of eutrophication which was apparent from the excessive growths of filamentous algae and the DO values recorded (all greater than 150% saturation) at the three lower stations. Sewage (Kentstown and Duleek) and tillage are suspected as being of major significance in the eutrophication and siltation recorded.

| | | |
|----------------|---------------|-----------------------------|
| River and Code | : WARD | 08/W/01 |
| Tributary of | : Broadmeadow | OS Catchment No: 164 |
| OS Grid Ref | : O 186 417 | Date(s) Surveyed : 23/07/01 |

| Stations No. | Biological Quality Ratings (Q Values) | | | | | | | | | | | | |
|-----------------|---------------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| | 1973 | 1974 | 1977 | 1979 | 1981 | 1983 | 1985 | 1988 | 1991 | 1994 | 1996 | 1998 | 2001 |
| 0070 | - | - | - | - | - | - | - | 3 | 2-3 | 3 | 2-3 | 2-3 | 3 |
| 0300 | 3 | 2 | 4 | 3 | 3-4 | 3 | 3 | 3 | 3 | - | 3 | 3 | 3 |
| 0610 | - | - | - | - | - | - | - | 3 | 3/0 | - | 3 | 3/0 | 3 |

| Sampling Station | | Sampling Station | |
|------------------|-----------------|------------------|-----------------------|
| No. | Location | No. | Location |
| 0070 | Coolatrath Br | 0610 | Br d/s Scotchstone Br |
| 0300 | Br N of Killeek | | |

Assessment: The pollution of the Ward river continued unabated in 2001: agriculture (tillage) is suspected as the major cause of the heavy siltation and eutrophication of the reach upstream of Swords and carry-over effects plus likely urban discharges continue to significantly enhance eutrophication below the town.

HYDROMETRIC AREA 11

Owenvorragh

| | |
|----------------------|-------|
| #Aughboy (Courtown) | 11A02 |
| Ballyedmond | 11B01 |
| Banoge | 11B02 |
| Blackwater (Wexford) | 11B03 |
| Brackan | 11B04 |
| Clonough | 11C01 |
| Inch | 11I01 |
| Owenvorragh | 11O01 |
| Tinnock | 11T01 |

Rivers denoted thus had seriously polluted stretch(es) at the time of this survey.

River and Code : **AUGHBOY (WEXFORD)** **11/A/02**
 Tributary of : Owenavorragh OS Catchment No: 177
 OS Grid Ref : T 200 562 Date(s) Surveyed : 07/09/01

| Sampling Stations No. Location | Biological Quality Ratings (Q Values) | | | | |
|-----------------------------------|---------------------------------------|------|------|------|------|
| | 1989 | 1993 | 1995 | 1998 | 2001 |
| 0180 Br NE of Middletown Ho | 3 | 3 | 2 | 1 | 2 |

Assessment: Improved since 1998 but still seriously polluted. DO was very low (12% of saturation) at the time of this survey.

River and Code : **BALLYEDMOND** **11/B/01**
 Tributary of : Owenavorragh OS Catchment No: 177
 OS Grid Ref : T 157 462 Date(s) Surveyed : 06/09/01

| Sampling Stations No. Location | Biological Quality Ratings (Q Values) | | | | |
|-----------------------------------|---------------------------------------|------|------|------|------|
| | 1989 | 1993 | 1995 | 1998 | 2001 |
| 0300 Ballyedmond (Old) Br | 3-4 | 3 | 3 | 3 | 3 |
| 0400 Cullentra Br | 3-4 | 3 | 3 | 3 | 3-4* |

Assessment: Slightly improved in lower reaches but continuing heavy siltation at both locations. Sewage suspected as the main cause of the unsatisfactory conditions at Ballyedmond (0300), agriculture (tillage) for the pollution of the lower reaches (0400).

*heavy siltation

River and Code : **BANOGE** **11/B/02**
Tributary of : Owenavorragh OS Catchment No: 177
OS Grid Ref : T 160 562 Date(s) Surveyed : 19/09/01

| Sampling Stations No. Location | Biological Quality Ratings (Q Values) | | | | | | | | | |
|-----------------------------------|---------------------------------------|------|------|------|------|------|------|------|------|--|
| | 1980 | 1982 | 1984 | 1986 | 1988 | 1993 | 1995 | 1998 | 2001 | |
| 0050 Br near Killynann | - | - | - | 4 | 5 | 5 | 3 | 4 | 4 | |
| 0110 Br at E side of Gorey | - | - | - | - | 2-3 | 3 | 2 | 2-3 | 2-3 | |
| 0300 Br u/s Owenavorragh R | 3 | 2-3 | 3 | 3 | 2-3 | 3 | 3 | 3 | 3 | |

Assessment: Upper reaches (0050) continuing satisfactory despite significant siltation from tillage but, as in 1998, very considerably polluted by sewage at (0110) and below (0300) Gorey. Sewage fungus and sewage debris much in evidence below a discharge in the town.

River and Code : **BLACKWATER (WEXFORD)** **11/B/03**
Tributary of : Sea - S. of Cahore Point OS Catchment No: f2
OS Grid Ref : T 138 122 Date(s) Surveyed : 05/09/01

| Sampling Stations No. Location | Biological Quality Ratings (Q Values) | | | | |
|---|---------------------------------------|------|------|------|------|
| | 1989 | 1993 | 1995 | 1998 | 2001 |
| West Branch | | | | | |
| 0060 Br SW of Askasilla | | 4 | 4 | 4 | 3* |
| Main Channel | | | | | |
| 0200 Footbridge E of Blackwater at Mill | | 4 | - | 3 | 3 |

Assessment: Heavily silted and biologically impoverished at both locations surveyed in early September 2001. West Branch (0060) has deteriorated since 1998. Agriculture suspected.

*heavy siltation

River and Code : **BRACKAN** **11/B/04**
Tributary of : Owenavorragh OS Catchment No: 177
OS Grid Ref : T 148 545 Date(s) Surveyed : 06/09/01

| Sampling Stations No. Location | Biological Quality Ratings (Q Values) | | | | | | |
|-----------------------------------|---------------------------------------|------|------|------|------|------|------|
| | 1981 | 1985 | 1989 | 1993 | 1995 | 1998 | 2001 |
| 0100 Toberanieran Br | 3-4 | 2 | 4-5 | 3 | 4 | 4 | 4 |
| 0200 Essex Br | 3-4 | 2-3 | 4 | 3 | 3 | 3-4* | 3-4* |

Assessment: Upper reaches remaining satisfactory, lower reaches again heavily silted and eutrophic.
*heavy siltation

River and Code : **CLONOUGH** **11/C/01**
Tributary of : Inch (Wexford) OS Catchment No: 176
OS Grid Ref : T 213 664 Date(s) Surveyed : 19/09/01

| Sampling Stations No. Location | Biological Quality Ratings (Q Values) | | | | | | | |
|-----------------------------------|---------------------------------------|------|------|------|------|------|------|------|
| | 1981 | 1985 | 1989 | 1993 | 1994 | 1995 | 1998 | 2001 |
| North-West Branch | | | | | | | | |
| 0035 Br d/s Ballykilty Br | - | - | 2-3 | 2* | 2-3 | 2-3 | 2-3 | 3* |
| Main Channel | | | | | | | | |
| 0100 Br ENE of St Austin's Ho | 3-4 | 3-4 | 2-3 | 1 | 3 | 3 | 3 | 3* |
| 0300 Clonough Br | - | 2-3 | 3 | 2 | 3 | 2-3 | 3 | 3 |

Assessment: Heavily silted at each location surveyed. Unsatisfactory. No change. Sewage (from Coolgreany) and agriculture suspected.
*heavy siltation

River and Code : **INCH (WEXFORD)** **11/I/01**
Tributary of : Sea - N. of Courtown Hbr OS Catchment No: 176
OS Grid Ref : T 238 638 Date(s) Surveyed : 19/09/01

| Sampling Stations No. Location | Biological Quality Ratings (Q Values) | | | | | | | |
|-----------------------------------|---------------------------------------|------|------|------|------|------|------|------|
| | 1981 | 1983 | 1985 | 1989 | 1993 | 1995 | 1998 | 2001 |
| North Branch | | | | | | | | |
| 0040 Br u/s W Branch confl | - | - | - | 5 | 5 | 3 | 4 | 4 |
| Main Channel | | | | | | | | |
| 0150 Br u/s Clonough R confl | - | - | - | 5 | 3-4 | 3 | 3-4 | 3-4 |
| 0200 Castletown Br | 2 | 3-4 | 3 | 3 | 2-3 | 3 | 3 | 3* |

Assessment: North Branch (0040) continuing satisfactory despite cattle access. Main Channel also accessible to watering animals at Station 0150 where the stream bed was considerably polluted by cattle manure at the time of this survey. Lower reaches again heavily silted and biologically impoverished.

*heavy siltation

River and Code : **OWENAVORRAGH** **11/O/01**
Tributary of : Sea - at Courtown Harbour OS Catchment No: 177
OS Grid Ref : T 203 561 Date(s) Surveyed : 06/09/01

| Sampling Stations No. Location | Biological Quality Ratings (Q Values) | | | | | | | |
|-----------------------------------|---------------------------------------|------|------|------|------|------|------|------|
| | 1981 | 1983 | 1986 | 1989 | 1993 | 1995 | 1998 | 2001 |
| 0080 Ballynahown Br | - | - | - | - | - | 3 | 4 | 4 |
| 0200 Corbally Br | - | - | - | - | - | - | 3-4 | 3* |
| 0300 Br SW of Killenagh | 3-4 | 4 | 3-4 | 3-4 | 3-4 | 3 | 3-4 | 3 |
| 0500 Br N of Ballinamona | 3-4 | 4 | 3-4 | 4-5 | 3-4 | 3-4 | 3-4 | 3-4 |
| 0580 Br just u/s Banoge R confl | - | - | - | - | 4 | 3-4 | 3-4 | 3 |
| 0700 Ballinatray Br | 4 | 4 | 3-4 | 4 | 4 | 4 | 3-4 | 4 |

Assessment: Because tillage is so widespread in its catchment it seems likely that the heavy siltation observed at most stations surveyed in the Owenavorrage in September 2001 could be attributed to run-off from agricultural land. The luxuriant crops of filamentous algae observed at Stations 0300, 0500 and 0580 are also likely to be associated with agriculture but sewage from Ballycanew and indirectly from Monamolin (via the Ballyedmond river) and Gorey (via the Banoge) must be of some significance also. With just two of the seven locations surveyed reaching a satisfactory quality standard the overall profile of the Owenavorrage is lower than in 1998 and quite unsatisfactory.

*heavy siltation

HYDROMETRIC AREA 12

Slaney & Wexford Harbour

| | |
|--------------------------|-------|
| Askinvillar Stream | 12A03 |
| Ballingale Stream | 12B06 |
| Ballycarney Stream | 12B07 |
| Bann | 12B01 |
| Blacklion Stream | 12B04 |
| Blackwater Stream (Bann) | 12B08 |
| Boro | 12B02 |
| Borris Stream | 12B05 |
| Browns beck Brook | 12B03 |
| Camolin Stream | 12C08 |
| Carrigower | 12C06 |
| Clody | 12C03 |
| Coolboy Stream | 12C07 |
| Corbally Stream | 12C04 |
| Derreen | 12D01 |
| Derry | 12D02 |
| Douglas (Ballon) | 12D03 |
| Douglas (Kiltegan) | 12D04 |
| Glasha (Slaney) | 12G01 |
| Killeen Stream (Boro) | 12K03 |
| Knickeyen | 12K01 |
| Lask | 12L01 |
| Little Slaney | 12L02 |
| Mine | 12M01 |
| Rosnastraw Stream | 12R01 |
| Shillelagh | 12S01 |
| Slaney | 12S02 |
| Sow | 12S03 |
| Tinnacross Stream | 12T01 |
| Tinnokilla Stream | 12T02 |
| Urrin | 12U01 |

River and Code : **ASKINVILLAR STREAM** **12/A/03**
 Tributary of : Urrin OS Catchment No: 175
 OS Grid Ref : S 864 450 Date(s) Surveyed : 01/08/01

| Sampling Stations No. Location | | Biological Quality Ratings (Q Values) | | | | |
|-----------------------------------|----------------------|---------------------------------------|------|------|------|------|
| | | 1987 | 1991 | 1995 | 1998 | 2001 |
| 0100 | Br /s Askinvillar Br | 5 | - | - | - | - |
| 0200 | Askinvillar Br | - | 4-5 | 4 | 4-5 | 4-5 |

Assessment: Continuing satisfactory. No change.

River and Code : **BALLINGALE STREAM** **12/B/06**
 Tributary of : Slaney OS Catchment No: 175
 OS Grid Ref : S 964 498 Date(s) Surveyed : 15/08/01

| Sampling Stations No. Location | | Biological Quality Ratings (Q Values) | | | | |
|-----------------------------------|-----------------------|---------------------------------------|------|------|------|------|
| | | 1987 | 1991 | 1995 | 1998 | 2001 |
| 0300 | Ballycadden Br | 4 | 4 | 3 | 3-4 | 4 |
| 0600 | Br SW of Ballaman | - | - | 4-5 | - | 4 |
| 0900 | Br u/s Slaney R confl | 4 | 4-5 | 4 | 4-5 | 4 |

Assessment: Quality just “Fair” at each location surveyed in 2001. The upper reaches (0300) had been recently dredged, the middle reaches were accessible to cattle and from the relatively sparse fauna observed the lower reaches (0900) appeared to be recovering from tillage run-off and possibly crop spraying.

River and Code : **BALLYCARNEY STREAM** **12/B/07**
Tributary of : Slaney OS Catchment No: 175
OS Grid Ref : S 967 490 Date(s) Surveyed : 16/08/01

| Sampling Stations No. Location | Biological Quality Ratings (Q Values) | | | | |
|-----------------------------------|---------------------------------------|------|------|------|------|
| | 1987 | 1991 | 1995 | 1998 | 2001 |
| 0400 Br d/s Tinnashrule Br | - | 4 | 3-4 | 4-5 | 4 |
| 0700 Br u/s Slaney R confl | 4-5 | 3-4 | 4 | 4 | 4 |

Assessment: Continuing satisfactory despite obvious pressures from tillage farming (i.e., siltation) in its middle reaches (0400). The lower reaches appear to be regularly cleared of weeds.

River and Code : **BANN** **12/B/01**
Tributary of : Slaney OS Catchment No: 175
OS Grid Ref : S 985 447 Date(s) Surveyed : 16/08/01

| Stations No. | Biological Quality Ratings (Q Values) | | | | | | | | | | |
|-----------------|---------------------------------------|------|------|------|------|------|------|------|------|------|------|
| | 1971 | 1975 | 1979 | 1983 | 1985 | 1987 | 1989 | 1991 | 1995 | 1998 | 2001 |
| 0100 | - | - | - | - | - | - | 5 | 3-4 | 4 | 4-5 | 4 |
| 0200 | - | - | - | - | - | - | 5 | 4 | 4-5 | 4-5 | 4-5 |
| 0400 | 5 | 4 | 5 | 4-5 | 4 | - | 5 | 4-5 | - | 4-5 | 3-4* |
| 0440 | - | - | - | - | - | - | - | - | 4-5 | 4 | 3-4* |
| 0600 | 4 | 4 | 4-5 | 4 | - | 4 | 4-5 | 4 | 3-4 | 3 | 3 |
| 0900 | 4-5 | 4 | 4 | 4 | - | 4 | 4-5 | 3 | 3-4 | 3-4 | 3-4 |
| 1000 | 4-5 | 4 | 4 | 4 | - | 4 | 4-5 | 3-4 | 4 | 4-5 | 3-4 |

| Sampling Station | | Sampling Station | |
|------------------|--------------------|------------------|-------------|
| No. | Location | No. | Location |
| 0100 | Pallis Br | 0600 | Milshoge Br |
| 0200 | Br at Hollyfort | 0900 | Doran's Br |
| 0400 | Margerry's Br | 1000 | Bann Br |
| 0440 | 1 km u/s Island Br | | |

Assessment: Due to widespread slight pollution just two of the seven locations surveyed were satisfactory in 2001, a considerably lower quality profile than in 1998 when five were satisfactory. Forestry in the upper reaches is suspected as giving rise to the considerable siltation observed at most locations and to the abundant silt-slime complexes at Pallis Bridge (0100). Agriculture is suspected as causing the reduced quality in the middle reaches (0400, 0440). Sewage from Camolin and Ferns is suspected as the cause of the pollution at, respectively, Milshoge (0600) and Doran's (0900) bridges. * Heavy Siltation

River and Code : **BLACKLION STREAM (CARLOW)** **12/B/04**
 Tributary of : Derreen (Carlow) OS Catchment No: 175
 OS Grid Ref : S 870 703 Date(s) Surveyed : 24/08/01

| Sampling Stations No. Location | Biological Quality Ratings (Q Values) | | | | |
|--------------------------------------|---------------------------------------|------|------|------|------|
| | 1989 | 1991 | 1995 | 1998 | 2001 |
| 0200 Br at Blacklion | 3 | 4-5 | 4 | 4 | 3-4* |
| 0400 Br u/s Derreen R confl | 4 | 4-5 | 4 | - | 4 |

Assessment: As in 1998 tillage farming is suspected as the source of the considerable siltation which is the main cause of the reduced biological quality at Blacklion (0200). Luxuriant algal growths indicated considerable eutrophication in the lower reaches (0400) but the variety of sensitive macroinvertebrates still to be found there indicated satisfactory quality for the present.

* Heavy Siltation

River and Code : **BLACKWATER STREAM (BANN)** **12/B/08**
 Tributary of : Bann (Wexford) OS Catchment No: 175
 OS Grid Ref : T 120 643 Date(s) Surveyed : 30/07/01

| Sampling Stations No. Location | Biological Quality Ratings (Q Values) | | | | |
|--------------------------------------|---------------------------------------|------|------|------|------|
| | 1987 | 1991 | 1995 | 1998 | 2001 |
| 0200 Blackwater Br | 4 | 4 | 4 | 3-4 | 3 |

Assessment: The complete absence of sensitive macroinvertebrates indicated a further deterioration in the quality of the Blackwater Stream which was assessed as moderately polluted in late July 2001. Cattle access and domestic housing may be of significance.

| | | |
|----------------|---------------|-----------------------------|
| River and Code | : BORO | 12/B/02 |
| Tributary of | : Slaney | OS Catchment No: 175 |
| OS Grid Ref | : S 975 359 | Date(s) Surveyed : 02/08/01 |

| Sampling Stations No. Location | Biological Quality Ratings (Q Values) | | | | | | |
|-----------------------------------|---------------------------------------|------|------|------|------|------|------|
| | 1980 | 1984 | 1987 | 1991 | 1995 | 1998 | 2001 |
| 0040 Tomanine Br | - | - | 3/0 | 3-4 | 3 | 3* | 3-4* |
| 0080 Boro Br | - | - | 3/0 | 4 | 3-4 | 3-4* | 4 |
| 0200 Ballymackesy Br | 3-4 | 4 | 3-4 | - | 3-4 | 3-4* | 3-4 |
| 0340 2nd Br d/s Ballyeden Br | - | - | - | 4 | 4 | 3-4* | 3-4 |
| 0400 Br NW of Wilton Castle | 4 | 4 | 4 | 4 | 4 | 3-4* | 3-4 |
| 0600 Kilcarbry Br | 4 | 4 | 4 | 4 | 4 | 3 | 4 |

Assessment: Widespread slight pollution continued to depress water quality in the Boro River in 2001 but the upper (0080) and lowermost reaches (0600) had improved since 1998 and were assessed as satisfactory as regards water quality; this despite continuing siltation (of suspected forestry origin) at Tomanine Bridge (0040). Agriculture and sewage (from Clonroche) are suspected as the most likely sources of the continuing eutrophication of the middle reaches (0200, 0340, 0400).

* Heavy Siltation

| | | |
|----------------|---------------------------------|-----------------------------|
| River and Code | : BORRIS STREAM (SLANEY) | 12/B/05 |
| Tributary of | : Slaney | OS Catchment No: 175 |
| OS Grid Ref | : S 943 533 | Date(s) Surveyed : 05/08/01 |

| Sampling Stations No. Location | Biological Quality Ratings (Q Values) | | | | |
|-----------------------------------|---------------------------------------|------|------|------|------|
| | 1987 | 1991 | 1995 | 1998 | 2001 |
| 0300 Br u/s Slaney R confl | 4 | 4 | 4 | 4-5 | 4 |

Assessment: Despite indications of incipient enrichment quality continued to be of a satisfactory standard in the Borris Stream in August 2001.

River and Code : **BROWN'S BECK BROOK** **12/B/03**
Tributary of : Carrigower OS Catchment No: 175
OS Grid Ref : S 916 960 Date(s) Surveyed : 20/08/01

| Sampling Stations No. Location | | Biological Quality Ratings (Q Values) | | | | |
|-----------------------------------|------------------|---------------------------------------|------|------|------|------|
| | | 1989 | 1991 | 1995 | 1998 | 2001 |
| 0200 | Br WNW of Donard | 2-3 | 4 | 4 | 4-5 | 3-4 |

Assessment: A deterioration in quality was recorded at Donard Bridge where the stream was assessed as slightly polluted in 2001. Agriculture suspected.

River and Code : **CAMOLIN STREAM** **12/C/08**
Tributary of : Bann (Wexford) OS Catchment No: 175
OS Grid Ref : T 064 524 Date(s) Surveyed : 30/07/01

| Sampling Stations No. Location | | Biological Quality Ratings (Q Values) | | | | | | |
|-----------------------------------|---------------|---------------------------------------|------|------|------|------|------|------|
| | | 1979 | 1983 | 1987 | 1991 | 1995 | 1998 | 2001 |
| 0300 | Br u/s Bay Br | - | - | 4 | 3 | 4-5 | 4-5 | 4 |
| 0400 | Bay Br | 4 | 4 | 3-4 | 3 | - | - | - |

Assessment: Water turbid and stream bed heavily silted in places but sufficient habitats remained for the more sensitive macroinvertebrate species to survive. "Fair" quality. Satisfactory for the present.

River and Code : **CARRIGOWER** **12/C/06**
Tributary of : Slaney OS Catchment No: 175
OS Grid Ref : S 900 936 Date(s) Surveyed : 20/08/01

| Sampling Stations No. Location | Biological Quality Ratings (Q Values) | | | | |
|-----------------------------------|---------------------------------------|------|------|------|------|
| | 1989 | 1991 | 1995 | 1998 | 2001 |
| 0200 Br SE of Cowpasture | 4 | 4 | - | - | - |
| 0300 Merginstown Br | - | - | 3-4 | 3-4 | 3-4 |
| 0600 Br d/s Whitestown Br | - | 4-5 | 4-5 | 4-5 | 3-4 |

Assessment: The Carrigower river was distinctly over-enriched at both locations surveyed in 2001 and as such it had deteriorated considerably in its lower reaches (0600) since the previous survey. Forestry, slurry and cattle access suspected.

River and Code : **CLODY** **12/C/03**
Tributary of : Slaney OS Catchment No: 175
OS Grid Ref : S 913 569 Date(s) Surveyed : 15/08/01

| Sampling Stations No. Location | Biological Quality Ratings (Q Values) | | | | | | | |
|-------------------------------------|---------------------------------------|------|------|------|------|------|------|------|
| | 1979 | 1981 | 1984 | 1987 | 1991 | 1995 | 1998 | 2001 |
| 0080 Br d/s confl of N & S branches | - | - | - | 4 | 4-5 | 4 | 4-5 | 4-5 |
| 0200 Ford (Br) 3km u/s Bunclody | 5 | 4 | 3-4 | 4 | 4-5 | 4 | 4-5 | 4-5 |
| 0300 Clody Br, Bunclody | 3-4 | 4 | 3-4 | 4 | 3-4 | 3/0 | 4-5 | 3-4 |

Assessment: The Clody river continued to be in a satisfactory quality condition over most of its course in 2001. The river bed in Bunclody was dirty and slime covered indicating a significant deterioration in the lower reaches since 1998. Urban/domestic effluents/leachate suspected.

River and Code : **COOLBOY STREAM** **12/C/07**
Tributary of : Derry OS Catchment No: 175
OS Grid Ref : T 009 689 Date(s) Surveyed : 13/08/01

| Sampling Stations No. Location | Biological Quality Ratings (Q Values) | | | | |
|-----------------------------------|---------------------------------------|------|------|------|------|
| | 1987 | 1991 | 1995 | 1998 | 2001 |
| 0200 Br SW of Greenfort | 4 | 4 | 4 | 4 | 4 |
| 0700 Lattin Br | 4-5 | - | 4-5 | 4-5 | 4-5 |

Assessment: Continuing satisfactory at both locations surveyed in 2001.

River and Code : **CORBALLY STREAM** **12/C/04**
Tributary of : Slaney OS Catchment No: 175
OS Grid Ref : S 995 421 Date(s) Surveyed : 31/07/01

| Sampling Stations No. Location | Biological Quality Ratings (Q Values) | | | | | | |
|-----------------------------------|---------------------------------------|------|------|------|------|------|------|
| | 1987 | 1988 | 1991 | 1994 | 1995 | 1998 | 2001 |
| 0200 Kilcormick Br | 2 | 3 | 1 | 2 | 3-4 | 3 | 3 |
| 0300 Ballincash Br | 3 | - | 3 | 3-4 | - | - | - |
| 0400 Ballymoty Br | - | - | - | - | 3 | 4-5 | 3 |
| 0600 Cooladine Br | 4-5 | - | - | - | 4 | 4-5 | 3-4* |
| 0900 Br u/s Slaney R confl | 3-4 | - | 3 | - | 4 | 4 | 4 |

Assessment: Following a marked deterioration at Ballymoty and Cooladine Bridges (0400, 0600) the Coolboy Stream was in a mostly unsatisfactory condition in late July 2001; agriculture suspected. Satisfactory conditions were maintained in the lowermost reaches (0900), however.

* Heavy Siltation

River and Code : **DERREEN**
 Tributary of : Slaney
 OS Grid Ref : S 854 689

12/D/01
 OS Catchment No: 175
 Date(s) Surveyed : 22/08/01

| Stations No. | Biological Quality Ratings (Q Values) | | | | | | | | | |
|-----------------|---------------------------------------|------|------|------|------|------|------|------|------|------|
| | 1976 | 1980 | 1983 | 1986 | 1989 | 1991 | 1994 | 1995 | 1998 | 2001 |
| 0050 | - | - | - | - | 5 | 5 | - | 4 | 4-5 | 4-5 |
| 0100 | - | 4 | 5 | 4-5 | 5 | 1/0 | 4 | - | - | - |
| 0150 | - | - | - | - | - | - | - | 4 | 5 | 4 |
| 0200 | 5 | 4 | 4 | 4-5 | 4-5 | 3/0 | 4-5 | - | - | - |
| 0300 | - | 3 | 3 | 3-4 | 3 | 3 | - | 4 | 4-5 | 4-5 |
| 0400 | 3-4 | 4 | 4 | 4 | 4 | 3 | - | - | - | - |
| 0420 | - | - | - | - | - | 3 | - | 4-5 | 4 | 4 |
| 0500 | 4-5 | 3 | 4 | 4 | 4 | 4 | - | 4 | 4 | 4 |
| 0550 | - | - | - | - | 4-5 | 4 | - | - | 4 | 4 |
| 0600 | 4-5 | 4 | 4 | 4 | 4 | 4 | - | 3-4 | 4-5 | 4 |
| 0800 | - | - | - | - | 4 | 4 | - | 3-4 | 4-5 | 4 |

| Sampling Station | | Sampling Station | |
|------------------|-----------------------------|------------------|-------------------------|
| No. | Location | No. | Location |
| 0050 | Br SW of Toorboy | 0400 | Saulsford Br |
| 0100 | Rathcoyle Br | 0420 | Br d/s Saulsford Br |
| 0120 | Br at Kilcarney | 0500 | Acaun Br |
| 0150 | Br NE of Ballykilmurray Lr | 0550 | Knockeen Br |
| 0200 | 2nd Ford u/s Hacketstown Br | 0600 | Knockloe Br |
| 0300 | Hacketstown Br | 0800 | Ford u/s Slaney R confl |

Assessment: Continuing satisfactory at all points surveyed but, as the frequency of occurrence of Q4 indicates, some enrichment is apparent, particularly in the lower reaches (0550 to 0800 incl.) where enhanced algal growths were recorded in 2001.

River and Code : **DERRY** **12/D/02**
Tributary of : Slaney OS Catchment No: 175
OS Grid Ref : S 900 598 Date(s) Surveyed : 13/08/01

| Sampling Stations No. Location | Biological Quality Ratings (Q Values) | | | | | | | | |
|-----------------------------------|---------------------------------------|------|------|------|------|-------|------|------|--|
| | 1976 | 1980 | 1984 | 1987 | 1991 | 1995 | 1998 | 2001 | |
| 0100 Cross Br | - | 4 | 4 | 4 | 4 | 4 | 4-5 | 4 | |
| 0200 Tinahely Br | - | 4 | 4 | 4 | 4-5 | 4-5 | 4-5 | 4 | |
| 0300 0.5km d/s Tinahely Br | 4 | 4 | 3 | 4 | - | - | - | - | |
| 0350 Greenahll Br | - | - | - | 3-4 | 4-5 | 4 | 4-5 | 4-5 | |
| 0400 Deegin's Br | - | 4 | 3-4 | 4 | 4 | - | - | - | |
| 0500 Shillelagh Br | - | - | - | 4 | 3-4 | 4 | 4-5 | 4 | |
| 0600 0.5km d/s Shillelagh Br | - | 4 | 3-4 | 4 | - | - | - | - | |
| 0700 Balisland Br | 4 | 4 | 4 | 4 | 4 | 3-4/0 | 4-5 | 3-4* | |
| 0800 Ford N of Garryhasten | - | - | - | - | 4 | 3-4 | 4 | 4 | |
| 0900 Clonegall Br | 4 | 4 | 4 | 4 | 4 | - | - | - | |
| 1000 Just u/s Slaney R confl | - | 4 | 4 | 4 | 4 | 4-5 | 4-5 | 4 | |

Assessment: The Derry River was in a mostly "Fair" quality condition when surveyed in August 2001 reflecting a slight overall deterioration since 1998. A more marked deterioration was apparent at Balisland Bridge (0700) where the river bed was quite heavily silted: suspected causes are sewage and industrial effluents from Shillelagh plus possible run-off from tillage land.* Heavy Siltation

River and Code : **DOUGLAS (BALLON)** **12/D/03**
Tributary of : Slaney OS Catchment No: 175
OS Grid Ref : S 855 685 Date(s) Surveyed : 05/09/01

| Sampling Stations No. Location | Biological Quality Ratings (Q Values) | | | | | | | | | |
|-----------------------------------|---------------------------------------|------|------|------|------|------|------|------|------|--|
| | 1976 | 1980 | 1983 | 1986 | 1989 | 1991 | 1995 | 1998 | 2001 | |
| Main Channel | | | | | | | | | | |
| 0100 Myshall Br | - | 4 | 3 | 3-4 | 4-5 | 3-4 | 3-4 | 4 | 3-4 | |
| Ballaghmore Distributary | | | | | | | | | | |
| 0160 Br u/s Main Channel confl | - | - | - | - | 4-5 | 3/0 | 3 | 3-4 | 3-4 | |
| Main Channel (Continued) | | | | | | | | | | |
| 0200 Sragh Br | - | 4 | 3/0 | 4 | 4-5 | 4 | 3 | 3-4 | 3-4 | |
| 0400 Castlegrace Br | 4 | 4 | 4-5 | 4 | - | 3-4 | 3 | 3-4 | 3-4 | |

Assessment: Sewage discharges are the most likely cause of the eutrophication of the Douglas River which was in an unsatisfactory quality condition at the four points surveyed in 2001. Silt and nutrient run-off from tilled land is also suspected.

River and Code : **DOUGLAS (KILTEGAN)** **12/D/04**
Tributary of : Derreen (Carlow) OS Catchment No: 175
OS Grid Ref : S 932 806 Date(s) Surveyed : 23/08/01

| Sampling Stations No. Location | Biological Quality Ratings (Q Values) | | | | |
|-----------------------------------|---------------------------------------|------|------|------|------|
| | 1989 | 1991 | 1995 | 1998 | 2001 |
| 0300 Highpark Br | 4-5 | - | 3 | 4-5 | 4-5 |
| 0700 Lucas Br | 4 | 4-5 | 4 | 4 | 3-4 |

Assessment: Continuing satisfactory in its upper reaches (0300) but quality has deteriorated slightly due to suspected agriculture and forestry in its lower reaches (0700) since 1998.

River and Code : **GLASHA (SLANEY)** **12/G/01**
Tributary of : Slaney OS Catchment No: 175
OS Grid Ref : S 946 528 Date(s) Surveyed : 15/08/01

| Sampling Stations No. Location | Biological Quality Ratings (Q Values) | | | | | | |
|-----------------------------------|---------------------------------------|------|------|------|------|------|------|
| | 1979 | 1981 | 1984 | 1987 | 1991 | 1995 | 2001 |
| 0100 Br S of Gorteen | 4 | 4 | 3-4 | 4-5 | - | 3-4 | 3 |
| 0200 Coolattin Br | 4 | 4 | 4 | 4 | 4-5 | 3/0 | 3 |

Assessment: The recovery recorded in 1998 has not been maintained and once again the scarcity of insect life and the absence of sensitive species points to some considerable pollution event in the recent past. The river has all the appearance of being in recovery from a wipe-out such as might be caused by sheep-dip or the like.

River and Code : **KILLEEN STREAM (BORO)** **12/K/03**
 Tributary of : BORO OS Catchment No: 175
 OS Grid Ref : S 867 376 Date(s) Surveyed : 02/08/01

| Sampling Stations | | Biological Quality Ratings (Q Values) | | | |
|-------------------|-------------|---------------------------------------|------|------|------|
| No. | Location | 1991 | 1995 | 1998 | 2001 |
| 0200 | Milltown Br | 3-4 | 3 | 3 | 4 |
| 0400 | Garraun Br | 4 | 3 | 3 | 4 |

Assessment: The Killeen or Milltown Stream has recovered since 1998. Quality was satisfactory at both locations surveyed in 2001.

River and Code : **KNICKEEN** **12/K/01**
 Tributary of : Slaney OS Catchment No: 175
 OS Grid Ref : S 985 937 Date(s) Surveyed : 20/08/01

| Sampling Stations | | Biological Quality Ratings (Q Values) | | | | |
|-------------------|----------------------|---------------------------------------|------|------|------|------|
| No. | Location | 1989 | 1991 | 1995 | 1998 | 2001 |
| 0100 | Br NE of Golier | 5 | 5 | 5 | - | - |
| 0250 | Br NW of Ballyvaghan | - | - | - | 5 | 5 |

Assessment: Water quality of the highest standard was again indicated by the biological communities at the location surveyed in the remote Knickeen river in 2001.

River and Code : **LASK** **12/L/01**
 Tributary of : Bann OS Catchment No: 175
 OS Grid Ref : T 108 591 Date(s) Surveyed : 30/07/01

| Sampling Stations | | Biological Quality Ratings (Q Values) | | | | | | |
|-------------------|---------------------|---------------------------------------|------|------|------|------|------|------|
| No. | Location | 1979 | 1983 | 1987 | 1991 | 1995 | 1998 | 2001 |
| 0080 | Br NW of Craan | - | - | 4 | 3 | 3-4 | 3 | 3-4* |
| 0100 | Br NE of Craanford | 4 | 4-5 | 4 | - | - | 3-4 | - |
| 0300 | Br u/s Bann R confl | - | - | 3-4 | 3-4 | 4-5 | 3-4 | 4 |

Assessment: Adversely affected by heavy siltation again in the middle reaches (0080). Lower reaches also silted but sufficient numbers of sensitive biota present to qualify as satisfactory. Impacts from domestic housing, tillage and pasture suspected. *Heavy Siltation.

River and Code : **LITTLE SLANEY** **12/L/02**
 Tributary of : Slaney OS Catchment No: 175
 OS Grid Ref : S 935 300 Date(s) Surveyed : 20/08/01

| Sampling Stations No. Location | Biological Quality Ratings (Q Values) | | | | |
|-----------------------------------|---------------------------------------|------|------|------|------|
| | 1989 | 1991 | 1995 | 1998 | 2001 |
| 0100 Ford S of Coan | 5 | 5 | 4 | 5 | 4-5 |
| 0400 Ford d/s Rostyduff Br | - | - | - | 5 | 4-5 |
| 0500 Just u/s Slaney R confl | 5 | 5 | 5 | - | - |

Assessment: Continuing satisfactory but a cattle pen inappropriately located on the river bank threatens ecological integrity at the first location (0100): a smell of chemicals was detected at this location at the time of this survey in August 2001.

River and Code : **MINE** **12/M/01**
 Tributary of : Derry OS Catchment No: 175
 OS Grid Ref : S 977 631 Date(s) Surveyed : 14/08/01

| Sampling Stations No. Location | Biological Quality Ratings (Q Values) | | | | |
|-----------------------------------|---------------------------------------|------|------|------|------|
| | 1987 | 1991 | 1995 | 1998 | 2001 |
| 0200 Money Br | 4-5 | 4-5 | 3-4 | 4 | 4 |
| 0400 Tombreen Br | 4 | 3-4 | 3-4 | 3 | 4 |
| 0600 Ballingate Br | 4 | 4 | 3-4 | 3-4 | 3-4 |

Assessment: The upper reaches of the Mine River had been recently dredged and the stream bed was contaminated with cattle manure at Money Bridge (0200) but nevertheless biological quality continued to be satisfactory there and, following a major improvement, in the middle reaches (0400) also. As a result the river was in a satisfactory quality condition over most of its course at the time of this survey in 2001. The lower reaches (0600) were again adversely impacted by excessive silt deposition and eutrophication. Agriculture (tillage) suspected.

River and Code : **ROSTRAW STREAM** **12/R/01**
Tributary of : Derry OS Catchment No: 175
OS Grid Ref : T 038 720 Date(s) Surveyed : 13/08/01

| No. | Location | Biological Quality Ratings (Q Values) | | | | | |
|------|----------------------|---------------------------------------|------|------|------|------|------|
| | | 1987 | 1988 | 1991 | 1995 | 1998 | 2001 |
| 0200 | Br u/s Rosnastraw Br | 4 | - | 4 | 4 | 4 | 4 |
| 0400 | Kilcommon Br | 2 | 3 | 3 | 3 | 3 | 3-4 |

Assessment: Middle reaches (0200) remaining satisfactory, but improved somewhat in the lower river (0400) where siltation and eutrophication due to heavy usage by watering cattle continues to depress quality.

River and Code : **SHILLELAGH** **12/S/01**
Tributary of : Derry(Slaney) OS Catchment No: 175
OS Grid Ref : S991 680 Date(s) Surveyed : 14/08/01

| No. | Location | Biological Quality Ratings (Q Values) | | |
|------|---------------------|---------------------------------------|------|------|
| | | 1995 | 1998 | 2001 |
| 0500 | Br us Derry R confl | 3-4/0 | 4-5 | 3* |

Assessment: Eutrophic, dirty and contaminated with oil at the location surveyed in Shillelagh in mid-August 2001. Unsatisfactory. Has deteriorated significantly since 1998.

*Heavy siltation.

River and Code : **SLANEY** **12/S/02**
Tributary of : Sea - Wexford Harbour OS Catchment No: 175
OS Grid Ref : S 975 314 Date(s) Surveyed : 20/08/01

| Stations No. | Biological Quality Ratings (Q Values) | | | | | | | | | | |
|-----------------|---------------------------------------|------|------|------|------|------|------|------|------|------|------|
| | 1971 | 1975 | 1979 | 1981 | 1983 | 1984 | 1987 | 1991 | 1995 | 1998 | 2001 |
| 0100 | - | - | 5 | - | - | 4 | 4 | 5 | 4-5 | 5 | 4-5 |
| 0200 | - | - | 4 | - | - | 4-5 | 4-5 | 5 | 5 | 4-5 | 4 |
| 0400 | - | - | 4-5 | - | - | 4-5 | 4 | 4-5 | 4-5 | 5 | 4-5 |
| 0600 | - | - | 4 | - | - | 4-5 | 4-5 | 4-5 | 4-5 | 5 | 4-5 |
| 0700 | 5 | 5 | 4 | - | - | 4-5 | 4 | 3 | 4-5 | 4-5 | 4 |
| 0770 | - | - | - | - | - | - | - | - | 4-5 | 4-5 | 4 |
| 0900 | 5 | 5 | 4 | - | - | 4-5 | 4 | 4 | 4 | 4 | 4 |
| 1020 | - | - | - | - | - | - | - | 4 | 4-5 | 4-5 | 4 |
| 1100 | - | - | - | - | - | 4 | 4 | 4 | 4-5 | 4-5 | 4-5 |
| 1200 | 5 | 4-5 | 4-5 | 5 | 4-5 | 4-5 | 4-5 | 4 | 4-5 | 4-5 | 4-5 |
| 1290 | - | - | - | - | - | - | 4 | 4 | 4 | 4-5 | 4-5 |
| 1400 | 4-5 | 4-5 | 3-4 | 3-4 | 3-4 | 3-4 | 3-4 | 3-4 | 3-4 | 3-4 | 3-4 |
| 1500 | 4 | 4 | 4 | 4 | - | 3-4 | 4 | - | - | - | - |
| 1530 | - | - | - | - | - | - | - | 3-4 | 3-4 | 4 | - |
| 1600 | - | - | - | - | - | 3-4 | 3-4 | 3-4 | 3-4 | 4-5 | 3-4 |
| 1800 | 4-5 | 4 | 4 | 4 | - | 3-4 | 3-4 | 4 | 3-4 | 4-5 | 4 |
| 1900 | 4-5 | - | 3-4 | 3 | 3-4 | 3 | 3 | 3 | 3-4 | - | - |
| 2000 | 5 | 3-4 | 3-4 | 3-4 | 3-4 | 3 | 3 | 3 | 3-4 | 3-4 | 3-4 |
| 2100 | 5 | 4 | 4 | - | - | 3-4 | 4 | 3 | 3-4 | 3-4 | 3-4 |
| 2200 | - | 4-5 | 4 | - | - | 3-4 | 4 | 3-4 | - | - | - |
| 2220 | - | - | - | - | - | - | - | - | 3-4 | 4 | 4 |

| Sampling Station No. | Location | Sampling Station No. | Location |
|-------------------------|-------------------------|-------------------------|--------------------------|
| 0100 | Seskin Br | 1400 | Ford 3km d/s Tullow Br |
| 0200 | Kelsha Br | 1500 | Aghade Br |
| 0400 | Waterloo Br | 1530 | W of Ballinastraw |
| 0600 | Tuckmill Br | 1600 | Kilcarray Br |
| 0700 | Just d/s Baltinglass Br | 1800 | Slaney Br Bunclody |
| 0770 | Maiden's Ford | 1900 | Clohamon Br |
| 0900 | Ford u/s Rathvilly | 2000 | 1.3km d/s Clohamon Br |
| 1020 | 1km d/s Rathvilly Br | 2100 | Ballycarney Br |
| 1100 | Rathmore Br | 2200 | Scarawalsh Br |
| 1200 | Moatabower Br | 2220 | Just W of Salsborough Br |
| 1290 | 0.5km u/s Tullow Br | | |

Assessment: The Slaney continued to be in a satisfactory condition in the reach upstream of Tullow but from there to Enniscorthy there were indications of marked ecological stress (excessive algal growths and heavy siltation) particularly in the reach immediately below Tullow (1400) and again at Kilcarray (1600), Clohamon (2000) and Ballycarney (2100). Land disturbance

Continued

SLANEY (Continued)

due to drainage activities impacted adversely on the upper river at Kelsha Bridge (0200) where quality was assessed as just “Fair” a considerable deterioration in comparison to previous conditions. Similar reduced quality was indicated in the reach from Baltinglass (0700) to below Rathvilly (1020): sewage and diffuse nutrient and silt inputs from agricultural are the prime suspects here and are the principal factors adversely impacting the Slaney and many of its tributaries.

River and Code : **SOW** **12/S/03**
Tributary of : Sea - Slaney Estuary OS Catchment No: 178
OS Grid Ref : T 049 263 Date(s) Surveyed : 31/07/01

| Sampling Stations No. | Location | Biological Quality Ratings (Q Values) | | | | | | |
|--------------------------|----------------|---------------------------------------|------|------|------|------|------|------|
| | | 1980 | 1984 | 1987 | 1991 | 1995 | 1998 | 2001 |
| 0100 | Ballinkeel Br | 4 | 4 | 4 | 3* | 3-4 | 3 | 4 |
| 0200 | Kilmallock Br | 4 | 4-5 | 4 | 4 | 3-4 | - | - |
| 0250 | Augharr Br | | | | | | 3-4 | 4 |
| 0300 | Coolamain Br | 4-5 | 4 | 4 | 4 | - | - | - |
| 0370 | Randalsmill Br | - | - | - | - | 4 | 4 | 4 |

Assessment: The reappearance of several sensitive insect species indicated a return to satisfactory (“Fair”) water quality conditions in the Sow River in 2001.

River and Code : **TINNACROSS STREAM** **12/T/01**
Tributary of : Slaney OS Catchment No: 175
OS Grid Ref : S 997 434 Date(s) Surveyed : 31/07/01

| Sampling Stations No. | Location | Biological Quality Ratings (Q Values) | | | | |
|--------------------------|-----------------------|---------------------------------------|------|------|------|------|
| | | 1987 | 1991 | 1995 | 1998 | 2001 |
| 0400 | Carrigeen Br | 4 | 3-4 | 3-4 | 3 | 3-4* |
| 0500 | Tinnacross Br | 4 | 4 | 4 | 3-4 | 4-5 |
| 0600 | Br u/s Salsborough Br | 4 | 4 | 4 | 4 | 4 |

Assessment: Heavy siltation again depressed biological diversity at Carrigeen Bridge (0400) in the upper reaches but not to the same extent as in 1998. The middle reaches (0500) had improved considerably since 1998 and the lower reaches (0600) were unchanged: overall condition – mostly satisfactory.

* Heavy Siltation

River and Code : **TINNOKILLA STREAM** **12/T/02**
Tributary of : Slaney OS Catchment No: 175
OS Grid Ref : S 979 275 Date(s) Surveyed : 02/08/01

| Sampling Stations No. Location | Biological Quality Ratings (Q Values) | | | | |
|-----------------------------------|---------------------------------------|------|------|------|------|
| | 1989 | 1991 | 1995 | 1998 | 2001 |
| 0200 Spring Br | 3 | 3 | 4 | 4 | 4 |
| 0700 Br NE of Tinokilla | - | 3-4 | 4-5 | 4 | 4 |

Assessment: Continuing satisfactory at both locations surveyed. Heavy cattle usage plus quarry run-off threaten the lower reaches (0700).

River and Code : **URRIN** **12/U/01**
Tributary of : Slaney OS Catchment No: 175
OS Grid Ref : S 971 388 Date(s) Surveyed : 01/08/01

| Sampling Stations No. Location | Biological Quality Ratings (Q Values) | | | | | | |
|-----------------------------------|---------------------------------------|------|------|------|------|------|------|
| | 1980 | 1986 | 1989 | 1991 | 1995 | 1998 | 2001 |
| 0050 Ballycrystal Br | - | - | 5 | 5 | 4-5 | 5 | 5 |
| 0200 Buck's Br | 4-5 | 4-5 | 4-5 | 4-5 | 4-5 | 4-5 | 4-5 |
| 0250 Br S of Curraghgraique | - | - | 4-5 | 4-5 | 3-4 | 4-5 | 5 |
| 0300 Kiltrea Br | 4 | 4-5 | 3-4 | 4-5 | 3/0 | 4-5 | 4-5 |
| 0360 Verona Br | - | - | 3 | 5 | 3-4 | 4-5 | 4-5 |
| 0400 Carley's Br | 4 | 3-4 | - | - | - | - | - |
| 0500 John's Br | - | - | 4 | 4-5 | 3-4 | 3-4 | 3-4 |

Assessment: Continuing satisfactory at all but the lowermost location where an atypical fauna indicates something slightly amiss. Cattle access poses a threat to the upper reaches (0050, 0200) where ecological quality and water quality are of a very high standard.

HYDROMETRIC AREA NO. 15

Nore

| | |
|--------------------|-------|
| Arigna | 15A01 |
| Arrigle | 15A02 |
| Ballyroan | 15B01 |
| Bregagh | 15B02 |
| Brownstown Stream | 15B04 |
| Caherlesk Stream | 15C12 |
| # Cappanacloghy | 15C06 |
| Castlecomer Stream | 15C01 |
| Clogh | 15C03 |
| Cloghnagh | 15C04 |
| Delour | 15D01 |
| Desart Stream | 15D04 |
| Dinin | 15D02 |
| Donaghmore Stream | 15D03 |
| Ennisnag Stream | 15E02 |
| Erkina | 15E01 |
| # Glory | 15G01 |
| Gorteenahilla | 15G08 |
| Goul | 15G02 |
| Gully | 15G03 |
| Killeen | 15K01 |
| King's | 15K02 |
| Lisdowney | 15L02 |
| Mountrath | 15M01 |
| Muckalee | 15M02 |
| Munster | 15M03 |
| # Nore | 15N01 |
| Needleford Stream | 15N04 |
| Nuenna | 15N02 |
| Owveg (Nore) | 15O01 |
| Rathdowney Stream | 15R03 |
| Tonet | 15T01 |

Rivers denoted thus had seriously polluted stretch(es) at the time of this survey.

River and Code : **ARIGNA (KILKENNY)** **15/A/01**
 Tributary of : Nuenna OS Catchment No: 184
 OS Grid Ref : S 427 614 Date(s) Surveyed : 22/08/01

| Sampling Stations No. Location | Biological Quality Ratings (Q Values) | | | | |
|-----------------------------------|---------------------------------------|------|------|------|------|
| | 1987 | 1991 | 1995 | 1998 | 2001 |
| 0400 Arigna Br | 4 | 4-5 | 3-4 | 3-4 | 3-4 |

Assessment: Again less than satisfactory at the only location examined in August 2001 due to slight pollution.

River and Code : **ARRIGLE** **15/A/02**
 Tributary of : Nore OS Catchment No: 184
 OS Grid Ref : S 609 387 Date(s) Surveyed : 24/08/01

| Sampling Stations No. Location | Biological Quality Ratings (Q Values) | | | | | | |
|-----------------------------------|---------------------------------------|------|------|------|------|------|------|
| | 1980 | 1986 | 1989 | 1991 | 1995 | 1998 | 2001 |
| 0100 Br W of Ballyconnaught | 4 | 4 | 4 | 3-4 | 3-4 | 3-4 | 3-4 |
| 0200 Br SW of Garrandarragh | 4 | 4 | 4 | 4 | - | - | - |
| 0250 Br WSW of Bohilla | - | - | 4 | 4 | 4 | 4 | 4 |
| 0300 Br u/s Nore River confl | 5 | 4-5 | 4 | 3-4 | 4 | 4 | 4 |

Assessment: No change since previous two surveys with uppermost location (0100) continuing slightly polluted.

River and Code : **BALLYROAN** **15/B/01**
 Tributary of : Nore OS Catchment No: 184
 OS Grid Ref : S 410 848 Date(s) Surveyed : 04/09/01

| Sampling Stations No. Location | Biological Quality Ratings (Q Values) | | | | | | | |
|-----------------------------------|---------------------------------------|------|------|------|------|------|------|------|
| | 1980 | 1982 | 1984 | 1987 | 1991 | 1995 | 1998 | 2001 |
| 0100 Sallagh Br | - | - | - | 3 | 3-4 | 4 | 3-4 | 4 |
| 0150 Ballydine Br | - | 4 | 4 | 3-4 | 4 | 3-4 | 3-4 | 3 |
| 0200 Gloreen Br | 3 | 2-3 | 2-3 | 3 | 4 | 3 | 3 | 3 |

Assessment: A slight improvement was recorded at Sallagh Bridge (0100) in 2001 but quality deteriorated upstream of Abbeyleix (0150) and the reach below the town continued to be moderately polluted.

River and Code : **BREGAGH (KILKENNY)** **15/B/02**
 Tributary of : Nore OS Catchment No: 184
 OS Grid Ref : S 506 564 Date(s) Surveyed : 11/06/01

| Sampling Stations No. Location | Biological Quality Ratings (Q Values) | | | | | | |
|-----------------------------------|---------------------------------------|------|------|------|------|------|------|
| | 1980 | 1982 | 1985 | 1989 | 1991 | 1995 | 2001 |
| 0080 Br NW of Aughtanny | - | - | - | 3 | - | 3 | 3 |
| 0300 Br E of Kilcreen House | 2 | 3 | 3 | 2-3 | - | - | - |
| 0350 Brewery Br, Kilkenny | 3 | - | - | 2-3 | 2-3 | 3 | 3 |

Assessment: Continuing moderately polluted by suspected agriculture in its upper reaches (0080) and by suspected sewage in it's lower (0350) in June 2001.

River and Code : **BROWNSTOWN STREAM** **15/B/04**
 Tributary of : Nore OS Catchment No: 184
 OS Grid Ref : S 530 547 Date(s) Surveyed : 29/06/01

| Sampling Stations No. Location | Biological Quality Ratings (Q Values) | | | | | |
|-----------------------------------|---------------------------------------|------|------|------|------|-----|
| | 1989 | 1991 | 1995 | 1998 | 2001 | |
| 0800 Br S of Brownstown | | 3-4 | 3 | 3 | 3-4 | 3-4 |
| 1100 Br u/s Nore R confl | | 4 | 3-4 | 4 | 3-4 | 4 |

Assessment: Also known as the Pocke River this stream was again eutrophic at first location (0800) but the lower reaches (1100) had improved somewhat since 1998.

River and Code : **CAHERLESK STREAM** **15/C/12**
Tributary of : Kings OS Catchment No: 184
OS Grid Ref : S 455 433 Date(s) Surveyed : 17/09/01

| Sampling Stations No. Location | Biological Quality Ratings (Q Values) | | | |
|-----------------------------------|---------------------------------------|------|------|------|
| | 1993 | 1995 | 1998 | 2001 |
| 0200 Br near Ballytobin House | 3 | - | - | - |
| 0400 Br u/s King's R confl | - | 3 | 3 | 3 |

Assessment: Continuing moderately polluted. Agriculture suspected.

River and Code : **CAPPANACLOGHY** **15/C/06**
Tributary of : Nore OS Catchment No: 184
OS Grid Ref : S 404 877 Date(s) Surveyed : 27/07/01

| Sampling Stations No. Location | Biological Quality Ratings (Q Values) | | | | | | | | |
|-----------------------------------|---------------------------------------|------|------|------|------|------|------|------|--|
| | 1987 | 1988 | 1989 | 1990 | 1991 | 1995 | 1998 | 2001 | |
| Main Channel | | | | | | | | | |
| 0400 Br E of Clooncullen | 2 | 2 | 2 | 2 | 3 | 2 | 3 | 2 | |
| 0700 The Hollow Br | 1 | 2-3 | 3 | 3 | 3 | 3 | 4 | 3-4 | |
| 0900 Br E of Cromoge | - | - | - | - | - | 3 | 4 | 3 | |
| Coolie Tributary | | | | | | | | | |
| 1100 Br S of Coole | 1 | 2 | 2-3 | - | 2-3 | 2-3 | 3-4 | 2 | |

Assessment: Significant deterioration since previous survey with respectively serious, slight and moderate pollution on the main channel and serious pollution on the tributary. Pollution causes unknown.

River and Code : **CASTLECOMER STREAM** **15/C/01**
 Tributary of : Dinin (Nore) North OS Catchment No: 184
 OS Grid Ref : S 537 732 Date(s) Surveyed : 18/06/01

| Sampling Stations No. Location | Biological Quality Ratings (Q Values) | | | | | | |
|-----------------------------------|---------------------------------------|------|------|------|------|------|------|
| | 1980 | 1984 | 1988 | 1991 | 1995 | 1998 | 2001 |
| 0100 Br at N end of Castlecomer | 4 | 4 | 4 | 4 | 4 | 4 | 3-4 |

Assessment: Slightly polluted by a small sewage discharge entering just downstream of bridge on the left-hand side.

River and Code : **CLOGH** **15/C/03**
 Tributary of : Dinin (Nore) North OS Catchment No: 184
 OS Grid Ref : S 560 777 Date(s) Surveyed : 28/06/01

| Sampling Stations No. Location | Biological Quality Ratings (Q Values) | | | | | | | | |
|-----------------------------------|---------------------------------------|------|------|------|------|------|------|------|------|
| | 1971 | 1975 | 1980 | 1985 | 1988 | 1991 | 1995 | 1998 | 2001 |
| 0100 The Swan Br | - | - | 4 | 4 | 4 | - | dry | - | - |
| 0200 Slatt Br | - | - | - | - | 4 | 4 | 3-4 | 4 | 3-4 |
| 0300 Clogh Br | 5 | 4-5 | 4 | 3-4 | 3-4 | 3-4 | - | - | - |
| 0400 Ford (Br) d/s Clogh Br | - | - | - | - | - | - | 3-4 | 3-4 | 3-4 |

Assessment: Following a slight deterioration at Slatt Bridge (0100) both locations were assessed as slightly polluted/eutrophic in June 2001.

River and Code : **CLOGHNAGH** **15/C/04**
 Tributary of : Dinin (Nore) OS Catchment No: 184
 OS Grid Ref : S 511 668 Date(s) Surveyed : 28/06/01

| Sampling Stations No. Location | Biological Quality Ratings (Q Values) | | | | |
|-----------------------------------|---------------------------------------|------|------|------|------|
| | 1988 | 1991 | 1995 | 1998 | 2001 |
| 0300 Br W of Maudlin | 3-4 | 3-4 | 3-4 | 4 | 3-4 |
| 0400 Br u/s Dinin R confl | 4 | 4-5 | 4 | 4 | 3-4 |

Assessment: Both locations on this river, also known as the Glosia, were eutrophic in June 2001 representing deterioration since previous survey.

River and Code : **DELOUR**
 Tributary of : Nore
 OS Grid Ref : S 305 919

15/D/01
 OS Catchment No: 184
 Date(s) Surveyed : 24/07/01

| Sampling Stations No. Location | Biological Quality Ratings (Q Values) | | | | | | | |
|-----------------------------------|---------------------------------------|------|------|------|------|------|------|------|
| | 1976 | 1980 | 1986 | 1989 | 1991 | 1995 | 1998 | 2001 |
| 0060 Br at Sallybrook | - | - | - | 5 | 5 | 5 | 4-5 | 4 |
| 0100 Lacca Br | - | 5 | 4-5 | 5 | 4-5 | - | - | - |
| 0150 Br u/s Delour Br | - | - | - | - | - | 3-4* | 4 | 4-5 |
| 0300 Annagh Br | 4-5 | 4 | 4 | - | - | - | - | - |
| 0400 Derrynaseera Br | - | - | - | 4-5 | 4-5 | 4-5 | 4-5 | 4 |

Assessment: While continuing satisfactory throughout its course it is worth noting that the first location (0060) has declined from its previously high ecological status.

River and Code : **DESART STREAM**
 Tributary of : King's (Kilkenny)
 OS Grid Ref : S 453 432

15/D/04
 OS Catchment No: 184
 Date(s) Surveyed : 22/08/01

| Sampling Stations No. Location | Biological Quality Ratings (Q Values) | | | | | |
|-----------------------------------|---------------------------------------|------|------|------|------|------|
| | 1989 | 1991 | 1994 | 1995 | 1998 | 2001 |
| 0300 Br S of Desart Demesne | 3-4 | 3 | - | 3 | 3-4 | 3 |
| 0500 Br d/s Br SE of Knockreagh | 2-3 | 2 | 3 | 2-3 | 3-4 | 3 |

Assessment: Unsatisfactory at both locations, due to moderate pollution of suspected agricultural origin. Has deteriorated since the previous survey.

River and Code : **DININ (NORE)**

15/D/02

Tributary of : Nore

OS Catchment No: 184

OS Grid Ref : S 468 619

Date(s) Surveyed : 21/06/01

| Stations No. | | | | | | Biological Quality Ratings (Q Values) | | | | |
|---------------------|------|------|------|------|------|---------------------------------------|------|------|------|------|
| | 1971 | 1975 | 1979 | 1981 | 1985 | 1989 | 1991 | 1995 | 1998 | 2001 |
| North Branch | | | | | | | | | | |
| 0080 | - | - | - | - | - | 3 | 3 | 3 | 3 | 3-4 |
| 0200 | 5 | - | 4 | 4 | 4 | - | - | 3-4 | 4 | 3-4 |
| 0300 | - | - | - | 4-5 | 4 | - | 4 | 3-4 | 4 | 4 |
| 0400 | - | - | 4-5 | - | 4 | - | - | 4 | 3-4 | 3-4 |
| South Branch | | | | | | | | | | |
| 0450 | - | - | - | 5 | 5 | - | 4-5 | 4 | 3-4 | 4 |
| 0500 | - | - | 5 | 5 | 5 | - | - | 4 | 4 | 3-4 |
| 0600 | - | - | 4-5 | 5 | 4-5 | - | 4 | 3-4 | 4 | 4 |
| Main Channel | | | | | | | | | | |
| 0700 | 5 | - | 4-5 | - | 4 | - | 3-4 | 3-4 | 4 | 3-4 |
| 0760 | - | - | - | - | - | - | 3-4 | 3-4 | 4 | 4 |
| 0800 | 5 | 5 | 4-5 | - | 3-4 | - | 4 | 4 | 4 | 4 |

| Sampling Station No. | Location |
|-------------------------|----------------------|
| 0080 | Killeen Br |
| 0200 | Massford Br |
| 0300 | Br in Castlecomer |
| 0400 | Dysart Br |
| 0450 | Black Br |
| 0500 | Br S of Uskerty Wood |
| 0600 | Dysart Br |

| Sampling Station No. | Location |
|-------------------------|------------------------|
| 0700 | Lisnafunshion |
| 0760 | Br E of Jenkinstown Ho |
| 0800 | Dinin Br |

Assessment: North Branch extensively eutrophic, South Branch and Main Channel mostly satisfactory.

River and Code : **DONAGHMORE STREAM**

15/D/03

Tributary of : Erkina

OS Catchment No: 184

OS Grid Ref : S 276 788

Date(s) Surveyed : 10/08/01

| Sampling Stations No. | Location | Biological Quality Ratings (Q Values) | | | | |
|--------------------------|-------------------|---------------------------------------|------|------|------|------|
| | | 1989 | 1991 | 1995 | 1998 | 2001 |
| 0400 | Br d/s Brockry Br | 3-4 | 3-4 | 3 | 4 | 3-4 |
| 0700 | Br in Donaghmore | 4 | 3-4 | 3 | 4 | 3-4 |

Assessment: Has deteriorated since the previous survey and was slightly polluted at both locations surveyed in August 2001.

River and Code : **ENNISNAG STREAM** **15/E/02**
Tributary of : King's (Kilkenny) OS Catchment No: 184
OS Grid Ref : S 525 440 Date(s) Surveyed : 05/09/01

| Sampling Stations No. Location | Biological Quality Ratings (Q Values) | | | | |
|-----------------------------------|---------------------------------------|------|------|------|------|
| | 1989 | 1991 | 1995 | 1998 | 2001 |
| 0700 Br in Ennisnag | 3-4 | 4 | 3-4* | 3-4 | 3-4 |

Assessment: Continuing eutrophic where surveyed. Other upstream locations run dry in some summers and have been discontinued.

River and Code : **ERKINA** **15/E/01**
Tributary of : Nore OS Catchment No: 184
OS Grid Ref : S 420 773 Date(s) Surveyed : 26/07/01

| Sampling Stations No. Location | Biological Quality Ratings (Q Values) | | | | | | | | | |
|-----------------------------------|---------------------------------------|------|------|------|------|------|------|------|------|--|
| | 1976 | 1980 | 1985 | 1988 | 1989 | 1991 | 1995 | 1998 | 2001 | |
| 0040 Br NW of Templequain | - | - | - | 3 | - | 3-4 | 3 | 3-4 | 3-4 | |
| 0100 Br SE of Beechmount | 4-5 | 4 | 4 | 3-4 | - | 4 | 4 | 3-4 | 4 | |
| 0200 Coneyburrow Br | 4 | 4 | 2 | 2-3 | 3 | 3 | 2-3 | 3-4 | 3 | |
| 0300 Carrick Br | - | 3 | 3 | 3 | - | 3-4 | 3 | 3-4 | 3-4 | |
| 0400 Br near Black Island | 4-5 | 4 | 4 | 4 | - | - | 4 | 4 | 3-4 | |
| 0550 Durrow Br | - | - | 4 | 4 | - | 3-4 | 3-4 | 4 | 3-4 | |

Assessment: Overall deterioration with eutrophication at four of the six locations examined and satisfactory at just one (0100). Moderately polluted, due to sewage discharges, downstream of Rathdowney (0200).

River and Code : **GLORY**
Tributary of : King's (Kilkenny)
OS Grid Ref : S 484 430

15/G/01
OS Catchment No: 184
Date(s) Surveyed : 05/09/01

| Sampling Stations No. | Location | Biological Quality Ratings (Q Values) | | | | | | |
|--------------------------|-------------------------------|---------------------------------------|------|------|------|------|------|------|
| | | 1980 | 1986 | 1989 | 1991 | 1995 | 1998 | 2001 |
| 0040 | Br N of Kilmaganny | - | - | 3-4 | 3 | - | - | - |
| 0045 | 0.1 km d/s Br N of Kilmaganny | - | - | - | - | 1 | 2-3 | 2 |
| 0100 | Br SE of Rogerstown Br | 5 | 4 | 3 | 4 | 3-4 | 4 | 3-4 |
| 0200 | Br E of Raheen | 5 | 4 | 4 | 3-4 | 3 | 3-4 | 4 |
| 0300 | Br u/s King's R confl | 5 | 4 | 4 | 4 | 3 | 4 | 4 |

Assessment: Two of the four locations examined were satisfactory. The first location, below Kilmaganny (0045), was seriously polluted by sewage discharges while further downstream (0200) a deterioration, since previous survey, was also recorded.

River and Code : **GORTEENAHILLA**
Tributary of : Nuenna
OS Grid Ref : S 405 647

15/G/08
OS Catchment No: 184
Date(s) Surveyed : 22/08/01

| Sampling Stations No. | Location | Biological Quality Ratings (Q Values) | | | |
|--------------------------|--------------------------|---------------------------------------|------|------|------|
| | | 1993 | 1995 | 1998 | 2001 |
| 0300 | Br N of Balleen | 4 | 3 | 3 | 3-4 |
| 0500 | Br at Mills in Freshford | 4 | dry | - | - |

Assessment: Continuing unsatisfactory but with some slight amelioration in pollution status since last surveyed. Station 0500 is no longer sampled as it goes dry in some summers.

| | | |
|----------------|---------------|-----------------------------|
| River and Code | : GOUL | 15/G/02 |
| Tributary of | : Erkina | OS Catchment No: 184 |
| OS Grid Ref | : S 374 779 | Date(s) Surveyed : 09/08/01 |

| | | | | | | | | | |
|-------------------|----------|---------------------------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Sampling Stations | | Biological Quality Ratings (Q Values) | | | | | | | |
| No. | Location | 1976 | 1980 | 1984 | 1987 | 1991 | 1995 | 1998 | 2001 |

Ballymacdonnell Branch

| | | | | | | | | | |
|------|--------------------------------|---|---|---|---|-----|---|-----|-----|
| 0080 | Br u/s confl with Main Channel | - | - | - | - | 3-4 | 3 | 3-4 | 3-4 |
|------|--------------------------------|---|---|---|---|-----|---|-----|-----|

Main Channel

| | | | | | | | | | |
|------|-------------------------|-----|---|-----|---|-----|-----|-----|-----|
| 0250 | Br 2 km NW of Johnstown | - | - | - | 3 | 3 | 3 | 3 | 3-4 |
| 0300 | Fertagh Br | - | - | 3-4 | 4 | 3-4 | 3-4 | 3-4 | 3-4 |
| 0360 | 2nd Br u/s Aghmacart Br | - | - | - | - | - | 3-4 | 4 | 3-4 |
| 0450 | Maynebog Br | - | - | - | 4 | 4 | 4 | 4 | 4 |
| 0500 | Br near Newtown Mills | 4-5 | 4 | 4 | 4 | 4 | 3-4 | 3-4 | 3-4 |

Assessment: Distinctly eutrophic over most of its course with just one (0450) of the six locations indicating satisfactory conditions. Some amelioration in pollution status recorded below Johnstown (0250) but overall deterioration in river since previous examination. A significant rise in Conductivity, from 660 to 845 $\mu\text{S}/\text{cm}$, was measured downstream of a mine-pumping discharge at Fertagh Bridge (0300) during the survey.

| | | |
|----------------|----------------|-----------------------------|
| River and Code | : GULLY | 15/G/03 |
| Tributary of | : Nore | OS Catchment No: 184 |
| OS Grid Ref | : S 415 788 | Date(s) Surveyed : 07/09/01 |

| | | | | | | | | | |
|-------------------|----------|---------------------------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Sampling Stations | | Biological Quality Ratings (Q Values) | | | | | | | |
| No. | Location | 1976 | 1980 | 1984 | 1987 | 1991 | 1995 | 1998 | 2001 |

| | | | | | | | | | |
|------|----------------------------|---|---|-----|-----|-----|-----|-----|---|
| 0060 | Gully Br (Upper) | - | - | - | 3-4 | 3-4 | 3-4 | 3-4 | 3 |
| 0100 | Br 1 km NE of Ballycuddahy | - | 4 | 3-4 | 3 | 4 | 3 | 3-4 | 4 |
| 0200 | Gully Br | 5 | 5 | 4 | 3-4 | 4 | 3-4 | 4 | 3 |
| 0300 | Colooney Br | 5 | 5 | 5 | 3-4 | 4 | 4 | 4 | 4 |

Assessment: Deterioration since previous survey with moderately polluted conditions recorded at two of the four locations. A septic tank discharge is suspected at 0060 but the cause of the pollution at 0200 is unknown.

| | | |
|----------------|------------------|-----------------------------|
| River and Code | : KILLEEN | 15/K/01 |
| Tributary of | : Delour | OS Catchment No: 184 |
| OS Grid Ref | : S 285 955 | Date(s) Surveyed : 25/07/01 |

| Sampling Stations No. Location | Biological Quality Ratings (Q Values) | | | | |
|-----------------------------------|---------------------------------------|------|------|------|------|
| | 1987 | 1991 | 1995 | 1998 | 2001 |
| 0200 Br NE of Cappanarrow | 5 | 5 | 4-5 | 4-5 | 4-5 |
| 0400 Br u/s Delour River | 5 | 5 | 5 | 4-5 | 4-5 |

Assessment: Continuing satisfactory.

| | | |
|----------------|----------------------------|-----------------------------|
| River and Code | : KING'S (KILKENNY) | 15/K/02 |
| Tributary of | : Nore | OS Catchment No: 184 |
| OS Grid Ref | : S 547 442 | Date(s) Surveyed : 23/08/01 |

| Sampling Stations No. Location | Biological Quality Ratings (Q Values) | | | | | | | | |
|-----------------------------------|---------------------------------------|------|------|------|------|------|------|------|------|
| | 1971 | 1975 | 1979 | 1983 | 1987 | 1991 | 1995 | 1998 | 2001 |

West Branch

| | | | | | | | | | |
|------------------------------------|---|---|---|---|---|-----|---|---|-----|
| 0040 Br u/s confl with East Branch | - | - | - | - | 4 | 4-5 | 4 | 4 | 4-5 |
|------------------------------------|---|---|---|---|---|-----|---|---|-----|

East Branch

| | | | | | | | | | |
|---------------------------|---|---|---|---|---|-----|---|-----|---|
| 0060 Br SE of Garranacool | - | - | - | - | 4 | 3-4 | 4 | 3-4 | 4 |
|---------------------------|---|---|---|---|---|-----|---|-----|---|

Main Channel

| | | | | | | | | | |
|------------------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 0200 At Garrynoe | - | - | 4-5 | 4 | 4 | 3 | 4 | 3-4 | 4 |
| 0250 Second Br u/s Island's Br | - | - | - | - | 3 | 3-4 | - | 4 | 4 |
| 0300 Island's Br | 4-5 | 3-4 | 4-5 | 4 | 4 | - | dry | - | - |
| 0500 Br in Callan | 4 | - | 4-5 | 4 | 3 | 3-4 | 3 | 3-4 | 3 |
| 0600 2 km d/s Callan - nr Old Mill | 4 | 3-4 | 4 | 3-4 | 3 | 3 | - | 3-4 | 3-4 |
| 0700 Br 3.8 km u/s Kells | - | - | - | 4 | 3-4 | 3-4 | 3-4 | 3-4 | 3-4 |
| 0800 Kells Br | 4-5 | 4 | 4-5 | 4 | 3-4 | 4 | - | - | - |
| 0850 Near Kellsborough House | - | - | - | - | 3-4 | 3-4 | 3 | 3-4 | 3-4 |
| 0900 Br N of Stonyford | 4-5 | 4 | 4-5 | 4 | 3-4 | 3-4 | 3 | 3 | 3-4 |

Assessment: Satisfactory on two branches and upstream of Callan on main channel. Moderately polluted at Callan, where a discharge enters from the left-hand side (0500), and slightly polluted thereafter.

River and Code : **LISDOWNEY** **15/L/02**
Tributary of : Nore OS Catchment No: 184
OS Grid Ref : S 442 685 Date(s) Surveyed : 04/09/01

| Sampling Stations No. Location | Biological Quality Ratings (Q Values) | | | |
|-----------------------------------|---------------------------------------|------|------|------|
| | 1991 | 1995 | 1998 | 2001 |
| 0100 Br N of Lisdowney Cross Rds | - | 4 | 3-4 | 3-4 |
| 0300 Grange Br | 3 | dry | - | - |

Assessment: Again slightly polluted at the only location examined. Other locations (e.g., 0300) discontinued as they dry out in some summers.

River and Code : **MOUNTRATH** **15/M/01**
Tributary of : Nore OS Catchment No: 184
OS Grid Ref : S 348 913 Date(s) Surveyed : 25/07/01

| Sampling Stations No. Location | Biological Quality Ratings (Q Values) | | | | | | | | |
|-----------------------------------|---------------------------------------|------|------|------|------|------|------|------|------|
| | 1971 | 1976 | 1980 | 1985 | 1987 | 1991 | 1995 | 1998 | 2001 |
| 0050 Br E of Drim | - | - | - | - | - | - | 4 | 4-5 | 4 |
| 0100 Br near Rushin House | - | - | 4-5 | 4 | 4 | 4 | 4 | 4 | 4-5 |
| 0160 Rushin Br | - | - | 4-5 | 4 | 3-4 | 4 | 4 | 4 | 4 |
| 0300 Forest Br | 5 | 4 | 4-5 | 4 | 4 | 4 | 4 | 3-4 | 3-4 |

Assessment: Mostly satisfactory with no significant change. Again slightly polluted in lower reaches downstream of Mountrath (0300).

River and Code : **MUCKALEE** **15/M/02**
Tributary of : Dinin (Nore) OS Catchment No: 184
OS Grid Ref : S 508 665 Date(s) Surveyed : 29/06/01

| Sampling Stations No. Location | Biological Quality Ratings (Q Values) | | | | | | |
|-----------------------------------|---------------------------------------|------|------|------|------|------|------|
| | 1980 | 1985 | 1989 | 1991 | 1995 | 1998 | 2001 |
| 0100 Br N of Cloghpool | 5 | 4 | 4-5 | 4-5 | 4 | 4-5 | 4-5 |
| 0200 Br u/s Dinin R confl | 5 | 4 | 4 | 4 | 4 | 4 | 4 |

Assessment: Continuing satisfactory at both locations on this river which is also known as the Douglas.

River and Code : **MUNSTER**
Tributary of : King's (Kilkenny)
OS Grid Ref : S 393 445

15/M/03
OS Catchment No: 184
Date(s) Surveyed : 17/09/01

| Sampling Stations No. Location | Biological Quality Ratings (Q Values) | | | | | | |
|-----------------------------------|---------------------------------------|------|------|------|------|------|------|
| | 1980 | 1985 | 1987 | 1991 | 1995 | 1998 | 2001 |
| <i>East Branch</i> | | | | | | | |
| 0250 Br at Oldtown | - | - | 3-4 | 3-4 | dry | 3-4 | 3-4 |
| 0400 Br E of Graigue | 5 | 4 | 4 | 4 | dry | 4 | 4 |
| 0450 Br u/s Main Channel | - | - | 4 | 4 | 3-4 | 3-4 | 3-4 |
| <i>Main Channel</i> | | | | | | | |
| 0540 Br WSW of Killeen | - | - | 4 | 3-4 | - | 4 | 3-4 |
| 0600 Br SW of Kilbraghan | 5 | 4-5 | 4 | 4-5 | dry | 3-4 | 3-4 |
| 0700 Br u/s King's R confl | 5 | 4 | 4 | 4 | dry | 4 | 3-4 |

Assessment: Mostly unsatisfactory due to slight pollution. No change in condition on the East Branch since previous survey but has deteriorated at two locations (0540 and 0700) on the Main Channel.

River and Code : **NEEDLEFORD STREAM**
Tributary of : Mountrath
OS Grid Ref : S 357 957

15/N/04
OS Catchment No: 184
Date(s) Surveyed : 25/07/01

| Sampling Stations No. Location | Biological Quality Ratings (Q Values) |
|-----------------------------------|---------------------------------------|
| | 2001 |
| 0200 Needleford Br | 4 |

Assessment: Satisfactory when examined for the first time in July 2001.

River and Code : **NORE**
 Tributary of : Barrow/Nore/Suir Estuary
 OS Grid Ref : S 706 306

15/N/01
 OS Catchment No: 184
 Date(s) Surveyed : 02/07/01

| Stations No. | Biological Quality Ratings (Q Values) | | | | | | | | | |
|-----------------|---------------------------------------|------|------|------|------|------|------|------|------|------|
| | 1971 | 1975 | 1979 | 1981 | 1984 | 1987 | 1991 | 1995 | 1998 | 2001 |
| 0030 | - | - | - | - | - | - | - | 3 | 4 | 3 |
| 0080 | - | - | - | - | - | - | 3-4 | 3-4 | 3-4 | 3-4 |
| 0200 | - | - | 3 | 4 | 3-4 | 3-4 | 4 | 3 | 3-4 | 3-4 |
| 0300 | 5 | 4-5 | 4 | 4 | 4 | 3-4 | 3-4 | 3-4 | 3-4 | 3-4 |
| 0400 | 5 | 5 | 4-5 | - | 3-4 | 3-4 | 4 | 4 | 3-4 | 3-4 |
| 0500 | 4-5 | 4-5 | 4-5 | - | - | 4 | - | 4* | 4 | 4 |
| 0580 | - | - | - | - | - | - | - | 3-4 | 3-4 | 4 |
| 0600 | 5 | 4-5 | 5 | - | 4-5 | 4-5 | 4 | - | - | - |
| 0700 | - | - | 4 | - | 3-4 | 4 | 4 | 4 | 3-4 | 4 |
| 0800 | 5 | 5 | 4-5 | - | 4 | 4 | 4 | - | - | - |
| 0900 | - | - | - | - | 4 | 4-5 | 4 | 4 | 3-4 | 3-4 |
| 1000 | 5 | 5 | 5 | - | 4 | 4 | 4 | - | - | - |
| 1100 | 5 | 5 | 4-5 | - | 4 | 4 | 4-5 | 3-4 | 3-4 | 4 |
| 1300 | 4-5 | 4-5 | 4-5 | - | 4 | 4 | 4 | 3-4 | 4 | 4-5 |
| 1450 | 5 | 4-5 | 4 | 4 | 4 | 3-4 | 3-4 | 3-4 | 4 | 3-4 |
| 1500 | 4-5 | 4 | 3-4 | 4 | 3-4 | 3-4 | 3-4 | - | - | - |
| 1600 | 5 | 5 | 3-4 | 4 | 3-4 | 4 | 4 | 3-4 | 4 | 4 |
| 1700 | - | - | 4 | - | 4 | 4 | 4 | 4 | 4 | 4 |
| 1800 | 5 | 4-5 | 5 | - | 5 | 5 | 4 | 4 | 4-5 | 4 |
| 1950 | 3-4 | 3 | - | - | 2-3 | 4 | 3-4 | 3-4 | 3-4 | 3-4 |
| 2000 | - | - | 3 | 3-4 | 3-4 | 4 | 4 | 3 | 3-4 | 3 |
| 2120 | - | - | 4 | - | 3-4 | 3-4 | 4 | 4 | 4 | 3-4 |
| 2200 | - | - | 4 | - | 3-4 | 4 | 4 | 3-4 | 3-4 | 3-4 |
| 2305 | 4-5 | 4-5 | 3-4 | 3 | 3 | 2 | 2 | 2 | 3 | 2 |
| 2310 | 4-5 | 4-5 | 3-4 | 4 | 3-4 | 3-4 | 3-4 | 3-4 | 3-4 | 3-4 |
| 2320 | - | - | - | - | - | - | - | 3 | 3-4 | 3-4 |
| 2400 | - | - | 4 | 4 | 4 | 4 | 3-4 | 3-4 | 4 | 4 |

Sampling Station
 No. Location
 0030 Br SW of Clonakenny
 0080 Nore Br
 0200 Nore Br, SE of Roscrea
 0300 Quaker's Br
 0400 New Br, WNW of Borris-in-Ossory
 0500 Br S of Coolrain
 0580 Danganroe Br
 0700 Br nr Kilbricken House
 0800 New Br
 0900 Poorman's Br
 1000 Waterloo Br
 1100 Watercastle Br
 1300 Tallyho Br

Sampling Station
 No. Location
 1450 Br in Ballyragget
 1500 1.5 km d/s Ballyragget
 1600 Lismaine Br
 1700 Threecastles Br
 1800 1 km u/s Green's Br, Kilkenny
 1950 Fennessy's Mill (Ossory Br)
 2000 NE of Warrington, d/s Kilkenny
 2120 1 km d/s Bennettsbridge
 2200 Ballylinch Br
 2305 Thomastown Br (LHS)
 2310 Thomastown Br (RHS)
 2320 1 km d/s Thomastown Br
 2400 Brownsbarn Br

Continued

NORE *Continued*

Assessment: The Nore was in a mostly unsatisfactory condition in early July 2001 due largely to widespread eutrophication in its upper and lowermost reaches; just nine of the 23 locations examined were assessed as being in a satisfactory condition at that time and only at one (1300) was quality better than 'Fair' (i.e., Q4). A very considerable deterioration, caused by suspected agriculture, was recorded in the uppermost reaches (0030) and serious pollution by suspected sewage has re-appeared on the left hand side of the river in Thomastown (2305).

River and Code : **NUENNA** **15/N/02**
 Tributary of : Nore OS Catchment No: 184
 OS Grid Ref : S 442 641 Date(s) Surveyed : 22/08/01

| Sampling Stations No. Location | Biological Quality Ratings (Q Values) | | | | | | | |
|-----------------------------------|---------------------------------------|------|------|------|------|------|------|------|
| | 1976 | 1980 | 1985 | 1987 | 1991 | 1995 | 1998 | 2001 |
| 0100 Br d/s Clomantagh | - | 4 | 4 | 4 | 3-4 | 3-4 | 3-4 | 3-4 |
| 0300 1km d/s Freshford | - | 4 | 4 | 3-4 | 3 | 3 | 3 | 3 |
| 0400 Br near Cooleeshal | 4-5 | 4 | 4-5 | 3-4 | 4 | 3-4 | 4 | 3-4 |

Assessment: All three locations were unsatisfactory in August 2001 representing deterioration at the final one (0400) since previous survey.

River and Code : **OWVEG (NORE)** **15/O/01**
 Tributary of : Nore OS Catchment No: 184
OS Grid Ref : S 440 735 **Date(s) Surveyed : 20/08/01**

| Sampling Stations No. Location | Biological Quality Ratings (Q Values) | | | | | | |
|-----------------------------------|---------------------------------------|------|------|------|------|------|------|
| | 1980 | 1984 | 1987 | 1991 | 1995 | 1998 | 2001 |
| 0050 Br W of Spink | - | - | 3-4 | 4 | - | 3-4 | 4 |
| 0060 Graiguenasmuttan Br | - | - | 3-4 | 3-4 | - | - | - |
| 0080 Boleybeg Br | - | - | - | - | 3 | 3-4 | 3-4 |
| 0100 Dysart Wooden Br | 4 | 3-4 | 3-4 | 4 | - | - | - |
| 0160 Br WNW of Boleybawn | - | - | - | - | 4 | 3-4 | 4 |
| 0200 Ironmills Br | 4 | 4 | 4 | 4 | - | - | - |
| 0280 Castlemarket Br | - | - | - | - | 4 | 4 | 4 |
| 0300 Rosconnell Br | 5 | 4 | 4 | 4 | - | - | - |
| 0400 Br E of Attanagh | - | - | - | - | 4 | 4 | 4 |

Continued

OWVEG *Continued*

Assessment: Mostly satisfactory following improvement, since previous survey, at two of the locations (0050 and 0160). Thus, just one location (0080) was unsatisfactory, in August 2001, on this river which is also called the Owenbeg.

River and Code : **RATHDOWNEY STREAM** **15/R/03**
 Tributary of : Erkina OS Catchment No: 184
 OS Grid Ref : S 283 788 Date(s) Surveyed : 10/08/01

| Sampling Stations | | Biological Quality Ratings (Q Values) | | | |
|---|------------------------------------|---------------------------------------|------|------|---------|
| No. | Location | 1993 | 1995 | 1998 | 2001 |
| Castletown Tributary¹ | | | | | |
| 0100 | Br nr Cody's Castle | 3 | 3 | dry | No flow |
| Mount Pleasant Tributary¹ | | | | | |
| 0300 | Br u/s confl with Castletown Trib. | 3 | 3 | 3 | No flow |
| Main Channel | | | | | |
| 0500 | Br W of Whiteswall | 3-4 | dry | dry | - |
| 0700 | Br W of Glasha Crossroads | 4-5 | 4 | 3-4 | 3* |
| 1000 | Br at S end of Rathdowney | 3 | 3 | 3-4 | 3 |

Assessment: Neither of the tributaries was suitable for biological assessment in August 2001 due to the absence of flow but the Mount Pleasant Tributary (0300) appeared to be grossly polluted at that time. The Main Channel was heavily silted upstream of Rathdowney (0700) and moderately polluted in the town (1000).

*Heavy siltation

¹ Tributaries do not appear on the Ordnance Surveys River Catchment Map

River and Code : **TONET** **15/T/01**
 Tributary of : Delour OS Catchment No: 184
 OS Grid Ref : S 293 923 Date(s) Surveyed : 24/07/01

| Sampling Stations | | Biological Quality Ratings (Q Values) | | | | |
|-------------------|-----------------------|---------------------------------------|------|------|------|------|
| No. | Location | 1987 | 1991 | 1995 | 1998 | 2001 |
| 0200 | Br N of Keeloge North | 4-5 | 4-5 | 4-5 | 4-5 | 4-5 |
| 0400 | Rossnaclonagh Br | 4-5 | 4-5 | 4-5 | 4-5 | 4-5 |
| 0600 | Anatrim Br | 4 | 4-5 | 4 | 4 | 4 |

Assessment: Continuing satisfactory with no change in conditons since first examined in 1987.

HYDROMETRIC AREA NO. 17

Colligan-Mahon

| | |
|--------------------|-------|
| Araglin (Colligan) | 17A01 |
| Brickey | 17B01 |
| Colligan | 17C01 |
| Dalligan | 17D01 |
| Dunhill | 17D02 |
| Leperstown Stream | 17L01 |
| Mahon | 17M01 |
| Morrigen | 17M02 |
| Tay | 17T01 |

River and Code : **ARAGLIN (COLLIGAN)** **17/A/01**
 Tributary of : Colligan OS Catchment No: 188
 OS Grid Ref : S 232 024 Date(s) Surveyed : 20/09/01

| Sampling Stations No. | Location | Biological Quality Ratings (Q Values) | | | | |
|--------------------------|-------------------------|---------------------------------------|------|------|------|------|
| | | 1987 | 1991 | 1996 | 1998 | 2001 |
| 0300 | Coum Br | 4 | 4-5 | 4-5 | 4-5 | 4 |
| 0400 | Br u/s Colligan R confl | 4 | 4 | 4-5 | 4-5 | 4 |

Assessment: Continuing satisfactory despite showing slight loss in biological diversity at both locations since previous examination.

River and Code : **BRICKEY** **17/B/01**
 Tributary of : Sea - Dungarvan Harbour OS Catchment No: 189
 OS Grid Ref : X 243 902 Date(s) Surveyed : 19/09/01

| Sampling Stations No. | Location | Biological Quality Ratings (Q Values) | | | |
|--------------------------|-------------------|---------------------------------------|------|------|------|
| | | 1987 | 1991 | 1996 | 2001 |
| 0030 | Canty Br | 3 | 3 | - | - |
| 0050 | Knockmahon Br | - | - | 3 | 3 |
| 0090 | Br u/s Twomile Br | 3-4 | 3-4 | 3-4 | 3-4 |

Assessment: Continuing moderately polluted at Knockmahon Bridge (0050) by slurry entering via a stream and again slightly polluted at the other location (0090) examined where the river is subject to tidal influence.

River and Code : **COLLIGAN** **17/C/01**
Tributary of : Sea - Dungarvan Harbour OS Catchment No: 188
OS Grid Ref : X 262 933 Date(s) Surveyed : 19/09/01

| Sampling Stations No. Location | Biological Quality Ratings (Q Values) | | | | | |
|-----------------------------------|---------------------------------------|------|------|------|------|------|
| | 1981 | 1984 | 1987 | 1991 | 1996 | 2001 |
| West Branch | | | | | | |
| 0090 Scart Br (West) | - | - | 4-5 | 4 | 4-5 | 4 |
| East Branch | | | | | | |
| 0100 Scart Br (East) | 5 | 4 | 4-5 | 4 | 4-5 | 4 |
| Main Channel | | | | | | |
| 0150 Br ESE of Lackandarra | - | - | - | - | 4-5 | 4-5 |
| 0180 Colligan Br | - | - | 4 | 4 | 4-5 | 4-5 |
| 0250 Br nr Killadangan | - | - | - | 4 | 4 | 4 |

Assessment: Continuing satisfactory although there was a slight loss in biological diversity recorded at the first two locations since the previous survey.

River and Code : **DALLIGAN** **17/D/01**
Tributary of : Sea - E. of Dungarvan Harbour OS Catchment No: 187
OS Grid Ref : X 335 950 Date(s) Surveyed : 20/09/01

| Sampling Stations No. Location | Biological Quality Ratings (Q Values) | | | | |
|-----------------------------------|---------------------------------------|------|------|------|------|
| | 1987 | 1991 | 1996 | 1998 | 2001 |
| 0050 Br E of Carricknafinnoge | 4 | 4 | 4 | 4 | 4 |
| 0100 Br at Shanbally | 4 | 4 | 3-4 | 4 | 4 |
| 0300 New Br, u/s Ballyvoyle Br | 4 | 4 | 3-4 | 4 | 4 |

Assessment: Satisfactory. No change.

River and Code : **DUNHILL** **17/D/02**
Tributary of : Sea - E. of Dunbrattin Head OS Catchment No: k2
OS Grid Ref : X 496 988 Date(s) Surveyed : 02/10/01

| Sampling Stations No. Location | Biological Quality Ratings (Q Values) | | | | |
|-----------------------------------|---------------------------------------|------|------|------|------|
| | 1990 | 1991 | 1996 | 1998 | 2001 |
| 0100 Ballyphilip Br | 3-4 | 2-3 | 3 | 2 | 3-4 |
| 0200 Br W of Dunhill Lodge | 3-4 | 3 | 3 | 3-4 | 3-4 |

Assessment: Slightly polluted at both locations. Constructed wetlands are sited near both locations discharging respectively immediately upstream of Ballyphilip Bridge (0100) and downstream of Bridge W of Dunhill Lodge (0200). Improvement at the former and unchanged at the latter since the previous survey.

River and Code : **LEPERSTOWN STREAM** **17/L/01**
Tributary of : Sea - Tramore Bay OS Catchment No: k2
OS Grid Ref : S 641 012 Date(s) Surveyed : 02/10/01

| Sampling Stations No. Location | Biological Quality Ratings (Q Values) | | | |
|-----------------------------------|---------------------------------------|------|------|------|
| | 1994 | 1996 | 1998 | 2001 |
| 0300 Br W of Leperstown | 3 | 3 | 3 | 3 |

Assessment: Continuing moderately polluted.

River and Code : **MAHON** **17/M/01**
Tributary of : Sea - Bunmahon Bay OS Catchment No: 185
OS Grid Ref : X 434 988 Date(s) Surveyed : 01/10/01

| Sampling Stations No. Location | Biological Quality Ratings (Q Values) | | | | |
|-----------------------------------|---------------------------------------|------|------|------|------|
| | 1987 | 1991 | 1996 | 1998 | 2001 |
| 0100 Mahon Br, Furraleigh | 3-4 | 4 | 4 | 4 | 4 |
| 0140 Br S of Ballyboy | 3-4 | 3 | 4 | 4 | 4 |
| 0200 Br just S of Kilmacthomas | 3 | 3 | 4 | 3-4 | 3-4 |
| 0300 Aughshemus Br | 4 | 4 | 4 | 4 | 4 |
| 0350 ENE of Seafield Ho | 4 | 4 | 4 | 4 | 4 |

Assessment: No change. Satisfactory except downstream of Kilmacthomas where again slightly polluted.

River and Code : **MORRAGEN** **17/M/02**
Tributary of : Mahon OS Catchment No: 185
OS Grid Ref : S 392 065 Date(s) Surveyed : 01/10/01

| Sampling Stations No. Location | Biological Quality Ratings (Q Values) | | | | |
|-----------------------------------|---------------------------------------|------|------|------|------|
| | 1987 | 1991 | 1996 | 1998 | 2001 |
| 0100 Rahoughtragh Br | 3 | 4 | 3-4 | 3-4 | 4 |
| 0200 Kilnagrange Br | 4 | 4 | 4 | 4 | 4 |

Assessment: Satisfactory at both locations representing an improvement in conditions at Rahoughtragh Br (0100) since previous survey when slightly polluted by animal slurries.

River and Code : **TAY** **17/T/01**
Tributary of : Sea - Dungarvan Bay OS Catchment No: 186
OS Grid Ref : X 368 970 Date(s) Surveyed : 21/09/01

| Sampling Stations No. Location | Biological Quality Ratings (Q Values) | | | | | |
|-----------------------------------|---------------------------------------|------|------|------|------|------|
| | 1984 | 1987 | 1991 | 1996 | 1998 | 2001 |
| 0050 Aughnacurra Br | - | 4-5 | 4-5 | 4-5 | 4 | 3-4 |
| 0100 Br NE of Lemybrien | 4-5 | 4-5 | 4-5 | 4 | 4 | 3-4 |
| 0250 Br nr Durrow Ho | - | - | - | 4-5 | 4 | 4 |
| 0400 Stradbally Br | - | 4-5 | 4 | 4 | 4 | 4 |

Assessment: Significant change since last survey at the upper two locations (0050 and 0100) due to slight agricultural pollution. On the day of the survey a slurry tanker was being washed out, into the river, immediately upstream of Aughnacurra Bridge (NGR: S31902 03971). As reported in the 1996 and 1998 surveys, small amounts of domestic sewage were again reaching the river immediately downstream of Stradbally Bridge (0400).

HYDROMETRIC AREA 22 (PART)

Laune-Maine-Dingle Bay

| | |
|------------------|-------|
| Beheenagh | 22B01 |
| Behy | 22B02 |
| Caragh | 22C02 |
| Carhan | 22C03 |
| Coomnacarrig | 22C06 |
| Cottoners | 22C05 |
| Crinnagh | 22C07 |
| Deenagh | 22D01 |
| Derreen | 22D02 |
| Ferta | 22F01 |
| Finglas (Laune) | 22F03 |
| Finow | 22F04 |
| Flesk | 22F02 |
| Gaddagh | 22G01 |
| Gearhameen | 22G03 |
| Gweestin | 22G06 |
| Laune | 22L01 |
| Loe | 22L03 |
| Loo | 22L04 |
| Meelagh | 22M02 |
| Owenreagh | 22O03 |
| Owenroe (Caragh) | 22O04 |
| Owgarriff | 22O06 |
| Owneykeagh | 22O05 |

Due to the curtailment of the field activities in 2001 the following rivers could not be surveyed:-

Brown Flesk (22B03), Croaghane (22C09), Dogue (22D03), Emlagh (22E01), Fahaduff (22F09), Glantane (22G07), Groin (22G08), Little Maine (22L02), Maine (22M01), Milltown (22M03), Owenalondrig (22O01), Owenascaul (22O02), Quagmire (22Q01) and Shanowen (Maine) 22S01).

These rivers will be surveyed in 2002

River and Code : **BEHEENAGH** **22/B/01**
Tributary of : Ownykeagh OS Catchment No: 207
OS Grid Ref : W 090 907 Date(s) Surveyed : 10/09/01

| Sampling Stations No. Location | Biological Quality Ratings (Q Values) | | | | |
|-----------------------------------|---------------------------------------|------|------|------|------|
| | 1990 | 1994 | 1996 | 1998 | 2001 |
| 0400 Br N of Gortderrig | 4-5 | 4-5 | 4-5 | 4 | 3-4 |
| 0600 Br u/s Ownykeagh R confl | 4 | 4 | 4 | 4 | 4 |

Assessment: Deterioration at first location, Bridge North of Gortderrig (0400), where the river and adjacent land had been cleared since the previous examination and exhibited signs of eutrophication. Unchanged at the second location which is approximately 1.5 km upstream of Ownykeagh River.

River and Code : **BEHY (KERRY)** **22/B/02**
Tributary of : Sea - Dingle Bay OS Catchment No: 209
OS Grid Ref : V 657 920 Date(s) Surveyed : 25/09/01

| Sampling Stations No. Location | Biological Quality Ratings (Q Values) | |
|--|---------------------------------------|------|
| | 1996 | 2001 |
| <i>Coomnacronia Lake Branch</i> | | |
| 0300 Br W of Ballynakilly Br | 4 | 4-5 |
| <i>Coomaglaslaw Branch</i> | | |
| 0400 First Br d/s Coomaglaslaw L | 4 | 4-5 |
| <i>Main Channel</i> | | |
| 0800 Second Br d/s Coomasaharn L | - | 4 |
| 1000 Ballynakilly Br | 4 | 4-5 |
| 1300 Behy Br | 4-5 | 4-5 |

Assessment: Satisfactory. No significant change.

River and Code : **CARAGH** **22/C/02**
Tributary of : Sea - Castlemaine Harbour OS Catchment No: 208
OS Grid Ref : V 675 938 Date(s) Surveyed : 26/09/01

| Sampling Stations No. Location | Biological Quality Ratings (Q Values) | | | | |
|--------------------------------------|---------------------------------------|------|------|------|------|
| | 1990 | 1994 | 1996 | 1998 | 2001 |
| 0200 Br SW of Cloghfune | 4 | 4 | 4 | 4-5 | 4-5 |
| 0400 Foot-bridge d/s Owenroe R confl | 5 | 5 | 4-5 | 4-5 | 4-5 |
| 0600 Blackstones Br | 5 | 5 | 5 | 5 | 5 |
| 0680 1.2km u/s Caragh Br | - | 4 | 3-4 | 3-4 | 3-4 |

Assessment: Mostly satisfactory but again eutrophic downstream of Lough Caragh (0680).

River and Code : **CARHAN** **22/C/03**
Tributary of : Valentia River OS Catchment No: 211
OS Grid Ref : V 484 798 Date(s) Surveyed : 24/09/01

| Sampling Stations No. Location | Biological Quality Ratings (Q Values) | | | | |
|-----------------------------------|---------------------------------------|------|------|------|------|
| | 1990 | 1994 | 1996 | 1998 | 2001 |
| 0090 Br u/s Br N of Canburrin | - | - | 4 | - | - |
| 0100 Br N of Canburrin | - | - | - | 3-4 | 3-4 |
| 0200 Foot-bridge S of Bahagh | 4 | 4 | 4 | 4 | 3-4 |

Assessment: Both locations slightly polluted representing deterioration at the lowermost location since previous survey.

River and Code : **COOMNACARRIG** **22/C/06**
Tributary of : Caragh OS Catchment No: 208
OS Grid Ref : V 717 818 Date(s) Surveyed : 26/09/01

| Sampling Stations No. Location | Biological Quality Ratings (Q Values) | | | | |
|-----------------------------------|---------------------------------------|------|------|------|------|
| | 1990 | 1994 | 1996 | 1998 | 2001 |
| 0300 Dromalohurt Br | 4 | 4 | 4-5 | 4-5 | 4-5 |

Assessment: Continuing satisfactory.

River and Code : **COTTONER'S (LAUNE)** **22/C/05**
Tributary of : Laune OS Catchment No: 207
OS Grid Ref : V 667 957 Date(s) Surveyed : 27/09/01

| Sampling Stations No. Location | Biological Quality Ratings (Q Values) | | | | |
|-----------------------------------|---------------------------------------|------|------|------|------|
| | 1990 | 1994 | 1996 | 1998 | 2001 |
| 0100 Br W of Breanlee | - | 4-5 | 4-5 | 4-5 | 4-5 |
| 0400 Br N of Glancuttaun Lower | 4-5 | 4-5 | 4-5 | 4-5 | 4-5 |
| 0600 Br u/s Laune R confl | 4 | 4 | 3-4 | 3-4 | 3-4 |

Assessment: Mostly satisfactory but again eutrophic at final location (0600) which is 0.2km upstream of the Laune River confluence.

River and Code : **CRINNAGH** **22/C/07**
Tributary of : Upper Lake - Killarney OS Catchment No: 207
OS Grid Ref : V 928 826 Date(s) Surveyed : 12/07/01

| Sampling Stations No. Location | Biological Quality Ratings (Q Values) | | | | |
|-----------------------------------|---------------------------------------|------|------|------|------|
| | 1990 | 1994 | 1996 | 1998 | 2001 |
| 0200 Cromaglan Br | 5 | 5 | 5 | 5 | 5 |

Assessment: Continuing satisfactory: highest ecological rating again recorded.

River and Code : **DEENAGH** **22/D/01**
Tributary of : Lough Leane OS Catchment No: 207
OS Grid Ref : V 945 902 Date(s) Surveyed : 13/09/01

| Sampling Stations No. Location | Biological Quality Ratings (Q Values) | | | | | | | | | |
|-----------------------------------|---------------------------------------|------|------|------|------|------|------|------|------|--|
| | 1971 | 1976 | 1981 | 1986 | 1990 | 1994 | 1996 | 1998 | 2001 | |
| 0045 Br NE of Tulloram | - | - | - | - | 3-4 | 3-4 | 3 | 3 | 3 | |
| 0100 Br near Woodpark | 5 | 4-5 | 4-5 | 4 | 4-5 | 4 | 4-5 | 4 | 4 | |
| 0200 Deenagh Br | 5 | 5 | 5 | 4 | 4-5 | 4 | 4 | 4 | 4 | |
| 0300 King's Br | 4 | 4-5 | 5 | 4 | 4-5 | - | - | - | - | |
| 0600 Br just u/s L Leane | - | - | - | - | - | 4-5 | 4 | 4 | - | |

Continued

DEENAGH *Continued*

Assessment: No change. Mostly satisfactory but continuing moderately polluted in upper reaches (0045). The final scheduled location (0600) could not be sampled in 2001 due to lack of access at time of visit.

River and Code : **DERREEN (KERRY)** **22/D/02**
Tributary of : Sea at Portmagee OS Catchment No: O3
OS Grid Ref : V 451 742 Date(s) Surveyed : 25/09/01

| Sampling Stations No. Location | Biological Quality Ratings (Q Values) | | | |
|-----------------------------------|---------------------------------------|------|------|------|
| | 1994 | 1996 | 1998 | 2001 |
| 0100 Derreen Br | 4 | 4 | 4 | 4 |

Assessment: Continuing satisfactory.

River and Code : **FERTA** **22/F/01**
Tributary of : Valentia River OS Catchment No: 210
OS Grid Ref : V 500 801 Date(s) Surveyed : 25/09/01

| Sampling Stations No. Location | Biological Quality Ratings (Q Values) | |
|-----------------------------------|---------------------------------------|------|
| | 1996 | 2001 |
| North Branch | | |
| 0100 Br WSW of Coulagh | 4-5 | 4-5 |
| South Branch | | |
| 0500 Br at Toon | 4 | 4-5 |
| Main Channel | | |
| 0700 Br ENE of Derreenmoira | 4 | 4 |
| 1000 Deelis Br | 3-4 | 3 |

Assessment: Continuing mostly satisfactory but further deterioration is indicated by the faunal composition at Deelis Bridge (1000) where conditions were assessed as moderately polluted in late September 2001.

River and Code : **FINGLAS (LAUNE)** **22/F/03**
Tributary of : Laune OS Catchment No: 207
OS Grid Ref : V 805 942 Date(s) Surveyed : 27/09/01

| Sampling Stations No. Location | Biological Quality Ratings (Q Values) | | | | |
|-----------------------------------|---------------------------------------|------|------|------|------|
| | 1990 | 1994 | 1996 | 1998 | 2001 |
| 0400 Cappagh Br | 5 | 5 | 4-5 | 4 | 4 |
| 0700 Meanus Br | 4 | 4 | 4-5 | 4 | 4 |

Assessment: Continuing satisfactory.

River and Code : **FINOW** **22/F/04**
Tributary of : Flesk OS Catchment No: 207
OS Grid Ref : W 010 875 Date(s) Surveyed : 12/09/01

| Sampling Stations No. Location | Biological Quality Ratings (Q Values) | | | | |
|-----------------------------------|---------------------------------------|------|------|------|------|
| | 1990 | 1994 | 1996 | 1998 | 2001 |
| 0100 Br 0.3km u/s L Guitane | - | 5 | 5 | 5 | 4-5 |
| 0300 Br (Ford) u/s Flesk R confl | 4-5 | 4-5 | 4-5 | 4-5 | 4-5 |

Assessment: Satisfactory. No significant change.

River and Code : **FLESK (KERRY)** **22/F/02**
Tributary of : Lough Leane OS Catchment No: 207
OS Grid Ref : V 961 882 Date(s) Surveyed : 12/09/01

| Sampling Stations No. Location | Biological Quality Ratings (Q Values) | | | | | | | | | |
|--|---------------------------------------|------|------|------|------|------|------|------|------|--|
| | 1971 | 1976 | 1981 | 1986 | 1990 | 1994 | 1996 | 1998 | 2001 | |
| 0010 1.6km d/s Fords NW of Cumeenabuddoge | - | - | - | - | - | 4-5 | 5 | 3-4 | 4 | |
| 0040 Br near Clydagh Lodge | - | - | - | - | 5 | 4-5 | 4-5 | 4-5 | 4 | |
| 0060 Poulgorm Br | - | - | - | - | 5 | 5 | 5 | 5 | 5 | |
| 0100 Br nr Glenflesk | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | |
| 0200 Flesk Br, Gortahoosh | 5 | 5 | 5 | 5 | 4 | 4 | 4 | 4 | 4 | |
| 0250 Ford NE of Faghcullia | - | - | 5 | 5 | 4 | 4 | 4-5 | 4-5 | 4 | |
| 0300 Flesk Br, S of Killarney LHS | 5 | 5 | 5 | 5 | 4-5 | 4-5 | 4-5 | 4 | 4 | |
| 0310 Flesk Br, S of Killarney RHS | 5 | 5 | 5 | 5 | 4-5 | 3 | 4-5 | 3-4 | 3 | |

Continued

River and Code : **GWEESTIN**
 Tributary of : Laune
 OS Grid Ref : V 833 948

22/G/06
 OS Catchment No: 207
 Date(s) Surveyed : 13/09/01

| Sampling Stations No. Location | Biological Quality Ratings (Q Values) | | | | |
|-----------------------------------|---------------------------------------|------|------|------|------|
| | 1990 | 1994 | 1996 | 1998 | 2001 |
| 0300 Dooneen Br | - | 4 | 4 | 4-5 | 4 |
| 0600 Gweestin Br | 3 | 4 | 3-4 | 3-4 | 4 |
| 0900 Br u/s Listry Br | - | 4 | 4 | 4 | 4 |
| 1200 Gweestin Br | 2-3 | 3 | 2-3 | 3 | 3 |

Assessment: Following improvement, at upper Gweestin Br (0600), since previous survey just one location, lower Gweestin Br (1200), was unsatisfactory again due to moderately polluted conditions.

River and Code : **LAUNE**
 Tributary of : Sea - Castlemaine Harbour
 OS Grid Ref : V 770 994

22/L/01
 OS Catchment No: 207
 Date(s) Surveyed : 12/07/01

| Sampling Stations No. Location | Biological Quality Ratings (Q Values) | | | | | | | | | |
|-----------------------------------|---------------------------------------|------|------|------|------|------|------|------|------|--|
| | 1971 | 1976 | 1981 | 1986 | 1990 | 1994 | 1996 | 1998 | 2001 | |
| 0100 Laune Br, d/s L Leane | 4-5 | 4-5 | 4-5 | - | 4 | - | - | - | 3-4 | |
| 0200 Beaufort Br | 5 | 4-5 | 4-5 | 4-5 | 4 | 4 | 4 | 4 | 4 | |
| 0300 Ballymalis Castle | - | - | 4-5 | - | 4 | 4 | 4 | 4 | 4 | |
| 0400 1.5km d/s Gweestin R confl | 5 | 5 | 5 | 4 | 3-4 | 3-4 | 3-4 | 3-4 | 3-4* | |

Assessment: Mostly satisfactory but slightly polluted downstream of Lough Leane (0100) and at lowermost location (0400) which is some 1.5km downstream of the moderately polluted Gweestin River.

* Lake effects.

River and Code : **LOE** **22/L/03**
Tributary of : Laune OS Catchment No: 207
OS Grid Ref : V 883 915 Date(s) Surveyed : 27/09/01

| Sampling Stations No. Location | Biological Quality Ratings (Q Values) | | | | |
|-----------------------------------|---------------------------------------|------|------|------|------|
| | 1990 | 1994 | 1996 | 1998 | 2001 |
| 0100 Br just d/s Black Lake | - | 3-4 | 4-5 | 4-5 | 5 |
| 0400 Br u/s Laune R confl | 4 | 4 | 4 | 4 | 4 |

Assessment: Satisfactory. No significant change. The upper location is downstream of Black Lake where the substratum is mainly large boulders but where the fauna nonetheless indicated high ecological quality.

River and Code : **LOO** **22/L/04**
Tributary of : Flesk OS Catchment No: 207
OS Grid Ref : W 087 814 Date(s) Surveyed : 11/09/01

| Sampling Stations No. Location | Biological Quality Ratings (Q Values) | | | | |
|-----------------------------------|---------------------------------------|------|------|------|------|
| | 1990 | 1994 | 1996 | 1998 | 2001 |
| 0100 Agnanus Br | - | 4 | 4 | 4 | 4 |
| 0400 Loo Br | 4 | 4 | 4 | 3-4 | 4 |

Assessment: Satisfactory at both locations following improvement at Loo Br (0400) since 1998 survey.

River and Code : **MEELAGH** **22/M/02**
Tributary of : Caragh OS Catchment No: 208
OS Grid Ref : V 707 866 Date(s) Surveyed : 26/09/01

| Sampling Stations No. Location | Biological Quality Ratings (Q Values) | | | | |
|-----------------------------------|---------------------------------------|------|------|------|------|
| | 1990 | 1994 | 1996 | 1998 | 2001 |
| 0100 Br u/s Caragh R confl | 4-5 | 4-5 | 4-5 | 4-5 | 4-5 |

Assessment: Continuing satisfactory.

River and Code : **OWENREAGH** **22/O/03**
Tributary of : Upper Lake Killarney OS Catchment No: 207
OS Grid Ref : V 892 819 Date(s) Surveyed : 11/07/01

| Sampling Stations No. Location | Biological Quality Ratings (Q Values) | | | | |
|---------------------------------------|---------------------------------------|------|------|------|------|
| | 1990 | 1994 | 1996 | 1998 | 2001 |
| 0100 Br E of Greagnagreana | 4-5 | 4-5 | 4-5 | 4-5 | 4-5 |
| 0200 Just u/s trib from Looscaunagh L | 4-5 | 4-5 | 4-5 | 4-5 | 4-5 |
| 0400 Br u/s Upper Lake | 5 | 5 | 5 | 5 | 5 |

Assessment: Continuing satisfactory.

River and Code : **OWENROE (CARAGH)** **22/O/04**
Tributary of : Caragh OS Catchment No: 208
OS Grid Ref : V 728 814 Date(s) Surveyed : 26/09/01

| Sampling Stations No. Location | Biological Quality Ratings (Q Values) | | | | |
|-----------------------------------|---------------------------------------|------|------|------|------|
| | 1990 | 1994 | 1996 | 1998 | 2001 |
| 0200 1.1km u/s Caragh R confl | 4-5 | 4 | 4 | 4-5 | 4-5 |

Assessment: Continuing satisfactory at the only location sampled which is some four kilometres downstream of Cloon Lough and about one kilometre upstream of the Caragh River confluence.

River and Code : **OWGARRIFF (FINOW)** **22/O/06**
Tributary of : Finow OS Catchment No: 207
OS Grid Ref : W 008 860 Date(s) Surveyed : 12/09/01

| Sampling Stations No. Location | Biological Quality Ratings (Q Values) | | | | |
|-----------------------------------|---------------------------------------|------|------|------|------|
| | 1990 | 1994 | 1996 | 1998 | 2001 |
| 0100 Owgarriff Br | 5 | 5 | 4-5 | 4 | 4-5 |

Assessment: Continuing satisfactory at the only location sampled which is approximately three and a half kilometres downstream of Lough Garagarry.

River and Code : **OWNEYKEAGH**
Tributary of : Flesk
OS Grid Ref : W 054 868

22/O/05
OS Catchment No: 207
Date(s) Surveyed : 28/09/01

| Sampling Stations | | Biological Quality Ratings (Q Values) | | | | |
|-------------------|----------------------|---------------------------------------|------|------|------|------|
| No. | Location | 1990 | 1994 | 1996 | 1998 | 2001 |
| 0200 | Br WNW of Drom | 4-5 | 4-5 | 4-5 | 4-5 | 4 |
| 0400 | Br u/s Flesk R confl | 4-5 | 4 | 4-5 | 4-5 | 4 |

Assessment: Satisfactory. No significant change.

HYDROMETRIC AREA 23 (PART)

Tralee Bay - Feale

| | |
|-----------------------|-------|
| Allaghaun | 23A01 |
| Breanagh | 23B02 |
| Caher (Limerick) | 23C01 |
| Clydagh (Feale) | 23C03 |
| Feale | 23F01 |
| Galey | 23G01 |
| Glashaconcore | 23G02 |
| Glashoreag | 23G03 |
| Glenacarney | 23G06 |
| Knockfinnisk | 23K02 |
| Lee (Tralee) | 23L01 |
| Lyracrumpane | 23L02 |
| Milltown House Stream | 23M04 |
| Oolagh | 23O01 |
| Owveg | 23O05 |
| Smearlagh | 23S02 |
| Tarmon Stream | 23T03 |
| Tullaleague | 23T01 |
| Tyshe | 23T02 |

Due to the curtailment of the field activities in 2001 the following rivers could not be surveyed:-

Feohanagh (23F02), Finglas (23F03), Glennahoo (23G05), Owencashla (23O02),
Owenmore (23O03), Owennafeana (23O04) and Scorid (23S01)

These rivers will be surveyed in 2002

River and Code : **ALLAGHAUN** **23/A/01**
Tributary of : Feale OS Catchment No: 194
OS Grid Ref : R 113 272 Date(s) Surveyed : 14/08/01

| Sampling Stations No. Location | Biological Quality Ratings (Q Values) | | | | | |
|-----------------------------------|---------------------------------------|------|------|------|------|------|
| | 1986 | 1989 | 1993 | 1996 | 1998 | 2001 |
| 0200 Br S of Dromore | - | 4 | - | 4-5 | 4 | 4 |
| 0400 Tour Br | - | 4 | 4 | 4-5 | 4 | 3-4 |
| 0500 Br N of Glengort | - | 4 | 4 | 4 | 4 | 4 |
| 0700 Ford NW of Devonroad Stn | - | 4 | - | 4 | 4 | 4 |
| 0900 Allaghaun Br | 4-5 | 3-4 | 4 | 4 | 4 | 4 |

Assessment: Continuing mostly satisfactory but with deterioration, at Tour Bridge (0400), to slightly polluted conditions, since the previous survey.

River and Code : **BREANAGH** **23/B/02**
Tributary of : Feale OS Catchment No: 194
OS Grid Ref : R 173 155 Date(s) Surveyed : 30/08/01

| Sampling Stations No. Location | Biological Quality Ratings (Q Values) | | | | |
|-----------------------------------|---------------------------------------|------|------|------|------|
| | 1989 | 1993 | 1996 | 1998 | 2001 |
| 0100 Br S of Cappa Br | - | - | 4 | 4 | 4 |
| 0300 Breanagh Br | 4 | 4 | 3-4 | 4 | 4 |

Assessment: Satisfactory at both locations examined but the situation at the lowermost one (Breanagh Bridge) could again be threatened due to an overflow from a septic tank immediately upstream on the right-hand bank.

River and Code : **BRICK**
Tributary of : Feale
OS Grid Ref : Q 896 338

23/B/03
OS Catchment No: 194
Date(s) Surveyed : 16/08/01

| Sampling Stations | | Biological Quality Ratings (Q Values) | | | | |
|-------------------|----------------------|---------------------------------------|------|------|------|------|
| No. | Location | 1987 | 1993 | 1996 | 1998 | 2001 |
| 0100 | Br SE of Glanballyma | 4 | 4 | 4-5 | 4 | 4 |
| 0300 | Shanow Br | 3-4 | 4 | 4 | 4 | 4 |
| 0400 | Br W of Garrynagore | 3-4 | 4 | 3-4 | 3-4 | 3 |

Assessment: Further deterioration, to moderately polluted conditions, at the final location (Bridge W of Garrynagore). Otherwise satisfactory.

River and Code : **CAHER (LIMERICK)**
Tributary of : Feale
OS Grid Ref : R 159 188

23/C/01
OS Catchment No: 194
Date(s) Surveyed : 31/08/01

| Sampling Stations | | Biological Quality Ratings (Q Values) | | | | |
|-------------------|--------------------------|---------------------------------------|------|------|------|------|
| No. | Location | 1987 | 1991 | 1996 | 1998 | 2001 |
| 0100 | Caher Br | 4 | 4-5 | 4-5 | 4 | 3-4 |
| 0200 | Br u/s Feale River confl | 4 | 4-5 | - | - | - |
| 0300 | Just u/s Feale R confl | - | - | 4 | 4 | 3-4 |

Assessment: Deterioration, to slightly polluted conditions, at both locations since the previous survey.

River and Code : **CLYDAGH (FEALE)** **23/C/03**
Tributary of : Feale OS Catchment No: 194
OS Grid Ref : R 138 202 Date(s) Surveyed : 30/08/01

| No. | Location | Biological Quality Ratings (Q Values) | | | | |
|------|-------------------|---------------------------------------|------|------|------|------|
| | | 1987 | 1993 | 1996 | 1998 | 2001 |
| 0200 | Scalp Br | 4 | 4 | 4-5 | 4 | 4-5 |
| 0450 | 0.5 km d/s Brosna | - | - | - | - | 3 |
| 0500 | Clydagh Br | 4 | 4 | 4-5 | 4 | 4 |

Assessment: Continuing satisfactory at the two previously sampled locations (0200 and 0500) but the sampling station, downstream of Brosna, included in 2001 was moderately polluted by sewage discharges.

River and Code : **FEALE** **23/F/01**
Tributary of : Sea - Mouth of the Shannon OS Catchment No: 194
OS Grid Ref : Q 896 338 Date(s) Surveyed : 29/08/01

| No. | Biological Quality Ratings (Q Values) | | | | | | | | | | | |
|------|---------------------------------------|------|------|------|------|------|------|------|------|------|------|------|
| | 1971 | 1975 | 1979 | 1982 | 1984 | 1986 | 1987 | 1989 | 1991 | 1996 | 1998 | 2001 |
| 0020 | - | - | - | - | - | - | 4 | - | 4-5 | 4-5 | 4 | 4 |
| 0040 | - | - | - | - | - | - | - | - | - | 4-5 | 4-5 | 4-5 |
| 0120 | - | - | - | - | - | - | - | - | - | 4 | 4 | 4 |
| 0200 | 5 | 5 | 5 | - | 4 | 4-5 | 4 | - | 4-5 | 4-5 | 4-5 | 4 |
| 0310 | 5 | 5 | 4-5 | - | 4 | 4 | 4 | - | 4 | 2 | 3 | 2-3 |
| 0320 | 5 | 5 | 4-5 | - | 4 | 4 | 4 | - | 4 | 4 | 4 | 4 |
| 0500 | 5 | 5 | 5 | - | 4 | 4-5 | 4 | - | 4-5 | 4 | 4 | 4 |
| 0550 | - | - | - | - | - | - | - | - | - | 4 | 4 | 4-5 |
| 0600 | 5 | 5 | 4-5 | 4-5 | 4 | 4-5 | 4 | - | 4 | 3-4 | 4 | 4 |
| 0700 | - | - | - | 2 | 2 | 3 | 3 | - | 3 | 3 | 3 | - |
| 0710 | - | - | - | 4 | 3 | 4 | 3 | - | 4 | 3-4 | 4 | - |
| 0725 | - | - | - | - | - | - | - | - | - | - | 3-4 | 3-4 |
| 0800 | 4-5 | 3-4 | 3 | 2-3 | 2-3 | 2 | 2 | 3 | 3 | 3 | 3 | 3-4 |

| No. | Location | No. | Location |
|------|-----------------------------------|------|----------------------------------|
| 0020 | Br at Rockchapel | 0500 | Br ENE of Duagh Ho |
| 0040 | Ford u/s Breanagh R confl | 0550 | Trieneragh |
| 0120 | Just d/s Caher R confl | 0600 | Listowel Br |
| 0200 | Wellesley Br | 0700 | 2 km d/s Listowel Br (RHS) |
| 0310 | 0.2 km d/s Br in Abbeyfeale (RHS) | 0710 | 2 km d/s Listowel Br (LHS) |
| 0320 | 0.2 km d/s Br in Abbeyfeale (LHS) | 0725 | 0.1km d/s Racecourse Foot-bridge |
| | | 0800 | Br at Finuge |

Continued

FEALE *Continued*

Assessment: Mostly satisfactory showing little change since previous survey with three of the locations again less than satisfactory. Continuing moderately polluted downstream of Abbeyfeale on right-hand side (0310) while slightly polluted in and downstream of Listowel (0725 and 0800) with an improvement recorded at the latter.

| | |
|-------------------------------|-----------------------------|
| River and Code : GALEY | 23/G/01 |
| Tributary of : Feale | OS Catchment No: 194 |
| OS Grid Ref : Q 907 331 | Date(s) Surveyed : 27/08/01 |

| Stations No. | Biological Quality Ratings (Q Values) | | | | | | | | | |
|-----------------|---------------------------------------|------|------|------|------|------|------|------|------|------|
| | 1971 | 1975 | 1979 | 1982 | 1986 | 1989 | 1993 | 1996 | 1999 | 2001 |
| 0100 | 5 | 5 | 5 | - | 4-5 | 4-5 | 4 | 4 | 4 | 4 |
| 0200 | 5 | 5 | 5 | - | 4-5 | 4 | 4 | 4 | 4 | 4 |
| 0300 | - | - | - | - | 3-4 | 4 | 3-4 | 3-4 | 3-4 | 4 |
| 0400 | 5 | 5 | 4-5 | 3-4 | 3-4 | 3-4 | 3-4 | 3-4 | 3-4 | 3-4 |
| 0450 | - | - | - | 3-4 | 3-4 | 3-4 | - | 4 | 4 | 3-4 |
| 0500 | - | - | 4 | 3 | 3 | 3 | 3 | 3 | 3-4 | 4 |
| 0700 | 5 | 5 | 4-5 | 3-4 | 3 | 3 | 3 | 3 | 3 | 3 |

| Sampling Station | | Sampling Station | |
|------------------|--------------|------------------|------------------|
| No. | Location | No. | Location |
| 0100 | Athea Br | 0450 | Br SW of Pollagh |
| 0200 | Br d/s Athea | 0500 | Shrone Br |
| 0300 | Ahavoher Br | 0700 | Br d/s Inch Br |
| 0400 | Galey Br | | |

Assessment: Mostly satisfactory following improvement at two locations (0300 and 0500) since previous survey in July 1999. There was, however, a loss of quality at one location (0450) in the same period while the final site (0700) continued to be moderately polluted.

River and Code : **GLASHACOONCORE** **23/G/02**
 Tributary of : Feale OS Catchment No: 194
 OS Grid Ref : R 112 214 Date(s) Surveyed : 30/08/01

| Sampling Stations No. Location | Biological Quality Ratings (Q Values) | | | | |
|-----------------------------------|---------------------------------------|------|------|------|------|
| | 1987 | 1993 | 1996 | 1998 | 2001 |
| 0100 Br WSW of Meenyvoughaun | - | - | 4-5 | 4 | 4 |
| 0200 Glashaconcore Br | 4 | 4 | 4 | 4 | 4 |

Assessment: Continuing satisfactory.

River and Code : **GLASHOREAG** **23/G/03**
 Tributary of : Smearlagh OS Catchment No: 194
 OS Grid Ref : Q 980 195 Date(s) Surveyed : 15/08/01

| Sampling Stations No. Location | Biological Quality Ratings (Q Values) | | | | |
|-----------------------------------|---------------------------------------|------|------|------|------|
| | 1989 | 1993 | 1996 | 1998 | 2001 |
| 0200 Ivy Br | 4 | 4 | 4 | 3-4 | 4 |

Assessment: The latest survey saw a return to satisfactory conditions at the only location examined.

River and Code : **GLENACARNEY** **23/G/06**
 Tributary of : Feale OS Catchment No: 194
 OS Grid Ref : R 192 149 Date(s) Surveyed : 29/08/01

| Sampling Stations No. Location | Biological Quality Ratings (Q Values) | | | | |
|-----------------------------------|---------------------------------------|------|------|------|------|
| | 1989 | 1993 | 1996 | 1998 | 2001 |
| 0300 Br u/s Feale R confl | 4 | 4 | 4-5 | 4 | 4 |

Assessment: Continuing satisfactory.

River and Code : **KNOCKFINNISK** **23/K/02**
Tributary of : Galey OS Catchment No: 194
OS Grid Ref : R 119 363 Date(s) Surveyed : 27/08/01

| Sampling Stations No. Location | Biological Quality Ratings (Q Values) | | | | |
|-----------------------------------|---------------------------------------|------|------|------|------|
| | 1989 | 1993 | 1996 | 1999 | 2001 |
| 0100 Br u/s Galey R confl | 4 | 4 | 4 | 4 | 4 |

Assessment: Continuing satisfactory.

River and Code : **LEE (TRALEE)** **23/L/01**
Tributary of : Sea - Tralee Bay OS Catchment No: 196
OS Grid Ref : Q 815 132 Date(s) Surveyed : 16/08/01

| Sampling Stations No. Location | Biological Quality Ratings (Q Values) | | | | | |
|------------------------------------|---------------------------------------|------|------|------|------|------|
| | 1985 | 1987 | 1991 | 1996 | 1998 | 2001 |
| 0030 Ahnambraher Br (RHS) | - | 3 | 3 | 2 | 3 | 2 |
| 0035 Ahnambraher Br (LHS) | - | 3 | 3 | 4 | 3 | 3-4 |
| 0050 Br SE of Caherbreagh | 4 | 3 | 4 | 4 | 3-4 | 3-4 |
| 0100 2nd Br d/s Bally Mullen Mills | 3-4 | 3-4 | 4 | 3 | 3 | 2-3 |

Assessment: Again unsatisfactory throughout its course due to respectively serious, slight and moderate pollution. Further deterioration since previous survey with slime growths and signs of sewage pollution at the final location.

River and Code : **LYRACRUMPANE** **23/L/02**
Tributary of : Smearlagh OS Catchment No: 194
OS Grid Ref : Q 982 232 Date(s) Surveyed : 15/08/01

| Sampling Stations No. Location | Biological Quality Ratings (Q Values) | | | | |
|-----------------------------------|---------------------------------------|------|------|------|------|
| | 1989 | 1993 | 1996 | 1998 | 2001 |
| 0100 Br u/s Smearlagh R confl | 4 | 4 | 4 | 4 | 4 |

Assessment: Continuing satisfactory.

River and Code : **MILLTOWN HOUSE STREAM** **23/M/04**
 Tributary of : Shanow or Brick river OS Catchment No: 194
 OS Grid Ref : Q 860 253 Date(s) Surveyed : 16/08/01

| Sampling Stations No. Location | Biological Quality Ratings (Q Values) | | | |
|-----------------------------------|---------------------------------------|------|------|------|
| | 1994 | 1996 | 1998 | 2001 |
| 0100 Br E of Milltown Ho | 4 | 3 | 4 | 3 |

Assessment: Unsatisfactory due to moderate pollution at the only location examined, which is SW of Abbeydorney, representing significant deterioration since previous survey and reversion to conditions obtaining in 1996.

River and Code : **OOLAGH** **23/O/01**
 Tributary of : Feale OS Catchment No: 194
 OS Grid Ref : R 108 278 Date(s) Surveyed : 15/08/01

| Sampling Stations No. Location | Biological Quality Ratings (Q Values) | | | | |
|-----------------------------------|---------------------------------------|------|------|------|------|
| | 1989 | 1993 | 1996 | 1998 | 2001 |
| 0200 Br u/s Oolagh Br | - | - | 4-5 | 4 | 4 |
| 0500 Br u/s Feale R confl | 4-5 | 4 | 4 | 4 | 4 |

Assessment: Continuing satisfactory.

River and Code : **OWVEG (KERRY)** **23/O/05**
 Tributary of : Feale OS Catchment No: 194
 OS Grid Ref : R 089 233 Date(s) Surveyed : 17/08/01

| Sampling Stations No. Location | Biological Quality Ratings (Q Values) | | | | |
|--|---------------------------------------|------|------|------|------|
| | 1989 | 1993 | 1996 | 1998 | 2001 |
| 0200 Owveg Br | 4 | 4 | 4 | 4 | 4 |
| 0350 Ford just d/s Tullaleague R confl | 4 | 4 | 4 | 4 | 4 |
| 0500 Bateman's Br | 4 | 4 | 4 | 4 | 4 |

Assessment: Satisfactory. No change

River and Code : **SMEARLAGH** **23/S/02**
Tributary of : Feale OS Catchment No: 194
OS Grid Ref : R 030 330 Date(s) Surveyed : 15/08/01

| Sampling Stations No. Location | Biological Quality Ratings (Q Values) | | | | |
|-------------------------------------|---------------------------------------|------|------|------|------|
| | 1987 | 1993 | 1996 | 1998 | 2001 |
| 0300 Br SE of Reanagowan Crossroads | - | - | 4-5 | 4 | 4 |
| 0400 Br u/s Lyracrumpane R confl | 4-5 | 4 | 4-5 | 4-5 | 4-5 |
| 0500 Br NE of Gortacloghane | 4 | 4 | 4 | 4 | 4 |
| 0700 Ford u/s Feale R confl (LHS) | 3-4 | 4 | 4 | 4 | 4 |
| 0710 Ford u/s Feale R confl (RHS) | - | 3 | 4 | 4 | 4 |

Assessment: Satisfactory. No change.

River and Code : **TARMON STREAM** **23/T/03**
Tributary of : Galey OS Catchment No: 194
OS Grid Ref : R 017 400 Date(s) Surveyed : 28/08/01

| Sampling Stations No. Location | Biological Quality Ratings (Q Values) | | | |
|-----------------------------------|---------------------------------------|------|------|------|
| | 1993 | 1996 | 1999 | 2001 |
| 0500 Gabbets Br | 3-4 | 3 | 3 | 3 |

Assessment: Continuing highly eutrophic. Some drainage work carried out on river (in October 2000) since previous survey.

River and Code : **TULLALEAGUE** **23/T/01**
 Tributary of : Owveg (Kerry) OS Catchment No: 194
 OS Grid Ref : R 089 233 Date(s) Surveyed : 17/08/01

| Sampling Stations No. Location | Biological Quality Ratings (Q Values) | | | | |
|-----------------------------------|---------------------------------------|-------------|-------------|-------------|-------------|
| | 1989 | 1993 | 1996 | 1998 | 2001 |
| 0100 Talbots Br | 3-4 | 4 | 3-4 | 3-4 | 3-4 |

Assessment: Again slightly polluted at the only location examined on this river which is also known as the Knocknagashel Stream.

River and Code : **TYSHE** **23/T/02**
 Tributary of : Sea - Banna Strand OS Catchment No: 195
 OS Grid Ref : Q 748 247 Date(s) Surveyed : 16/08/01

| Sampling Stations No. Location | Biological Quality Ratings (Q Values) | | | | | | |
|-----------------------------------|---------------------------------------|-------------|-------------|-------------|-------------|-------------|-------------|
| | 1987 | 1988 | 1989 | 1993 | 1996 | 1998 | 2001 |
| 0400 West Br, Ardfert | 1 | 2 | 2-3 | 3 | 3 | 3 | 3 |

Assessment: Continuing moderately polluted at the only location examined at Ardfert.

HYDROMETRIC AREA 27

Shannon Estuary North

| | |
|--------------------------|-------|
| Ballynacally | 27B04 |
| # Broadford | 27B02 |
| Carrownanelly | 27C07 |
| Castlelodge | 27C01 |
| Clareen (Fergus) | 27C06 |
| Cloon | 27C02 |
| Cloondanagh Lough Stream | 27C13 |
| Clooneen | 27C03 |
| Cloverhill Stream | 27C10 |
| Craggaunboy | 27C04 |
| Cratloe | 27C07 |
| Crompaun (East) | 27C09 |
| Crompaun (West) | 27C05 |
| Cullaun | 27C14 |
| Doonaha | 27D01 |
| Druminshin | 27D02 |
| Fergus | 27F01 |
| Gourna | 27G02 |
| Hell | 27H01 |
| Inch | 27I01 |
| Kilmore North Stream | 27K04 |
| Liskenny | 27L01 |
| Mill Brook | 27M03 |
| Moyarta | 27M01 |
| Moyree | 27M02 |
| O'Callaghan's Mills | 27O03 |
| Owenogarney | 27O01 |
| Owenslieve | 27O02 |
| Rine | 27R01 |
| Shallee | 27S01 |
| Spancelhill | 27S03 |
| Wood | 27W01 |

Rivers denoted thus had seriously polluted stretch(es) at the time of this survey.

River and Code : **BALLYNACALLY** 27/B/04
 Tributary of : Sea - Fergus Estuary OS Catchment No: 158
 OS Grid Ref : R 295 638 Date(s) Surveyed : 26/9/01

| Sampling Stations No. Location | Biological Quality Ratings (Q Values) | | | | |
|-----------------------------------|---------------------------------------|------|------|------|------|
| | 1988 | 1991 | 1997 | 2000 | 2001 |
| 0200 Upstream Br, Ballynacally | 4 | - | 4 | 4-5 | 4 |

Assessment: Satisfactory.

River and Code : **BROADFORD** 27/B/02
 Tributary of : Doon Lough OS Catchment No: 155
 OS Grid Ref : R 554 736 Date(s) Surveyed : 5/9/01

| Sampling Stations No. Location | Biological Quality Ratings (Q Values) | | | | |
|-----------------------------------|---------------------------------------|------|------|------|------|
| | 1988 | 1991 | 1996 | 1998 | 2001 |
| North Branch | | | | | |
| 0300 Just u/s South Branch confl | 5 | 5 | 4-5 | 5 | 4-5 |
| South Branch | | | | | |
| 0500 Scott's Bridge | 4 | 5 | 2-3 | 3 | 1-2 |
| 0600 Near Graffa Bridge | 4-5 | 4 | 4 | 4 | 3-4 |
| 0800 Bridge u/s Doon Lough | 5 | 4 | 4 | 4 | 4 |

Assessment: The Broadford North Branch was satisfactory (0300). A serious deterioration in quality and serious pollution was noted for the first time in the South Branch of the Broadford (0500) in early September 2001. The middle section was slightly polluted (0600) and a recovery was noted downstream of Broadford village (0800) in comparison with the upstream sites although quality was not as good as it should be at this point.

River and Code : **CARROWANELLY** **27/C/07**
Tributary of : Sea - Fergus Estuary OS Catchment No: 158
OS Grid Ref : R 357 717 Date(s) Surveyed : 6/9/01

| Sampling Stations No. Location | Biological Quality Ratings (Q Values) | | | | |
|-----------------------------------|---------------------------------------|------|------|------|------|
| | 1989 | 1991 | 1997 | 1998 | 2001 |
| 0300 Br SE of Kilbreckanbeg Ho | - | - | - | - | 3-4 |
| 0400 Bridge N.W. of Glenard House | 4 | 2-3 | 3 | 4 | 3 |

Assessment: The Carrowanelly was slightly polluted in the upper reaches (0300) where cattle access to the river may be causing the observed deterioration. The lower site has a history of pollution and recovery and in September 2001 it was again moderately polluted with pools of cattle slurry noted adjacent to the river.

River and Code : **CASTLELODGE** **27/C/01**
Tributary of : Muckanagh Lough OS Catchment No: 158
OS Grid Ref : R 378 932 Date(s) Surveyed : 28/8/01

| Sampling Stations No. Location | Biological Quality Ratings (Q Values) | | | | |
|-----------------------------------|---------------------------------------|------|------|------|------|
| | 1988 | 1991 | 1997 | 1998 | 2001 |
| North Branch | | | | | |
| 0300 Bridge N.E. of Derry | 3 | 3 | 2-3 | 3 | 3 |
| Main Channel | | | | | |
| 0700 Bridge u/s Lough Aslaun | 4 | 4 | 3 | 3 | 3 |
| 0900 Bridge u/s Muckanagh Lough | 4 | 4 | 3 | 2-3 | 3 |

Assessment: Continuing unsatisfactory at all points surveyed.

River and Code : **CLAREEN (FERGUS)** **27/C/06**
Tributary of : Sea - Fergus Estuary OS Catchment No: 158
OS Grid Ref : R 323 685 Date(s) Surveyed : 25/9/01

Sampling Stations
No. Location Biological Quality Ratings (Q Values)
1986 1988 1991 1997 1998 2001

Ballymacooda Lough Branch

0500 Bridge d/s Rathmeehan Bridge - 4 2-3 - 4 3-4

Main Channel

0540 Br just S Killerk - - - 4 4 4
0600 Clareen Bridge 4 4 3 3 3 3

Assessment: A slight deterioration was noted in the Ballymacooda Lough Branch of the Clareen (0500) in comparison with 1998. The upper Main Channel (0540) continued satisfactory but the lower reaches (0600) remained unsatisfactory.

River and Code : **CLOON (CLARE)** **27/C/02**
Tributary of : Sea - Shannon Estuary OS Catchment No: 155
OS Grid Ref : R 142 552 Date(s) Surveyed : 26/9/01

Sampling Stations
No. Location Biological Quality Ratings (Q Values)
1986 1988 1991 1997 2001

0100 SE of Boloughra - - 4 4-5 4
0200 Croony Bridge 4 4 3 4-5 3-4
0400 New Bridge 4 4 4 4 4

Assessment: An overall deterioration was recorded in the quality of the Cloon river in 2001. The upper (0100) and lower (0400) sites continued satisfactory but the middle section (0200) was slightly polluted.

River and Code : **CLOONDANAGH LOUGH STREAM** 27/C/13
 Tributary of : Rine OS Catchment No: 158
 OS Grid Ref : R 475 818 Date(s) Surveyed : 4/9/01

| Sampling Stations No. Location | Biological Quality Ratings (Q Values) | | | | |
|-----------------------------------|---------------------------------------|------|------|------|------|
| | 1988 | 1991 | 1996 | 1998 | 2001 |
| 0300 Bridge near Lisfeean | 3-4 | 3-4 | 3 | 3-4 | 3 |

Assessment: Extensive uncontrolled access by cattle is causing pollution in the Cloondanagh Lough Stream. The substratum was heavily silted by cow manure at Station 0300 when surveyed in early September 2001.

River and Code : **CLOONEEN (CLARE)** 27/C/03
 Tributary of : (Goes underground) OS Catchment No: 158
 OS Grid Ref : R 233 918 Date(s) Surveyed : 29/8/01

| Sampling Stations No. Location | Biological Quality Ratings (Q Values) | | | | |
|-----------------------------------|---------------------------------------|------|------|------|------|
| | 1988 | 1991 | 1997 | 1998 | 2001 |
| 0200 Bridge E.N.E. of Carrowreagh | 3-4 | 3 | 3 | 3 | 3 |
| 0300 N.W. of Kiltoraght Glebe Ho | 4 | 4 | 4 | 4 | 4 |

Assessment: As in 1998 the upper Clooneen (0200) continued to be moderately polluted in 2001 and then it improved to a satisfactory condition in the lower reaches (0300).

River and Code : **CLOVERHILL STREAM** 27/C/10
 Tributary of : Owenogarney OS Catchment No: 155
 OS Grid Ref : R 456 610 Date(s) Surveyed : 6/9/01

| Sampling Stations No. Location | Biological Quality Ratings (Q Values) | | | |
|-----------------------------------|---------------------------------------|------|------|------|
| | 1988 | 1991 | 1998 | 2001 |
| 0600 Bridge near Glebe House | 3-4 | 2-3 | 3 | 3 |

Assessment: Moderate pollution persists in the Cloverhill Stream.

River and Code : **CRAGGAUNBOY** **27/C/04**
Tributary of : Fergus OS Catchment No: 158
OS Grid Ref : R 265 883 Date(s) Surveyed : 29/8/01

| Sampling Stations No. Location | Biological Quality Ratings (Q Values) | | | | |
|-----------------------------------|---------------------------------------|------|------|------|------|
| | 1988 | 1991 | 1997 | 1998 | 2001 |
| 0200 Br d/s Trib ex L Nagowan | 3-4 | 4 | - | 4 | 4 |
| 0600 Bridge u/s Fergus River | 4 | 4 | 3-4 | 4 | 3 |

Assessment: The upper Craggaunboy (0200) was satisfactory in August 2001. A deterioration in quality was noted in the lower reaches (0600) in comparison with the situation in 1998 when last surveyed. Cattle accessing the river may be causing pollution at this point.

River and Code : **CRATLOE** **27/C/08**
Tributary of : Sea - Shannon Estuary OS Catchment No: 155
OS Grid Ref : R 517 585 Date(s) Surveyed : 6/9/01

| Sampling Stations No. Location | Biological Quality Ratings (Q Values) | | | |
|-----------------------------------|---------------------------------------|------|------|------|
| | 1988 | 1991 | 1998 | 2001 |
| 0300 Second Bridge u/s Shannon R | 4-5 | 3-4 | 4-5 | 4 |

Assessment: Satisfactory.

River and Code : **CROMPAUN (EAST)** **27/C/09**
Tributary of : Sea - Shannon Estuary OS Catchment No: 155
OS Grid Ref : R 524 584 Date(s) Surveyed : 6/9/01

| Sampling Stations No. Location | Biological Quality Ratings (Q Values) | | | |
|-----------------------------------|---------------------------------------|------|------|------|
| | 1988 | 1991 | 1998 | 2001 |
| 0300 Cappateemore Bridge | 4-5 | - | 4-5 | 4 |
| 0600 Meelick Bridge | 4-5 | 4-5 | 4-5 | 3-4 |

Assessment: Satisfactory in the upper reaches (0300) but a deterioration was noted at Meelick Br (0600) in comparison with 1998.

River and Code : **CROMPAUN (WEST)** **27/C/05**
Tributary of : Cloon (Clare) OS Catchment No: 155
OS Grid Ref : R 122 550 Date(s) Surveyed : 26/9/01

| Sampling Stations No. Location | Biological Quality Ratings (Q Values) | | | | |
|-----------------------------------|---------------------------------------|------|------|------|------|
| | 1988 | 1991 | 1997 | 2000 | 2001 |
| <i>Tarmon Lough Branch</i> | | | | | |
| 0200 Bridge d/s Tarmon Lough | 3-4 | 3-4 | - | - | - |
| 0300 Br nr Bleanmore | - | - | 4 | 3-4 | 3-4 |
| 0400 Just u/s confl with Main R | 3 | 3 | - | - | - |
| <i>Main Channel</i> | | | | | |
| 0900 Br NE Tullycreen Upper | - | 4 | - | 3 | 3 |
| 1000 Tullycreen Br | - | - | 3-4 | 3 | 3 |
| 1100 Bridge d/s Tullycreen Br | 4 | 3-4 | - | - | - |
| 1200 Br nr Carroniska | - | - | 3 | 4 | 4 |

Assessment: The Tarmon Lough Branch was again slightly polluted in the Bleanmore area (0300). The Main Channel remained in a similar overall condition to that recorded in 1998 i.e., moderately polluted with no pollution-sensitive species present at 0900 and 1000 and then recovering to a satisfactory status in the lower reaches (1200). A reddish, iron deposit was noted at 0900 indicating possible drainage impacts in the upper catchment. Significant access by cattle was noted at Station 1000 possibly causing pollution at that point.

River and Code : **CULLAUN** **27/C/14**
Tributary of : Rine OS Catchment No: 155
OS Grid Ref : 524933849 Date(s) Surveyed : 5/9/01

| Sampling Stations No. Location | Biological Quality Ratings (Q Values) | | | |
|-----------------------------------|---------------------------------------|------|------|------|
| | 1996 | 1997 | 1998 | 2001 |
| 0100 Cullaun Bridge | 3-4 | 3/0 | 4 | 3-4 |

Assessment: A deterioration was recorded in the Cullaun with the river now classed as slightly polluted. Zebra mussels were also recorded here for the first time, indicating that extensive populations of these mussels are likely to be found in Lough Cullaunyeeda. Severe water quality problems were experienced in this system in 1997 with extensive algal blooms recorded. A major fish-kill occurred also in 1997 during the pollution event.

River and Code : **DOONAHA** **27/D/01**
Tributary of : Sea - Shannon Estuary OS Catchment No: 155
OS Grid Ref : Q 893 533 Date(s) Surveyed : 27/9/01

| Sampling Stations No. Location | Biological Quality Ratings (Q Values) | | | | | | |
|---------------------------------------|---------------------------------------|------|------|------|------|------|------|
| | 1980 | 1985 | 1988 | 1991 | 1997 | 2000 | 2001 |
| 0010 Bridge N. of Furroor | - | 3 | 3 | 2 | 2-3 | 2 | 2-3 |
| 0050 Br 0.5 km d/s Br S.E. of Furroor | 3-4 | 2-3 | 3 | 1 | 3 | 3 | 3 |
| 0100 Bridge N.E. of Doonaha | 4 | 2 | 3 | 1 | 3 | 3 | 3/0 |

Assessment: Continuing unsatisfactory throughout. Intensive agriculture and cattle access are the most likely causes of the considerable pollution in the upper reaches, (0010, 0050). Possible toxic influences are suspected at the lowermost site (0100) due to the absence of certain common species and the presence of recently dead *Gammarus* in the sample. Extensive landfill adjacent to Site (0100) may possibly be leaching some toxic material into the river at this point but it is also possible that direct agricultural discharges or forestry activities in the lower catchment are responsible.

River and Code : **DRUMINSHIN** **27/D/02**
Tributary of : Ballycullinan Lough OS Catchment No: 158
OS Grid Ref : R 284 857 Date(s) Surveyed : 29/8/01

| Sampling Stations No. Location | Biological Quality Ratings (Q Values) | | | | |
|-----------------------------------|---------------------------------------|------|------|------|------|
| | 1988 | 1991 | 1997 | 1998 | 2001 |
| 0500 Bridge u/s Ballycullinan L | 3 | 4 | 4 | 3-4 | 4 |

Assessment: Satisfactory and improved since 1998.

River and Code : **FERGUS** **27/F/01**
Tributary of : Sea - Shannon Estuary OS Catchment No: 158
OS Grid Ref : R 363 700 Date(s) Surveyed : 29/8/01

| Sampling Stations No. | Biological Quality Ratings (Q Values) | | | | | | | | | |
|------------------------------|---------------------------------------|------|------|------|------|------|------|------|------|------|
| | 1971 | 1975 | 1979 | 1982 | 1985 | 1988 | 1991 | 1996 | 1998 | 2001 |
| Main Channel | | | | | | | | | | |
| 0100 | - | - | 4 | 4-5 | 4-5 | 4 | 4 | 3-4 | 4 | 3-4 |
| 0200 | 5 | 5 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| 0300 | - | - | 3-4 | 4 | 4 | 4 | 4 | 3-4 | 4-5 | 4 |
| 0350 | - | - | - | 4 | 4 | 4 | 4 | Dry | 4 | 3 |
| 0400 | - | - | - | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| 0500 | 5 | 5 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| 0600 | 4 | 4-5 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| 0700 | 4-5 | 4-5 | 4 | - | 4 | 4 | 4 | 3-4 | 3-4 | 3-4 |
| Distributary at Ennis | | | | | | | | | | |
| 0590 | - | - | - | - | - | - | 3 | 3 | 2-3 | 3 |

| Sampling Station No. | Location | Sampling Station No. | Location |
|-------------------------|-----------------------------|------------------------------|----------------------------|
| Main Channel | | | |
| 0100 | Poplar Bridge | 0500 | Nutfield Bridge |
| 0200 | Riverstown Bridge | 0600 | Drehidnagower Bridge |
| 0300 | Bridge in Corofin | 0700 | Bridge near Clonroad House |
| 0350 | Second Bridge d/s L Atedaun | Distributary at Ennis | |
| 0400 | Addroon Bridge | 0590 | Corravarrin Br |

Assessment: The Fergus river was assessed as slightly polluted at Poplar Bridge (0100) upstream of Inchiquin Lough in 2001 but from downstream of this lake to Corofin village (0200, 0300) it continued to be in a satisfactory condition. A marked deterioration was then recorded at 0350 which is downstream of Corofin and Lough Atedaun but quality picked up again and remained satisfactory to Ennis and beyond (0400, 0500, 0600). The distributary in the town (at 0590) continued to be moderately polluted, due to suspected urban runoff and, as in previous years, the lower reaches of the Main Channel (0700) continued to reflect slight pollution.

River and Code : **GOURNA** **27/G/02**
Tributary of : Owenogarney OS Catchment No: 155
OS Grid Ref : R 481 645 Date(s) Surveyed : 6/9/01

| Sampling Stations No. | Location | Biological Quality Ratings (Q Values) | | | |
|--------------------------|----------------------------|---------------------------------------|------|------|------|
| | | 1988 | 1991 | 1998 | 2001 |
| 0100 | Bridge N. of Corlea | 4-5 | 5 | 4-5 | 4 |
| 0400 | Bridge N.W. of Ballyroe | 5 | 4-5 | - | - |
| 0600 | Br u/s Owenogarney R confl | - | 5 | 5 | 4 |

Assessment: Satisfactory but quality standard lower than in previous surveys.

River and Code : **HELL** **27/H/01**
Tributary of : Rine OS Catchment No: 158
OS Grid Ref : R 445 765 Date(s) Surveyed : 4/9/01

| No. | Location | Biological Quality Ratings (Q Values) | | | | | |
|------|--------------------|---------------------------------------|------|------|------|------|------|
| | | 1986 | 1988 | 1991 | 1996 | 1998 | 2001 |
| 0200 | Bridge at Carrahan | - | 4 | 4 | 3-4 | 4 | 4 |
| 0400 | Hell Bridge | 4-5 | 4 | 3-4 | 3 | 4 | 4 |

Assessment: Satisfactory, no change.

River and Code : **INCH (CLARE)** **27/I/01**
Tributary of : Fergus OS Catchment No: 158
OS Grid Ref : R 333 782 Date(s) Surveyed : 25/9/01

| No. | Location | Biological Quality Ratings (Q Values) | | | | | |
|------|---------------------|---------------------------------------|------|------|------|------|------|
| | | 1986 | 1988 | 1991 | 1997 | 1998 | 2001 |
| 0200 | Kilmaley Bridge | 4-5 | 4 | 4-5 | 4-5 | 4 | 4 |
| 0400 | Bridge in Rathkerry | 4 | 4 | 4 | 5 | 4 | 4-5 |
| 0600 | Inch Bridge | 4 | 4 | 4 | 4-5 | 4 | 4 |
| 0800 | Claureen Bridge | 4 | 4 | 4 | 4 | 4 | 4 |

Assessment: Satisfactory.

River and Code : **KILMORE NORTH STREAM** **27/K/04**
Tributary of : Clooneen (Clare) OS Catchment No: 158
OS Grid Ref : R 211 923 Date(s) Surveyed : 29/8/01

| No. | Location | Biological Quality Ratings (Q Values) | | | | | |
|------|---------------------------|---------------------------------------|------|------|------|------|---|
| | | 1988 | 1991 | 1997 | 1998 | 2001 | |
| 0400 | Bridge u/s Clooneen River | | 3 | 3 | 4 | 4 | 4 |

Assessment: Satisfactory. Direct cattle access at Station 0400 does, however, pose a threat to the quality of this river.

River and Code : **LISKENNY** **27/L/01**
Tributary of : Lough Cullynaheeda OS Catchment No: 155
OS Grid Ref : R 481 753 Date(s) Surveyed : 5/9/01

| Sampling Stations No. Location | Biological Quality Ratings (Q Values) | | | | | | | |
|-----------------------------------|---------------------------------------|------|------|------|------|------|------|------|
| | 1980 | 1985 | 1988 | 1991 | 1996 | 1997 | 1998 | 2001 |
| 0070 Third Br u/s Wyndham's Br | - | - | 3 | 2-3 | - | - | 3 | 3 |
| 0100 Wyndham's Bridge | 3-4 | 3 | 3 | 3 | 2-3 | - | 3 | 3 |
| 0200 Bridge u/s L Cullynaheeda | - | - | 4 | 4 | 3 | 3 | 3 | 3 |

Assessment: This tributary of Lough Cullaunyeeda was again moderately polluted over its length. No change.

River and Code : **MILL BROOK** **27/M/03**
Tributary of : Fergus OS Catchment No: 158
OS Grid Ref : R 364 859 Date(s) Surveyed : 28/8/01

| Sampling Stations No. Location | Biological Quality Ratings (Q Values) | | | | |
|-----------------------------------|---------------------------------------|------|------|------|------|
| | 1988 | 1991 | 1997 | 1998 | 2001 |
| 0700 Third Br d/s Br at Derryboy | 4-5 | - | - | 4 | 4 |
| 1000 Bridge u/s Inchicronan Lough | 5 | 4-5 | - | 4 | - |
| 1100 Ballyline Bridge | 4-5 | 4 | 4 | 4 | 4 |

Assessment: Satisfactory.

River and Code : **MOYARTA** **27/M/01**
Tributary of : Sea - Shannon Estuary OS Catchment No: 155
OS Grid Ref : Q 844 517 Date(s) Surveyed : 27/9/01

| Sampling Stations No. Location | Biological Quality Ratings (Q Values) | | | | |
|-----------------------------------|---------------------------------------|------|------|------|------|
| | 1988 | 1991 | 1997 | 2000 | 2001 |
| 0100 Bridge S.W. of Lissagreenaun | 1-2 | 1 | 2-3 | 2-3 | 2-3 |
| 0150 N.W. of Rahona Lodge | 1-2 | 2 | 2-3 | 2-3 | 2-3 |

Assessment: The Moyarta was once again in a distinctly unsatisfactory condition when surveyed in September 2001. Extensive cattle access to the upper reaches appears to be the main source of pollutants.

River and Code : **MOYREE** **27/M/02**
Tributary of : Fergus OS Catchment No: 158
OS Grid Ref : R 358 878 Date(s) Surveyed : 28/8/01

| Sampling Stations No. Location | Biological Quality Ratings (Q Values) | | | | |
|-----------------------------------|---------------------------------------|------|------|------|------|
| | 1988 | 1991 | 1997 | 1998 | 2001 |
| 0300 Bridge u/s Bunnahow Lough | 4-5 | 5 | 4-5 | 4-5 | 4 |
| 0500 Bridge d/s Carheeney Lough | 4 | 4 | - | - | 4-5 |
| 0600 Bridge near Lughid House | 4 | 4-5 | 4 | 4 | 4 |
| 0700 Bridge u/s Fergus River | 4 | 4 | 4-5 | 4-5 | 4 |

Assessment: Continuing satisfactory.

River and Code : **O'CALLAGHANSMILLS** **27/O/03**
Tributary of : Doon Lough OS Catchment No: 155
OS Grid Ref : R 540 741 Date(s) Surveyed : 5/9/01

| Sampling Stations No. Location | Biological Quality Ratings (Q Values) | | | | |
|-----------------------------------|---------------------------------------|------|------|------|------|
| | 1988 | 1991 | 1997 | 1998 | 2001 |
| 0300 Bridge d/s Doon Lough | 4 | 4 | 4 | 4 | 4 |

Assessment: Satisfactory

River and Code : **OWENOGARNEY** **27/O/01**
Tributary of : Sea - Shannon Estuary OS Catchment No: 155
OS Grid Ref : R 453 609 Date(s) Surveyed : 5/9/01

| Sampling Stations No. Location | Biological Quality Ratings (Q Values) | | | | | |
|-----------------------------------|---------------------------------------|------|------|------|------|------|
| | 1986 | 1988 | 1991 | 1997 | 1998 | 2001 |
| 0100 Br u/s Ballymacdonnell Br | - | 5 | 5 | - | 5 | 5 |
| 0300 Bridge u/s Doon Lough | - | 5 | 5 | 5 | 4 | 4 |
| 0400 Woodfield Bridge | - | 4 | 4 | 4 | 4 | 4 |
| 0600 Agouleen Bridge | 4 | 4 | 4 | - | - | - |
| 0700 Pollagh Bridge | - | 4 | 4 | 4 | 4 | 4 |
| 0900 Annagore Bridge | 3-4 | 4 | - | 4 | 4 | 3 |
| 1100 Oil Mill Bridge | 4 | 4 | 4 | - | 4 | 4 |

Continued

Owenogarney *Continued*

Assessment: The upper Owenogarney River was again of high quality although slight siltation gives cause for some concern in this densely forested upper catchment. Care is needed in clear-felling mature trees in this area in order to maintain the high quality status. More extensive siltation was noted at Station 0300 upstream of Doon Lough. The mid-section (0400, 0700) was satisfactory but quality had declined noticeably at Annagore Bridge (0900), downstream of Castle Lake, in comparison with previous surveys. The final station (1100) sampled downstream of Sixmilebridge was however of satisfactory quality.

| | | | |
|----------------|------------------------|--------------------|----------------|
| River and Code | : OWENSLIEVE | | 27/O/02 |
| Tributary of | : Sea - Fergus Estuary | OS Catchment No: | 158 |
| OS Grid Ref | : R 285 657 | Date(s) Surveyed : | 25/9/01 |

| Sampling Stations No. Location | Biological Quality Ratings (Q Values) | | | | |
|-----------------------------------|---------------------------------------|------|------|------|------|
| | 1988 | 1991 | 1997 | 2000 | 2001 |
| <i>Lissycasey Branch</i> | | | | | |
| 0300 Br SW of Lissycasey | - | - | 3-4 | 4 | 4 |
| 0400 Just u/s Main Channel confl | 3-4 | 3-4 | - | - | - |
| <i>Main Channel</i> | | | | | |
| 0600 Br u/s Coolderron Bridge | 4-5 | 4 | 4 | 4-5 | 4 |
| 0800 Br d/s Coolderron Br | - | 4 | 4 | 4 | 4 |
| 0900 Br u/s Ballycorrick Bridge | 4 | 4 | 4 | 4 | 4 |

Assessment: The Owenslieve river was in a satisfactory condition at all points surveyed in September 2001 but nonetheless the river is impacted and is not achieving its full potential. Cattle access continues to pose a risk at Station 0300 and significant siltation and peat staining was noted at Station 0600 and 0800.

River and Code : **RINE** **27/R/01**
Tributary of : Sea - Fergus Estuary OS Catchment No: 158
OS Grid Ref : R 367 712 Date(s) Surveyed : 4/9/01

| Sampling Stations No. | Location | Biological Quality Ratings (Q Values) | | | | | | |
|--------------------------|---------------------------|---------------------------------------|------|------|------|------|------|------|
| | | 1986 | 1988 | 1991 | 1996 | 1997 | 1998 | 2001 |
| 0200 | Bridge W.S.W. of Commons | - | 4-5 | 5 | 4 | - | 4-5 | 4-5 |
| 0500 | Eyrehill Bridge | 4 | 5 | 4-5 | 4-5 | - | 4-5 | 4 |
| 0700 | Bridge near Moymore | 5 | 3-4 | 3 | 4 | - | 4 | 4 |
| 1100 | Creevagh Bridge (New) | 4-5 | 4-5 | 4 | 4 | 3 | 4-5 | 4 |
| 1300 | Ford u/s Ardsollus Bridge | 4-5 | 4 | 4 | 3-4 | - | 4 | 4 |
| 1500 | Blackweir Bridge | 4-5 | 5 | 4 | - | 4 | 4 | 4 |

Assessment: The Rine was satisfactory over its length when surveyed in September 2001.

River and Code : **SHALLEE** **27/S/01**
Tributary of : Fergus OS Catchment No: 158
OS Grid Ref : R 338 815 Date(s) Surveyed : 30/8/01

| Sampling Stations No. | Location | Biological Quality Ratings (Q Values) | | | | | | |
|--------------------------|--------------------------|---------------------------------------|------|------|------|------|------|------|
| | | 1980 | 1985 | 1988 | 1991 | 1997 | 1998 | 2001 |
| 0100 | Bridge N. of Ballyknock | 3 | 3 | 1-2 | 3-4 | 4 | 4 | 4 |
| 0300 | Bridge N.E. of Erinagh | 4 | 5 | 3-4 | 3-4 | 4 | 4 | 4 |
| 0500 | Bridge d/s Lough Cleggan | - | - | 4 | 3-4 | 4 | 3-4 | 4 |

Assessment: Satisfactory with an improvement in quality noted at the last station (0500) in comparison with 1998.

River and Code : **SPANCELHILL** **27/S/03**
Tributary of : Fergus OS Catchment No: 158
OS Grid Ref : R 350 771 Date(s) Surveyed : 30/8/01

| Sampling Stations No. Location | Biological Quality Ratings (Q Values) | | | | |
|-----------------------------------|---------------------------------------|------|------|------|------|
| | 1988 | 1991 | 1997 | 1998 | 2001 |
| 0200 Bridge near Spancelhill | 4 | 4 | 4 | 5 | 4-5 |
| 0400 Br d/s Aughavaddy Bridge | 3-4 | 3-4 | 4 | 4 | 4 |

Assessment: Satisfactory.

River and Code : **WOOD** **27/W/01**
Tributary of : Sea - Shannon Estuary OS Catchment No: 155
OS Grid Ref : Q 991 546 Date(s) Surveyed : 27/9/01

| Stations No. | Biological Quality Ratings (Q Values) | | | | | | | | | |
|---------------------------------|---------------------------------------|------|------|------|------|------|------|------|------|------|
| | 1971 | 1975 | 1979 | 1980 | 1985 | 1988 | 1991 | 1997 | 2000 | 2001 |
| <i>Kilcarroll Branch</i> | | | | | | | | | | |
| 0025 | - | - | - | - | - | - | - | 2 | 2-3 | 3 |
| <i>Main Channel</i> | | | | | | | | | | |
| 0080 | - | - | - | - | - | 3 | 3 | 3 | 3 | 3 |
| 0100 | 4 | 4 | 4-5 | 3 | 3-4 | 3 | 3 | 3 | 3 | 3 |
| 0200 | 1 | 1 | 4 | 3-4 | 3 | 3-4 | 3 | 3 | 4 | 3-4 |

| Sampling Station No. Location | Sampling Station No. Location |
|------------------------------------|----------------------------------|
| Kilcarroll Branch | Main Channel |
| 0025 Br NE Kilcarroll | 0100 Bridge 1.5 km u/s Kilrush |
| 0080 Br E. of Ballykett Fair Green | 0200 Kilrush: 100 m u/s West Br |

Assessment: The Wood river was polluted at all stations surveyed in September 2001 with moderate pollution in the upper sections (0025, 0080, 0100) and slight pollution downstream of Kilrush (0200).

HYDROMETRIC AREA 34

Moy and Killala Bay

| | | | |
|-----------------------------|--------------------|----------------------------|--------------------|
| Addergoole | 34A01 | Leaffony | 34L01 |
| | | Lenyvee | 34L06 |
| Bar Deela | 34B02 | Little (Strade) | 34L02 |
| Behy (N. Mayo) | 34B08 | Loughanaboll | 34L07 |
| Bellanamean | 34B04 | (Lough Muck Stream) | (34L05) |
| Bellawaddy | 34B05 | # Lough Naminoo Stream | 34L04 |
| Breaghwy | 34B06 | | |
| (Brusna (N. Mayo)) | 34B07) | Mad | 34M04 |
| | | Manulla | 34M01 |
| Callow Loughs Stream | 34C08 | Meander | 34M05 |
| Carrowkerribly Lough Stream | 34C07 | Moy | 34M02 |
| Carroward | 34C09 | Mullaghanoe | 34M03 |
| Castlebar | 34C01 | | |
| Cloonaghmore | 34C03 | Oughtagh | 34O05 |
| Cloonlavis | 34C10 | Owenaher | 34O01 |
| Clydagh (Castlebar) | 34C05 | Owengarve (Sligo) | 34O03 |
| Corroy ¹ | 34C06 ¹ | Owenlobnaglaur | 34O04 |
| (Crumlin (Lough Cullin)) | (34C11) | | |
| | | Pollagh | 34P01 |
| Deel (Crossmolina) | 24D01 | | |
| Duvowen (Cloonaghmore) | 34D03 | Shanvolahan | 34S01 |
| | | Slieveclaur | 34S06 |
| Eignagh | 34E01 | Sonnagh | 34S02 |
| | | Spaddagh | 34S03 |
| Glenree | 34G01 | Strade | 34S04 |
| Glore (Mayo) | 34G02 | Swinford ¹ | 34S05 |
| Gweestion | 34G03 | | |
| | | Trimoge | 34T01 |
| | | # Tubbercurry ¹ | 34T02 ¹ |
| | | | |
| | | Yellow (Foxford) | 34Y01 |

¹ indicates non-baseline rivers i.e., those which are not shown on the O.S. map entitled "Rivers and their Catchment Basins"

Due to time constraints rivers shown in brackets were either not surveyed or were just partially surveyed in 2001; these will be surveyed in 2002

Rivers denoted thus had seriously polluted stretch(es) at the time of this survey.

River and Code : **ADDERGOOLE** **34/A/01**
Tributary of : Lough Conn OS Catchment No: 110
OS Grid Ref : G 151 105 Date(s) Surveyed : 31/8/01

| Sampling Stations No. Location | | Biological Quality Ratings (Q Values) | | | | |
|------------------------------------|-------------------------------|---------------------------------------|------|------|------|------|
| | | 1989 | 1993 | 1995 | 1999 | 2001 |
| <i>Levally Lough Branch</i> | | | | | | |
| 0100 | Bridge just d/s Levally Lough | - | 4 | - | - | 3-4 |
| 0300 | 3rd Br d/s Levally Lough | 4 | - | 2-3 | 4 | - |
| <i>Main Channel</i> | | | | | | |
| 0500 | Bridge W. of Tonacrock | 4-5 | - | - | - | - |
| 0600 | Bridge u/s Lough Conn | - | 4 | 4 | 4-5 | 4 |

Assessment: The upper Addergoole (0100) is slightly impacted by Levally Lough. The lower section (0600) is satisfactory although it was quite silted where surveyed upstream of Lough Conn.

River and Code : **BAR DEELA** **34/B/02**
Tributary of : Deel (Crossmolina) OS Catchment No: 110
OS Grid Ref : G 016 147 Date(s) Surveyed : 7/08/01

| Sampling Stations No. Location | | Biological Quality Ratings (Q Values) | | | | |
|-----------------------------------|-----------------------------|---------------------------------------|------|------|------|------|
| | | 1989 | 1993 | 1995 | 1999 | 2001 |
| 0200 | Ford u/s Deel R (Main flow) | 4 | 4 | 3 | 4 | 4 |

Assessment: The Bar Deela was in satisfactory condition albeit with significant amounts of filamentous algae. Cattle are allowed free access the river at this location (0200) just upstream of the main Deel River confluence.

River and Code : **BELLANAMEAN** **34/B/04**
 Tributary of : Eignagh OS Catchment No: 110
 OS Grid Ref : G 412 086 Date(s) Surveyed : 26/07/01

| No. | Location | Biological Quality Ratings (Q Values) | | | | |
|------|---------------------------|---------------------------------------|------|------|------|------|
| | | 1989 | 1993 | 1995 | 1998 | 2001 |
| 0200 | Br 1.5 km NE of L. Naskea | - | 4 | 4-5 | 4 | 4-5 |
| 0300 | Bridge N. of Belclare | 5 | 5 | - | - | - |
| 0500 | Bridge u/s Eignagh River | 4-5 | 3-4 | 4-5 | 4-5 | 4-5 |

Assessment: Overall fair to good quality was noted in the Bellanamean with a somewhat unusual fauna and flora in the lower section (0500).

River and Code : **BELLAWADDY** **34/B/05**
 Tributary of : Killala Bay (at Enniscrone) OS Catchment No: 111
 OS Grid Ref : G 284 296 Date(s) Surveyed : 13/09/01

| No. | Location | Biological Quality Ratings (Q Values) | | | | | | |
|------|-----------------------|---------------------------------------|------|------|------|------|------|------|
| | | 1982 | 1986 | 1989 | 1993 | 1995 | 1999 | 2001 |
| 0100 | Bridge E. of Tullylin | 5 | 3-4 | 3 | 4 | 3 | 4 | 4 |
| 0200 | Knocknagower Bridge | 4 | 4 | 4 | 4 | 4 | 4 | 4-5 |

Assessment: The Bellawaddy was in satisfactory condition with a slight improvement noted at the lower of the two sites sampled (0200).

River and Code : **BREAGHWY** **34/B/06**
 Tributary of : Cloonaghmore OS Catchment No: 104
 OS Grid Ref : G 161 278 Date(s) Surveyed : 09/08/01

| No. | Location | Biological Quality Ratings (Q Values) | | | | |
|------|-----------------------------|---------------------------------------|------|------|------|------|
| | | 1989 | 1993 | 1995 | 1999 | 2001 |
| 0200 | Bridge near Belladoon | 4 | 4-5 | 3-4 | 3 | 4 |
| 0600 | Bridge S.W. of Seeaghanbaun | 4-5 | 4 | 3 | 4 | 4 |

Assessment: The upper Breaghwy (0200) had improved considerably to a satisfactory condition in comparison with the 1999 survey.

River and Code : **BRUSNA (NORTH MAYO) (PART)** **34/B/07**
 Tributary of : Glenree OS Catchment No: 110
 OS Grid Ref : G 289 190 Date(s) Surveyed : 13/09/01

| Sampling Stations No. Location | Biological Quality Ratings (Q Values) | | | | |
|-----------------------------------|---------------------------------------|------|------|------|------|
| | 1989 | 1993 | 1995 | 1999 | 2001 |
| 0200 Bridge E. of Emlymoran | 4-5 | 4-5 | 4-5 | 4 | 4 |
| 0400 Bridge W. of Cloonta | 4 | - | 5 | 4-5 | - |
| 0600 Just u/s Glenree River confl | 4-5 | 4-5 | 4 | 4-5 | - |

Assessment: Partial survey of the upper Brusna only (0200) showed satisfactory conditions at that point. Survey to be completed in 2002.

River and Code : **CALLOW LOUGHS STREAM** **34/C/08**
 Tributary of : Yellow (Foxford) OS Catchment No: 110
 OS Grid Ref : G 293 062 Date(s) Surveyed : 20/08/01

| Sampling Stations No. Location | Biological Quality Ratings (Q Values) | | | | |
|-----------------------------------|---------------------------------------|------|------|------|------|
| | 1989 | 1993 | 1995 | 1998 | 2001 |
| 0300 Bridge u/s Yellow River | 4 | 4-5 | 4 | 4-5 | 4-5 |

Assessment: The Callows Lough Stream continues to be of satisfactory quality. Though quite shaded, the stretch surveyed has quite a diverse fauna and flora with patches of the red algae *Hildenbrandia rivularis* noted on the stones (this latter algae is regarded as endangered throughout much of Europe due to water pollution and regulation of rivers).

River and Code : **CARROWARD** **34/C/09**
 Tributary of : Moy OS Catchment No: 110
 OS Grid Ref : M 290 985 Date(s) Surveyed : 2/10/01

| Sampling Stations No. Location | Biological Quality Ratings (Q Values) | | | | |
|-----------------------------------|---------------------------------------|------|------|------|------|
| | 1989 | 1993 | 1995 | 1998 | 2001 |
| 0300 Bridge N.W. of Bohola | 4-5 | 4-5 | 4 | 4 | 4 |
| 0600 Bridge E. of Ardacarha | 4-5 | 4-5 | - | - | - |
| 0700 Br 0.5 km u/s Moy R confl | - | 3* | 4 | 4-5 | 4 |

Assessment: The Carroward was satisfactory in early October 2001.

River and Code : **CARROWKERIBLY LOUGH STREAM 34/C/07**
 Tributary of : Moy OS Catchment No: 110
 OS Grid Ref : G 265 104 Date(s) Surveyed : 27/8/01

| No. | Location | Biological Quality Ratings (Q Values) | | | | |
|------|----------------------------|---------------------------------------|------|------|------|------|
| | | 1989 | 1993 | 1995 | 1998 | 2001 |
| 0300 | Br u/s Ballymore L. | - | - | 4-5 | 4-5 | 4-5 |
| 0400 | Bridge near Ardrass | 4-5 | 4-5 | 4-5 | 4-5 | 4-5 |
| 0600 | Bridge u/s Moy River confl | 4 | 3-4 | 4 | 4 | 4-5 |

Assessment: The upper and middle Carrowkeribly Lough Stream (0300,0400) maintained satisfactory condition while the lower section (0600) had improved in quality in 2001 in comparison with 1998 with the stonefly *Perla* now present downstream of Carrowkeribly Lough and upstream of the Moy.

River and Code : **CASTLEBAR 34/C/01**
 Tributary of : Lough Cullin OS Catchment No: 110
 OS Grid Ref : M 234 963 Date(s) Surveyed : 24/09/01

| No. | Stations | | | | | | | | | | | | | | | Biological Quality Ratings (Q Values) | | | | |
|------|----------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|---------------------------------------|--|--|--|--|
| | 1971 | 1973 | 1975 | 1977 | 1979 | 1980 | 1981 | 1983 | 1984 | 1986 | 1989 | 1993 | 1995 | 1998 | 2001 | | | | | |
| 0020 | - | - | - | - | - | 4-5 | - | 5 | - | - | 4-5 | 4 | 5 | 4-5 | 4-5 | | | | | |
| 0030 | - | - | - | - | - | 4-5 | - | 5 | - | - | 4 | 4-5 | 4 | 4 | 4 | | | | | |
| 0100 | 4-5 | 4-5 | 4-5 | 4-5 | 4 | 4 | - | 4 | 4 | - | 4 | 4 | 3-4 | 3-4 | 4 | | | | | |
| 0180 | - | - | - | - | - | - | - | - | - | - | 3 | 3 | - | - | - | | | | | |
| 0200 | 1 | 1-2 | 1 | 1 | 1 | 1 | 2-3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 2-3 | | | | | |
| 0300 | 3 | 3 | 1-2 | 2-3 | 2-3 | 2 | 3 | 3 | 3 | - | 3 | 3 | 3 | 3 | 3 | | | | | |
| 0400 | 4 | 4 | 3-4 | 3 | 3 | 3 | 3-4 | 3-4 | 3-4 | 3-4 | 3-4 | 3-4 | 3 | 4 | 4 | | | | | |
| 0500 | 4-5 | - | - | - | - | 4 | - | 4-5 | - | - | 4 | 4 | 3-4 | 4-5 | 4 | | | | | |

| No. | Location | No. | Location |
|------|--------------------------|------|-----------------------------|
| 0020 | Br near Graffa More | 0180 | D/s Br nr Military Barracks |
| 0200 | Br 2.5 km d/s Castlebar | 0200 | Br 2.5 km d/s Castlebar |
| 0030 | Br u/s Islandeady L | 0300 | Br N. of Turlough Park |
| 0100 | Lake Lawn, u/s Castlebar | 0400 | Br 1 km W. of Ballyvary |
| 0150 | First Br in Castlebar | 0500 | Bridge at Fisherhill |

Continued

Castlebar *Continued*

Assessment: The Castlebar River upstream of Islandeady Lough and Lough Lannagh (0020 and 0030) remained satisfactory in 2001. At its outflow (0100) from Lough Lannagh it had improved compared with the 1998 survey although extensive rubbish dumping still mars the river at this point in Castlebar Town. A deterioration in quality was noted downstream of Castlebar sewage treatment works (0200). It is believed that this is due primarily to 'storm' overflows, i.e. a certain amount of untreated sewage bypassing the main treatment works due to rapid expansion of the town without concomitant expansion of the sewage works. An increased organic pollution impact was noted at station (0200) as a result. Further downstream quality gradually recovers and no major change was noted in the lower section of the river in comparison with 1998 with Q3 at Turlough (0300) and satisfactory conditions Q4 from Ballyvary Bridge to Lough Cullin (0400, 0500).

Thus, a localised but relatively intense deterioration over a short stretch immediately downstream of Castlebar has occurred due to storm overflows. In spite of this, however, the previously noted improvements arising from the installation of a phosphorus removal stage at the Castlebar sewage works (which removes approximately 10 tonnes of P per annum) are still apparent in the lower sections of the river. A significant reduction in the growth of benthic filamentous algae in Lough Cullin has been recorded subsequent to the introduction of phosphorus removal in the Castlebar sewage treatment works. The lake bottom is now clear of filamentous algae whereas previously, algae was liable to be dislodged by wind in Spring. This caused general nuisance by clogging anglers' lines and lures when it was suspended into the lake water column and even down the Moy River. Thus, water quality conditions in Lough Cullin are now much better than pre-1998. It should be noted that the Castlebar River does not impact directly on Lough Conn, which (with Lough Cullin) recently suffered quite a significant decline in its trout populations (O'Grady pers. comm.). Ongoing observations have shown that Lough Conn flows into Lough Cullin over 99% of the time.

Castlebar sewage works is now due to be upgraded and the discharge point will be moved to downstream of the confluence of the Castlebar River and Manulla River (qv) where at least some additional dilution will be available in the summer months. Some additional polishing may still be needed during times of very low flow, however, in order to prevent eutrophication downstream of the discharge point. A temporary diversion of final treated effluent into a wetland treatment area during critical low-flow periods may be worth considering in this context. Some problems have also arisen due to manipulation of the levels of Lough Lannagh upstream of the Castlebar Town. These have caused sudden loss of flow in the river which aggravates the impact of existing pollution loads. Careful control of levels with a view to providing flow augmentation from Lough Lannagh during low flow periods may be possible and it could help to avoid fish kills in the river while the expansion of the sewage works is under way.

River and Code : **CLOONAGHMORE** **34/C/03**
Tributary of : Sea - Killala Bay OS Catchment No: 104
OS Grid Ref : G 174 314 Date(s) Surveyed : 08/08/01

| No. | Location | Biological Quality Ratings (Q Values) | | | | | | | |
|------|---------------------------|---------------------------------------|------|------|------|------|------|------|------|
| | | 1979 | 1981 | 1986 | 1989 | 1993 | 1995 | 1999 | 2001 |
| 0030 | Fords S of Tawnywaddyduff | - | - | - | - | - | 4-5 | 4-5 | 4-5 |
| 0100 | Bridge near Belville | - | 5 | 5 | 4-5 | 4 | 4 | 4-5 | 4 |
| 0150 | Ballintober Bridge | - | 5 | 4 | 5 | 4-5 | 4 | 4-5 | 4 |
| 0200 | Tonrehowan Bridge | 4-5 | 4-5 | 3-4 | 4 | 4 | 4 | 4-5 | 4-5 |
| 0270 | 1.2 km u/s Palmerstown Br | - | - | - | - | - | 4-5 | 4 | 4-5 |

Assessment: The Cloonaghmore River was satisfactory over its length when surveyed in August 2001

River and Code : **CLOONLAVIS** **34/C/10**
Tributary of : Yellow (Knock) OS Catchment No: 110
OS Grid Ref : M 350 868 Date(s) Surveyed : 4/10/01

| No. | Location | Biological Quality Ratings (Q Values) | | | |
|------|--------------------------------|---------------------------------------|------|------|------|
| | | 1994 | 1995 | 1998 | 2001 |
| 0100 | Bridge W of Knockbaun | 4 | 3 | 4 | 4 |
| 0300 | Bridge u/s Yellow R confluence | 4 | 4 | 4 | 4 |

Assessment: Satisfactory.

River and Code : **CLYDAGH (CASTLEBAR)** **34/C/05**
Tributary of : Castlebar River OS Catchment No: 110
OS Grid Ref : G 229 004 Date(s) Surveyed : 10/08/01

| Sampling Stations No. Location | Biological Quality Ratings (Q Values) | |
|-----------------------------------|---------------------------------------|------|
| | 1998 | 2001 |
| <i>East Branch</i> | | |
| 0015 E. of Burren | 4-5 | 4-5 |
| <i>Main Channel</i> | | |
| 0030 Br u/s confl of East Branch | 5 | 4-5 |
| 0070 Ford nr Srahnalee | 4 | 4-5 |
| 0140 Br nr Mill S.W. of Ballyguin | 4-5 | - |
| 0150 Bridge E. of Ballyguin | - | 4-5 |
| 0200 Br at Old Mill S. of Cashel | 4 | 5 |

Assessment: The Clydagh River continued to be satisfactory over its length when examined in August 2001.

River and Code : **CORROY¹** **34/C/06**
Tributary of : Moy OS Catchment No: 110
OS Grid Ref : G 248 139 Date(s) Surveyed : 19/09/01

| Stations No. | Biological Quality Ratings (Q Values) | | | | | | | | | | |
|-----------------|---------------------------------------|------|------|------|------|------|------|------|------|------|------|
| | 1971 | 1977 | 1979 | 1980 | 1981 | 1984 | 1989 | 1993 | 1995 | 1998 | 2001 |
| 0100 | 4-5 | 4-5 | 4 | 4 | 4 | 4 | 3 | 4 | - | 4 | - |
| 0200 | 2 | 1 | 1 | 1 | 1-2 | 3 | 3-4 | 3-4 | 3-4 | 3-4 | - |
| 0300 | - | - | - | - | - | - | - | - | - | - | 3-4 |

| Sampling Station | | Sampling Station | |
|------------------|----------------------------|------------------|--------------------------------|
| No. | Location | No. | Location |
| 0100 | Bridge u/s Corroy Factory | 0300 | Just upstream of the Moy River |
| 0200 | Bridge u/s Moy River confl | | |

Assessment: The lower Corroy River is slightly polluted upstream of its confluence with the River Moy (qv) with little change since previous surveys. The site surveyed (0300) is located some 150m downstream of Station 0200 where the stream had been previously surveyed.

River and Code : **DEEL (CROSSMOLINA)** **34/D/01**
Tributary of : Lough Conn OS Catchment No: 110
OS Grid Ref : G 175 171 Date(s) Surveyed : 18/07/01

| Stations No. | Biological Quality Ratings (Q Values) | | | | | | | | | |
|-----------------|---------------------------------------|------|------|------|------|------|------|------|------|------|
| | 1971 | 1973 | 1977 | 1980 | 1984 | 1989 | 1993 | 1995 | 1998 | 2001 |
| 0006 | - | - | - | - | - | 5 | 4-5 | 4-5 | 4 | 4 |
| 0010 | - | - | - | 5 | 5 | 4-5 | 4-5 | 4 | 4 | 4 |
| 0025 | - | - | - | 4-5 | 4-5 | 4-5 | 4 | 4 | 3-4 | 4 |
| 0100 | 5 | - | - | 5 | 5 | 4-5 | 4-5 | 4 | 4-5 | 5 |
| 0200 | - | - | - | - | - | 4-5 | 4-5 | - | 4 | - |
| 0250 | - | - | - | - | - | - | - | 3 | - | 4 |
| 0300 | 5 | 5 | 4-5 | 3-4 | 3-4 | 4 | 5 | 3-4 | 4 | 4-5 |
| 0400 | - | - | - | - | 4 | 4-5 | 4-5 | 4 | 4-5 | 4-5 |

| Sampling Station No. | Location | Sampling Station No. | Location |
|-------------------------|-------------------------------|-------------------------|------------------------------|
| 0006 | Bridge at Keenagh | 0200 | 800 m d/s Crossmolina Bridge |
| 0010 | Deel Bridge | 0250 | 1.3km d/s Crossmolina Br |
| 0025 | Ford S.W. of Knockbrack | 0300 | Knockadangan Bridge |
| 0100 | Ford E. of Ballycarroon House | 0400 | Bridge at Castle Gore |

Assessment: The Deel River was surveyed in mid July 2001. While the upper section (0006) at Keenagh Beg was satisfactory it was not of as high a quality as would be expected for a second order river with a 2% gradient - i.e. ideal salmon spawning and nursery habitat. A number of sensitive species have been lost from this site in the recent past. The upper portion of the Deel catchment has been extensively afforested and it is believed that this is responsible for the level of siltation observed and loss of species. Quality was satisfactory in the mid section of the Deel (0010, 0025) where the runs through predominantly blanket bog (with a low gradient averaging 0.1%). Quality had improved at Ballycarroon Ford (0100) just upstream of Crossmolina in comparison with recent surveys. Perlodid stoneflies (*Perla* and *Dinocras*) were quite numerous here once again indicating high quality. Downstream of Crossmolina sewage works (0250) quality was satisfactory with populations of *Ecdyonurus* present. Some left-right variation was apparent with greater siltation on the left hand side of the river. In low flow periods extensive algal growths have been noted in the lower Deel in the past but the 2001 survey showed quite good quality. The new sewage works at Crossmolina was not yet been commissioned but it will have phosphorus removal in addition to adequate secondary aeration treatment. The town of Crossmolina is too small to warrant P removal under the Urban Waste Water Directive but the sensitivity of Lough Conn has been taken into account in deciding to install full P removal at the works. Knockadangan Bridge (0300) had also improved and the occurrence of stoneflies and mayflies such as *Perla*, *Ephemera danica*, *Heptagenia* and *Ecdyonurus* together with a large number of crayfish is a welcome sign. Satisfactory quality was also recorded again at Castle Gore (0400) just upstream of Lough Conn. Thus, while winter phosphorus loads to Lough Conn have

Continued

Deel (Crossmolina) Continued

increased significantly again in the period 1996 to 1999 (Donnelly pers. comm.) this does not appear to have impacted too severely on the fauna of the lower Deel River. It is felt that the main risk is autumn and winter

P inputs to the lake causing algal accumulations along shorelines such as those seen in November 2001. It is also reported that a significant reduction has occurred in the purchase of phosphorus fertilisers in the catchment (M.Moore pers. comm.) and it is possible that the improvement noted in the Deel water quality is partly related to this reduction.

River and Code : **DUVOWEN** **34/D/03**
 Tributary of : Cloonaghmore OS Catchment No: 104
 OS Grid Ref : G 144 261 Date(s) Surveyed : 7/08/01

| Sampling Stations No. Location | Biological Quality Ratings (Q Values) | | | | |
|-----------------------------------|---------------------------------------|------|------|------|------|
| | 1989 | 1993 | 1995 | 1999 | 2001 |
| 0100 Bridge N of Carnclogh | - | 4-5 | - | - | - |
| 0400 Br NW of Garranard | - | - | 4 | 4 | 4 |
| 0500 Bridge E.S.E. of Garranard | 4-5 | 4 | - | - | - |
| 0800 Br u/s Cloonaghmore River | 4-5 | 4-5 | 4 | 4 | 4 |

Assessment: The Duvowen was of satisfactory quality at both sites examined in July 2001.

River and Code : **EIGNAGH** **34/E/01**
 Tributary of : Moy OS Catchment No: 110
 OS Grid Ref : G 433 080 Date(s) Surveyed : 26/07/01

| Sampling Stations No. Location | Biological Quality Ratings (Q Values) | | | | | | | | | |
|-----------------------------------|---------------------------------------|------|------|------|------|------|------|------|------|--|
| | 1977 | 1979 | 1981 | 1986 | 1989 | 1993 | 1995 | 1998 | 2001 | |
| 0100 Br 1.5 km d/s Lough Talt | - | - | 5 | 5 | 5 | 5 | 4-5 | 4-5 | 5 | |
| 0200 Bridge in Aclare | - | 4-5 | 5 | 4-5 | 4-5 | 4-5 | 4 | 4 | 4-5 | |
| 0300 Bridge u/s Moy River conf | 5 | - | 4-5 | 5 | 4-5 | 4-5 | 4 | 4-5 | 4 | |

Assessment: The Eignagh River continues to be satisfactory with high quality observed especially in the upper reaches (0100, 0200) downstream of Lough Talt. An improvement in quality was noted in Aclare (0200) in comparison with the 1998 survey, but a drop in quality at the lowermost site just upstream of the confluence with the River Moy.

River and Code : **GLENREE** **34/G/01**
Tributary of : Sea - Moy Estuary OS Catchment No: 110
OS Grid Ref : G 255 195 Date(s) Surveyed : 3/9/01

| Sampling Stations No. Location | Biological Quality Ratings (Q Values) | | | | | | | |
|---|---------------------------------------|------|------|------|------|------|------|------|
| | 1979 | 1981 | 1986 | 1989 | 1993 | 1995 | 1998 | 2001 |
| 0020 Bridge near Carrownaglogh | - | - | - | - | 5 | 4-5 | 5 | 4-5 |
| 0050 Bridge 2 km E. of Cloonta | - | - | 5 | 5 | 5 | 5 | - | 5 |
| 0060 0.7 km u/s Brusna River confluence | - | - | - | - | 5 | 4-5 | 5 | 4-5 |
| 0200 Bunree Bridge | 4 | 4-5 | 4 | 4 | 4-5 | 4-5 | 4 | 4-5 |

Assessment: Satisfactory.

River and Code : **GLORE (MAYO)** **34/G/02**
Tributary of : Gweestion OS Catchment No: 110
OS Grid Ref : M 343 930 Date(s) Surveyed : 21/09/01

| Sampling Stations No. Location | Biological Quality Ratings (Q Values) | | | | | | | |
|--|---------------------------------------|------|------|------|------|------|------|------|
| | 1977 | 1980 | 1984 | 1989 | 1993 | 1995 | 1998 | 2001 |
| 0010 Bridge u/s Island Lough | - | 4 | 3-4 | 3-4 | 3-4 | 3 | - | 3 |
| 0050 Br 1.5 km S.W. of Bruff X-Rds | - | 4 | 4-5 | 4 | 4-5 | 4 | 4-5 | 3-4 |
| 0100 Bridge near Cloonfallagh | - | 4 | 4-5 | 4 | 4-5 | - | - | - |
| 0110 Br NW of Cloonfallagh (main road) | - | - | - | - | - | - | 4 | 4 |
| 0200 Glore Bridge | 4-5 | 4 | 4 | 4 | 4 | 4 | 4 | 4 |

Assessment: The upper Glore River (0010) was once again quite eutrophic in September 2001. The mid section (0050) was classified as slightly polluted (eutrophic) due to the extensive algal growths and the loss of some sensitive species. While salmonids were observed at this location it is judged to be at risk of fish kills during times of low flow. The lower section of the Glore (0110 and 0200) was satisfactory and again extremely hard water conditions were noted with significant calcareous deposits with characteristic liverwort species (0100) and even the presence of stoneworts at Glore Bridge (0200).

River and Code : **GWEESTION** **34/G/03**
Tributary of : Moy OS Catchment No: 110
OS Grid Ref : M 296 984 Date(s) Surveyed : 04/10/01

| Sampling Stations No. Location | Biological Quality Ratings (Q Values) | | | | | | | |
|-----------------------------------|---------------------------------------|------|------|------|------|------|------|------|
| | 1977 | 1980 | 1984 | 1989 | 1993 | 1995 | 1998 | 2001 |
| 0050 Br 3 km u/s Ballymiles Br | - | 4 | 4 | 4 | 4 | - | - | - |
| 0080 Ford at Lismiraun | - | - | - | - | - | 3-4 | 4 | 4 |
| 0200 Scarrownageeragh Bridge | 5 | 5 | 4 | 5 | 4-5 | 4 | 4 | 4 |

Assessment: The Gweestion was of satisfactory quality at both sites sampled. However its ecological status has declined significantly with the loss of the pollution-sensitive stonefly, *Perla*, a key indicator species, the loss of which was noted in 1998. This species has been recorded almost continuously at this site since 1977 when the Gweestion was first surveyed. The Gweestion river is a large, fifth-order river at station 0200. It is formed by a number of other rivers each of which influences the quality at Scarrownageeragh Bridge to a greater or lesser extent viz: Trimoge, Pollagh, Glore, Yellow (Knock) and Cloonlavis Rivers all of which are included in the EPA ecological survey. The presence of *Perla*, a key indicator species, at Scarrownageeragh Bridge can be taken as an indication of the success of catchment management programmes in the Gweestion system. Thus, it is hoped that factors such as the new sewage treatment works in Knock, introduction of bye-laws or general binding regulations to control farm pollution, agricultural runoff and septic tank losses will result in a return to high quality status in the lower Gweestion.

River and Code : **LEAFFONY** **34/L/01**
Tributary of : Sea - Killala Bay OS Catchment No: 112
OS Grid Ref : G 310 358 Date(s) Surveyed : 13/09/01

| Sampling Stations No. Location | Biological Quality Ratings (Q Values) | | | | | | |
|-----------------------------------|---------------------------------------|------|------|------|------|------|------|
| | 1982 | 1986 | 1989 | 1993 | 1995 | 1999 | 2001 |
| 0100 Bridge N.W. of Crockoona | 4-5 | 4-5 | 4-5 | 4 | 4-5 | 4-5 | 4 |
| 0150 Bridge at Gortagheen | - | 4-5 | 4 | 4 | - | - | - |
| 0180 Ford nr Cloonycarney | - | - | - | - | 3-4 | 4 | 4 |
| 0200 Ford N. of Leaffony | 4 | 4 | 3-4 | 4 | - | - | - |
| 0260 Ford d/s Cabragh River confl | - | - | 4 | 4 | 3 | 4 | 3-4 |

Assessment: The upper Leaffony (0100) was very silted causing a reduction in quality, albeit still satisfactory. The dominant land use in the catchment is pasture but blanket bog and new forestry plantations feature prominently also. The middle and lower stations are enriched and while Station 0180 is still of satisfactory quality the lower station is showing signs of over-enrichment (Q3-4, slightly polluted). The conductivity of 540 μ S measured at Station 0260 indicates very hard-water conditions.

River and Code : **LENYVEE** **34/L/06**
 Tributary of : Owenaher OS Catchment No: 110
 OS Grid Ref : G 424 179 Date(s) Surveyed : 25/07/01

| Sampling Stations No. Location | Biological Quality Ratings (Q Values) | | | | |
|-----------------------------------|---------------------------------------|------|------|------|------|
| | 1989 | 1993 | 1995 | 1998 | 2001 |
| 0300 Bridge u/s Owenaher River | 4-5 | 4-5 | 4-5 | 4-5 | 5 |

Assessment: Satisfactory.

River and Code : **LITTLE (STRADE)** **34/L/02**
 Tributary of : Strade OS Catchment No: 110
 OS Grid Ref : M 258 957 Date(s) Surveyed : 3/10/01

| Sampling Stations No. Location | Biological Quality Ratings (Q Values) | | | | |
|-----------------------------------|---------------------------------------|------|------|------|------|
| | 1989 | 1993 | 1995 | 1998 | 2001 |
| 0300 Br NW Sraheens | - | - | 4-5 | 4-5 | 4-5 |
| 0500 Bridge N. of Knockatemple | 4 | 4-5 | 4-5 | 4-5 | 4-5 |

Assessment: High quality at both sites on the Little River when examined in early October 2001.

River and Code : **LOUGHNAMINOO STREAM** **34/L/04**
 Tributary of : Needham's Lake OS Catchment No: 110
 OS Grid Ref : M 260 866 Date(s) Surveyed : 5/10/01

| Stations No. | Biological Quality Ratings (Q Values) | | | | | | | | | |
|-----------------|---------------------------------------|------|------|------|------|------|------|------|------|------|
| | 1980 | 1984 | 1986 | 1989 | 1990 | 1991 | 1993 | 1995 | 1998 | 2001 |
| 0100 | 5 | 4-5 | 4 | 4 | - | - | 4 | 3-4 | 4 | 4 |
| 0200 | - | 1 | 3 | 1-2 | 2-3 | 2-3 | 3-4 | 1 | 3-4 | 2 |

Sampling Station
 No. LocationNo.
 0100 Balla: Br on Castlebar Road
 0200 Br 600 m d/s Samp Stat 0100

Continued

Loughnamino Stream *Continued*

Assessment: The upper section of the Loughnamino Stream (0100) was satisfactory in October 2001. Unfortunately, downstream of the Balla sewage treatment works (0300) quality had once again deteriorated to serious pollution status with "sewage fungus" growths recorded at the site.

River and Code : **MAD** **34/M/04**
 Tributary of : Moy OS Catchment No: 110
 OS Grid Ref : G 493 170 Date(s) Surveyed : 26/7/01

| Sampling Stations No. Location | Biological Quality Ratings (Q Values) | | | | |
|-----------------------------------|---------------------------------------|------|------|------|------|
| | 1989 | 1993 | 1995 | 1998 | 2001 |
| 0100 Bridge u/s Moy River confl | 5 | 3-4 | 3 | 3 | 3-4 |

Assessment: A slight improvement was noted in the Mad River in 2001 in comparison with 1998 results. Quality remains unsatisfactory, however, apparently due to forestry impacts in the catchment. Approximately 37 ha of Sitka Spruce have been planted along the right hand bank of the river over a distance of 1.4 km on terrain with a gradient averaging 8%. The upper section of this plantation is on Schist and Gneiss bedrock indicating acid sensitivity. The low conductivity measured at station 0100 of 30µS also supports the view that the area is likely to be acid sensitive. The impact noted appears to be primarily due to erosion and siltation due to drainage associated with afforestation. It may be expected, however, that quality will decline once again as the canopy matures causing increased acidity.

River and Code : **MANULLA** **34/M/01**
 Tributary of : Castlebar OS Catchment No: 110
 OS Grid Ref : M 222 941 Date(s) Surveyed : 5/10/01

| Sampling Stations No. Location | Biological Quality Ratings (Q Values) | | | | | | |
|-----------------------------------|---------------------------------------|------|------|------|------|------|------|
| | 1980 | 1984 | 1989 | 1993 | 1995 | 1998 | 2001 |
| 0100 Ballinafad Bridge | 5 | 4-5 | 4-5 | 4 | 4 | 4-5 | 4-5 |
| 0200 Bridge at Ballycarra | - | 4 | 5 | 4-5 | 4 | 4-5 | 4-5 |
| 0300 Manulla Bridge | 5 | 3-4 | 4-5 | 3-4 | 4 | 4 | 4 |
| 0500 Bridge u/s Castlebar River | 5 | 3-4 | 4 | 3-4 | 3 | 4 | 4 |

Assessment: The Manulla was in quite good condition in the upper sections particularly (0100, 0200) but also satisfactory in the lower reaches (0300, 0500).

River and Code : **MOY**
 Tributary of : Sea - Killala Bay
 OS Grid Ref : G 254 197

34/M/02
 OS Catchment No: 110
 Date(s) Surveyed : 25/7/01

| Stations No. | Biological Quality Ratings (Q Values) | | | | | | | | | | |
|-----------------|---------------------------------------|------|------|------|------|------|------|------|------|------|------|
| | 1971 | 1973 | 1977 | 1980 | 1982 | 1984 | 1989 | 1993 | 1995 | 1998 | 2001 |
| 0010 | - | - | - | - | - | - | - | - | - | - | 3 |
| 0050 | - | - | - | 5 | - | 5 | 5 | 5 | 4-5 | 4-5 | 3 |
| 0100 | 5 | 5 | 5 | 5 | - | 5 | 5 | 5 | 4-5 | 5 | 4 |
| 0300 | 5 | 5 | 5 | 5 | - | 5 | 5 | 5 | 4-5 | 4-5 | 4-5 |
| 0400 | 5 | - | 5 | 4 | - | 4 | 4-5 | 3 | 3 | 4-5 | 4-5 |
| 0420 | - | - | - | 4-5 | - | 4 | 5 | 4-5 | 4 | 4 | 4-5 |
| 0470 | - | - | - | 5 | - | 4 | 4 | 4 | 4 | 4 | 4-5 |
| 0500 | 5 | 5 | 4-5 | 5 | - | 4-5 | 5 | 4 | 4-5 | 4-5 | 4-5 |
| 0600 | 5 | - | 5 | 5 | - | 5 | 4-5 | 4-5 | - | - | - |
| 0610 | - | - | - | - | - | 3-4 | 4 | 3 | 4 | 4 | 4 |
| 0650 | - | - | - | 4 | - | 4-5 | 4 | 4-5 | 4-5 | 4-5 | 4-5 |
| 0700 | 5 | 5 | 5 | 5 | - | 4-5 | 4 | 4-5 | 4-5 | 4 | 4-5 |
| 0750 | - | - | - | - | - | - | - | - | 5 | 5 | 5 |
| 0770 | - | - | - | - | - | - | - | - | 4 | 4 | 4 |
| 0800 | 4-5 | 5 | 4 | 3-4 | 3 | 3 | 3 | 3 | 3 | 3 | 3-4 |
| 0850 | - | - | - | - | - | - | 4-5 | 4-5 | 4-5 | 4-5 | 4 |
| 0900 | - | - | - | - | 4 | 4 | 4-5 | 4-5 | 4 | 4-5 | 4-5 |
| 0960 | - | - | - | - | 4 | 4 | 4 | - | 4 | 4 | - |
| 0100 | - | - | - | - | - | - | - | - | - | - | 4 |
| 1050 | 5 | 4 | 4 | 4 | - | 4 | 4 | 3* | 3-4 | 4 | 4 |

Sampling Station

| No. | Location |
|------|----------------------------|
| 0010 | Branchfield Br |
| 0050 | Bridge at Cornaleck |
| 0100 | Bridge S.E. of Cloonacool |
| 0200 | Metal Bridge |
| 0300 | Annagh Bridge |
| 0400 | Bridge at Banada |
| 0420 | Ford N. of Ballygallagart |
| 0470 | Ford near Bellanacurra |
| 0500 | Cloonacannana Bridge |
| 0600 | Br near Cloongullaun (RHS) |
| 0610 | Br near Cloongullaun (LHS) |

Sampling Station

| No. | Location |
|------|------------------------------------|
| 0650 | Ford 2 km u/s Gweestion River |
| 0700 | Ballylahan Bridge |
| 0750 | At Bleanmore |
| 0770 | U/s Foxford Br LHS |
| 0800 | 1 km N of Foxford (RHS) |
| 0850 | Near Bunnafinglas |
| 0900 | U/s Corroy River - nr Hollywood Ho |
| 0960 | 500 m d/s Corroy River confl |
| 1000 | Near Rahans House |
| 1040 | 0.6km u/s Ardnaree Bridge |
| 1050 | 300m u/s Ardnaree Br (LHS) |

Assessment: The upper Moy (0050) showed a serious drop in quality with no sensitive species found at this site for the first time since surveys began there in 1980. An additional upstream site was added as a result (0010) - and this was also polluted. An examination of the catchment upstream resulted in the conclusion that new forestry plantations in the headwaters of the Moy River are the most likely cause of the decline in quality. Extensive organic mats were found on the substratum at Branchfield Bridge indicating drainage/erosion impacts where the iron pan is disrupted in upland bog areas. Extensive siltation was noted further downstream, albeit quality gradually recovering.

Continued

MOY *Continued*

Similar problems have been noted in the nearby Mad River (qv) which is a tributary of the upper Moy. The drop in quality at Station 0050 is extremely serious as the Moy is a fourth-order river at this point. A large catchment drains to this point with significant salmon spawning potential with over 20 km of first-order stream, 11km of second-order streams, 3.2km of third-order channel and 1.2 km fourth-order river channel. Similarly, the resulting loss of the Q5 status at Station 0100 is also a very serious cause for concern. The EPA notified Sligo County Council, The North Western Fisheries Board, and the Central Fisheries Board immediately regarding this major decline in quality in July 2001. Water quality had recovered some 8 km further downstream at Station 0300 where catchment size has more than doubled to 132 km² and receives significant flow inputs from the relatively unpolluted Owenaher system (qv). The section between Banada and Cloonacannana (0400 to 0500) had improved in comparison with the 1998 survey with Q4-5 found at all these stations. The area draining to Station 0500 is now almost 500 km², taking in new tributary rivers such as the Eignagh, Tubbercurry, Owengarve and Mullaghanoe.

The section to Bleanmore upstream of the Lough Cullin Outflow (0750) was generally of good quality with high status again observed at Station 0750, where a wide range of sensitive species were found. While there is some damage obvious due to drainage activities, this site is a very rare example of a high quality large river (sixth-order, draining 938 km²). As such it is of great importance in demonstrating the ecological potential of such rivers in a wider Irish and European context. Quality declines somewhat downstream of the confluence with the Lough Conn and Lough Cullin catchments (Q4 upstream of Foxford 0770). A localised pollution impact is noted on the right hand side of the river downstream of Foxford (0800). Quality recovers, however, in the next, slower-flowing section as the river flows north towards Ballina (0850,0900).

The final survey sites are located in Ballina Town. An additional site (1040) was added in 2001 following complaints regarding a continuously-flowing storm overflow which is discharging untreated sewage to the Moy approximately 600m upstream of Ardnaree Br. While the discharge was obvious it was not shown have a major impact on the quality of the River Moy some 50m downstream of the discharge point. Nonetheless, raw sewage should not be discharged directly to an important river such as the River Moy and it is to be hoped that the housing estate from which this discharge emanates will receive upgraded treatment facilities in the near future.

River and Code : **MEANDER** **34/M/05**
Tributary of : Manulla OS Catchment No: 110
OS Grid Ref : M 232 810 Date(s) Surveyed : 05/10/01

| Sampling Stations No. Location | Biological Quality Ratings (Q Values) | | | | | |
|-----------------------------------|---------------------------------------|------|------|------|------|------|
| | 1986 | 1989 | 1993 | 1995 | 1998 | 2001 |
| 0300 Bridge S.W. of Mayo | - | 3 | 4 | 4 | 4 | 3 |
| 0400 Br N.N.W. of Rathnacreeva | 3-4 | 3-4 | 4-5 | 3 | 4 | 4 |

Assessment: Moderate pollution was noted where the Meander was sampled in the upper reaches (0300) with a recovery upstream of its confluence with the Manulla river (qv).

River and Code : **MULLAGHANOE** **34/M/03**
Tributary of : Moy OS Catchment No: 110
OS Grid Ref : G 404 048 Date(s) Surveyed : 27/07/01

| Sampling Stations No. Location | Biological Quality Ratings (Q Values) | | | | | | | | | |
|-----------------------------------|---------------------------------------|------|------|------|------|------|------|------|------|--|
| | 1977 | 1980 | 1983 | 1985 | 1989 | 1993 | 1995 | 1998 | 2001 | |
| Charlestown Branch* | | | | | | | | | | |
| 0100 Bridge WNW of Bellahy | - | 3 | 4 | 4-5 | 3 | 4 | 2-3 | 2-3 | 3-4 | |
| Main Channel | | | | | | | | | | |
| 0140 Bridge N of Cloonmeen West | - | - | - | - | - | 3 | 3 | 4 | 4 | |
| 0190 0.2 km d/s Charlestown Bch | - | - | - | - | - | - | 3 | 3-4 | 3-4 | |
| 0200 Bridge at Cloonlaughil | - | 3-4 | 3-4 | - | 3-4 | 4 | - | - | 4 | |
| 0300 Bridge 1 km u/s Moy River | - | 4 | 4-5 | - | 3-4 | 4 | 3-4 | 3-4 | 4 | |

Assessment: A significant improvement in quality was noted downstream of Charlestown where the river is affected by municipal discharges (0100) but also influenced by extensive forestry and moderately intensive agriculture in the catchment upstream of Charlestown. The Main Channel flowing from Mullaghanoe was satisfactory (0140). Eutrophication was again noted downstream of the confluence of the two branches at Station 0190 where there are extensive epiphytic algal growths on the substratum and higher plants in the river. There is uncontrolled cattle access to the river at this point also. An improvement was noted over the remainder of the river (0200, 0300) as it flows to the main Moy River channel. *Ranunculus* was again the dominant plant in the lower section

Continued

Mullaghanoe Continued

of the river (0190 to 0300). As noted in 1998 the water crowfoot (*Ranunculus* sp.) suddenly appeared in the Mullaghanoe at some point between 1995 and 1998, i.e. it was not noted in the 1995 survey (nor in any previous survey since 1977) but had become the dominant plant by the time of the August 1998 survey. This was the first record of this *Ranunculus* species (possibly *R. penicillatus* var *penicillatus*) in the Moy system. It had not yet gained a foothold in the main Moy river downstream of the Mullaghanoe confluence where surveyed at Ballanacurra Bridge (34M020470). The common *Ranunculus* species is generally absent from rivers in Mayo and much of Galway, Sligo, west Donegal and west Clare. This is believed to be a purely biogeographical phenomenon as most rivers in this region would appear to provide eminently suitable habitat for the common *Ranunculus* species.

River and Code : **OUGHTAGH** **34/O/05**
Tributary of : Moy OS Catchment No: 110
OS Grid Ref : M 275 993 Date(s) Surveyed : 2/10/01

| Sampling Stations No. | Location | Biological Quality Ratings (Q Values) | | | | |
|--------------------------|----------------------------|---------------------------------------|------|------|------|------|
| | | 1989 | 1993 | 1995 | 1998 | 2001 |
| 0300 | Br near Carrowgowan House | - | 4 | 4 | 4 | 3-4 |
| 0400 | Bridge u/s Moy River confl | 4 | 4-5 | 4 | 4 | 3-4 |

Assessment: Unsatisfactory. A significant deterioration had occurred in the Oughtagh River in comparison with the 1998 survey with both sites sampled now slightly polluted.

River and Code : **OWENAHHER** **34/O/01**
Tributary of : Moy OS Catchment No: 110
OS Grid Ref : G 463 134 Date(s) Surveyed : 25/7/01

| Sampling Stations No. | Location | Biological Quality Ratings (Q Values) | | | | | | |
|--------------------------|----------------------|---------------------------------------|------|------|------|------|------|------|
| | | 1977 | 1986 | 1989 | 1993 | 1995 | 1998 | 2001 |
| 0050 | Ford E. of Zion Hill | - | 5 | 5 | 4-5 | 4-5 | 4-5 | 5 |
| 0100 | Bellanagraugh Bridge | 5 | 5 | 5 | 5 | 4-5 | 4-5 | 4-5 |

Assessment: The Owenaher was in a very satisfactory condition when surveyed in July 2001.

River and Code : **OWENGARVE (SLIGO)** **34/O/03**
Tributary of : Moy OS Catchment No: 110
OS Grid Ref : G 435 075 Date(s) Surveyed : 24/7/01

| Sampling Stations No. Location | Biological Quality Ratings (Q Values) | | | | | | | |
|-----------------------------------|---------------------------------------|------|------|------|------|------|------|------|
| | 1977 | 1980 | 1984 | 1989 | 1993 | 1995 | 1998 | 2001 |
| 0010 Bridge at Derrynabrock | - | 5 | 4-5 | 4-5 | 5 | 4-5 | 4-5 | 4-5 |
| 0050 Ford N.W. of Srah Upper | - | 5 | 4-5 | 4-5 | 4-5 | 4-5 | 5 | 4 |
| 0100 Bridge in Curry | - | 5 | 4-5 | 4 | 5 | 4-5 | 5 | 4 |
| 0200 Bridge u/s Moy River confl | 5 | 5 | 5 | 5 | 5 | 4-5 | 3-4 | 5 |

Assessment: The Owengarve (Sligo) was satisfactory in the upper reaches (0010). A significant drop in quality has taken place, however, in the middle reaches (0050 and 0100) in comparison with 1998. While still satisfactory in quality, a serious bank erosion and cattle access problem has caused deterioration at Station 0050. A similar decline in quality was noted at Curry (0100), which had also been Q5 status in 1998. The lower reaches, however, had improved very significantly in comparison with the 1998 survey. New bankside fencing was noted at Dawros Br (0200) keeping cattle out of the river at that point.

River and Code : **OWENLOBNAGLAUR** **34/O/04**
Tributary of : Owengarve (Sligo) OS Catchment No: 110
OS Grid Ref : G 558 033 Date(s) Surveyed : 24/07/01

| Sampling Stations No. Location | Biological Quality Ratings (Q Values) | | | | |
|-----------------------------------|---------------------------------------|------|------|------|------|
| | 1989 | 1993 | 1995 | 1998 | 2001 |
| 0200 Bridge W. of Parkroe | 4-5 | 4-5 | 4-5 | 4 | 4 |

Assessment: Satisfactory, but not achieving its full potential - cattle access may be affecting the quality of this second-order stream.

River and Code : **POLLAGH** **34/P/01**
Tributary of : Gweestion OS Catchment No: 110
OS Grid Ref : M 343 930 Date(s) Surveyed : 2/10/01

| Sampling Stations No. Location | Biological Quality Ratings (Q Values) | | | | | | | | | |
|-----------------------------------|---------------------------------------|------|------|------|------|------|------|------|------|--|
| | 1977 | 1981 | 1986 | 1988 | 1989 | 1993 | 1995 | 1998 | 2001 | |
| 0100 Linban Bridge (Geeslaun R) | - | 4-5 | 4-5 | - | 4 | 3-4 | 4-5 | 3-4 | 4 | |
| 0200 Bridge at Pollagh | - | 4-5 | 4 | 4-5 | 4 | 4-5 | 4 | 4 | 4 | |
| 0250 1 km d/s Sampling Stat 0200 | - | 4-5 | 4-5 | 3-4 | 3 | 3 | - | - | - | |
| 0260 (Br) NW of Cloonkedagh | - | - | - | - | - | - | 3 | 3-4 | 3-4 | |
| 0300 Bridge u/s Gweestion River | 4 | 4-5 | 4-5 | - | 4 | 3-4 | 4 | 4 | 3-4 | |

Assessment: Following an improvement at Station 0100, the upper Pollagh (0100, 0200) was satisfactory when surveyed in early October 2001. Downstream of Kiltimagh, however, quality deteriorated in response to discharges from the sewage treatment works and the lower stations (0260, 0300) were slightly polluted. The Pollagh joins with the Glore River (qv) to form the Gweestion (qv) just downstream of Station 0300.

River and Code : **SHANVOLAHAN** **34/S/01**
Tributary of : Deel (Crossmolina) OS Catchment No: 110
OS Grid Ref : G 067 155 Date(s) Surveyed : 07/08/01

| Sampling Stations No. Location | Biological Quality Ratings (Q Values) | | | | |
|-----------------------------------|---------------------------------------|------|------|------|------|
| | 1989 | 1993 | 1995 | 1998 | 2001 |
| West Branch | | | | | |
| 0100 Eskeragh Bridge | | 3 | 4 | 4 | 4 |
| Main Channel | | | | | |
| 0300 Bridge S.W. of Coolturk | | 4-5 | 3-4 | 3 | 4 |
| 0400 Just u/s Deel River confl | | 4-5 | 4 | 4 | 4-5 |

Assessment: Siltation was noted at all sites in the Shanvolahan with significant quantities of peat silt affecting quality especially in the upper branches of the river (0100, 0300). The lowermost site (0400) was of slightly higher quality. While all sites were once again satisfactory none, however, is achieving the quality that would be expected for an catchment which is an important NHA/SAC catchment. Approximately half of the Shanvolahan catchment is a Natural Heritage Area and a Special Area of Conservation forming part of the Bellacorick Bog Complex. The Shanvolahan runs through a region of blanket bog that has been extensively planted with trees in the last 10 to 15 years. Whereas the 1990 CORINE landcover maps show 1km² of commercial forest planted upstream of Station 0400, the 1998 Forest Inventory shows almost 5km² of the 28km² catchment now planted. The results from the early 1990s especially showed a significant decline in quality. Loss of sensitive species has occurred as a consequence of the

Continued

Shanvolahan Continued

disruption of the catchment due to drainage and forestry fertilisation activities. An area of previously exploited bog of some 3km² is also present in the upper part of the catchment and this may also contribute to silt loss depending on the intensity of current peat harvesting in the area.

River and Code : **SLIEVECLAUR** **34/S/06**
Tributary of : Deel (Crossmolina) OS Catchment No: 110
OS Grid Ref : G 157 203 Date(s) Surveyed : 09/08/01

| No. | Location | Biological Quality Ratings (Q Values) | | | | |
|------|-------------------|---------------------------------------|------|------|------|------|
| | | 1989 | 1993 | 1995 | 1999 | 2001 |
| 0400 | Ballyneety Bridge | 3-4 | 3 | 3 | 3 | 3-4 |

Assessment: The Slieveclaur or Rappa River was slightly polluted in August 2001. An improvement was noted, however, in comparison with 1999.

River and Code : **SONNAGH (MOY)** **34/S/02**
Tributary of : Moy OS Catchment No: 110
OS Grid Ref : G 404 046 Date(s) Surveyed : 03/10/01

| No. | Location | Biological Quality Ratings (Q Values) | | | | | |
|------|------------------------------|---------------------------------------|------|------|------|------|------|
| | | 1981 | 1985 | 1989 | 1994 | 1999 | 2001 |
| 0060 | Bridge 1 km W. of Tomboholla | - | - | 4-5 | 3-4 | 3-4 | 4 |
| 0075 | Bridge N. of Trouthill | 5 | 5 | 3 | 3-4 | 4 | 4-5 |
| 0100 | Bridge u/s Moy River confl | 4-5 | 5 | 4 | 3-4 | 4 | 4-5 |

Assessment: An improvement was noted in the upper Sonnagh (0060, 0075) although some quarrying impacts were still noticeable at Station 0060 (siltation of substratum). The lower Sonnagh was satisfactory with a Q4-5 recorded at Gorteen Bridge.

River and Code : **SPADDAGH** **34/S/03**
Tributary of : Moy OS Catchment No: 110
OS Grid Ref : M 323 999 Date(s) Surveyed : 03/10/01

| Sampling Stations No. Location | Biological Quality Ratings (Q Values) | | | | | | |
|-----------------------------------|---------------------------------------|------|------|------|------|------|------|
| | 1981 | 1985 | 1989 | 1993 | 1995 | 1999 | 2001 |
| 0050 Br N. of Castlesheenaghan | 4-5 | 5 | 4-5 | 4-5 | 4-5 | 4 | 4 |
| 0100 Bridge N.E. of Esker | 5 | 4-5 | 4-5 | 4-5 | 4 | 3 | 4 |
| 0200 Bridge u/s Moy River confl | 5 | 4-5 | 4-5 | 4-5 | 4-5 | 3-4* | 4 |

Assessment: No change was noted in the upper Spaddagh (0050) which was satisfactory. An improvement had occurred in the middle to lower Spaddagh which had been affected by oil, siltation and eutrophication in the 1999 survey. While the middle station (0100) is still eutrophic in nature, the fauna suggests that conditions are satisfactory here. Upstream of the Moy River confluence (0200) quality was satisfactory also with an improvement on 1999.

River and Code : **STRADE** **34/S/04**
Tributary of : Moy OS Catchment No: 110
OS Grid Ref : M 267 995 Date(s) Surveyed : 03/10/01

| Sampling Stations No. Location | Biological Quality Ratings (Q Values) | | | | |
|-----------------------------------|---------------------------------------|------|------|------|------|
| | 1989 | 1993 | 1995 | 1998 | 2001 |
| 0800 Bridge u/s Moy River confl | 4-5 | 4-5 | 4-5 | 4-5 | 4-5 |

Assessment: The Strade River was again in satisfactory condition with little change since 1998 when last surveyed.

River and Code : **SWINFORD¹**

34/S/05

Tributary of : Moy

OS Catchment No: 110

OS Grid Ref : G 347 014

Date(s) Surveyed : 24/07/01

| Stations No. | Biological Quality Ratings (Q Values) | | | | | | | | | | | | |
|-----------------|---------------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| | 1977 | 1979 | 1981 | 1983 | 1985 | 1988 | 1989 | 1990 | 1991 | 1993 | 1995 | 1999 | 2001 |
| 0200 | - | 2 | 3 | 1-2 | 1-2 | 1 | 1 | 1 | 1 | 2-3 | 3 | - | 2-3 |
| 0300 | 3-4 | 3-4 | 3-4 | 3-4 | 3 | 3 | 3 | - | - | 3 | 3-4 | 3-4 | 3-4 |

Sampling Station

No. Location

0200 Swinford: Br on Foxford Road

0300 Bridge 100 m u/s Moy River

Assessment: A slight deterioration was noted downstream of Swinford Sewage Treatment Works (0200) in comparison with the 1995 survey. Upstream of the Moy (0300) the river was still somewhat eutrophic and slightly polluted. Phosphorus removal was installed at the Swinford Sewage Treatment Works in late 1992 and the Q-Value at Station 0300 increased from Q3 to Q3-4 while immediately downstream (0200) a major improvement from Q1 to Q2-3 occurred in 1993 and subsequently to Q3 in 1995.

River and Code : **TRIMOGE**

34/T/01

Tributary of : Gweestion

OS Catchment No: 110

OS Grid Ref : M 330 964

Date(s) Surveyed : 04/10/01

| Sampling Stations No. Location | Biological Quality Ratings (Q Values) | | | | | | | |
|-----------------------------------|---------------------------------------|------|------|------|------|------|------|------|
| | 1977 | 1981 | 1986 | 1989 | 1993 | 1995 | 1998 | 2001 |
| 0200 Ford just W. of Kilkelly | - | 4 | 4 | 4 | 3-4 | 4 | 3 | 3-4 |
| 0300 Bridge S.W. of Rinn Lough | - | 4 | 4-5 | 4-5 | 4-5 | 4 | 4-5 | 4-5 |
| 0400 Kinaff Bridge | 5 | 4-5 | 4-5 | - | 4-5 | - | 4 | 4 |
| 0500 Bridge u/s Gweestion River | 5 | 4-5 | 4-5 | 5 | 4-5 | 4 | - | 4 |

Assessment: The Trimoge river is eutrophic downstream of Kilkelly Sewage Treatment Works (0200) and was classified as slightly polluted in October 2001. A recovery is evident in the middle reaches (0300) and the lower section (0400, 0500) was also satisfactory.

| | | |
|----------------|----------------------------------|-----------------------------|
| River and Code | : TUBBERCURRY¹ | 34/T/02 |
| Tributary of | : Moy | OS Catchment No: 110 |
| OS Grid Ref | : G 270 085 | Date(s) Surveyed : 20/07/01 |

| Stations | Biological Quality Ratings (Q Values) | | | | | | | | | | | | | |
|----------|---------------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| No. | 1971 | 1973 | 1977 | 1979 | 1980 | 1982 | 1986 | 1989 | 1990 | 1991 | 1993 | 1995 | 1998 | 2001 |
| 0050 | - | - | - | - | 1 | 1-2 | 2-3 | 2 | 1-2 | - | 2 | 2 | 2-3 | 2 |
| 0200 | - | - | - | 3 | 3 | 3 | 3-4 | 3 | - | - | 3 | 3 | 3 | 3 |

Sampling Station
No. LocationNo.

0050 Br 1 km W. of Tubbercurry
0200 Br just u/s Moy River

Assessment: A deterioration to serious pollution status was noted downstream of Tubbercurry (0050) in comparison with August 1998. The river was still moderately polluted just upstream of its confluence with the River Moy (qv).

| | | |
|----------------|---------------------------|----------------------------|
| River and Code | : YELLOW (FOXFORD) | 34/Y/01 |
| Tributary of | : Moy | OS Catchment No: 110 |
| OS Grid Ref | : G 270 085 | Date(s) Surveyed : 20/8/01 |

| Sampling Stations | Biological Quality Ratings (Q Values) | | | | | | | |
|-------------------|---------------------------------------|------|------|------|------|------|------|------|
| No. | Location | 1981 | 1986 | 1989 | 1993 | 1995 | 1998 | 2001 |
| 0100 | Ford W. of Corlee | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| 0200 | Bridge S. of Church Village | 5 | 5 | 5 | 5 | - | - | - |
| 0400 | Bridge u/s Moy River confl | - | - | 5 | 5 | 4-5 | 4-5 | 4-5 |

Assessment: The Yellow (Foxford) was of high quality again when surveyed in August 2001.

HYDROMETRIC AREA 36

Erne

| | |
|--------------------------|-------|
| Aghacashlaun | 36A03 |
| Aghnacliffe Stream | 36A06 |
| Annadale Stream | 36A05 |
| Annalee | 36A02 |
| Avaghon Lake Stream | 36A07 |
| Bawnboy | 36B07 |
| Blackwater (Newtowngore) | 36B04 |
| Blackwater (Swanlinbar) | 36B03 |
| Bunnoe | 36B05 |
| Cavan | 26C02 |
| Conawary (Upper) | 36C11 |
| Cornavannoge | 36C04 |
| Cullies | 36C03 |
| Dromore | 36D02 |
| Drumane Stream | 36D04 |
| # Erne | 36E01 |
| Finn (Monaghan) | 36F01 |
| Knappagh | 36K01 |
| Laheen Stream | 36L02 |
| Laragh | 36L01 |
| Legga Stream | 36L03 |
| Madabawn | 36M02 |
| # Magherarney | 36M01 |
| Maghery | 36M03 |
| Owensallagh | 36O01 |
| Rag | 36R01 |
| Roo | 36R02 |
| Stradone | 36S02 |
| Swanlinbar | 36S01 |
| Templeport Stream | 36T01 |
| Waterfoot | 36W03 |
| Yellow (Ballinamore) | 36Y01 |

Rivers denoted thus had seriously polluted stretch(es) at the time of this survey.

River and Code : **AGHACASHLAUN** **36/A/03**
 Tributary of : St John's Lough OS Catchment No: 123
 OS Grid Ref : H 082 090 Date(s) Surveyed : 28/09/01

| Sampling Stations No. Location | Biological Quality Ratings (Q Values) | | | | |
|-----------------------------------|---------------------------------------|------|------|------|------|
| | 1989 | 1993 | 1997 | 1998 | 2001 |
| 0300 Br N of Derrinkeher | 5 | 4-5 | 5 | 4-5 | 4-5 |
| 0500 Br N of Drumgud | 5 | 4-5 | 4-5 | 4-5 | 4-5 |

Assessment: Continuing satisfactory but there are signs of increasing eutrophication due to forestry and/or agriculture in the upper reaches (0300).

River and Code : **AGHNACLIFFE STREAM** **36/A/06**
 Tributary of : Lough Gowna OS Catchment No: 123
 OS Grid Ref : N 275 887 Date(s) Surveyed : 24/09/01

| Sampling Stations No. Location | Biological Quality Ratings (Q Values) | | | | | |
|-----------------------------------|---------------------------------------|------|------|------|------|------|
| | 1982 | 1989 | 1993 | 1997 | 1998 | 2001 |
| 0400 1st Br u/s L Gowna | 4-5 | 4 | 4-5 | 4-5 | 4-5 | 4 |

Assessment: Continuing satisfactory despite the considerable deposition of manure from watering animals which have free access to the stream at the location surveyed.

River and Code : **ANNADALE STREAM** **36/A/05**
 Tributary of : Lough Scur OS Catchment No: 123
 OS Grid Ref : H 030 092 Date(s) Surveyed : 28/09/01

| Sampling Stations No. Location | Biological Quality Ratings (Q Values) | | | | |
|-----------------------------------|---------------------------------------|------|------|------|------|
| | 1988 | 1993 | 1997 | 1998 | 2001 |
| 0300 Br NE of Carrickaport | 4-5 | 4-5 | 4 | 4 | 4 |
| 0500 Br SW of Annadale | 4-5 | 4 | 4 | 3 | 3 |

Assessment: Continuing mostly satisfactory but, as in 1998, the absence of sensitive species previously recorded at station 0500 is a cause for concern: the presence of considerable quantities of domestic refuse at this location indicates that the stream is regarded by some as a handy waste disposal location.

River and Code : **ANNALEE**
 Tributary of : Lough Oughter
 OS Grid Ref : H 393 101

36/A/02
 OS Catchment No: 123
 Date(s) Surveyed : 31/08/01

| Stations No. | Biological Quality Ratings (Q Values) | | | | | | | | | | |
|-----------------|---------------------------------------|------|------|------|------|------|------|------|------|------|------|
| | 1971 | 1977 | 1979 | 1980 | 1982 | 1986 | 1989 | 1993 | 1997 | 1998 | 2001 |
| 0080 | - | - | - | - | - | - | 3-4 | 3-4 | 3-4 | 4-5 | 3-4* |
| 0150 | - | - | - | - | - | - | - | 3-4 | 3 | 3 | 3 |
| 0250 | - | - | - | - | - | - | 3-4 | 3-4 | 4 | 3-4 | 3-4* |
| 0350 | - | - | - | - | - | - | 3 | 4 | 4 | 3-4 | 4 |
| 0500 | 5 | 3 | 3/0 | 4 | 5 | 5 | 2-3 | 4-5 | 4-5 | 3 | 4 |
| 0600 | - | - | 4 | 3-4 | 4 | 4 | 2-3 | 4 | 4-5 | 3-4 | 3-4 |
| 0800 | 5 | 4 | 5 | 5 | 5 | 4-5 | 3-4 | 4-5 | 4-5 | 4 | 4-5 |
| 0900 | - | - | 4 | 4-5 | 4-5 | 4-5 | 4 | 4 | 4 | 4 | 3-4 |
| 1000 | 3 | 3-4 | - | - | - | 4-5 | 4 | 4 | 4 | 4 | 3-4 |
| 1150 | - | 4 | - | 4 | 4-5 | 5 | 3-4 | 4-5 | 4-5 | 4 | 3-4 |
| 1350 | - | - | - | - | - | 4-5 | 4-5 | 4 | 3-4 | 4 | 3-4 |
| 1400 | - | - | - | 3-4 | 3-4 | 3-4 | 3-4 | 4 | 3-4 | 3-4 | 3 |

Sampling Station

| No. | Location |
|------|-----------------------|
| 0080 | 2nd Br u/s L Sillan |
| 0150 | 2nd Br d/s L Sillan |
| 0250 | 1st Br d/s L Tacker |
| 0350 | Br nr Ann's Fort |
| 0500 | New Grove Br |
| 0600 | Br SE of Fort William |

Sampling Station

| No. | Location |
|------|-------------------------|
| 0800 | Br NW of Rakenny Ho |
| 0900 | Ballynallon Br |
| 1000 | Ballyhaise Br |
| 1150 | Br nr Curraghanoe |
| 1350 | 0.2km u/s Cavan R confl |
| 1400 | 0.2km d/s Cavan R confl |

Assessment: The overall eutrophic and unsatisfactory condition of the Annalee is apparent from the Q values tabulated above and indications are that the improvements recorded in 1998 have not been maintained. Just three of the twelve locations surveyed were satisfactory in 2001 (as compared with six in 1998) and only one of these (0800) was better than "Fair". Low or very low water levels undoubtedly exacerbated the effects of the various pollutant inputs (primarily suspected manure slurry) on the river: this was most apparent in the reach upstream of Lough Sillan and again in the 14 kilometre stretch below Lough Tacker where the river bed was heavily silted at the time of this survey. The most marked pollution (Q3) was recorded below Lough Sillan (0150) and below the Cavan River confluence (1400) but pollution loading (nutrients and silt) from the other main tributaries (the Knappagh, Madabawn, Dromore, Laragh and Bunnoe rivers) must be of considerable significance also. * Heavy Siltation.

River and Code : **AVAGHON LAKE STREAM** **36/A/07**
 Tributary of : Dromore OS Catchment No: 123
 OS Grid Ref : H 660 173 Date(s) Surveyed : 30/08/01

| Sampling Stations No. Location | Biological Quality Ratings (Q Values) | | | | |
|-----------------------------------|---------------------------------------|------|------|------|------|
| | 1989 | 1993 | 1997 | 1998 | 2001 |
| 0200 2nd Br d/s L Avaghon | - | 3 | 3 | 3 | 3 |
| 0600 Br u/s Dromore R confl | 3 | 3-4 | 3 | 3 | 3 |

Assessment: The bottom fauna of this tributary of the Dromore River was of limited diversity, very unbalanced and devoid of sensitive species indicating some considerable ecological upset. Unsatisfactory. No change.

River and Code : **BAWNBOY** **36/B/07**
 Tributary of : Blackwater (Newtowngore) OS Catchment No: 123
 OS Grid Ref : H 200 158 Date(s) Surveyed : 26/09/01

| Sampling Stations No. Location | Biological Quality Ratings (Q Values) | | | | |
|-----------------------------------|---------------------------------------|------|------|------|------|
| | 1989 | 1993 | 1997 | 1998 | 2001 |
| 0300 1st Br u/s Brackley L | 4-5 | 4-5 | 4-5 | 5 | 4-5 |
| 0500 Br u/s Bellaboy L | 3-4 | 4-5 | 4 | 4 | 4 |

Assessment: Satisfactory. Lower reaches just "Fair". No change.

River and Code : **BLACKWATER (NEWTOWNGORE)** **36/B/04**
 Tributary of : Ballymagauran Lake OS Catchment No: 123
 OS Grid Ref : H 207 134 Date(s) Surveyed : 27/09/01

| Sampling Stations No. Location | Biological Quality Ratings (Q Values) | | | | | | | |
|------------------------------------|---------------------------------------|------|------|------|------|------|------|------|
| | 1982 | 1986 | 1989 | 1990 | 1993 | 1997 | 1998 | 2001 |
| 0040 Br W of Drumderg | - | - | - | - | 5 | 4-5 | 4-5 | 4-5 |
| 0100 Derrinivver Br NW of Sdrinran | 5 | 5 | 4-5 | - | 4-5 | 5 | - | 4-5 |
| 0180 Br W of Knockmore | - | - | - | - | 5 | 5 | 4-5 | 5 |
| 0200 Br NE of Sdrinran | 5 | 5 | - | 5 | 4-5 | 4-5 | 4 | 5 |
| 0400 Br d/s Blackwater Br | 4-5 | 4-5 | 3-4 | 4 | 5 | 5 | 4 | 4-5 |

Assessment: Has further improved since 1998 and is now one of the few high quality rivers in the country. Rural Environmental Protection Scheme (REPS) fencing appears to be having a beneficial effect in the Sdrinran area (0200).

River and Code : **BLACKWATER (SWANLINBAR)** **36/B/03**
 Tributary of : Swanlinbar OS Catchment No: 123
 OS Grid Ref : H 200 272 Date(s) Surveyed : 26/09/01

| No. | Location | Biological Quality Ratings (Q Values) | | | | |
|------|---------------------------------|---------------------------------------|------|------|------|------|
| | | 1989 | 1993 | 1997 | 1998 | 2001 |
| 0400 | Br SE of Gorteen (on Tributary) | 4-5 | 4-5 | 4-5 | 4-5 | 5 |

Assessment: Best quality. Highly satisfactory. Improved somewhat since 1998.

River and Code : **BUNNOE** **36/B/05**
 Tributary of : Annalee OS Catchment No: 123
 OS Grid Ref : H 505 124 Date(s) Surveyed : 28/08/01

| No. | Location | Biological Quality Ratings (Q Values) | | | | | | | | |
|------|------------------------|---------------------------------------|------|------|------|------|------|------|------|------|
| | | 1983 | 1985 | 1987 | 1988 | 1989 | 1993 | 1997 | 1998 | 2001 |
| 0090 | Rly Br Aghadrumkeen | - | - | - | - | - | 3 | 3 | 3-4 | 3 |
| 0300 | Doohat Br | - | 1 | 1-2 | 2-3 | - | - | - | - | 2-3 |
| 0400 | Dianmore Br | 1-2 | 3 | 1-2 | 2-3 | 3 | 3-4 | 4 | - | 3 |
| 0500 | Br W of Killynenagh L | 3-4 | 4 | 4 | - | 3-4 | 3-4 | 3-4 | 3-4 | 3 |
| 0700 | Br u/s Annalee R confl | 4-5 | 4-5 | 4-5 | - | 3-4 | 4 | 3-4 | 3-4 | 3-4 |

Assessment: A widespread deterioration was recorded on the Bunnoe River where conditions were unsatisfactory at all five locations surveyed in late August 2001. Pollution was particularly intense at Doohat Bridge (0300) where the DO was reduced to just 19 percent of saturation (i.e., 1.9 mg/l O₂). The river bed was heavily contaminated with a black fibrous silt at this location and also at Dianmore Bridge (0400) downstream. Slurry run-off/dumping suspected.

River and Code : **CAVAN** **36/C/02**
Tributary of : Annalee OS Catchment No: 123
OS Grid Ref : H 475 112 Date(s) Surveyed : 12/09/01

| Stations No. | Biological Quality Ratings (Q Values) | | | | | | | | | |
|-----------------|---------------------------------------|------|------|------|------|------|------|------|------|------|
| | 1978 | 1980 | 1984 | 1986 | 1987 | 1989 | 1993 | 1997 | 1998 | 2001 |
| 0040 | - | - | - | - | - | 3 | 3-4 | 3 | 4 | 3 |
| 0085 | - | - | - | - | - | - | 3-4 | 4-5 | 4 | 4 |
| 0300 | - | - | - | 2 | 2 | 2-3 | 3 | 2-3 | 2-3 | 2-3 |
| 0400 | 2 | 2 | 2 | 2-3 | 2-3 | 2-3 | 3 | 2-3 | 2-3 | 2-3 |

| Sampling Station | | Sampling Station | |
|------------------|---------------------|------------------|--|
| No. | Location | No. | Location |
| 0040 | Br nr Breffni Park | 0300 | Br SE of Drumkeen House (Br d/s St 0200) |
| 0085 | Br N of Killycannan | 0400 | Br u/s Annalee R confl |

Assessment: The improvement recorded in the Shantemon Lake Branch in 1998 was not maintained and the stream was again significantly polluted at Breffni park (0040) in September 2001. The Main Channel continued to be in a satisfactory condition upstream of Cavan (0085) but once again quality deteriorated considerably below the town (0300, 0400). The beginnings of a recovery were indicated by the presence of fish in the lowermost reaches where a DO value of 162 percent saturation (15.7 mg/l O₂) was recorded at the time of this survey.

River and Code : **CONAWARY (UPPER)** **36/C/11**
Tributary of : Ulster Canal OS Catchment No: 123
OS Grid Ref : H 616 313 Date(s) Surveyed : 27/08/01

| Sampling Stations No. | Location | Biological Quality Ratings (Q Values) | | | | |
|--------------------------|----------------------------|---------------------------------------|------|------|------|------|
| | | 1989 | 1993 | 1996 | 1998 | 2001 |
| 0500 | Br d/s Greagh Lough Branch | - | - | - | 3 | 3* |
| 0700 | Br N of Roosky | - | - | 4 | 3-4 | 3 |
| 0800 | Br SE of Cooldarragh Br | 2-3 | 2-3 | - | - | - |

Assessment: This stream was again significantly polluted by suspected agriculture at both locations surveyed in late August 2001. Unsatisfactory. No change.

* Heavy Siltation.

River and Code : **CORNAVANNOGE** **36/C/04**
 Tributary of : Lough Macnean Upper OS Catchment No: 123
 OS Grid Ref : H 026 389 Date(s) Surveyed : 28/09/01

| No. | Location | Biological Quality Ratings (Q Values) | | | | |
|------|--------------------|---------------------------------------|------|------|------|------|
| | | 1989 | 1993 | 1997 | 1998 | 2001 |
| 0400 | Br NW of Ardvarney | 5 | 4-5 | 5 | 4-5 | 4-5 |
| 0600 | Br u/s L Macnean | 5 | 4-5 | 5 | 4-5 | 4 |

Assessment: Continuing satisfactory.

River and Code : **CULLIES** **36/C/03**
 Tributary of : Lough Oughter OS Catchment No: 123
 OS Grid Ref : H 256 013 Date(s) Surveyed : 24/09/01

| Stations No. | Biological Quality Ratings (Q Values) | | | | | | | | | | |
|--------------|---------------------------------------|------|------|------|------|------|------|------|------|------|------|
| | 1977 | 1979 | 1981 | 1983 | 1985 | 1989 | 1990 | 1993 | 1997 | 1998 | 2001 |
| 0300 | - | - | 3-4 | 2 | 3-4 | 3 | - | 3 | 3 | 3-4 | 3* |
| 0550 | - | - | 4 | 3 | 4 | 2-3 | - | 3-4 | 3-4 | 3 | 3-4* |
| 0600 | 3 | 3 | 3-4 | 3 | 3-4 | 1-2 | 3-4 | 3-4 | 3-4 | 3 | 3 |
| 0650 | - | - | 3-4 | 4 | - | 3 | - | 3-4 | 3-4 | 3-4 | 3* |
| 0750 | 4 | 3-4 | 4 | 3-4 | 4 | 2 | 3-4 | 3-4 | 3-4 | 3 | 4 |
| 0900 | - | - | 2-3 | 2-3 | 3 | 2 | 2-3 | 2-3 | 2-3 | 3 | 2-3 |

| Sampling Station | | Sampling Station | |
|------------------|---------------------|------------------|-----------------|
| No. | Location | No. | Location |
| 0300 | Br u/s Gulladoo L | 0650 | Br d/s Laheen L |
| 0550 | Br u/s Drumhart L | 0750 | Br d/s Disert L |
| 0600 | Br nr Kilbrackan Ho | 0900 | New Br |

Assessment: Despite heavy siltation and considerable eutrophication, small numbers of the more sensitive mayfly species were taken at three locations on the Cullies in late September 2001. These were at Stations 0300 and 0550 in the upper reaches and again at 0750 upstream of Killeshandra in the lower river: quality at the latter location was assessed as satisfactory, a condition not seen since 1985. The river had been dredged in the reach between Laheen and Derreskit loughs (0650) in 2000 and this was reflected by the low ecological diversity at this location. Ecological/water quality in the reach below Killeshandra (0900) continued to be adversely affected by highly eutrophic lake outflows and by suspected sewage and industrial waste inputs. The generally unsatisfactory condition of the Cullies River is partly due to its slow-flowing, lake-influenced characteristics which reduce its self-purification and re-aeration capacity and low water levels in 2001 would have further exacerbated the effects of any pollutant inputs.

*Heavy Siltation.

River and Code : **DROMORE**

36/D/02

Tributary of : Annalee

OS Catchment No: 123

OS Grid Ref : H557 122

Date(s) Surveyed : 30/08/01

| Stations No. | Biological Quality Ratings (Q Values) | | | | | | | | | | | |
|-----------------|---------------------------------------|------|------|------|------|------|------|------|------|------|------|------|
| | 1971 | 1977 | 1980 | 1982 | 1984 | 1986 | 1989 | 1990 | 1993 | 1997 | 1998 | 2001 |
| 0015 | - | - | - | - | - | - | - | - | 4 | 4-5 | 4 | 4 |
| 0036 | - | - | - | - | - | - | 3-4 | - | 4 | 3-4 | 3-4 | 3-4 |
| 0075 | | | | | | | | | | 3 | 3 | 3 |
| 0090 | - | - | - | - | - | - | 1 | 3 | 3-4 | 3-4 | 3-4 | 3 |
| 0150 | 5 | 3 | 3-4 | 3 | 2 | 3-4 | 2 | 3 | - | - | - | 2-3 |
| 0200 | 4 | 4 | 3-4 | 3-4 | - | 3-4 | 2-3 | - | 3 | 2-3 | 3 | 3 |
| 0300 | 4 | 2 | 3-4 | 3-4 | 3-4 | 3-4 | 3 | - | 3-4 | 3 | 3 | 3 |
| 0500 | - | - | 4 | 4 | 3-4 | 3 | 3 | - | 3 | 3 | 3 | 3-4 |
| 0700 | 4-5 | 2-3 | 3 | 4 | 3 | 3-4 | 3 | - | 3 | 3-4 | 3 | 3 |
| 0900 | 4-5 | 4-5 | 4-5 | 4-5 | 4 | 4 | 3-4 | - | 4 | 4 | 4-5 | 4 |

Sampling Station

| No. | Location |
|------|-----------------------------|
| 0015 | Br NE of Corryloan L (RHS) |
| 0036 | Br d/s Ballintra Br |
| 0075 | Br SW of Bartley's Grove |
| 0090 | Br SE of Edenaferkin |
| 0150 | Meeting House Lane Ballybay |

Sampling Station

| No. | Location |
|------|----------------------|
| 0200 | Br d/s L Major |
| 0300 | Balladian Br |
| 0500 | Ballynascarva Br |
| 0700 | Br W of Clementstown |
| 0900 | Killycreeny Br (Mid) |

Assessment: Quality was assessed as satisfactory at just two of the ten Dromore stations surveyed in late August 2001: these were in the uppermost reaches of the Lough Major Branch (0015) and the lowermost reaches of the Main Channel (0900). Water levels were low everywhere at that time and the river bed was heavily silted at most locations. DO was depressed upstream and downstream of Lough Major (76% at 0036, 77% at 0200) and again below Ballybay at Balladian Bridge (77% at 0300). By contrast very high DO values were recorded at Bartley's Grove (137%) and Edenaferkin (125%) reflecting the degree of eutrophication at these locations (i.e., 0075 and 0090 respectively). The most striking aspect of the present investigation was the significant deterioration recorded in Ballybay (0150) where pollution bordered on the serious.

River and Code : **DRUMANE STREAM** **36/D/04**
Tributary of : Woodford (Cavan) OS Catchment No: 123
OS Grid Ref : H 270 179 Date(s) Surveyed : 27/09/01

| No. | Location | Biological Quality Ratings (Q Values) | | | | |
|------|--------------------------|---------------------------------------|------|------|------|------|
| | | 1988 | 1993 | 1997 | 1998 | 2001 |
| 0200 | Br 3km W of Ballyconnell | - | 5 | 5 | 5 | 4-5 |
| 0500 | Br u/s Woodford R confl | 4 | 4-5 | - | 4 | 4 |

Assessment: Continuing satisfactory as regards water quality. The lower reaches had been dredged since the previous survey and bottom fauna had not fully recovered its former diversity.

River and Code : **ERNE** **36/E/01**
Tributary of : Sea - Ballyshannon OS Catchment No: 123
OS Grid Ref : G 877 614 Date(s) Surveyed : 13/09/01

| Stations No. | Biological Quality Ratings (Q Values) | | | | | | | | | | |
|--------------|---------------------------------------|------|------|------|------|------|------|------|------|------|------|
| | 1971 | 1973 | 1977 | 1979 | 1981 | 1984 | 1989 | 1993 | 1997 | 1998 | 2001 |
| 0100 | - | - | 4 | 4 | 4 | 4-5 | 3-4 | 4 | 4 | 4 | 4 |
| 0200 | - | - | - | - | 5 | 5 | 2-3 | 4-5 | 4 | 3-4 | 3-4 |
| 0400 | - | - | - | 4 | 3-4 | 3-4 | 2-3 | 3-4 | 3-4 | 3-4 | 3-4 |
| 0500 | 5 | - | 2 | 4 | 4 | 4 | 3-4 | 3-4 | 3-4 | 3-4 | 4 |
| 0700 | - | - | 2-3 | 5 | 5 | 5 | 4 | 4 | 4 | 3-4 | 4 |
| 0900 | 5 | 5 | 3-4 | 3-4 | 3 | 3 | 3-4 | 3 | 3 | 3 | 3 |
| 1000 | - | - | - | 4 | 4-5 | 4 | 4 | 4 | 4 | 4 | 4 |
| 1100 | 5 | 5 | 4-5 | 4-5 | 4 | 4-5 | 4-5 | 4 | 4 | 4 | 4 |
| 1300 | 4-5 | 4 | 3 | 3 | 3 | 3-4 | 3-4 | 3-4 | 3-4 | - | 3-4 |
| 1400 | 4 | - | - | - | 3-4 | 3-4 | 3 | 3-4 | 3 | 3 | 3 |
| 1410 | - | - | - | - | - | - | - | - | - | 3 | 1 |

Sampling Station
No. Location
0100 Br 3km SW of Crosskeys
0200 Derrin Br
0400 Br at Carrigan
0500 Legwee Br
0700 Kilsarn Br
0900 Dingin's Br

Sampling Station
No. Location
1000 Br E of Corlismore
1100 Bellahillan Br
1100 Bellahillan Br
1300 Baker's Br
1400 Br at Kilconny, Belturbet (RHS)
1410 Kilconny Belturbet (LHS)

Continued

ERNE (Continued)

Assessment: Five of the Erne locations surveyed in 2001 were satisfactory as compared with three in 1998 reflecting improvements at Stations 0500, 0700, 1000 and 1100. Quality continued to be significantly depressed below Lough Gowna (0700) where DO was reduced to 77 percent saturation while in the lower reaches the left hand side of the river was being seriously polluted by a sewage discharge at Kilconny, Belturbet (1410).

* Heavy Siltation.

| | | |
|----------------|--------------------------|-----------------------------|
| River and Code | : FINN (MONAGHAN) | 36/F/01 |
| Tributary of | : Upper Lough Erne | OS Catchment No: 123 |
| OS Grid Ref | : H 422 200 | Date(s) Surveyed : 28/08/01 |

| Stations No. | Biological Quality Ratings (Q Values) | | | | | | | | | | |
|-----------------|---------------------------------------|------|------|------|------|------|------|------|------|------|------|
| | 1971 | 1973 | 1977 | 1980 | 1982 | 1984 | 1989 | 1993 | 1997 | 1998 | 2001 |
| 0010 | - | - | - | - | - | - | 3-4 | 4-5 | 4-5 | 4 | 3 |
| 0080 | - | - | - | - | - | - | 3 | 4 | 3 | 4 | 4 |
| 0100 | 5 | 5 | 4-5 | 4 | 4-5 | 4-5 | 3-4 | 4 | 3-4 | 4 | 3-4 |
| 0200 | 5 | 4-5 | 4-5 | 4 | 4 | 4 | 3-4 | 4 | 3 | 3-4 | 3 |
| 0400 | - | - | 3-4 | 3-4 | 3-4 | 3-4 | 3-4 | 3 | 3-4 | 3-4 | 3 |
| 0500 | 3-4 | 3 | 1 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |

| Sampling Station | | Sampling Station | |
|------------------|---------------------------|------------------|---------------|
| No. | Location | No. | Location |
| 0010 | Br at Mill NW of Kilcreen | 0200 | Annamakiff Br |
| 0080 | E of Aghafin Lough | 0400 | Scarvy Br |
| 0100 | Stone Br | 0500 | Cumber Br |

Assessment: Just one of the six locations surveyed in 2001 was satisfactory. A major deterioration was recorded in the upper reaches (0010) due to suspected slurry pollution and as in previous years the river was considerably polluted below the Magherarney confluence (viz. 78% DO at 0200, 73% at 0400) and again below Clones (68% at 0500).

River and Code : **KNAPPAGH** **36/K/01**
 Tributary of : Annalee OS Catchment No: 123
 OS Grid Ref : H 678 099 Date(s) Surveyed : 31/08/01

| No. | Location | Biological Quality Ratings (Q Values) | | | | | | | |
|------|------------------------|---------------------------------------|------|------|------|------|------|------|------|
| | | 1977 | 1981 | 1985 | 1989 | 1993 | 1997 | 1998 | 2001 |
| 0200 | Br u/s Bellatrain L | - | 4 | 3-4 | 3-4 | 3 | 3 | 3 | 3* |
| 0400 | Lackan Br | 4 | 4 | 3-4 | 3 | 3-4 | 3 | 3 | 3-4* |
| 0700 | Br u/s Annalee R confl | - | 4-5 | 4 | 3 | 3-4 | 3-4 | 3 | 3-4* |

Assessment: Unsatisfactory at the points surveyed. Moderately polluted in the upper reaches (0200), slightly polluted and eutrophic in the lower. Heavily silted everywhere. DO reduced to 66% saturation at Lacken Bridge (0400).

* Siltation plus lake effects.

River and Code : **LAHEEN STREAM** **36/L/02**
 Tributary of : Cullies OS Catchment No: 123
 OS Grid Ref : H 266 075 Date(s) Surveyed : 25/09/01

| No. | Location | Biological Quality Ratings (Q Values) | | | | |
|------|------------------------|---------------------------------------|------|------|------|------|
| | | 1989 | 1993 | 1997 | 1998 | 2001 |
| 0300 | Br W of Aghavilla | - | 4 | 4 | 4 | 3* |
| 0600 | Br SW of Drummercross | - | 3-4 | 3-4 | 3 | 3* |
| 0800 | Br u/s Cullies R confl | 3 | 3-4 | 3-4 | 3 | 3* |

Assessment: Unsatisfactory. Heavily silted everywhere. Sensitive species not observed. Levels very low. Has deteriorated in the upper reaches (0300) since 1998.

* Heavy Siltation.

River and Code : **LARAGH** **36/L/01**
Tributary of : Annalee OS Catchment No: 123
OS Grid Ref : H 532 117 Date(s) Surveyed : 12/09/01

| Sampling Stations No. | Location | Biological Quality Ratings (Q Values) | | | | | | | | |
|--------------------------|--------------------------|---------------------------------------|------|------|------|------|------|------|------|------|
| | | 1971 | 1978 | 1982 | 1986 | 1989 | 1993 | 1997 | 1998 | 2001 |
| 0015 | 1st Br d/s Acanon Lough | - | - | 3-4 | - | 4 | 3-4 | 3 | 3 | - |
| 0030 | Br WSW of Knockataggart | - | - | - | - | 4 | - | 4-5 | 4-5 | 4 |
| 0050 | Drumgur Br (E of Laragh) | - | - | 5 | 5 | 4 | 4-5 | 4-5 | 4 | 4 |
| 0080 | Laragh Br | - | - | - | - | - | 4-5 | 4-5 | 4-5 | 4 |
| 0200 | Shanns Br Lisclone | - | 3 | 4-5 | 5 | 4-5 | 3-4 | 4-5 | 4-5 | 3-4 |
| 0400 | Main Rd Br u/s Annalee R | 4-5 | 4 | 4-5 | 5 | 4-5 | 4-5 | 4-5 | 4-5 | 3-4 |

Assessment: Upper reaches just “Fair” (0030, 0050, 0080) lower reaches (0200, 0400) highly eutrophic reflecting an overall deterioration since 1998. The location immediately below Acanon Lake (0015) was inaccessible.

River and Code : **LEGGA STREAM** **36/L/03**
Tributary of : Gulladoo Lough OS Catchment No: 123
OS Grid Ref : N 233 992 Date(s) Surveyed : 24/09/01

| Sampling Stations No. | Location | Biological Quality Ratings (Q Values) | | | | | |
|--------------------------|-------------------------|---------------------------------------|------|------|------|------|------|
| | | 1989 | 1990 | 1993 | 1997 | 1998 | 2001 |
| 0300 | 1st Br d/s Doogary L | 1-2 | 4 | 3 | 4 | 3 | 3* |
| 0600 | Br d/s Gortermone Lough | 1 | 2-3 | 3 | 3 | 3 | 3-4 |
| 0700 | Br u/s Gulladoo Lough | 3 | - | 3 | 4 | 3 | 3-4 |

Assessment: Heavy siltation and eutrophic lake outflows continue to adversely affect this sluggish stream. Biological diversity has slightly improved in the lower reaches (0600, 0700) since 1998.

* Siltation plus lake effects.

River and Code : **MADABAWN STREAM** **36/M/02**
 Tributary of : Annalee OS Catchment No: 123
 OS Grid Ref : H 650 100 Date(s) Surveyed : 10/09/01

| Stations No. | Biological Quality Ratings (Q Values) | | | | | | | | | | |
|-----------------|---------------------------------------|------|------|------|------|------|------|------|------|------|------|
| | 1979 | 1980 | 1982 | 1984 | 1986 | 1989 | 1990 | 1993 | 1997 | 1998 | 2001 |
| 0070 | - | - | - | - | - | 2 | 3 | 4 | 3-4 | 3-4 | 3 |
| 0200 | - | - | 3/0 | 1 | 3 | 3 | - | 4 | 4 | 3 | 4 |
| 0600 | 3-4 | 3-4 | 3-4 | 3 | 3 | 3 | - | 4 | 4 | 4 | 3-4 |

Sampling Station
 No. Location
 0070 S Br Canningstown
 0200 Br 1km S of Drumcondra
 0600 Br u/s Annalee R confl

Assessment: A marked improvement was apparent in the lower reaches of the East Branch (0200) but heavy siltation and excessive algal growths continued to reflect unsatisfactory conditions in the upper reaches of this branch (0070) and in the lower Main Channel (0600) in September 2001.

River and Code : **MAGHERARNEY** **36/M/01**
 Tributary of : Finn (Monaghan) OS Catchment No: 123
 OS Grid Ref : H 556 280 Date(s) Surveyed : 27/08/01

| Stations No. | Biological Quality Ratings (Q Values) | | | | | | | | | | |
|-----------------|---------------------------------------|------|------|------|------|------|------|------|------|------|------|
| | 1973 | 1977 | 1980 | 1982 | 1986 | 1987 | 1989 | 1993 | 1997 | 1998 | 2001 |
| 0150 | - | - | - | - | - | 3 | 3 | 3 | 3 | 3 | 2-3 |
| 0200 | 5 | 3 | 2-3 | 2 | 2 | 2-3 | 2-3 | 3 | 3 | 3 | 2/0 |

Sampling Station
 No. Location
 0150 Br E of Smithborough
 0200 Magherarney Br

Assessment: Unsatisfactory. Further deterioration recorded at both locations with indications of toxicity downstream of Smithboro where seriously polluted in 2001.

River and Code : **MAGHERY** **36/M/03**
Tributary of : Magherarney OS Catchment No: 123
OS Grid Ref : H 574 293 Date(s) Surveyed : 28/08/01

| Sampling Stations No. Location | Biological Quality Ratings (Q Values) | | | | | |
|-----------------------------------|---------------------------------------|------|------|------|------|------|
| | 1986 | 1989 | 1993 | 1997 | 1998 | 2001 |
| 0200 Br SW of Kilmore L | - | 3 | 3-4 | 3 | 3 | 3 |
| 0900 Wats Br | - | - | - | 3 | 3 | 2-3 |
| 1200 Hagan's Br | 2-3 | 2-3 | 3 | 3 | 3 | 3 |

Assessment: The very restricted faunal diversity and the complete absence of sensitive insect species point to considerable pollution in this shallow stony stream. Unsatisfactory.

River and Code : **OWENSALLAGH** **36/O/01**
Tributary of : Blackwater (Swanlinbar) OS Catchment No: 123
OS Grid Ref : H 188 240 Date(s) Surveyed : 26/09/01

| Sampling Stations No. Location | Biological Quality Ratings (Q Values) | | | |
|-----------------------------------|---------------------------------------|------|------|------|
| | 1993 | 1997 | 1998 | 2001 |
| 0500 Br E of Drumcor | 5 | 5 | 3-4* | 4-5 |

Assessment: Satisfactory and much improved since 1998.

River and Code : **RAG (CAVAN)**
Tributary of : Woodford (Cavan)
OS Grid Ref : H 347 207

36/R/01
OS Catchment No: 123
Date(s) Surveyed : 25/09/01

| No. | Location | Biological Quality Ratings (Q Values) | | | | | |
|------|---------------------|---------------------------------------|------|------|------|------|------|
| | | 1982 | 1985 | 1989 | 1993 | 1997 | 2001 |
| 0600 | Br nr Killywilly Ho | 4 | 3 | 2-3 | 3 | 3 | 3-4 |
| 0800 | Br u/s Tee L Lr | 1 | 4-5 | 2-3 | 3 | 3 | 4 |

Assessment: Lake influences reduced biological diversity below Killywilly Lake (0600) but the presence of some of the more pollution sensitive species indicated satisfactory water quality conditions in the lower reaches (0800) of the Rag river in 2001. Has improved somewhat since 1998.

River and Code : **ROO**
Tributary of : Lough Macnean Upper
OS Grid Ref : H 058 380

36/R/02
OS Catchment No: 123
Date(s) Surveyed : 28/09/01

| No. | Location | Biological Quality Ratings (Q Values) | | | | |
|------|--------------------------------|---------------------------------------|------|------|------|------|
| | | 1989 | 1993 | 1997 | 1998 | 2001 |
| 0200 | Br W of Barran | 4 | 4-5 | 4 | 4 | 5 |
| 0400 | Br SE of Upper Thornhill House | - | - | - | 3-4 | 4 |

Assessment: Satisfactory. Has improved at both locations since 1998.

River and Code : **STRADONE** **36/S/02**
Tributary of : Laragh OS Catchment No: 123
OS Grid Ref : H 532 117 Date(s) Surveyed : 12/09/01

| Sampling Stations No. Location | Biological Quality Ratings (Q Values) | | | | | | | |
|-----------------------------------|---------------------------------------|------|------|------|------|------|------|------|
| | 1978 | 1982 | 1986 | 1989 | 1993 | 1997 | 1998 | 2001 |
| 0075 2nd Br d/s L Alion | - | - | - | 4-5 | 3-4 | 4 | 3-4 | 4 |
| 0200 Br u/s Laragh R confl | 4-5 | 4 | 4 | 4-5 | 4-5 | 4 | 3-4 | 4 |

Assessment: Satisfactory and improved somewhat since 1998.

River and Code : **SWANLINBAR** **36/S/01**
Tributary of : Upper Lough Erne OS Catchment No: 123
OS Grid Ref : H 265 327 Date(s) Surveyed : 26/09/01

| Sampling Stations No. Location | Biological Quality Ratings (Q Values) | | | | | | | |
|-----------------------------------|---------------------------------------|------|------|------|------|------|------|------|
| | 1977 | 1981 | 1985 | 1989 | 1993 | 1997 | 1998 | 2001 |
| 0100 Commas Br (Br nr Altbrean) | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 4-5 |
| 0300 0.6km d/s Swanlinbar Br | 5 | 5 | 5 | 4 | 4-5 | 4-5 | 4-5 | 4-5 |

Assessment: Continuing satisfactory. The appearance of silt-slime complexes and enhanced filamentous algal growths in the upper reaches (0100) is an unwelcome development. Special efforts are required to protect high quality rivers such as this from degradation by forestry operations and overgrazing – the two most likely causes of the changes observed in 2001.

River and Code : **TEMPLEPORT LAKE STREAM** **36/T/01**
 Tributary of : Bawnboy OS Catchment No: 123
 OS Grid Ref : H 207 163 Date(s) Surveyed : 26/09/01

| Sampling Stations No. Location | Biological Quality Ratings (Q Values) | | | | | |
|-----------------------------------|---------------------------------------|------|------|------|------|------|
| | 1982 | 1989 | 1993 | 1997 | 1998 | 2001 |
| 0600 Br u/s Templeport L | 4 | 3 | 3 | 3 | 4 | 3 |

Assessment: The improvement recorded in 1998 was not maintained and the stream was again moderately polluted in late September 2001.

River and Code : **YELLOW (BALLINAMORE)** **36/Y/01**
 Tributary of : Garadice Lake OS Catchment No: 123
 OS Grid Ref : H 168 110 Date(s) Surveyed : 27/09/01

| Sampling Stations No. Location | Biological Quality Ratings (Q Values) | | | | | | |
|-----------------------------------|---------------------------------------|------|------|------|------|------|------|
| | 1981 | 1985 | 1989 | 1993 | 1997 | 1998 | 2001 |
| 0050 Br nr Stralongford | - | - | 4 | 4 | 4 | 2/0 | 4 |
| 0200 Br SE of Greaghglass | 5 | 5 | 4 | 5 | 4-5 | 4 | 4-5 |

Assessment: Despite considerable slime growths (of suspected forestry origin) the macroinvertebrate composition indicated a marked improvement in the upper reaches of the Yellow River (0050) in 2001 and the reach just upstream of John's Lough (0200) had also improved slightly. Overall condition assessed as satisfactory.

HYDROMETRIC AREA 39

Lough Swilly

| | |
|--|------------------|
| Aghaweel | 39A01 |
| Bullaba (Burnfoot) | 39B01 (39B02) |
| Cashelnacor | 39C01 |
| Corravaddy Burn | 39C03 |
| Crana | 39C02 |
| (Dooballagh Burn) | (39D02) |
| (Drumbarnet Stream) | (39D03) |
| Drumhallagh | 39D01 |
| Glashagh (Crana) | 39G06 |
| Glashagh (Lower) | 39G02 |
| Glashagh (Upper) | 39G01 |
| Gliskeelan | 39G05 |
| Glenalla | 39G03 |
| Glenvar | 39G04 |
| Leannan | 39L01 |
| Leslie Hill Stream | 39L05 |
| Lownagh | 39L04 |
| Lurgy | 39L02 |
| # Maggy's Burn ¹ (Mill (Donegal)) | 39M01 (39M02) |
| (Owenboy (Crana)) | (39O04) |
| Owenerk | 39O02 |
| Owennasop | 39O05 |
| Owenwee (L. Gartan) | 39O03 |
| (Skeoge) | (39S01) |
| Swilly | 39S02 |

¹ indicates non-baseline rivers i.e., those which are not shown on the O.S. map entitled "Rivers and their Catchment Basins"

Due to time constraints rivers shown in brackets were not surveyed in 2001; these will be surveyed in 2002

Rivers denoted thus had seriously polluted stretch(es) at the time of this survey.

River and Code : **AGHAWHEEL** **39/A/01**
Tributary of : Sea - Lough Swilly OS Catchment No: a7
OS Grid Ref : C 305 377 Date(s) Surveyed : 16/08/01

| No. | Location | Biological Quality Ratings (Q Values) | | | | | | |
|------|-------------------------|---------------------------------------|-------|------|------|------|------|------|
| | | 1987 | 1988 | 1989 | 1991 | 1996 | 1998 | 2001 |
| 0300 | Bridge S. of Ballyannan | 2/0 | - | 3 | - | 3 | 3 | 3 |
| 0400 | Castle Ross Bridge | 2/0 | 2-3/0 | 4 | 4 | 4-5 | 3 | 4 |

Assessment: The upper surveyed site on the Aghaweel (0300) remained moderately polluted but an improvement was noted in the lower reaches (0400) in August 2001.

River and Code : **BULLABA** **39/B/01**
Tributary of : Lough Gartan OS Catchment No: 31
OS Grid Ref : C 037 148 Date(s) Surveyed : 01/08/01

| No. | Location | Biological Quality Ratings (Q Values) | | | | |
|------|-------------------------|---------------------------------------|------|------|------|------|
| | | 1988 | 1991 | 1996 | 1998 | 2001 |
| 0100 | 500 m u/s Owenwee River | | 5 | 5 | 5 | 5 |

Assessment: The Bullaba drains a pristine upland area which is quite acidic in nature. No significant change in comparison with previous years.

River and Code : **CASHELNACOR** **39/C/01**
Tributary of : Crana OS Catchment No: 9
OS Grid Ref : C 358 345 Date(s) Surveyed : 02/08/01

| No. | Location | Biological Quality Ratings (Q Values) | | | | | |
|------|------------------------------|---------------------------------------|------|------|------|------|---|
| | | 1987 | 1991 | 1996 | 1998 | 2001 | |
| 0200 | Bridge u/s Crana River confl | | 4-5 | 5 | 4-5 | 3-4 | 4 |

Assessment: The Cashelnacor had recovered from the effects of a possible silage effluent discharge noted in 1998.

River and Code : **CORRAVADDY BURN** **39/C/03**
Tributary of : Swilly OS Catchment No: 51
OS Grid Ref : C 192 112 Date(s) Surveyed : 31/07/01

| Sampling Stations No. Location | Biological Quality Ratings (Q Values) | | | | |
|-----------------------------------|---------------------------------------|------|------|------|------|
| | 1987 | 1991 | 1996 | 1998 | 2001 |
| 0250 Bridge near Bunnagee | 4-5 | 4 | 4 | 4 | 4 |

Assessment: The Corravaddy Burn has satisfactory water quality but is badly affected by rubbish dumping from houses in the vicinity. An oil leak problem noted in previous reports has been addressed.

River and Code : **CRANA** **39/C/02**
Tributary of : Sea - Lough Swilly OS Catchment No: 9
OS Grid Ref : C 344 325 Date(s) Surveyed : 02/08/01

| Sampling Stations No. Location | Biological Quality Ratings (Q Values) | | | | | | | | | |
|-----------------------------------|---------------------------------------|------|------|------|------|------|------|------|------|--|
| | 1973 | 1977 | 1981 | 1986 | 1987 | 1991 | 1996 | 1998 | 2001 | |
| 0100 Bridge near Stracarragh | 5 | 5 | 5 | 4-5 | 5 | 4-5 | 4-5 | 4 | 4 | |
| 0200 E. of Bindoo | - | - | 5 | 5 | 5 | 4 | 4 | 4 | - | |
| 0300 Druminderry Bridge | 5 | 5 | 5 | 4-5 | 4-5 | 5 | - | - | 4-5 | |
| 0350 Br d/s Druminderry Br | - | - | - | - | - | - | 4-5 | 4 | - | |
| 0400 Bridge at Cock Hill | 5 | 4-5 | 4-5 | 4 | 5 | 4 | - | - | - | |
| 0500 First Br d/s Br at Cock Hill | 5 | 5 | 5 | 4 | 5 | 4-5 | 4 | 4 | 4 | |

Assessment: The Crana was satisfactory at the three locations sampled although it may not achieving its full potential due to a number of impacts along the system - construction work for dams and windmills in the upper catchment; ongoing pollution of the Glashagh (Crana) tributary (qv) by silage effluent and sewage overflows in Bunrana itself.

River and Code : **DRUMHALLAGH** **39/D/01**
Tributary of : Sea - Lough Swilly OS Catchment No: 32
OS Grid Ref : C 296 328 Date(s) Surveyed : 02/08/01

| Sampling Stations No. Location | Biological Quality Ratings (Q Values) | | | | |
|-----------------------------------|---------------------------------------|------|------|------|------|
| | 1989 | 1991 | 1996 | 1998 | 2001 |
| 0400 Br d/s Legland Br | - | - | 5 | - | 4-5 |
| 0500 Drumhallagh Bridge | 4 | 5 | - | 4 | 3-4 |

Assessment: A deterioration in quality was noted in the lower Drumhallagh (0500) in comparison with 1998. As a result the next bridge upstream was also sampled (0400) some 2km upstream where quality was satisfactory.

River and Code : **GLASHAGH (CRANA)** **39/G/06**
Tributary of : Crana OS Catchment No: 9
OS Grid Ref : C 411 432 Date(s) Surveyed : 02/08/01

| Sampling Stations No. Location | Biological Quality Ratings (Q Values) | | | | |
|-----------------------------------|---------------------------------------|------|------|------|------|
| | 1987 | 1991 | 1996 | 1998 | 2001 |
| 0100 Glashagh Bridge | 4 | 3 | 3 | 3-4 | 3 |

Assessment: The Glashagh (Crana) was again affected by silage effluent release from a farm a few hundred metres upstream of Station 0100. This source of pollution was first noted in 1991 and in 1996 the discharge was tracked to its source. The owners of the farm were alerted to the fact that they were polluting the river. This type of chronic point source farm pollution is totally unwarranted - particularly as it is 10 years after it was first reported upon. It is to be hoped that new environmental cross-compliance legislation be invoked in cases such as this and farm support payments from Europe be withheld until pollution control measures are put in place.

River and Code : **GLASHAGH (LOWER)** **39/G/02**
 Tributary of : Leannan OS Catchment No: 31
 OS Grid Ref : C 196 197 Date(s) Surveyed : 02/08/01

| Sampling Stations No. Location | Biological Quality Ratings (Q Values) | | | | | | | | | |
|-----------------------------------|---------------------------------------|------|------|------|------|------|------|------|------|---|
| | 1973 | 1977 | 1981 | 1986 | 1988 | 1991 | 1996 | 1998 | 2001 | |
| 0075 Br E Killydesert | - | - | - | - | - | - | - | - | - | 4 |
| 0100 Br 1 km N.W. of Ellistrin | 5 | 4-5 | 4-5 | 4 | 4 | 4 | 4 | 3-4 | - | |
| 0200 Bridge u/s Leannan R confl | - | - | - | - | - | 3 | 4 | 4 | 3-4 | |

Assessment: The upper part of the Glashagh (0075) was satisfactory when surveyed in August 2001. The lowermost site (0200), however, was slightly polluted indicating a deterioration in its condition vis a vis 1996 and 1998.

River and Code : **GLASHAGH (UPPER)** **39/G/01**
 Tributary of : Leannan OS Catchment No: 31
 OS Grid Ref : C 114 157 Date(s) Surveyed : 31/07/01

| Sampling Stations No. Location | Biological Quality Ratings (Q Values) | | | | |
|-----------------------------------|---------------------------------------|------|------|------|------|
| | 1988 | 1991 | 1996 | 1998 | 2001 |
| 0200 Bridge N. of Drumbolge | 5 | 5 | 5 | 4-5 | 4-5 |
| 0400 Bridge u/s Leannan River | 5 | 4-5 | 5 | 4-5 | 4-5 |

Assessment: This Leannan tributary retained its high quality again in 2001.

River and Code : **GLASKEELAN** **39/G/05**
 Tributary of : Lough Gartan OS Catchment No: 31
 OS Grid Ref : C 051 164 Date(s) Surveyed : 01/08/01

| Sampling Stations No. Location | Biological Quality Ratings (Q Values) | | | | |
|-----------------------------------|---------------------------------------|------|------|------|------|
| | 1988 | 1991 | 1996 | 1998 | 2001 |
| 0100 Bridge W. of Roshin | 4-5 | 4-5 | 4 | 4 | 3-4 |

Assessment: A water quality deterioration was noted in this Lough Gartan tributary with the loss of some key mayfly indicator species. Significant portions of the catchment had been recently clear-felled (mature spruce forest).

River and Code : **GLENALLA** **39/G/03**
Tributary of : Sea - Lough Swilly OS Catchment No: 33
OS Grid Ref : C 258 253 Date(s) Surveyed : 02/08/01

| No. | Location | Biological Quality Ratings (Q Values) | | | | |
|------|-------------------|---------------------------------------|------|------|------|------|
| | | 1989 | 1991 | 1996 | 1998 | 2001 |
| 0100 | Glentidaly Bridge | 4-5 | 4-5 | - | - | - |
| 0180 | 2nd Br u/s Ray Br | - | - | 4-5 | 3-4 | 4 |

Assessment: An improvement in quality was noted in comparison with 1998.

River and Code : **GLENVAR** **39/G/04**
Tributary of : Sea - Lough Swilly OS Catchment No: 10
OS Grid Ref : C 270 359 Date(s) Surveyed : 02/08/01

| No. | Location | Biological Quality Ratings (Q Values) | | | | |
|------|----------------------|---------------------------------------|------|------|------|------|
| | | 1989 | 1991 | 1996 | 1998 | 2001 |
| 0300 | Bridge W. of Cleggan | 4-5 | 4-5 | 4-5 | 4 | 4-5 |

Assessment: Satisfactory.

River and Code : **LEANNAN** **39/L/01**
Tributary of : Sea - Lough Swilly OS Catchment No: 31
OS Grid Ref : C 227 213 Date(s) Surveyed : 01/08/01

| No. | Location | Biological Quality Ratings (Q Values) | | | | | | | | |
|------|---------------------------|---------------------------------------|------|------|------|------|------|------|------|------|
| | | 1973 | 1977 | 1980 | 1985 | 1988 | 1991 | 1996 | 1998 | 2001 |
| 0100 | Gartan Bridge | - | - | 5 | 4-5 | 4 | 4 | 4-5 | 4-5 | 4-5 |
| 0200 | Barrack Bridge | 5 | 4-5 | 5 | 4-5 | 4-5 | 5 | - | - | - |
| 0300 | Dromore Bridge | 5 | 4-5 | 5 | 5 | 4-5 | 4-5 | 4 | 5 | 4 |
| 0400 | Br 0.5kmSE Kilmacrenan | 5 | 4 | - | - | 5 | 4 | - | - | - |
| 0500 | Ballydone Br (u/s L Fern) | 4-5 | 4 | 3-4 | 3-4 | 4 | 4-5 | 4 | 4-5 | 3-4 |
| 0600 | Drumman Br (d/s L Fern) | 4-5 | 4-5 | 4 | 4 | 4 | 5 | 4 | 4-5 | 4 |
| 0800 | Bridge End: at Old Mill | 5 | 5 | 4 | 5 | 4 | 4-5 | 4-5 | 4-5 | 4 |

Continued

Leannan *Continued*

Assessment: The upper Leannan was satisfactory (0100, 0300) in August 2001. A deterioration in quality was noted at Ballydone Bridge with the loss of some key pollution-sensitive invertebrates when compared with previous surveys. It should be noted that this occurred upstream of the confluence of leachate from the Ballydone landfill site. The lower section of the Leannan (0600, 0800) was satisfactory albeit with a slight loss in quality in comparison with the 1998 survey.

River and Code : **LESLIE HILL STREAM** **39/L/05**
Tributary of : Sea - Swilly Estuary OS Catchment No: 51
OS Grid Ref : C 236 101 Date(s) Surveyed : 31/07/01

| Sampling Stations No. Location | Biological Quality Ratings (Q Values) | | | | |
|-----------------------------------|---------------------------------------|------|------|------|------|
| | 1987 | 1991 | 1996 | 1998 | 2001 |
| 0400 Bridge W. of Kincairgy | 4-5 | 5 | - | 3-4* | 4 |
| 0600 Bridge at Leslie Hill | 4 | 5 | 4-5 | 4 | 4-5 |

Assessment: An improvement in quality was noted in the Leslie Hill Stream in late July 2001.

River and Code : **LOWNAGH** **39/L/04**
Tributary of : Swilly OS Catchment No: 51
OS Grid Ref : C 061 093 Date(s) Surveyed : 31/07/01

| Sampling Stations No. Location | Biological Quality Ratings (Q Values) | | | | |
|-----------------------------------|---------------------------------------|------|------|------|------|
| | 1987 | 1991 | 1996 | 1998 | 2001 |
| 0100 Second Br u/s Swilly River | 5 | 4 | - | - | - |
| 0200 Br u/s Leannan R confl | - | - | 4-5 | 4-5 | 4 |

Assessment: Satisfactory. Cattle access to the stream at Station 0200 is causing a deterioration in quality however.

River and Code : **LURGY** **39/L/02**
Tributary of : Leannan OS Catchment No: 31
OS Grid Ref : C 150 208 Date(s) Surveyed : 01/08/01

| No. | Location | Biological Quality Ratings (Q Values) | | | | | | | | |
|------|--------------------------|---------------------------------------|------|------|------|------|------|------|------|------|
| | | 1973 | 1977 | 1980 | 1985 | 1988 | 1991 | 1996 | 1998 | 2001 |
| 0100 | Goldrum Bridge | - | - | 4 | 4-5 | 4 | 5 | 4 | 4 | 3 |
| 0200 | Prockliss Bridge | 5 | 4-5 | 4 | 4-5 | 4-5 | 5 | - | - | - |
| 0300 | Bridge u/s Leannan River | 4-5 | 4-5 | 3 | 4 | 3 | 4-5 | 3 | 4 | 4 |

Assessment: The upper Lurgy (0100) had suffered a significant loss in quality when surveyed in August 2001 with extensive siltation apparent. The lower section (0300) was satisfactory.

River and Code : **MAGGY'S BURN¹** **39/M/01**
Tributary of : Lough Fern OS Catchment No: 31
OS Grid Ref : C 184 247 Date(s) Surveyed : 02/08/01

| Stations No. | Biological Quality Ratings (Q Values) | | | | | | | | | | | |
|--------------|---------------------------------------|------|------|------|------|------|------|------|------|------|------|------|
| | 1973 | 1977 | 1979 | 1981 | 1985 | 1988 | 1989 | 1990 | 1991 | 1996 | 1998 | 2001 |
| 0300 | 2 | 1 | 1 | 3 | 2-3 | 1 | 2 | - | 2 | 2 | 3 | 2 |

Sampling Station
No. Location
0300 Just u/s Lough Fern

Assessment: This designated salmonid stream (a tributary of Lough Fern) has been badly impacted by discharges from the Milford sewage treatment works since 1973. The improvement recorded in 1998 has not been maintained and once again it was seriously polluted in August 2001.

River and Code : **OWENERK** **39/O/02**
Tributary of : Sea - Lough Swilly OS Catchment No: 8
OS Grid Ref : C 292 394 Date(s) Surveyed : 16/08/01

| Sampling Stations No. Location | Biological Quality Ratings (Q Values) | | | | | | | |
|-----------------------------------|---------------------------------------|------|------|------|------|------|------|------|
| | 1973 | 1980 | 1985 | 1987 | 1991 | 1996 | 1998 | 2001 |
| 0100 Owenerk Bridge | 5 | 5 | 5 | 4-5 | 5 | 5 | 5 | 4-5 |
| 0200 Milltown Bridge | 5 | 5 | 5 | 5 | 4-5 | 5 | 5 | 5 |

Assessment: The Owenerk is an upland Donegal River with good water quality. Widening of the natural channel was noted at Station 0100 due to the impact of sheep grazing. Significant peat erosion was noted at this location.

River and Code : **OWENNASOP** **39/O/05**
Tributary of : Crana OS Catchment No: 9
OS Grid Ref : C 440 344 Date(s) Surveyed : 02/08/01

| Sampling Stations No. Location | Biological Quality Ratings (Q Values) | | | | |
|-----------------------------------|---------------------------------------|------|------|------|------|
| | 1987 | 1991 | 1996 | 1998 | 2001 |
| 0100 Bridge at Stracarragh | 4-5 | 4-5 | 4 | 4 | 3-4 |

Assessment: The Owennasop had deteriorated in comparison with 1998 with algal mats now present on the substratum. The river may be affected by the creation of a water storage reservoir in the upper catchment.

River and Code : **OWENWEE (LOUGH GARTAN)** **39/O/03**
Tributary of : Bullaba OS Catchment No: 31
OS Grid Ref : C 013 137 Date(s) Surveyed : 01/08/01

| Sampling Stations No. Location | Biological Quality Ratings (Q Values) | | | | |
|-----------------------------------|---------------------------------------|------|------|------|------|
| | 1988 | 1991 | 1996 | 1998 | 2001 |
| 0100 Owenwee Bridge | 4-5 | 4-5 | 3-4 | 4-5 | 4 |

Assessment: Satisfactory although not as good as in 1998. Some evidence of oil pollution was noted on the substratum.

River and Code : **SWILLY**
Tributary of : Sea - Lough Swilly
OS Grid Ref : C 195 117

39/S/02
OS Catchment No: 51
Date(s) Surveyed : 31/07/01

| Stations No. | Biological Quality Ratings (Q Values) | | | | | | | | | |
|-----------------|---------------------------------------|------|------|------|------|------|------|------|------|------|
| | 1971 | 1973 | 1977 | 1980 | 1985 | 1987 | 1991 | 1996 | 1998 | 2001 |
| 0050 | - | 5 | 5 | 5 | 4-5 | 5 | 4-5 | 4-5 | 4 | 4-5 |
| 0100 | - | - | - | 5 | 5 | 4 | 4-5 | 4 | 4-5 | 4-5 |
| 0200 | 5 | 5 | 5 | 5 | 5 | 5 | 3/0 | 4 | 5 | 4-5 |

Sampling Station

No. Location.
0050 Swilly Br (near Breenagh)
0100 Br at Rashedoge (Fox Hall)
0200 Bridge at Newmills

Assessment: Satisfactory at all points surveyed in late July 2001.

HYDROMETRIC AREA 40

Donagh-Moville

| | |
|------------------------|---------|
| Ballyboe | 40B03 |
| (Ballyhallan) | (40B01) |
| # Bredagh | 40B02 |
| Cabry | 40C03 |
| Clonmany | 40C01 |
| Cloontagh | 40C04 |
| Culdaff | 40C02 |
| # Donagh | 40D01 |
| Drung | 40D02 |
| Glennagannon | 40G01 |
| Keenagh | 40K01 |
| Long Glen | 40L01 |
| Lough Nastackan Stream | 40L03 |
| Malin Stream | 40M01 |
| Portaleen Stream | 40P02 |
| # Roosky | 40S05 |
| Shivnagh | 40S05 |
| Straid | 40S01 |

Due to time constraints rivers shown in brackets were not surveyed in 2001; these will be surveyed in 2002

Rivers denoted thus had seriously polluted stretch(es) at the time of this survey.

River and Code : **BALLYBOE** **40/B/03**
 Tributary of : Sea - Trawbreaga Bay (at Malin) OS Catchment No: a
 OS Grid Ref : C 473 499 Date(s) Surveyed : 14/08/01

| Sampling Stations No. Location | | Biological Quality Ratings (Q Values) | | | | |
|-----------------------------------|----------------------|---------------------------------------|------|------|------|------|
| | | 1987 | 1993 | 1996 | 1998 | 2001 |
| 0400 | Bridge S.E. of Malin | 4 | 4 | 4 | 4 | 4 |

Assessment: Satisfactory, no change. Occasional intrusion of tidal salt water influence reduces the diversity at this site.

River and Code : **BREDAGH** **40/B/02**
 Tributary of : Sea - Lough Foyle OS Catchment No: 13
 OS Grid Ref : C 611 382 Date(s) Surveyed : 15/08/01

| Sampling Stations No. Location | | Biological Quality Ratings (Q Values) | | | | | | | | |
|-----------------------------------|--------------------------|---------------------------------------|------|------|------|------|------|------|------|------|
| | | 1973 | 1977 | 1987 | 1988 | 1989 | 1993 | 1996 | 1998 | 2001 |
| 0200 | Moglass Bridge | 5 | 5 | 4-5 | - | - | 3 | 4-5 | 4 | 4-5 |
| 0300 | 1 km u/s Merville Bridge | 5 | 4 | 4 | - | - | - | - | - | - |
| 0400 | Merville Bridge | - | - | 2 | 1 | 1 | 1 | 1 | 1-2 | 2 |

Assessment: The upper Bredagh (0200) was in satisfactory condition, but the lower section in Merville (0400) is still quite seriously polluted by sewage discharges in the town. There was evidence of some slight amelioration at this point, however, in comparison with previous samples.

River and Code : **CABRY** **40/C/03**
Tributary of : Sea - Lough Foyle OS Catchment No: 11
OS Grid Ref : C 518 311 Date(s) Surveyed : 15/08/01

| No. | Location | Biological Quality Ratings (Q Values) | | | | |
|------|------------------------|---------------------------------------|------|------|------|------|
| | | 1987 | 1993 | 1996 | 1998 | 2001 |
| 0200 | Bridge u/s Lough Foyle | 5 | 4 | 5 | 4 | 4-5 |

Assessment: The Cabry River remains in good condition. The dumping of rubbish at this site has been previously reported upon. (In passing it now appears that it has become a local incineration site for burning of domestic refuse. Local incineration, especially open low temperature burning of chlorine-containing plastics, is a source of many noxious chemicals including dioxins and furans and in certain areas it can be a major source of airborne dioxins.)

River and Code : **CLONMANY** **40/C/01**
Tributary of : Sea - Tullagh Bay OS Catchment No: 4
OS Grid Ref : C 358 482 Date(s) Surveyed : 16/08/01

| No. | Location | Biological Quality Ratings (Q Values) | | | | | | | |
|------|-----------------------|---------------------------------------|------|------|------|------|------|------|------|
| | | 1973 | 1980 | 1985 | 1987 | 1993 | 1996 | 1998 | 2001 |
| 0100 | Meendoran Bridge | - | 3-4 | 4-5 | 4 | 3 | 3-4 | 4 | 4 |
| 0150 | Cleghagh Bridge | 5 | 4 | 4-5 | 4 | 4 | - | - | - |
| 0200 | Bridge W. of Clonmany | 4 | 4-5 | 4 | 3-4 | 4 | 4 | 4 | 4 |

Assessment: Satisfactory, no change.

River and Code : **CLOONTAGH** **40/C/04**
Tributary of : Clonmany OS Catchment No: 4
OS Grid Ref : C 385 451 Date(s) Surveyed : 16/08/01

| No. | Location | Biological Quality Ratings (Q Values) | | | | |
|------|-----------------|---------------------------------------|------|------|------|------|
| | | 1987 | 1993 | 1996 | 1998 | 2001 |
| 0400 | Gortaran Bridge | 4-5 | 4 | 4-5 | 4 | 4 |

Assessment: The Cloontagh River was satisfactory when surveyed in August 2001.

River and Code : **CULDAFF**
 Tributary of : Sea - Culdaff Bay
 OS Grid Ref : C 532 494

40/C/02
 OS Catchment No: 12
 Date(s) Surveyed : 15/08/01

| Stations No. | Biological Quality Ratings (Q Values) | | | | | | | | | |
|-----------------|---------------------------------------|------|------|------|------|------|------|------|------|------|
| | 1973 | 1980 | 1985 | 1987 | 1988 | 1989 | 1993 | 1996 | 1998 | 2001 |
| 0050 | - | 4 | 4-5 | 2-3 | 2-3 | 2 | 4 | 3-4 | 3 | 4 |
| 0100 | 4-5 | 4-5 | 4-5 | 3 | - | - | 4 | 4 | 4 | 4 |
| 0150 | 5 | 4 | 4 | 4 | - | - | 4 | 3-4 | 3-4 | 4 |

Sampling Station
 No. Location

0050 Bridge S of Gleneely
 0100 Gleneely Bridge
 0150 Bridge near Holmes

Assessment: A significant improvement was noted in the upper (0050) and lower (0150) Culdaff River in comparison with the 1998 and previous surveys.

River and Code : **DONAGH**
 Tributary of : Sea - Trawbreaga Bay
 OS Grid Ref : C 465 480

40/D/01
 OS Catchment No: 6
 Date(s) Surveyed : 15/08/01

| Station No. | Biological Quality Ratings (Q Values) | | | | | | | | | | | |
|----------------|---------------------------------------|------|------|------|------|------|------|------|------|------|------|------|
| | 1971 | 1973 | 1977 | 1980 | 1985 | 1987 | 1988 | 1989 | 1993 | 1996 | 1998 | 2001 |
| 0040 | - | - | - | - | - | - | - | - | - | 4-5 | 4-5 | 4-5 |
| 0050 | - | 5 | - | 5 | 4-5 | 4 | - | - | 4 | - | - | - |
| 0100 | - | 5 | - | 5 | 4-5 | 4-5 | - | - | 4 | 4-5 | 4-5 | 4 |
| 0200 | 5 | - | 4-5 | 4 | 4 | 4-5 | - | - | 4 | - | - | - |
| 0300 | - | - | - | 1/0 | 1-2 | 1 | 1 | 2 | 1 | 1 | - | 1-2 |
| 0400 | 1 | 2 | 1 | 1 | 2-3 | 1 | 1-2 | 3-4 | 2-3 | 1-2 | 1-2 | 2 |

Sampling Station
 No. Location

0040 Br d/s Johnston's Br
 0050 Bridge E. of Whin Park
 0100 Bridge u/s Carndonagh Br

Sampling Station
 No. Location

0200 Carndonagh Bridge
 0300 1.5 km d/s Carndonagh Br
 0400 Corvish Bridge

Assessment: The upper and mid Donagh River (0040, 0100) continued to be of satisfactory quality. The section downstream of Carndonagh town (0300, 0400) continues to be seriously polluted. A slight improvement was noted at Corvish Bridge in comparison with 1998.

River and Code : **DRUNG** **40/D/02**
Tributary of : Sea - Lough Foyle OS Catchment No: 14
OS Grid Ref : C 540 340 Date(s) Surveyed : 15/08/01

| Sampling Stations No. Location | Biological Quality Ratings (Q Values) | | | | |
|-----------------------------------|---------------------------------------|------|------|------|------|
| | 1987 | 1993 | 1996 | 1998 | 2001 |
| 0200 Bridge at Drung | 4 | 4-5 | 4 | 3-4 | 4 |

Assessment: The Drung was satisfactory in August 2001 and showed a significant improvement in comparison with 1998 when it was slightly polluted at station 0200.

River and Code : **GLENNAGANNON** **40/G/01**
Tributary of : Sea - Trawbreaga Bay OS Catchment No: 7
OS Grid Ref : C 474 482 Date(s) Surveyed : 14/08/01

| Station No. | Biological Quality Ratings (Q Values) | | | | | | | | | |
|----------------|---------------------------------------|------|------|------|------|------|------|------|------|------|
| | 1971 | 1973 | 1977 | 1981 | 1985 | 1987 | 1993 | 1996 | 1998 | 2001 |
| 0010 | - | - | - | 5 | 4 | 4-5 | 4 | - | - | - |
| 0015 | - | - | - | - | - | - | - | 4-5 | 5 | 4-5 |
| 0100 | 5 | 5 | 4 | 4-5 | 5 | 4 | 4 | 3-4 | 4 | 4 |
| 0200 | 5 | 5 | 4 | 4-5 | 5 | 4 | 4-5 | 4-5 | 4 | 4 |

| Sampling Station | | Sampling Station | |
|------------------|-------------------------|------------------|-------------------------|
| No. | Location | No. | Location |
| 0010 | Bridge d/s Lough Inn | 0100 | Bridge E. of Carndonagh |
| 0015 | SE Carrowreagh (Bridge) | 0200 | Strawbridge Bridge |

Assessment: The Glenagannon remained in satisfactory condition with little change since 1998.

River and Code : **KEENAGH** **40/K/01**
 Tributary of : Sea - White Strand Bay OS Catchment No: 1
 OS Grid Ref : C 413 564 Date(s) Surveyed : 14/08/01

| Sampling Stations No. Location | Biological Quality Ratings (Q Values) | | | | | | | |
|-------------------------------------|---------------------------------------|------|------|------|------|------|------|------|
| | 1973 | 1980 | 1986 | 1987 | 1993 | 1996 | 1998 | 2001 |
| 0200 Hugh Roe's Bridge | 5 | 5 | 4 | 5 | 5 | 4 | 4 | 4-5 |
| 0300 Bridge at Keenagh | 5 | 4 | 4-5 | 5 | 4 | - | - | - |
| 0400 Bridge at Ford S. of Carnmalin | - | 4 | 5 | 5 | 4-5 | 4 | 4 | 4 |

Assessment: The Keenagh River at Malin Head remained in satisfactory condition in 2001.

River and Code : **LONG GLEN** **40/L/01**
 Tributary of : Sea - Kinnagoe Bay OS Catchment No: b
 OS Grid Ref : C 628 462 Date(s) Surveyed : 15/08/01

| Sampling Stations No. Location | Biological Quality Ratings (Q Values) | | | |
|-----------------------------------|---------------------------------------|------|------|------|
| | 1994 | 1996 | 1998 | 2001 |
| 0200 Br u/s Sea (Kinnagoe Bay) | 4 | 4-5 | 3 | 4 |

Assessment: An improvement was noted in comparison with the 1998 survey.

River and Code : **LOUGH NASTACKAN STREAM** **40/L/03**
 Tributary of : Sea - Tremone Bay OS Catchment No: b
 OS Grid Ref : C 692 475 Date(s) Surveyed : 15/08/01

| Sampling Stations No. Location | Biological Quality Ratings (Q Values) | | | |
|-----------------------------------|---------------------------------------|------|------|------|
| | 1994 | 1996 | 1998 | 2001 |
| 0400 Br u/s Sea (Tramore Bay) | 4-5 | 3 | 4-5 | 4 |

Assessment: Satisfactory.

River and Code : **MALIN STREAM** **40/M/01**
 Tributary of : Sea - Trawbreaga Bay OS Catchment No: a
 OS Grid Ref : C 467 498 Date(s) Surveyed : 14/08/01

| No. | Location | Biological Quality Ratings (Q Values) | | | | |
|------|--------------------|---------------------------------------|------|------|------|------|
| | | 1987 | 1993 | 1996 | 1998 | 2001 |
| 0200 | Bridge N. of Malin | 4 | 4 | - | 1/0 | 2-3 |
| 0300 | Bridge W. of Malin | 3-4 | - | - | 1 | 3 |

Assessment: Agricultural pollution problems were again noted in August 2001 in the upper section of the Malin Stream (0200) albeit significantly less severe than observed in 1998. Moderate pollution was noted in the lower river downstream of Malin village, a significant improvement in comparison with 1998.

River and Code : **PORTALEEN** **40/P/02**
 Tributary of : Sea - S of Glengad Head OS Catchment No: a
 OS Grid Ref : C 523 527 Date(s) Surveyed : 14/08/01

| No. | Location | Biological Quality Ratings (Q Values) | | | |
|------|------------------|---------------------------------------|------|------|------|
| | | 1994 | 1996 | 1998 | 2001 |
| 0100 | Portaleen Bridge | 3 | 4 | 4 | 4 |

Assessment: Satisfactory, no change. (In passing extensive clouds of black smoke were noted while sampling at this site which emanated from a local incinerator burning domestic refuse.)

River and Code : **ROOSKY** **40/R/01**
Tributary of : Sea - Lough Foyle OS Catchment No: 15
OS Grid Ref : C 526 326 Date(s) Surveyed : 15/08/01

| Sampling Stations | | Biological Quality Ratings (Q Values) | | | | | |
|-------------------|-------------------------------|---------------------------------------|------|------|------|------|------|
| No. | Location | 1987 | 1988 | 1993 | 1996 | 1998 | 2001 |
| 0200 | Second Bridge u/s Lough Foyle | 1-2 | 2-3 | 2 | - | - | 1 |
| 0300 | First Bridge u/s Lough Foyle | 2 | 2-3 | 1/0 | 1-2 | 2-3 | 2 |

Assessment: Farm silage pollution was once again noticed in the upper (0200) sections of this river with heavy growths of sewage fungus and a very low faunal diversity. The lower section (0300) did not show any significant recovery in comparison with the upstream site but it is believed that all the major discharges to the river occur upstream of Station 0200. The Roosky River is seriously polluted due to direct agricultural effluent discharges in the upper catchment.

River and Code : **SHIVNAGH** **40/S/05**
Tributary of : Clonmany OS Catchment No: 4
OS Grid Ref : Null Date(s) Surveyed : 16/08/01

| Sampling Stations | | Biological Quality Ratings (Q Values) | | |
|-------------------|------------------|---------------------------------------|------|------|
| No. | Location | 1996 | 1998 | 2001 |
| 0400 | Br SE Cloghglass | 3 | 4 | 4 |

Assessment: Continuing satisfactory in August 2001.

River and Code : **STRAID** **40/S/01**
Tributary of : Sea - Trawbreaga Bay OS Catchment No: 5
OS Grid Ref : C 429 488 Date(s) Surveyed : 16/08/01

| Sampling Stations | | Biological Quality Ratings (Q Values) | | | | |
|-------------------|--------------------------|---------------------------------------|------|------|------|------|
| No. | Location | 1987 | 1993 | 1996 | 1998 | 2001 |
| 0100 | Craignahorna Bridge | 5 | - | 4 | 4-5 | 4 |
| 0400 | 1 km d/s Strath's Bridge | 5 | 4 | 4-5 | 4 | 4-5 |

Assessment: The upper Straid (0100) while satisfactory as regards water quality was affected by siltation from bank erosion which impacted the macroinvertebrates at this site, perhaps due to animal over-grazing in the catchment. Quality at the lower site examined (0200), however, had improved significantly in comparison with the upstream site and also in comparison with 1998.

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| | |
|-------------------------------------|-----|
| DELVIN - 08/D/01 | 19 |
| DERREEN - 12/D/01 | 37 |
| DERREEN (KERRY) - 22/D/02 | 73 |
| DERRY - 12/D/02 | 38 |
| DESART STREAM - 15/D/04 | 52 |
| DININ (NORE) - 15/D/02 | 53 |
| DONAGH - 40/D/01 | 162 |
| DONAGHMORE STREAM - 15/D/03 | 53 |
| DOONAHA - 27/D/01 | 98 |
| DOUGLAS (BALLON) - 12/D/03 | 38 |
| DOUGLAS (KILTEGAN) - 12/D/04 | 39 |
| DROMORE - 36/D/02 | 138 |
| DRUMANE STREAM - 36/D/04 | 139 |
| DRUMHALLAGH - 39/D/01 | 151 |
| DRUMINSHIN - 27/D/02 | 98 |
| DRUNG - 40/D/02 | 163 |
| DUNHILL - 17/D/02 | 66 |
| DUVOWEN - 34/D/03 | 116 |

E

| | |
|----------------------------------|-----|
| EIGNAGH - 34/E/01 | 116 |
| ELATAGH - 01/E/02 | 8 |
| ENNISNAG STREAM - 15/E/02 | 54 |
| ERKINA - 15/E/01 | 54 |
| ERNE - 36/E/01 | 139 |

F

| | |
|------------------------------------|-----|
| FAIRYHOUSE STREAM - 08/F/01 | 20 |
| FEALE - 23/F/01 | 84 |
| FERGUS - 27/F/01 | 99 |
| FERTA - 22/F/01 | 73 |
| FINGLAS (LAUNE) - 22/F/03 | 74 |
| FINN (DONEGAL) - 01/F/01 | 9 |
| FINN (MONAGHAN) - 36/F/01 | 140 |
| FINOW - 22/F/04 | 74 |
| FLESK (KERRY) - 22/F/02 | 74 |

G

| | |
|-----------------------------------|-----|
| GADDAGH - 22/G/01 | 75 |
| GALEY - 23/G/01 | 85 |
| GEARHAMEEN - 22/G/03 | 75 |
| GLASHA (SLANEY) - 12/G/01 | 39 |
| GLASHACOONCORE - 23/G/02 | 86 |
| GLASHAGH (CRANA) - 39/G/06 | 151 |
| GLASHAGH (LOWER) - 39/G/02 | 152 |
| GLASHAGH (UPPER) - 39/G/01 | 152 |
| GLASHOREAG - 23/G/03 | 86 |
| GLASKEELAN - 39/G/05 | 152 |
| GLENACARNEY - 23/G/06 | 86 |
| GLENALLA - 39/G/03 | 153 |
| GLENNAGANNON - 40/G/01 | 163 |
| GLENREE - 34/G/01 | 117 |
| GLENVAR - 39/G/04 | 153 |
| GLORE (MAYO) - 34/G/02 | 117 |
| GLORY - 15/G/01 | 55 |
| GORTEENAHILLA - 15/G/08 | 55 |
| GOUL - 15/G/02 | 56 |
| GOURNA - 27/G/02 | 99 |
| GULLY - 15/G/03 | 56 |
| GWEESTIN - 22/G/06 | 76 |
| GWEESTION - 34/G/03 | 118 |

H

| | |
|-------------------------|-----|
| HELL - 27/H/01 | 100 |
| HURLEY - 08/H/01 | 20 |

I

| | |
|---------------------------------|-----|
| INCH (CLARE) - 27/I/01 | 100 |
| INCH (WEXFORD) - 11/I/01 | 27 |

K

| | |
|--|-----|
| KEENAGH - 40/K/01 | 164 |
| KILLEEN - 15/K/01 | 57 |
| KILLEEN STREAM (BORO) - 12/K/03 | 40 |
| KILMORE NORTH STREAM - 27/K/04 | 100 |
| KING'S (KILKENNY) - 15/K/02 | 57 |
| KNAPPAGH - 36/K/01 | 141 |
| KNICKEEN - 12/K/01 | 40 |
| KNOCKFINNISK - 23/K/02 | 87 |

L

| | |
|---|-----|
| LAHEEN STREAM - 36/L/02 | 141 |
| LARAGH - 36/L/01 | 142 |
| LASK - 12/L/01 | 40 |
| LAUNE - 22/L/01 | 76 |
| LEAFFONY - 34/L/01 | 118 |
| LEANNAN - 39/L/01 | 153 |
| LEE (TRALEE) - 23/L/01 | 87 |
| LEGA STREAM - 36/L/03 | 142 |
| LENYVEE - 34/L/06 | 119 |
| LEPERSTOWN STREAM - 17/L/01 | 66 |
| LESLIE HILL STREAM - 39/L/05 | 154 |
| LISDOWNEY - 15/L/02 | 58 |
| LISKENNY - 27/L/01 | 101 |
| LITTLE (STRADE) - 34/L/02 | 119 |
| LITTLE SLANEY - 12/L/02 | 41 |
| LOE - 22/L/03 | 77 |
| LONG GLEN - 40/L/01 | 164 |
| LOO - 22/L/04 | 77 |
| LOUGH NASTACKAN STREAM - 40/L/03 | 164 |
| LOUGHNAMINOO STREAM - 34/L/04 | 119 |
| LOWNAGH - 39/L/04 | 154 |
| LURGY - 39/L/02 | 155 |
| LYRACRUMPANE - 23/L/02 | 87 |

M

| | |
|--|-----|
| MAD - 34/M/04 | 120 |
| MADABAWN STREAM - 36/M/02 | 143 |
| MAGGY'S BURN - 39/M/01 | 155 |
| MAGHERARNEY - 36/M/01 | 143 |
| MAGHERY - 36/M/03 | 144 |
| MAHON - 17/M/01 | 66 |
| MALIN STREAM - 40/M/01 | 165 |
| MANULLA - 34/M/01 | 120 |
| MEANDER - 34/M/05 | 123 |
| MEELAGH - 22/M/02 | 77 |
| MILL BROOK - 27/M/03 | 101 |
| MILLTOWN HOUSE STREAM - 23/M/04 | 88 |
| MINE - 12/M/01 | 41 |
| MORRAGEN - 17/M/02 | 67 |
| MOSNEY - 08/M/02 | 21 |
| MOUNTAIN WATER - 03/M/01 | 15 |
| MOUNTRATH - 15/M/01 | 58 |

Note on Alternative River Names

The great majority of the names assigned to rivers in this Report are those shown on the One-Inch and Half-Inch Ordnance Survey Maps and which are in everyday usage. However, in many instances the maps denote different reaches of rivers by separate names, at times without there being an obvious boundary between the designations. In addition, very many of the rivers (major watercourses such as the Barrow, Erne or Shannon excepted) will have local names which do not find their way onto official maps or records. Clearly, the topic is one of great complexity and one which is unlikely ever to be covered definitively.

The names adopted in this Report reflect the usages of the monitoring agencies, national and local, and are considered to be the most reasonable choices. It is recognised that some of the designations are arbitrary, but this is unavoidable. However, where the compilers of this Report are aware of alternative river names details have been presented in the table below. It should be noted that some of such alternative river names may, on maps or in local usage, refer to specific reaches rather than to rivers as a whole.

| River Name | River Name Adopted in Report |
|------------------------|--|
| ACORE | <i>See MONEFELIM [14/M/03]</i> |
| AFFICK | <i>See RINE [27/R/01]</i> |
| AGHASLANE | <i>See AGHACASHLAUN [36/A/03]</i> |
| AHACLARE | <i>See OWENOGARNEY [27/O/01]</i> |
| AHAPHUCA | <i>See SHEEP [18/S/03]</i> |
| ALTDERG | <i>See OWENMORE [MAYO] [33/O/04]</i> |
| ALTNACALLY STREAM | <i>See GWEEBARRA [38/G/02]</i> |
| ANNAGH [GALWAY] | <i>See BOLEYNEENDORRISH [29/B/04]</i> |
| ANNAMOE | <i>See AVONMORE [10/A/05]</i> |
| ARAGLEN | <i>See OWENTARAGLIN [18/O/09]</i> |
| ARDSOLLUS | <i>See RINE [27/R/01]</i> |
| ARDULTAGH | <i>See KILCROW [25/K/01]</i> |
| ATTYCHRAAN | <i>See FUNSHION [18/F/05]</i> |
| AUGHASLANE | <i>See AGHACASHLAUN [36/A/03]</i> |
| AUGHAVARIA | <i>See BILBOA [25/B/03]</i> |
| BACK BURN | <i>See MILL [DONEGAL] [39/M/02]</i> |
| BALLINLOUGH (Longford) | <i>See RHINE (26/R/04)</i> |
| BALLINTRILICK | <i>See BALLAGHNATRILICK [35/B/02]</i> |
| BALLYBEG [TIPPERARY] | <i>See BREAGAGH [TIPP] [16/B/03]</i> |
| BALLYGRIFFY | <i>See SHALLEE [27/S/01]</i> |
| BALLYMACDONNELL | <i>See OWENOGARNEY [27/O/01]</i> |
| BALLYMAHON [SUIR] | <i>See FARNEYBRIDGE [16/F/02]</i> |
| BALLYNAHOW | <i>See FARNEYBRIDGE [16/F/02]</i> |
| BALTRACEY | <i>See CLONSHANBO [09/C/03]</i> |
| BARDINCH | <i>See SULLANE [19/S/02]</i> |
| BARNES | <i>See ESKE [37/E/05]</i> |
| BARORA | <i>See Moynalty (07M03)</i> |
| BARRA | <i>See GWEEBARRA [38/G/02]</i> |
| BAURERAGH | <i>See SHEEN [21/S/01]</i> |
| BAUTEOGE | <i>See STRADBALLY [14/S/02]</i> |
| BAWNUFF | <i>See OWENDUFF [BLACKSOD] [33/O/01]</i> |
| BEALBOY | <i>See YELLOW [FOXFORD] [34/Y/01]</i> |
| BEALNACARRA | <i>See RECESS [31/R/01]</i> |

Alternative River Names [Continued]

| River Name | River Name Adopted in Report |
|--------------------------|---|
| BELLADOOAN | See <i>BREAGHWY</i> [34/B/06] |
| BELVIEW | See <i>ATHBOY</i> [07/A/01] |
| BLACK [DRISH] | See <i>DRISH</i> [16/D/02] |
| BLACK [KILDARE/LAOIS] | See <i>FIGILE</i> [14F01] |
| BLACK [LOUTH] | See <i>RASKEAGH</i> [06/R/02] |
| BOHERBAUN | See <i>TULLY STREAM</i> [14/T/02] |
| BOOLAHALLAGH | See <i>FINISK</i> [18/F/02] |
| BOOLYREE | See <i>RINE</i> [27/R/01] |
| BREANOGE | See <i>AUGHBOY [WEXFORD]</i> [11/A/02] |
| BROCKAGH | See <i>OWENNABROCKAGH</i> [32/O/04] |
| BUINGEA | See <i>CUMMER</i> [19/C/02] |
| BUNGOSTEEN | See <i>STRAGAR</i> [37/S/02] |
| BUNOWEN [SUCK] | See <i>AHASCRAUGH</i> [26/A/01] |
| BUNRATTY | See <i>OWENOGARNEY</i> [27/O/01] |
| CAHER | See <i>GRANEY [SHANNON]</i> [25/G/04] |
| CALVERSTOWN STREAM | See <i>KILCULLEN STREAM</i> [09/K/02] |
| CAMOWEN | See <i>CRANA</i> [39/C/02] |
| CAPPAGH [FLESK] | See <i>FINOW</i> [22/F/04] |
| CARHEENY | See <i>MOYREE</i> [27/M/02] |
| CARN | See <i>CLOONALAGHAN</i> [33/C/01] |
| CARNAHORNA | See <i>FAYMORE</i> [38/F/01] |
| CARROWBEG [WESTPORT] | See <i>WESTPORT</i> [32/W/01] |
| CARROWKEEL [DEALAGH] | See <i>DEALAGH</i> [28/D/01] |
| CASTLE | See <i>CULLIES</i> [36/C/03] |
| CASTLEPOOK | See <i>BREGOGE</i> [18/B/04] |
| CLADDAGH | See <i>SWANLINBAR</i> [36/S/01] |
| CLARE [TIPPERARY] | See <i>ANNAGH [TIPPERARY]</i> [25/A/02] |
| CLARIN | See <i>CLARINBRIDGE</i> [29/C/02] |
| CLAUREEN [CLARE] | See <i>INCH [CLARE]</i> [27/I/01] |
| CLOGHATANNY | See <i>MOATE STREAM</i> (25/M/05) |
| CLOGHER BURN | See <i>CLOGHER [FINN]</i> [01/C/06] |
| CLOGHOGE RIVER | See <i>AVONMORE</i> [10/A/05] |
| CLONARD | See <i>KINNEGAD</i> [07/K/01] |
| CLONBROCK | See <i>AHASCRAUGH</i> [26/A/01] |
| CLONYMEATH | See <i>KNIGHTSBROOK</i> [07/K/02] |
| CLOON [MAYO] | See <i>AILLE [MAYO]</i> [30/A/02] |
| CLOONARD | See <i>FRANCIS</i> [26/F/05] |
| CLOONASCRAUGH | See <i>BALLINURE</i> [26/B/01] |
| CLYDAGH [KERRY] | See <i>FLESK [KERRY]</i> [22/F/02] |
| COARSE | See <i>OWENGARVE [SLIGO]</i> [34/O/03] |
| COOKSTOWN | See <i>GLENCULLEN</i> [10/G/02] |
| COORACLARE | See <i>DOONBEG</i> [28/D/02] |
| CORBAUN | See <i>RHINE</i> [26/C/08] |
| CORKER | See <i>OILY</i> [37/O/01] |
| CORDUFF | See <i>BALLOUGH STREAM</i> [08/B/03] |
| CORLEA | See <i>BLEACH</i> [25/B/07] |
| CORRIES | See <i>BACK [BORRIS]</i> [14/B/06] |
| CORRYDOO | See <i>CARTRON</i> [33/C/02] |
| CUONTY (SLIGO/FERMANAGH) | See <i>KILCOO</i> [35/K/04] |
| COLUMNAGUN | See <i>OWENOGARNEY</i> [27/O/01] |
| CREGGAN | See <i>CASTLETOWN</i> [06/C/01] |

Alternative River Names [Continued]

| River Name | River Name Adopted in Report |
|------------------------|--|
| CROAGH | See <i>BUNCROWEY</i> [35/B/09] |
| CROLLY | See <i>GWEEDORE</i> [38/G/03] |
| CROMOGE | See <i>FISHMOYNE</i> [16/F/03] |
| CRONAMUCK | See <i>CLOGHER [FINN]</i> [01/C/06] |
| CRONANTY BURN | See <i>CRONANIV BURN</i> [38/C/06] |
| CROWAGH | See <i>BUNCROWEY</i> [35/B/09] |
| CRUMLIN [CORRIB] | See <i>DOOGHTA</i> [30/D/02] |
| CRUMPAUN (LAOIS) | See <i>Killeen Stream</i> [14/K/04] |
| CUCKOO STREAM | See <i>MAYNE</i> [09/M/03] |
| CULLEEN | See <i>LEAFFONY</i> [34/L/01] |
| CULLENAGH | See <i>INAGH [ENNISTYMON]</i> [28/I/01] |
| CULLYHANNA | See <i>CASTLETOWN</i> [06/C/01] |
| CULLY STREAM | See <i>SMALL</i> (25/S/05) |
| CURMEEN STREAM | See <i>CLYDA</i> [18/C/02] |
| CUSH | See <i>Triogue</i> [14T01] |
| CUSHALING | See <i>FIGILE</i> [14/F/01] |
| DANGAN | See <i>KNIGHTSBROOK</i> [07/K/02] |
| DANGANSALLAGH | See <i>FINNOW [FOHERISH]</i> [19/F/01] |
| DEANSGRANGE STREAM | See <i>KILL OF THE GRANGE</i> [10/K/02] |
| DERRY [ROCHFORTBRIDGE] | See <i>ROCHFORTBRIDGE STR.</i> [07/R/04] |
| DERRYPATRICK | See <i>BOYCETOWN</i> [07/B/03] |
| DERRYRAANE | See <i>O'CALLAGHANS MILLS</i> [27/O/03] |
| DININ [BARROW] | See <i>BLACK [BORRIS]</i> [14/B/06] |
| DONARD BROOK | See <i>BROWNS BECK BROOK</i> [12/B/03] |
| DOONANALLA | See <i>OWENNAYLE</i> (26/O/05) |
| DOOYERTHA | See <i>RAFORD</i> [29/R/01] |
| DRUMSILLAGH | See <i>Mountrice</i> 25/M/03 |
| DUNDONNELL STREAM | See <i>KILLEGLAN</i> [26/K/04] |
| DUNKELLIN | See <i>KILCOLGAN</i> [29/K/01] |
| DURRUS | See <i>FOUR MILE WATER</i> [21/F/02] |
| EEL WEIR STREAM | See <i>KILTACLARE STREAM</i> [26/K/06] |
| FINSHENAGH STREAM | See <i>CLONSHIRE</i> [24/C/03] |
| FORKHILL | See <i>KILCURRY</i> [06/K/02] |
| FRIAR'S LOUGH STREAM | See <i>LORRHA STREAM</i> [25/L/05] |
| FUARAWN | See <i>CLAREEN STREAM</i> (25C13) |
| FURROOR | See <i>INCH [CLARE]</i> [27/I/01] |
| GALLANAGH STREAM | See <i>CONAWARY</i> [03/C/02] |
| GARRA | See <i>DRUMCONRATH</i> [06/D/04] |
| GEESLAUN | See <i>POLLAGH</i> [34/P/01] |
| GLANAGEENTY | See <i>LITTLE MAINE</i> [22/L/02] |
| GLANMORE | See <i>CROANSHAGH</i> [21/C/05] |
| GLASHA (LAOIS) | See <i>DUNRALLY STREAM</i> [14D05] |
| GLASHA STREAM (BARROW) | See <i>LEVITSTOWN STREAM</i> [14/L/02] |
| GLENDREE | See <i>CLOGHAUN</i> [25/C/07] |
| GLENEELY | See <i>CULDAFF</i> [40/C/02] |
| GLENGLOSH | See <i>BEALANABRACK</i> [30] |
| GLENMALURE | See <i>AVONBEG</i> [10/A/04] |
| GLENNADEEGAN | See <i>TARSAGHAUNMORE</i> [33/T/01] |
| GLENOMRA | See <i>BROADFORD</i> [27/B/02] |
| GLENNTOGHER | See <i>DONAGH</i> [40/D/01] |
| GLENUMMERA | See <i>BUNDORRAGHA</i> [32/B/01] |

Alternative River Names [Continued]

| River Name | River Name Adopted in Report |
|--------------------------|--|
| GLOREEN | See <i>BALLYROAN</i> [15/B/01] |
| GORT | See <i>CANNAHOWNA</i> [29/C/01] |
| GORTLOUGHRA | See <i>OWVANE</i> [CORK] [21/O/07] |
| GRAIGUE | See <i>AWBEG</i> [BUTTEVANT] [18/A/05] |
| GRANGE [ROSCOMMON] | See <i>OWENUR</i> [26/O/06] |
| GREYGROVE | See <i>DOONBEG</i> [28/D/02] |
| HARTWELL STREAM | See <i>RATHMORE STREAM</i> [09/R/02] |
| HOLLYMOUNT | See <i>MOYREE</i> [27/M/02] |
| INCHALUGHOGE | See <i>OWENOGARNEY</i> [27/O/01] |
| IRE | See <i>ISKE SULLAS</i> (16/I/01) |
| ISKULE STREAM | See <i>ALLAGHAUN</i> [23/A/01] |
| IVALE | See <i>RATHCOOL</i> [18/R/01] |
| KEELOGYBOY STREAM | See <i>WILLSBOROUGH STREAM</i> [35/W/01] |
| KERRY | See <i>GLENGARRIFF</i> [21/G/03] |
| KILGORMAN | See <i>INCH</i> [WEXFORD] [11/I/01] |
| KILL [LIFFEY] | See <i>PAINESTOWN</i> [09/P/01] |
| KILLACLOGHER | See <i>ABBERT</i> [30/A/01] |
| KILLEEN STREAM | See <i>MILLTOWN STREAM</i> [12/M/02] |
| KILLEGAR | See <i>CULLIES</i> [36/C/03] |
| KILLEGAR STREAM | See <i>LAHEEN STREAM</i> [36/L/02] |
| KILLIMOR | See <i>KILCROW</i> [25/K/01] |
| KILLINAPARSON STREAM | See <i>COUNTY</i> [LAOIS/OFFALY] [25/C/21] |
| KILLORAN | See <i>KILCROW</i> [25/K/01] |
| KILMAINHAM | See <i>DEE</i> [06/D/01] |
| KILMALEY | See <i>INCH</i> [CLARE] [27/I/01] |
| KILTHA | See <i>WOMANAGH</i> [19/W/01] |
| KILWARDEN | See <i>KINNEGAD</i> [07/K/01] |
| LABBADISH | See <i>LESLIE HILL STREAM</i> [39/L/05] |
| LAGAN | See <i>GLYDE</i> [06/G/02] |
| LATOON | See <i>RINE</i> [27/R/01] |
| LAVALLY | See <i>CLARINBRIDGE</i> [29/C/02] |
| LEGAN STREAM | See <i>LENAMORE STREAM</i> [26/L/06] |
| LISFARRELL STREAM | See <i>CLOONCOOSE STREAM</i> [26/C/20] |
| LOUGH ALICK STREAM | See <i>CORROY</i> [34/C/06] |
| LOUGH TALT | See <i>EIGHNAGH</i> [34/E/01] |
| LOUGHEA | See <i>GRANEY</i> [SHANNON] [25/G/04] |
| LOUGHINN | See <i>GLENNAGANNON</i> [40/G/01] |
| MEENATOMISH | See <i>CRANA</i> [39/C/02] |
| MILL [GALWAY] | See <i>CLARINBRIDGE</i> [29/C/02] |
| MOANAHA | See <i>NENAGH</i> [25/N/01] |
| MOINEEN | See <i>BISHOP'S L. STREAM</i> [26/B/13] |
| MONGAGH | See <i>CASTLEJORDAN</i> [07/C/04] |
| MOONEEN | See <i>BUNOW</i> [25/B/25] |
| MOYNALVY | See <i>KNIGHTSBROOK</i> [07/K/02] |
| MUINGERROON NORTH STREAM | See <i>BELLANABOY</i> [33/B/07] |
| MULKEAR [TIPPERARY] | See <i>NEWPORT</i> [TIPPERARY] [25/N/02] |
| MULLAHEERA | See <i>DEEL</i> [NEWCASTLEWEST] [24/D/02] |
| NEWBRIDGE | See <i>CULLIES</i> [36/C/03] |
| OILTIAGH BROOK | See <i>KNICKEEN</i> [12/K/01] |
| OULYSALLIS | See <i>DIRTY</i> [20/D/01] |
| OWBAUN | See <i>OWBEG</i> [ROUGH TY] [21/O/02] |

Alternative River Names [Continued]

| River Name | River Name Adopted in Report |
|-------------------------|--------------------------------------|
| OWENABINDERG | See STRAID [40/S/01] |
| OWENACHARRA | See INNY (26/I/01) |
| OWENAGLAGGIN | See NAD [18/N/01] |
| OWENALTDERRY | See RAY [38/R/01] |
| OWENBEAGH | See OWENVEAGH [38/O/14] |
| OWENBEG [CALABBER] | See CALABBER [38/C] |
| OWENBEG [NORE] | See OWVEG [NORE] [15/O/01] |
| OWENBOY [COOLANEY] | See OWENBEG [COOLANEY] [35/O/01] |
| OWENCAM | See CULDAFF [40/C/02] |
| OWENDUFF [SLIGO] | See DUNNEILL [35/D/06] |
| OWENGARR | See BUNDORRAGHA [32/B/01] |
| OWENINY | See OWENMORE [MAYO] [33/O/04] |
| OWENKILLEW | See MILL [DONEGAL] [39/M/02] |
| OWENMORE [BALLINA] | See GLENREE [34/G/01] |
| OWENMORE [CLIFDEN] | See RECESS [31/R/01] |
| OWENMORE [CLOONAGHMORE] | See CLOONAGHMORE [34/C/03] |
| OWENMORE [ERRIFF] | See ERRIFF [32/E/01] |
| OWENNASHRONE | See LEE [CORK] [19/L/03] |
| OWENROE [MOYNALTY] | See Moynalty (07M03) |
| OWENROE [OWENTOCKER] | See OWENTOCKER [38/O/06] |
| OWENYKEEVAN | See FINNED [35/F/01] |
| PARK | See NADREEGEEL L.STREAM [07/N/01] |
| POLLARDSTOWN STREAM | See CLONCUMBER STREAM [14C17] |
| POULANEIGH | See BREAGAGH [TIPP.] [16/B/03] |
| QUIN | See RINE [27/R/01] |
| RAMPART | See BLACKWATER [KELLS] [07/B/01] |
| RAMPART STREAM | See NEWMARKET STREAM [18/N/02] |
| RATHROE | See BREAGHWY [34/B/06] |
| RATTY | See OWENOGARNEY [27/O/01] |
| RIVERSTOWN | See BIG [LOUTH] [06/B/01] |
| ROSNAMUCKYDUFF | See BELLAWADDY [34/B/05] |
| SCARDAN | See OWENMORE[MANORHAMILTON][35/O/02] |
| SCARRIFF | See GRANNEY 25/G/04 |
| SCRAMOGE [SOUTH] | See LISSAPHOBLE [26/L/04] |
| SHANOW | See BRICK [23/B/03] |
| SHANOWEN [DONEGAL] | See DUNTALLY [38/D/03] |
| SHEAN | See SHEEN [21/S/01] |
| SHIVEN [NORTH] | See KILLIAN [26/K/01] |
| SKIVILEEN | See CREEGH [28/C/02] |
| SLIEVENOHERA | See KILLEENGARRIFF [25/K/02] |
| SOOLVANE | See FARNEYBRIDGE [16/F/02] |
| SRUELL | See EANYMORE WATER [37/E/02] |
| SRUHANACROW MORE | See SHALLOGAN [38/S/03] |
| STONESTOWN | See STONYFORD [07/S/02] |
| STRANAGARTAN STREAM | See GLEN [CARRICK] [37/G/01] |
| TICKNOCK STREAM | See TEMPLERAINY STREAM [10/T/04] |
| TIMOGUE | See CROOKED [STRADBALLY] 14C02 |
| TIMAHOE | See STRADBALLY [14S02] |
| TOGHER | See DOUGLAS [BRIDE] [18/D/02] |
| TOMEEN | See RINE [27/R/01] |
| TOOR BROOK | See LEMONSTOWN STREAM [09/L/03] |

Alternative River Names [Continued]

River Name

TOOREEN
TOORMORE (Mayo)
TRAMORE [CORK]
TREMBLESTOWN
TROUGH
TUAM
TULLYVALLAN
TURRA
TWO MILE WATER
WHITE [LIMERICK]
WHITEHOUSE

River Name Adopted in Report

See COOLEEN [28/C/05]
See CASTLEBAR [34/C/01]
See DOUGLAS [LEE] [19/D/05]
See ATHBOY [07/A/01]
See BLACKWATER [CLARE] [25/B/06]
See NANNY [TUAM] [30/N/01]
See CASTLETOWN [06/C/01]
See BOLEYNEENDORRISH [29/B/04]
See ABBEY [36/A/01]
See OWWANE [LIMERICK] [24/O/02]
See STRAID [40/S/01]

APPENDIX I

BIOLOGICAL AND PHYSICO-CHEMICAL SURVEILLANCE AND WATER QUALITY ASSESSMENT OF RIVERS

INTRODUCTION

The various uses of rivers inevitably involve conflicting interests and often such uses disrupt river ecology. The fact that several of the more important beneficial uses of rivers (e.g. abstraction, amenity, waste disposal) are dependent on biological processes is rarely appreciated: if the self-purification process, for example, is disrupted (e.g. by pollution, drainage or over-abstraction) some or all beneficial uses may be impaired or lost. It is important, therefore, to keep ecological disruption to a minimum and to maintain the aquatic ecosystem in a healthy, functional condition. Progress towards this goal can be monitored by chemical or biological means or, preferably, by a combination of both. In general it could be said that whilst physico-chemical analysis may measure the *causes* of pollution (i.e. the pollutants) biological analysis is the only means whereby the ecological *effects* of pollution can be measured.

The most commonly encountered forms of pollution in this country are eutrophication and organic pollution; less frequently encountered are non-organic types such as toxic pollution (e.g. by sheep dip or industrial chemicals), siltation (e.g. arising from over-grazing, drainage, quarrying or stone-cutting operations) and, in recent years, acidification in sensitive afforested areas. The term eutrophication is used to describe the abnormal production of plants of all kinds (micro- and macroscopic) in surface waters affected by excessive inputs of the plant nutrients nitrogen and phosphorus. Such inputs arise a) by the leaching or overland runoff from agricultural lands of inorganic nitrogen and phosphorus and b) by the breakdown of organic matter such as sewage, food-processing or other industrial wastes or land-spread animal manure slurries.

Eutrophication of surface waters may be also encountered in areas where land is disturbed for peat harvesting or forestry purposes. Organic pollution is a term used to describe the oxygen depleting effects caused by the breakdown of organic wastes (e.g. sewage) in receiving waters. This bio-degradation or

self-purification process, as it is called, is dependent, initially at least, on aerobic micro-organisms which reduce the organic material to its constituent elements and in the process consume oxygen. In the presence of organic matter, therefore, ambient dissolved oxygen (DO) levels fall whilst the biochemical oxygen demand (BOD) - a measurement of the rate of oxygen usage by aerobic micro-organisms - rises; this process also leads to eutrophication due to the release of compounds of nitrogen and phosphorus.

The measurement of the ambient concentrations of such parameters, therefore, gives a good indication of the condition of the water as regards contamination by organic waste. Traditionally, this type of waste has mostly originated at 'point-source' discharges (sewage, industrial wastes), but in recent years an ever increasing proportion arises from 'diffuse' agricultural sources i.e., run-off from land of wastes from intensive animal-rearing operations, the development of which in the past 15 to 20 years has been accompanied by a very marked increase in the extent of eutrophication.

All types of pollution cause physico-chemical and biological changes in receiving waters and so the assessment of water quality/pollution may be approached from the chemical or the biological aspect. In practice, a combination of both approaches is preferable to either on its own.

Biological Assessment

In the presence of pollution, characteristic and well-documented changes are induced in the flora and fauna of rivers and streams. Particularly well documented are the changes brought about by organic pollution in the macroinvertebrate community i.e., the immature aquatic stages of aerial insects (mayflies, stoneflies etc.) together with Crustacea (e.g. shrimps), Mollusca (e.g. snails and bivalves), Oligochaeta (worms) and Hirudinea (leeches). The changes which occur are due to the varying sensitivities of the different components of the community to the stresses caused by pollution. It is known that similar organisms inhabit similar habitats and that the most sensitive species

inhabit the riffle areas. It is also well known that community diversity declines in the presence of pollution and that sensitive species are progressively replaced by more tolerant forms as pollution increases. Ideally, all the components of the aquatic biota (the micro- and macro-fauna and flora) should be utilised but in practice macroinvertebrate community analysis is found to be satisfactory for routine water quality monitoring purposes.

For the purposes of the EPA assessment procedure benthic macroinvertebrates have been divided into five arbitrary 'Indicator Groups' as follows: Group A, the sensitive forms, Group B, the less sensitive forms, Group C, the tolerant forms, Group D, the very tolerant forms and Group E, the most tolerant forms. These groups, and their relationships with the Biotic Index (Q values) are set out below (pages I.5, 1.6).

In contrast to physico-chemical surveys which extend throughout the year, biological surveys are usually undertaken in the summer-autumn period (June-October) when flows are likely to be relatively low and water temperatures highest. Surveys during this period are likely, therefore, to coincide with the worst conditions to be expected in those reaches affected by waste inputs.

Biological material for examination is obtained by a 'kick' sampling technique in the faster-flowing areas (riffles) of the river or stream and the examination and assessment of water quality is made on site. Having determined the relative proportions of the various organisms in a sample, water quality can be inferred by a comparison of this data with that which might be expected from unpolluted habitats of the type under investigation. Other relevant factors such as the intensity of algal and/or weed development, water turbidity, bottom siltation, substratum, current speed and water depth, DO saturation and water temperature, are also taken into account in the assessment procedure.

Relationships between water quality and macroinvertebrate community structure are usually described by means of a numerical scale of values. Such a compression of biological information inevitably results in a

loss of meaningful information but some such procedure is essential if this information is to be meaningful to non-biologists. The EPA scheme of Biotic Indices or Quality (Q) Values and its relationship to water quality is set out here.

| 'Q' | Water | Condition* |
|------|--------------|----------------|
| Q5 | Good | Satisfactory |
| Q4 | Fair | Satisfactory |
| Q3-4 | Transitional | Unsatisfactory |
| Q3 | Doubtful | Unsatisfactory |
| Q2 | Poor | Unsatisfactory |
| Q1 | Bad | Unsatisfactory |

* 'Condition' refers to the likelihood of interference with beneficial or potential beneficial uses.

The intermediate indices Q1-2, 2-3, 3-4 and 4-5 are also used to denote transitional conditions. The scheme mainly reflects the effects of biodegradable organic wastes (i.e. deoxygenation and eutrophication) but where a toxic effect is apparent or suspected the suffix '0' is added to the biotic index (e.g. Q1/0, 2/0 or 3/0) and attention is sometimes drawn to siltation or atypical effects by appending an asterisk to the biotic index. The scheme may be further simplified as shown by the classification set out below:-

| Biotic Index | Quality Status | Quality Class |
|--------------|---------------------|---------------|
| Q5, Q4-5, Q4 | Unpolluted | Class A |
| Q3-4 | Slightly Polluted | Class B |
| Q3, Q2-3 | Moderately Polluted | Class C |
| Q2, Q1-2, Q1 | Seriously Polluted | Class D |

Class A waters are those in which problems relating to existing or potential uses are unlikely to arise; they are, therefore, regarded as being in a 'satisfactory' condition. Classes B, C and D are to a lesser or greater extent 'unsatisfactory' in this regard. For example, the main characteristic of Classes B and C waters is eutrophication which may interfere with the amenity, abstraction or fisheries uses of such waters.

BIOLOGICAL ASSESSMENT OF WATER QUALITY IN RIVERS & STREAMS*

Biotic Indices (Q Values) and Typical Associated Macroinvertebrate Community Structure

For important, additional qualifying information see "Observations on Q Determination Scheme" on following page.

| Index | Group A | Group B | Group C | Group D | Group E |
|-------------|--|-------------------------------------|---|-------------------------------|----------------------------|
| Q5 | at least common often Numerous/Dominant Typically: 3+ Plecoptera taxa and 1+ Heptageniidae/ Ephemeraeidae or 4+ Plecoptera taxa | Scarce/Absent to Numerous | Small Numbers to Common <i>B. rhodani</i> may be Dominant Others: Not more than Common | Scarce or Absent | Scarce or Absent |
| Q4 | Fair Numbers to Numerous Typically: 1+ Heptageniidae/ Ephemeraeidae or 1+ Plecoptera taxa | Scarce/Absent to Common | Common to Numerous <i>Baetis rhodani</i> usually Dominant Others never Excessive | Scarce or Absent | Scarce or Absent |
| Q3-4 | Small Numbers to Common Essential : Group A must be present | Scarce/Absent to Common | Common to Excessive (Usually dominant or Excessive) | Scarce/Absent to Common | Scarce or Absent |
| Q3 | Small Numbers | Scarce/Absent to Fair Numbers | Common to Excessive | Scarce/Absent to Common | Scarce or Absent |
| Q2 | Absent | Absent | Scarce or Absent | Common to Excessive | Scarce/Absent to Common |
| Q1 | Absent | Absent | Absent | Scarce or Absent | Dominant |

Macroinvertebrates grouped according to their sensitivity to the effects of organic pollution

| Group A <i>Sensitive</i> | Group B <i>Less Sensitive</i> | Group C <i>Tolerant</i> | Group D <i>Very Tolerant</i> | Group E <i>Most Tolerant</i> |
|--|---|--|---|---|
| Plecoptera Heptageniidae Ephemeraeidae <i>Margaritifera</i> sp. | Ephemeroptera (excl. Heptageniidae, Ephemeraeidae and <i>B. rhodani</i>) Cased Caddis <i>Rheotanytarsus</i> sp. <i>Aphelocheirus</i> sp. | Gammaridae <i>B. rhodani</i> Simuliidae Uncased Caddis Gastropoda Coleoptera Astacidae Tricladida Odonata Hemiptera (excl. <i>Aphelocheirus</i> sp.) Sialidae Hydracarina Chironomidae (excl. <i>Chironomus</i> sp., <i>Rheotanytarsus</i> sp.) Tipulidae <i>Anodonta</i> sp. | Asellidae Hirudinea Sphaeriidae | <i>Chironomus</i> sp. Tubificidae Eristalinae |

*Excluding rivers with mud, bedrock or sand substrata, very sluggish or torrential flow, high altitude streams and those affected by significant groundwater input, excessive calcification, drainage, canalisation, culverting, shading etc.

Important: Seasonal and other relevant factors must be taken into account in the assessment procedure.

Observations on Q Determination Scheme

Q5 assigned if :-

- Group A at least *common** : Typically with *either* one or more Heptageniidae spp or *Ephemera* sp. plus three or more Plecoptera spp *or else* four or more Plecoptera species present
- Group B ranging from scarce/absent to numerous
- Group C not more than *common** but *B. rhodani* may be dominant*
- Groups D and E *scarce** or absent.
- Macrophytes, if present, diverse and not excessive in development.
- Filamentous algae if present not excessive
- Cladophora*, sewage 'fungus' and other slime growths/complexes absent.
- substrata clean and unsilted.
- DO close to 100% at all times.

* As defined below.

Q4 assigned if :-

- At least *one* Group A taxon present in, at least, *fair numbers**
- Group B taxa may be *common**, *scarce** or absent
- B. rhodani* usually *dominant** Other Group C taxa never *excessive**
- Groups D and E may be present in *small numbers** or absent
- Macrophyte & algal growths not excessive
- Cladophora*, if present, not excessive
- Sewage 'fungus' and other slime growths absent
- Substrata may be lightly silted
- DO ranging from 80 to 120%

Q3-4 assigned if :-

- At least *one* Group A taxon present in, at least *small numbers**
- Group B *common**, *scarce** or absent
- Group C *numerous**, *dominant** or *excessive**
- Group D *common**, *scarce** or absent
- Group E *scarce** or absent.
- Macrophytes and/or algal growths usually luxuriant, often excessive.
- Cladophora*, usually excessive.
- Sewage 'fungus' and other slime growths sometimes present in small amounts.
- Substrata may be considerably silted.
- DO ranging from < 80 to >120%.

Q3 assigned if :-

- Group A absent.
- Group B *fair numbers**, *scarce** or absent
- Group C usually *excessive** (*Gammarus*, *Hydropsyche* etc. may be fungus infested).
- Groups D (excl. *Asellus*) *common**, *scarce** or absent
- Group E *scarce** or absent
- Macrophytes, if present often silted and/or infested with epiphytic algae.
- Cladophora* usually excessive.
- Sewage 'fungus' and other slime growths/complexes may be considerable.
- Substrata may be heavily silted.
- DO ranging from <80 to >120%.

Q2 assigned if :-

- Groups A and B absent.
- Group C *scarce** or absent.
- Asellus* sp. *common** to *excessive**. Other Group D taxa may be *common**, *numerous** or *excessive**
- Group E may be *common**
- Macrophytes, if present silted and/or infested with epiphytic algae/sewage fungus.
- Cladophora* not usually apparent.
- Sewage fungus and other slime growths/complexes usually considerable.
- Substrata usually heavily silted. Often smells of sewage/detergent.
- DO usually quite low (20 - 50%)

Q1 assigned if :-

- Groups A, B and C absent.
- Groups D *scarce** or absent
- Group E *dominant**
- Macrophytes absent.
- Cladophora* absent.
- Sewage 'fungus' and other slime growths/complexes present or absent.
- Substrata usually heavily silted with anaerobic deposits. Often smells of H₂S.
- DO usually very low, sometimes zero.

Continued

Further Observations

- 1) The above scheme outlines the typical macroinvertebrate composition of rivers and streams unaffected (Q5) or variously affected (Q4 to Q1) by organic waste inputs.
- 2) All available habitats should be sampled and, in addition to kick sampling, stone washing and weed sweeps should be carried out where possible.
- 3) Single specimens may be ignored as they are likely to have drifted from upstream. This applies to all biological assessment.
- 4) Q5 only ascribed in absolutely pristine conditions with diverse and balanced faunal community.
- 5) Providing points f and g (at Q5 and Q4 above) not breached Q5 and Q4 may also be ascribed where faunal criteria not met because of:-
 - a) significant ground-water input
 - b) very hard, calcareous conditions
 - c) very oligotrophic conditions
 - d) other relevant factors
- 6) The terms "Taxon/Taxa" are defined by the level of identification for each macroinvertebrate Class/Order as follows :-

| | |
|--|----------|
| Platyhelminthes | genus |
| Oligochaeta | family |
| Hirudinea | genus |
| Mollusca | genus |
| Crustacea | family |
| Plecoptera | genus |
| Ephemeroptera | genus |
| Trichoptera | genus |
| Odonata | genus |
| Megaloptera | genus |
| Hemiptera | genus |
| Coleoptera | family |
| Diptera | family |
| (Chironomidae :- <i>thummi-plumosus</i> or <i>non-thummi-plumosus</i>) | |
| Hydracarina | presence |

| Abundance Category | <u>Approximate Percentage Frequency of Occurrence*</u> |
|---------------------------|---|
| Present | 1 or 2 individuals |
| Scarce/Few | <1% |
| Small numbers | <5% |
| Fair numbers | 5 -10% |
| Common | 10 - 20% |
| Numerous | 25 - 50% |
| Dominant | 50 - 75% |
| Excessive | >75% |

* Per 2 minute kick sample + stone washing.
