

# **Appendices**

The following sections describe sampling programs and provide supportive information to assist in interpretation of the significance of the most common physico-chemical and biological parameters

Appendix 1: Sampling and Analysis of Waters

Appendix 2: Physico-Chemical Parameters

Appendix 3: Other factors influencing water quality

Appendix 4: Summary of River Water Quality in the South-East

Appendix 5: Stations List

## Appendix 1: Sampling and Analysis of Waters

Details of all of the national programmes can be found on the EPA website <http://www.epa.ie/downloads/pubs/water/other/wfd/>. These are summarised below:

**River Waters Sampling Programme:** The Water Framework Directive National Water Quality monitoring programme was produced in 2007 following review of local and regional programs which had been operational since the late 1970s in some areas. It focuses on broad national coverage of rivers to encompass as wide a range of types as is practicable.

There have been subsequent minor changes to the programme, based on both meeting needs as requested by individual local authorities and also following review of the program coverage by EPA. Operational river and lakes monitoring sites are required to be monitored at least four times per year with surveillance sites currently requiring monthly monitoring. Programmes are also tailored to meet the requirements of the Salmonid Fish Regulations and the Surface Water for the Abstraction of Drinking Water regulations.

The biological monitoring of rivers is generally carried out on a three-yearly cycle.

**Groundwater Monitoring Programme:** The EPA commissioned an extensive program of monitoring of groundwater bodies as defined in the WFD Characterisation reports. This builds on the National Hydrometric Groundwater monitoring program which had been operational for many years previously. While several of these are used as drinking water sources their assessment required the development of an extensive array of monitoring boreholes for both water quality and water level monitoring. Further details of the programme can be found on the EPA website. Monitoring is undertaken on a quarterly basis with analysis being undertaken by the EPA's Monaghan laboratory.

**Lakes Monitoring Programme:** As with the rivers surveillance program the EPA has an extensive programme on lake water quality monitoring for both biological and chemical parameters. Samples are taken by EPA staff and analysed in the EPA's Castlebar laboratory.

**Transitional (Estuarine) & Coastal Waters Programme:** This is administered from the Agency's Dublin office and involves the monitoring of transitional and coastal water bodies nationally during both summer and winter seasons. Monitoring is undertaken primarily to determine eutrophic status. Analysis is undertaken by the EPA's Castlebar and Dublin laboratories.

**Bathing Waters:** The quality of bathing waters is subject to the Bathing Water Quality Regulations 2008 (S.I. No. 79 of 2008). Local Authorities are responsible for the monitoring and analysis of E.Coli and Intestinal Enterococci in these waters with EPA preparing a national summary for submission to the European Commission. The status of coastal waters is very good however there are some bathing waters (both coastal and inland) which are affected by diffuse or point source pollution. An overview of the 2012 Bathing Water quality is available at <http://www.epa.ie/pubs/reports/water/bathing/>

**Wastewater Treatment Plants:** Urban WWTPs have been identified as and remain one of the principal sources of nutrient enrichment in rivers and also impact in some cases on bathing water quality. Legislation was brought in in 2007 requiring the EPA to licence all wastewater treatment facilities (<http://www.epa.ie/downloads/legislation/wwda/>) and a progress report for 2012 is

available at

<http://www.epa.ie/downloads/pubs/water/wastewater/uww/Urban%20Waste%20Water%20Treatment%20in%202012.pdf>. Details of EPA risk characterisation assessments of WWTPs is available at the EDEN website [www.edenireland.ie](http://www.edenireland.ie).

**Field Sampling and Analysis:** Sampling is undertaken both by EPA laboratory staff and by their authorised contractors in accordance with good sampling practice. River flows are computed from the many staff gauge readings and automatic sensors via telemetry operated by both EPA and the Office of Public Works (OPW). Flow information is available on the EPA Hydronet website <http://hydronet.epa.ie/conditions.htm>.

Biological assays, usually undertaken in the field, involve the examination of waters for insect populations which are a good indicator of water quality. Other parameters including examination of waters for algae (phytoplankton) and macrophytes (larger plant forms). Biological programs are subject to regular European wide international inter-calibration exercises to ensure consistency across the EU.

**Laboratory Analysis:** The principal chemical analyses undertaken on most water bodies includes analyses for pH, Biochemical oxygen demand (BOD), Colour, Ammonia, Oxidised Nitrogen (Nitrite / Nitrate), o-Phosphate, Chloride, Major Anions and Cations, Hardness, and Alkalinity. Un-ionised ammonia can be calculated from the Ammonia, pH and Temperature. Other specific tests such as trace metals analyses or organic micro-pollutants are carried out in a phased program of surveillance waters but may be carried out where particular pressures exist. All of the EPA laboratories have been awarded accreditation to ISO 17025 and participate in national and international inter-laboratory performance testing. The parameters covered by accreditation vary between individual laboratories and their respective Scopes of Accreditation may be viewed at [www.inab.ie](http://www.inab.ie).

## Appendix 2: Physico-Chemical Parameters

The European Communities Environmental Objectives (Surface Water) Regulations 2009 (S.I. 272 of 2009) sets out the criteria to be met for surface water classification - see <http://www.environ.ie/en/Legislation/Environment/Water/FileDownload,20824,en.pdf>.

**Ammonia:** Ammonia occurs naturally in water bodies arising from the microbiological decomposition of nitrogenous compounds in organic matter. Fish and other aquatic organisms also excrete ammonia. Natural (unpolluted) waters contain relatively small amounts of ammonia, usually <0.02 mg/l as N. Ammonia may also be discharged directly into water bodies by some industrial processes or as a component of domestic sewage or animal slurry. Ammonia can also arise in waters from the decay of discharged organic waste.

**Bacteriological Testing:** Bacteriological testing is undertaken on many river waters primarily for Total Coliforms and *Escherichia coli* (*E. Coli*) particularly where water is abstracted for human consumption (i.e. before treatment). In bathing waters Intestinal Enterococci and *E. Coli* are now routinely monitored.

Coliform bacteria other than *E.coli* occur in water as a result of run-off from soil or from growth on decaying vegetation. While the Total Coliform count gives an indication of the general level of the microbiological quality of water *E.coli* is a specific indicator of faecal contamination originating from human or animal wastes and is an important indicator of water quality – especially in waters where sewage or slurry is discharged. Intestinal Enterococci have longer survival times in waters and are generally regarded as indicators of past pollution events.

Limits for Total Coliforms and for *E.coli* in waters are included in the legislation on Surface Waters used for the Abstraction of Drinking Water (<http://www.irishstatutebook.ie/1989/en/si/0294.html>). The Drinking Water Regulations may be located at <http://www.epa.ie/downloads/legislation/water/drinking/name,27952,en.html>.

**Biochemical Oxygen Demand (BOD):** When biodegradable organic matter (including organic waste) is present in waters it provides nutrient for the growth of bacteria and other microorganisms causing them to multiply and - where bacterial numbers are sufficient - causing a depletion of dissolved oxygen in the water. The BOD (5day) test is a measure of the amount of oxygen consumed by microorganisms in breaking down the organic matter.

The BOD value in rivers often increases during periods of heavy rain and high river flows - as organic matter is washed in from the land and farmyards. Examples of typical BOD concentrations for surface waters and potential pollution sources are given below:

| Sample                    | Typical BOD<br>mg/l O <sub>2</sub> |
|---------------------------|------------------------------------|
| Clean river water         | < 3                                |
| Doubtful quality water    | 3 to 5                             |
| Poor quality water        | > 5                                |
| Treated UWWTP sewage      | 10 to 40                           |
| Untreated domestic sewage | 300                                |
| Cattle slurry             | 12,000                             |
| Pig slurry                | 30,000                             |
| Silage effluent           | 60,000                             |

**Biological Quality Ratings (Q-Values):** The biological classification of river and lake water quality used in Ireland is based mainly on the presence or absence of various macroinvertebrate fauna (crustaceans, insects, worms, molluscs, leeches, etc.) - some species being sensitive to pollution while others are tolerant. This is discussed in more detail in Section 3.9 of the main report. Biological testing is normally carried out on a 3-yearly cycle and the most recent biological rating (or Q-Value) is given for each sampling station.

**Chloride:** Chloride occurs naturally in river waters. Some effluents may contain elevated chloride levels and changes in concentrations may be an indicator of pollution. However very high levels of chloride may be seen especially in the lower reaches of rivers where a tidal influence exists. Its presence in lakes adjacent to coastal areas is generally due to saline deposition from rainfall and is correlated with Sodium concentrations.

**Colour:** Natural colour usually reflects the presence of complex organic molecules such as humic acids derived from vegetable matter such as peat, leaves, branches, etc. and tends to vary with rainfall. Where water is abstracted for human consumption and chlorinated, the chlorine can react with the organic materials to produce undesirable Trihalomethanes (THMs) in the drinking water. Up to 2011 the laboratory measured apparent colour (on unfiltered samples), from January 2011 all samples were filtered to measure true colour.

**Conductivity:** The electrical conductivity of water is a measure of the amount of dissolved ionic salts in solution. It is temperature dependent and usually reported at 25°C. In rivers, conductivity is usually proportional to the water hardness. Conductivity at 20°C (an alternative reference temperature) is approximately 90% of that at 25°C.

**Dissolved Oxygen (DO):** Dissolved Oxygen is essential for the survival of fish and other aquatic life, and is an important indicator of pollution and/or eutrophication in rivers. The solubility of oxygen in river waters depends mainly on the water temperature and salinity. Water in equilibrium with air is normally saturated with oxygen (i.e. at 100% Saturation) and DO can be expressed either as % Saturation or in concentration terms as mg/l O<sub>2</sub>. Several factors can cause deviations in DO from equilibrium conditions and there can be a time lag before the equilibrium is restored.

Such variations can be caused by:

- River morphology e.g. rapids or other areas of turbulence
- Seasonal changes in temperature
- Consumption of oxygen by microorganisms in the breakdown of organic matter present. This can lead to an oxygen sag where a sufficient amount of organic matter is present.

- Eutrophication (see below) - the exchange of oxygen between plants and water in eutrophic waters can cause diurnal variations in DO leading to high (frequently super-saturated) levels of dissolved oxygen during the day but dissolved oxygen levels can decline seriously during the hours of darkness with the critical period for dissolved oxygen in eutrophic waters occurring just before dawn (i.e. after maximum hours of darkness).

**Dissolved Inorganic Nitrogen:** (DIN) This term is generally used in assessment of saline waters where Nitrogen is the more limiting nutrient. It is a measure of the sum of Ammonia and Total Oxidised Nitrogen. The EQS is salinity dependent e.g. SI 272 of 2009 sets the following boundaries for DIN in coastal waters:

|          |   |
|----------|---|
| 0 psu    | Good status $\leq 2.6\text{mg/l N}$   |
| 34.5 psu | Good status $\leq 0.25\text{mg/l N}$ (with linear interpolation for other salinities) |
| 34.5psu  | High Status $\leq 0.17\text{ mg/l N}$ .   |

**Total Hardness and Alkalinity:** Hardness and Alkalinity in natural waters is formed by reactions in the soil and rock through which the water percolates and is due mainly to the presence of limestone or dolomite – these contain calcium, magnesium, carbonate and bicarbonate or ( $\text{Ca}^{2+}$ ,  $\text{Mg}^{2+}$ ,  $\text{CO}_3^{2-}$  and  $\text{HCO}_3^-$ ). Waters with low alkalinity or hardness are poorly buffered and may be susceptible to pH reduction.

**Nitrite:** Nitrite is an intermediate in the oxidation of ammonia to nitrate and concentrations of nitrite in unpolluted waters should be low ( $<0.05\text{ mg/l N}$ ). Many effluents, including sewage, are rich in ammonia, which in turn can lead to increased nitrite concentrations in receiving waters. Therefore high levels of nitrite in river waters may indicate pollution.

**Nitrate:** Nitrate levels in Irish rivers vary widely both regionally and in some cases seasonally due largely to the natural geological variability of nitrate in soils. This makes it challenging to determine the un-impacted concentration in water bodies and thus it is extremely difficult to establish limit values for nitrate in waters. While some nitrate is likely to be of geological origin most originates from fertilizer usage and input from sewage and industrial discharges. S.I. 272 of 2009 sets no specific boundary conditions for nitrate however EPA assessment of high quality water sources has set boundary conditions of  $0.8\text{ mg/l NO}_3\text{-N}$  for high quality waters and  $1.8\text{ mg/l NO}_3\text{-N}$  for good quality waters. By contrast the EU Directive on the quality of water for human consumption specifies a maximum admissible concentration of  $11.3\text{ mg/l N}$  for nitrate ( $= 50\text{ mg/l as NO}_3$ ) and also sets out a guide level of  $5.65\text{ mg/l N}$  ( $= 25\text{ mg/l as NO}_3$ ) on public health grounds. However such concentrations are well in excess of those where contributions to deterioration of water quality is evident from biological assessment.

The EC Directive regarding the protection of waters from pollution caused by nitrate from agricultural sources was introduced in 1991 because of concern for nitrate concentrations in surface and ground waters (Ref 3). Further regulations introduced in 2006 allow for the control of animal stocking rates, farmyard management, and fertilisers and slurry application rates for various crops (<http://www.irishstatutebook.ie/2005/en/si/0788.html>). Details of the Nitrates Action program are available at <http://www.environ.ie/en/Environment/Water/WaterQuality/NitratesDirective/>.

Tillage of agricultural land is a principal factor affecting the concentrations of nitrate in rivers however livestock densities as well as fertiliser usage can have a significant impact on groundwater quality. Run-off from rivers to sea has impacts on transitional and coastal waters where nitrogen is often the more limiting nutrient. The highest annual river nitrate concentrations normally occur in the months of January/February with the lowest concentrations in July/August.

Higher nitrate concentrations in groundwater are generally indicative of anthropogenic organic or inorganic inputs. If a significant proportion of surface water flow is derived from groundwater, then increased nitrate concentrations may contribute to eutrophication in surface waters.

**pH:** pH is a measure of the acidity of water and varies depending on the geology of the river catchment, on river flow, and on wastewater discharges but is generally in the range 6 – 9. It can also be influenced by biological processes, chiefly carbon dioxide uptake by plants during photosynthesis. In eutrophic waters, diurnal variations of pH may follow the diurnal variations in dissolved oxygen.

**Phosphorous:** Phosphorous (P) is generally considered to be the limiting nutrient for plant growth in freshwater with small quantities occurring naturally mainly from geological sources. As it is measured colorimetrically using a molybdate based chemistry method and is often referred to as Molybdate Reactive P (MRP). In essence this equates to orthophosphate. Due to the longer residence time in lakes, Total P rather than just orthophosphate is considered to be the most critical nutrient in most cases.

Water quality monitoring has shown increased MRP in most Irish waters since the 1970s caused primarily by increased phosphorus arising from run-off from agricultural land and farmyards as well as from municipal and industrial effluent discharges. The licencing of Urban Wastewater Treatment plants and the implementation of improved agricultural practices appears to indicate a modest improvement nationally although local impacts remain dominant. Higher than natural levels of P can disturb the ecological balance of the river leading to shifts in species composition, food-chain effects, increases in toxic algal blooms and collapse of populations of sensitive fish and other species.

In recent years restrictions on the usage of Nitrogen and Phosphorous in agriculture together with improvements in farming practices appear to suggest a reducing level of P in rivers nationally although regional variations do occur. See the main report for further details.

**Temperature:** Water temperature is a major influence on the rate of biological growth with variations in Irish river waters being both seasonal and weather dependant. Localised elevated temperatures can occur where there are discharges such as industrial cooling waters.

**Total Oxidized Nitrogen:** A commonly used method of analysis measures nitrate + nitrite in combination – also referred to as Total Oxidized Nitrogen (TON). In most instances the nitrite fraction comprises <1% of the total – so that for practical purposes, total oxidised nitrogen and nitrate are the same.

**Un-ionised Ammonia:** Ammonia is present in two forms, ionised ( $\text{NH}_4^+$ ) and un-ionised ( $\text{NH}_3$ ) and the un-ionised fraction is toxic to fresh-water fish at very low concentrations - the standard for un-ionised ammonia in the Salmonid Rivers is 0.02 mg/l as  $\text{NH}_3$  (Ref 1). Note that the relative proportions of ionised ( $\text{NH}_4^+$ ) and un-ionised ( $\text{NH}_3$ ) ammonia in water depend on temperature and pH and to a lesser extent on salinity. The concentration of  $\text{NH}_3$  becomes greater with increasing temperatures and pH and with decreasing salinity. Un-ionised ammonia in fresh-water is calculated from total ammonia, pH and temperatures using the following formula:

$$\text{UnIonised Ammonia}(\text{mg} / \text{l} \text{NH}_3) = \frac{\text{Total Ammonia}(\text{mg} / \text{lN}) \times \frac{17}{14}}{1 + 10^{\left[0.09018 + \frac{2729.92}{273.15 + \text{Temp}^\circ\text{C}} - \text{pH}\right]}}$$

### Appendix 3: Factors influencing water quality

**Abstractions:** In terms of water resources there is an increasing demand for drinking water, particularly in major urban areas. Approximately 17 per cent of the total public drinking water supply in Ireland is provided by groundwater or spring sources (EPA, 2008a). If private supplies are included, then groundwater and springs account for approximately 26 per cent of the total drinking water supplied in Ireland. Although treated public water supplies and public group water schemes account for approximately 85 per cent of the total volume of drinking water supplied in Ireland (EPA, 2008a), the actual number of private group water schemes and small private supplies far exceeds that of public supply schemes. The majority of private group schemes and small supplies are reliant on groundwater and spring sources and they often have inadequate treatment or, in many cases, no treatment at all. Therefore, to protect private supplies and reduce the risk of pollution of public supplies, there needs to be adequate protection of groundwater as a resource.

**Agricultural effluents:** Run-off from agricultural sources is known to be one of the main sources of diffuse pollution in Ireland and one of the most difficult to control. The EC (Good Agricultural Practice for Protection of Waters) Regulations 2006 (<http://www.irishstatutebook.ie/2006/en/si/0378.html>) allow for the control of animal stocking rates, farmyard management, fertiliser and slurry application rates to various crops, farm inspections by local authorities, etc. It is expected that the Regulations will lead to an improvement in pollution caused by agriculture over the next few years.

In recent years, constructed wetlands (CWs - also called Reed Beds or Artificial Wetlands) are being promoted in parts of the region as a low cost system for the disposal of soiled water from farmyards. These systems, where farm waste is discharged to surface water via an artificial pond that contains various plants, are a cause for concern - unless well managed they have the potential to cause serious water pollution (to surface water as well as groundwater), and farm waste should be recycled by proper land spreading - as detailed in the *Good Agricultural Practice Regulations, 2009*.

**Buffer Zones:** Many water pollution problems of the past are now under control or are coming under control through improved effluent discharge licensing. However land run-off still remains an important issue and is more difficult to control because of its diffuse and complicated nature (including run-off of nutrients, slurry, micro-organisms, chemicals and soil/sediment etc.) much of which is weather dependent. Adequately sized and designed buffer zones between agricultural land and rivers/lakes could provide better protection of water bodies and should be considered - preferably buffers of native riparian woodlands. Further information is available at <http://www.woodlandsofireland.com/docs/No.%204%20Riparian.pdf>

**Domestic Waste Water Treatment Systems (Septic Tanks):** An emerging area of concern for water quality in rural areas, and in particular for the protection of groundwater, is the impact of discharges from small scale / one-off housing developments by means of domestic waste water treatment systems (DWWTSs). Recent legislation has been adopted which will require the registration and inspection of such facilities: (<http://www.environ.ie/en/Environment/Water/WaterServices/PublicationsDocuments/FileDownload/ad,28352,en.pdf>). The National Inspection Plan for domestic waste water treatment systems was published in February 2013 (<http://www.epa.ie/water/wastewater/nip/>). About one third of all houses in Ireland (500,000 households) rely on individual domestic waste water treatment systems to collect, treat and discard their household waste water. Where they are not properly sited, designed, installed, operated or maintained they can pose a threat to human health through possible



contamination of drinking water wells, or from effluent ponding in gardens. In addition, DWWTSs pose a risk to water courses and may impact on the ecology and amenity value of these water courses. A targeted, risk-based plan for inspection of DWWTSs will be put in place and inspections of DWWTSs will commence in July 2013.

**Eutrophication:** (Nutrient enrichment) in waters can arise from an increase in nutrient supply – especially where the nutrient is limiting. In rivers and lakes this is generally phosphorous but in saline waters nitrogen has a greater influence. Additional nutrient influx can cause increased plant growth in the waters producing an imbalance. Plants undergo respiration at all times but during daylight hours they also undergo photosynthesis. These processes result in a net output of oxygen during the day and a net intake of oxygen by the plants at night. The exchange of oxygen between plants and water can, in eutrophic conditions, cause diurnal variations in dissolved oxygen (i.e. variations in DO over a 24-hour period). This can lead to high (frequently super-saturated) levels of DO during the day but DO levels can decline during the hours of darkness. The critical period for DO in eutrophic waters occurs just before dawn (i.e. after maximum hours of darkness). There are corresponding but inverse effects on carbon dioxide levels, which in turn can alter the pH of the water.

Nutrients are freely removed from water by plants and algae (phytoplankton) especially during the spring/summer/autumn period. Therefore increases in eutrophication are not always evident from the analyses of nutrients in water samples. In many instances eutrophication is more evident from the biomass of weed and algae and from the effects of plant respiration and photosynthesis on dissolved oxygen and pH.

**Forestry:** Forestry is an essential part of Ireland's environment but forestry operations by their very nature are highly disruptive to natural ecosystems. Forest management operators such as Coillte and the Forestry Service have developed a broad range of Codes of Practice to minimise pollution problems.

**Industrial effluents:** Many industrial effluent discharges originate from food or agricultural based industries (e.g. creameries, meat factories, breweries, etc.); there are also a number of chemical factories and mines (operational and closed) in the region. Most industrial effluents have been licensed, monitored and controlled since the 1980s and, in most instances, water pollution from industry has decreased over the years - however there are still some problems in this regard that need to be addressed. There are lead & zinc mines at Silvermines (closed since the 1980s) and at Galmoy (now closed) and Lisheen that can cause pollution from heavy metals and/or ammonia in some smaller rivers at times

**Landfill Sites:** Modern landfills are lined with a high-density plastic membrane and leachates are collected for proper treatment. However, older landfill sites were not normally lined and in many sites leachates can percolate into groundwater and to surface waters causing significant environmental pollution. These problems persist mainly in some older landfills (and in the older unlined cells of existing landfills) but also in some closed landfills (both municipal and industrial). Most landfills in the southeast region consist of a mix of old and new cells (i.e. a mix of unlined and lined cells).

**Municipal sewage:** Since the 1980s, wastewater treatment plants (WWTPs) have been constructed in most of the towns throughout the region to cater for waste from domestic, industrial & business sources though nationally performance is very variable and there are several communities with no significant wastewater treatment. While there have been many improvements particularly with nutrient removal there is still a long way to go before this source of pollution is under control.

Details of Wastewater Treatment Plant performance is available at [WWTP 2007-2009](#) [get link to new 2011 report.](#)

Details of current investment programs is available here:

[http://www.environ.ie/en/Environment/Water/WaterServices/WaterServicesInvestmentProgramme/#Latest Investment Programme: Water Services Investment Programme 2010 - 2012](http://www.environ.ie/en/Environment/Water/WaterServices/WaterServicesInvestmentProgramme/#Latest%20Investment%20Programme%3A%20Water%20Services%20Investment%20Programme%202010%20-%202012)

**Siltation:** Siltation is the term used to describe the coating of a river bed with deposits of mud, clay, sand or peat and it may affect the macroinvertebrate diversity resulting in a dramatically reduced biological quality index (Q-Value). Siltation is reported to have had impacts in some streams in the region and problems of this nature appear to be on the increase. Siltation can be caused by various activities including gravel removal, peat extraction, road & house building, land drainage, mining, animals such as cattle gaining access to rivers, over-grazing, and forestry operations.

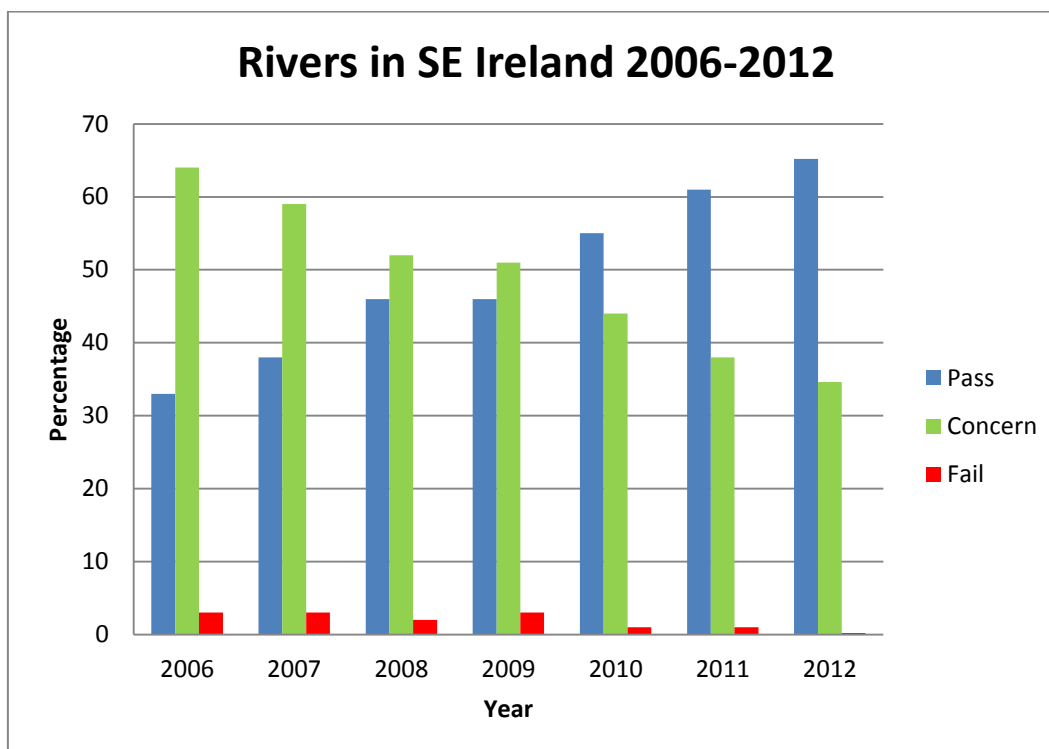
## Appendix 4: Summary of River Water Quality in the South-East

Chemical monitoring since 2006 indicates an improving trend in rivers in the South-East – see graph below.

The number of sites passing the criteria set for the four chemical parameters measured has been increasing every year since 2006 – see graph on following page. This trend is based on an assessment of the four most significant contributing parameters to water quality, namely BOD, ammonium, o-phosphate and TON – for further information see

[https://www.epa.ie/wfdstatus/rivers/RW\\_Compliance\\_Rules\\_RiverChem\\_20110617.pdf](https://www.epa.ie/wfdstatus/rivers/RW_Compliance_Rules_RiverChem_20110617.pdf). Sites are identified as passing or failing based on an assessment of the mean and 95%ile of these parameters. Sites fail chemistry where 2 or more parameters fail the criteria set. While few sites fail two parameters, a significant number fail one (in the majority of cases this is due to TON). Where a site fails one parameter, it is described as being of concern.

| Year | No of Stations | Pass | Concern | Fail |
|------|----------------|------|---------|------|
| 2006 | 656            | 219  | 420     | 17   |
| 2007 | 512            | 193  | 303     | 16   |
| 2008 | 529            | 242  | 277     | 10   |
| 2009 | 539            | 248  | 274     | 17   |
| 2010 | 547            | 303  | 239     | 5    |
| 2011 | 540            | 331  | 205     | 4    |
| 2012 | 546            | 356  | 189     | 1    |

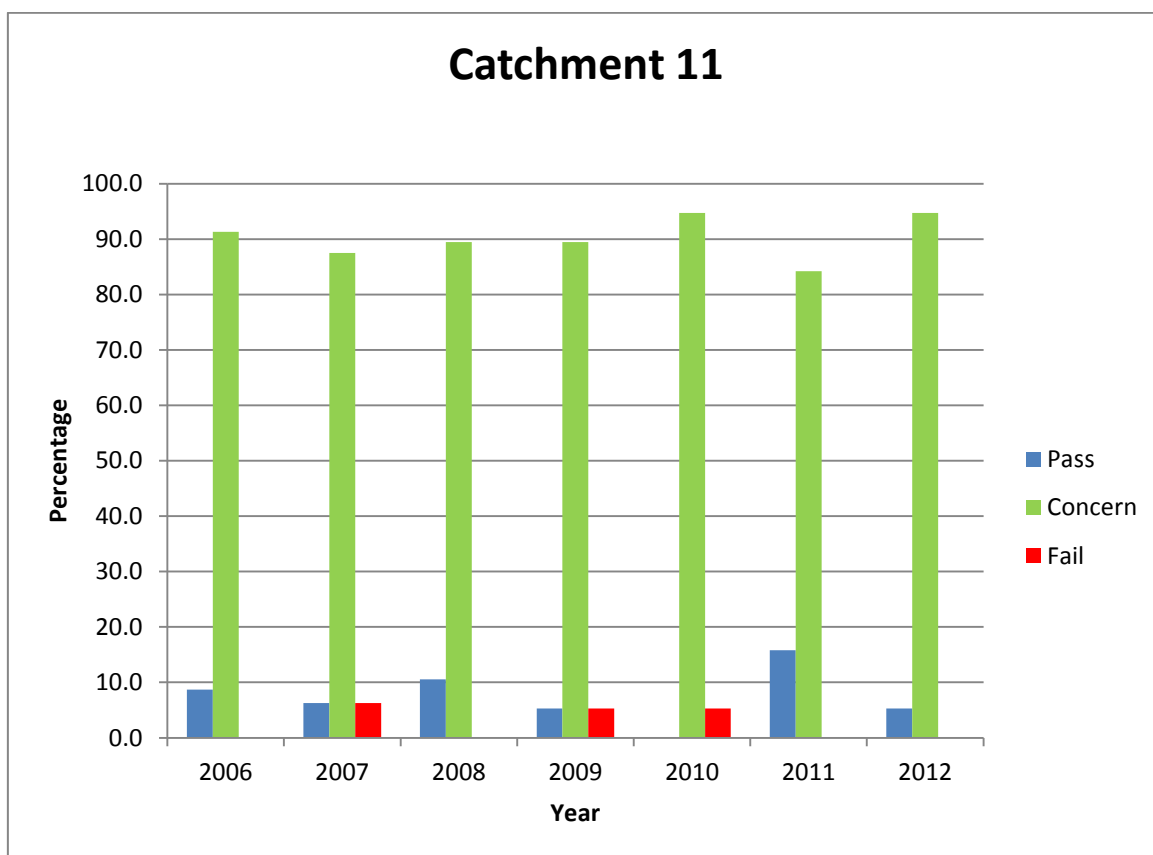


## 2012 Summary of River Water Quality in Hydrometric Area 11

| River   | Remarks   | Change from 2011                 |
|---|---|----------------------------------|
| <b>Aughboy (11A02)</b><br><b>11A02-0200 Q2-3*(2009)</b><br><b>(Note: Q2-3 at station 0180 in 2010)</b>  | This river discharges to the sea at Courtown Harbour. The Aughboy is seriously polluted at Riverchapel. o-phosphate is consistently very high, and ammonia, nitrite and colour are also high at times. BOD and DO levels were slightly improved from 2011 levels. The poor ecological quality of the river underlines the problem.  | No change from 2011.             |
| <b>Banoge</b><br><b>11B02-0100</b><br><b>11B02-0200 Q2-3(2010)</b><br><b>11B02-0300 Q3 (2010)</b>   | Gorey STW discharges to this river u/s of station 0200. BOD and nutrient levels have improved slightly. Works to divert flows from Gorey WWTP to Courtown WWTP may improve thing further. Q values indicate moderate to poor ecological quality.  | No significant change from 2011. |
| <b>Blackwater</b><br><b>11B03-0200 Q3-4(2010)</b><br><b>11B03-0300</b>  | Nitrate levels remain elevated, however slight reduction in o-phosphate levels may be due to recent installation of chemical dosing for phosphate reduction at Blackwater WWTP. Biological monitoring in 2010 indicated moderate ecological quality.  | No significant change from 2011. |
| <b>Brackan</b><br><b>11B04-0200 Q3-4 (2010)</b>   | Physico-chemical monitoring was satisfactory in 2012, however biological monitoring indicates a slight deterioration to moderate ecological quality since 2007.   | No change from 2011.             |
| <b>Clonough</b><br><b>11C01-0100</b><br><b>11C01-0200</b><br><b>11C01-0300 Q3-4 (2010)</b>  | The improvement seen in 2010 has been maintained, however ammonia was high in March.  | No change from 2011.             |
| <b>Cahore Canal</b><br><b>11C02-0150</b>  | The Cahore Canal flows through an agricultural area in east County Wexford and water quality has been poor since monitoring started in 1986. High BOD, ammonia, o-phosphate and low DOs (8% in September) were typical during 2012.   | Poor quality continues.          |
| <b>Inch</b><br><b>11I01-0130</b><br><b>11I01-0200 Q3-4 (2010)</b><br><b>Q4 at station 0095 (2010)</b>   | BOD was high in October, otherwise physico-chemical monitoring was satisfactory. Good ecological quality upstream, deteriorating to moderate further downstream.  | No change from 2011.             |
| <b>Owenavorrigh</b><br><b>11O01-0100</b><br><b>11O01-0300 Q3-4 (2010)</b><br><b>11O01-0400</b><br><b>11O01-0500 Q3-4 (2010)</b><br><b>11O01-0600</b><br><b>11O01-0700 Q4 (2010)</b> | This river flows through low-lying agricultural land with drainage channels. It also receives treated effluent from Gorey STW via the Banoge. BOD and o-Phosphate were high in November during heavy rain. Ecological quality is good in the upper and lower reaches, moderate elsewhere. It is hoped the proposed upgrade to Ballycanew WWTP will improve water quality. | No significant change in 2012.   |

## Physico-chemical Trend in Water Quality in Catchment 11 – 2006 to 2012

|             | Pass | Concern | Fail | Total |
|-------------|------|---------|------|-------|
| <b>2006</b> | 2    | 21      | 0    | 23    |
| <b>2007</b> | 1    | 14      | 1    | 16    |
| <b>2008</b> | 2    | 17      | 0    | 19    |
| <b>2009</b> | 1    | 17      | 1    | 19    |
| <b>2010</b> | 0    | 18      | 1    | 19    |
| <b>2011</b> | 3    | 16      | 0    | 19    |
| <b>2012</b> | 1    | 18      | 0    | 19    |



## 2012 Summary of River Water Quality in Hydrometric Area 12

| River   | Remarks  | Change from 2011                 |
|---|--|----------------------------------|
| <b>Assaly</b><br><b>12A02-0100</b><br><b>12A02-0150</b><br><b>12A02-0300 Q3-4 (2007)</b><br><b>(Q4 at station 0200 in 2007)</b>   | <p>There are several branches to this river. Station 0100 can be dry at times. Station 0200 was replaced by station 0300 for safety reasons, and in late 2009 station 0150 was added (u/s of confluence of the various branches). The Assaly discharges into the drainage channels for the South Wexford Slob. o-Phosphate levels d/s Piercestown Village remain high, however it is hoped conditions here will improve with the completion of works to divert discharge to Wexford in 2013.</p> | No change from 2011.             |
| <b>Bann</b><br><b>12B01-0100 Q4-5 (2010)</b><br><b>12B01-0300</b><br><b>12B01-0400 Q4-5 (2010)</b><br><b>12B01-0500</b><br><b>12B01-0600 Q4 (2010)</b><br><b>12B01-0800 Q3 (2010)</b><br><b>12B01-0900 Q3-4 (2010)</b><br><b>12B01-1000 Q4 (2010)</b> | <p>Physico-chemical quality in 2012 was satisfactory. Biological monitoring in 2010 indicated poor quality at station 0800 (d/s Irish Country Meats), and a deterioration from high to moderate quality at station 0900 since 2007.</p>  | No significant change from 2011. |
| <b>Boro</b><br><b>12B02-0010</b><br><b>12B02-0012</b><br><b>12B02-0200 Q4 (2010)</b><br><b>12B02-0340 Q4 (2010)</b><br><b>12B02-0500</b>  | <p>The first two stations are surface water abstraction points for Rathnure and Ballywilliam respectively, and pH can be low at both locations. Nitrate levels are elevated from Ballymackesy Br (Station 0200) downstream, but ecological quality is good.</p>  | No change from 2011.             |
| <b>Blacklion Stream</b><br><b>12B04-0400 Q3-4 (2010)</b>  | <p>This stream was first sampled in 2007 under WFD. As with previous years, nitrates were elevated during 2012, and abundant weed growth was recorded. Biological monitoring in 2010 indicated only moderate quality at this location (though good quality further upstream).</p>  | No change in 2012.               |
| <b>Chapel Stream</b><br><b>12C01-0100 Q3 (2007)</b>   | <p>This river receives sewage effluent from Clonroche. Poor quality with consistently high o-phosphate and nitrate levels.</p>   | No change from 2011.             |
| <b>Clody</b><br><b>12C03-0100 Q4 (2007)</b><br><b>12C03-0200 Q4-5 (2010)</b>  | <p>Chemical monitoring data satisfactory during 2012. Biological monitoring in 2010 also indicates high quality as far as Bunclody (Station 0200) and good quality further downstream. Increasing housing density in the catchment may be having an adverse effect on water quality.</p>   | No change from 2011.             |
| <b>Camolin Stream</b><br><b>12C08-0400 Q3-4 at station 0300 (2010)</b>  | <p>Nitrates are elevated, and ecological quality is moderate.</p>  | No change from 2011.             |

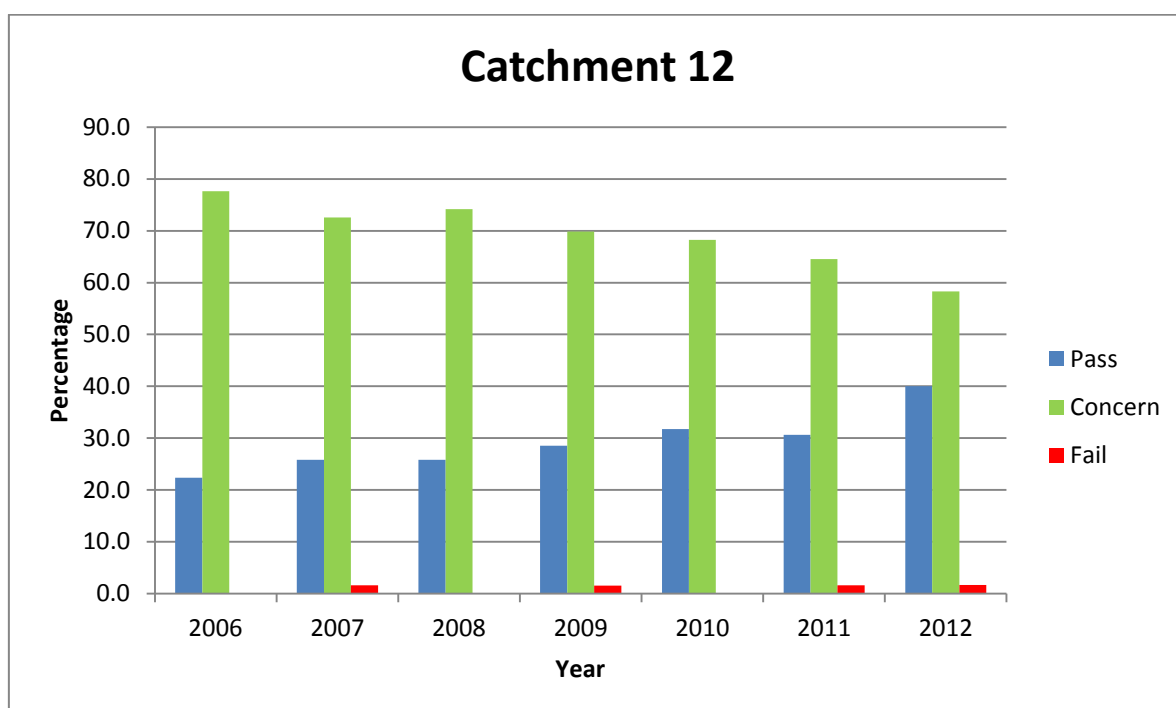
|   |  |   |
|---|--|---|
| <b>Derreen</b><br><b>12D01-0200 Q3-4 (2007)</b><br><b>12D01-0300 Q4 (2010)</b><br><b>12D01-0400 Q4 (2010)</b><br><b>12D01-0550 Q3-4 (2010)</b><br><b>12D01-0700 Q3-4 (2010)</b>   | This report deals with the Carlow stretch of the Derreen only (u/s stretches are in Co. Wicklow). The Derreen sub-catchment is protected under the Freshwater Pearl Mussel Regulations (SI 296 of 2009). Colour in this river is high (naturally occurring). Nitrate levels have been reducing slightly over the last three years. Q values indicate an improvement d/s Hacketstown WWTP, and deterioration in the lower reaches.  | The recent downward trend in nitrate concentrations continues, otherwise no change from 2011. |
| <b>Derry</b><br><b>12D02-0900 Q 4 (2007)</b>  | This report only deals with the Carlow /Wexford stretch of the river, however biological monitoring indicates a deterioration in quality at most stations in Co. Wicklow from 2007 to 2010. BOD was high in August during heavy rain.  | No significant change from 2011.  |
| <b>Douglas (Ballon)</b><br><b>12D03-0100 Q4 (2010)</b><br><b>12D03-0200 Q3-4 (2010)</b><br><b>12D03-0400 Q3-4 (2010)</b>  | This river flows through agricultural land and past the villages of Myshall and Ballon in Co. Carlow. BOD and o-phosphate were high in October at all stations, and at station 0200 in November. Colour and nitrate were also elevated during 2012. Biological monitoring also indicates over-enrichment, and quality is moderate at all but the upstream station.   | No change from 2011.  |
| <b>Douglas (Kiltegan)</b><br><b>12D04-0700 Q3-4 (2010)</b>  | A tributary of the Derreen and Slaney, this river was included in the sampling programme under the WFD.  | No change from 2011.  |
| <b>Glasha</b><br><b>12G01-0100 Q4-5 (2010)</b><br><b>12G01-0200 Q4 (2010)</b>   | The Glasha is a tributary of the Slaney, south of Clohamon. Good to high ecological quality.   | No change from 2011.  |
| <b>Kileen Stream</b><br><b>12K03-0400 Q4 (2010)</b>   | This stream is a tributary of the Boro and Slaney. Good ecological quality and physico-chemical results.   | No change from 2011.  |
| <b>Lask</b><br><b>12L01-0200 Q3-4 (2010)</b>  | Ammonia and nitrate were elevated during 2012, and ecological quality is moderate.   | No change from 2011.  |
| <b>Mine</b><br><b>12M01-0200 Q3-4 (2010)</b>  | This river is a tributary of the Derry and Slaney. BOD was high in August, and ecological quality is moderate.   | No change from 2011.  |
| <b>Slaney</b><br><b>12S02-0950 -</b><br><b>12S02-1100 Q4 (2010)</b><br><b>12S02-1300 Q4 (2010)</b><br><b>12S02-1400 Q3-4 (2010)</b><br><b>12S02-1600 Q4 (2010)</b><br><b>12S02-0800 Q4 (2010)</b><br><b>12S02-1800 Q4 (2010)</b><br><b>12S02-1900</b><br><b>12S02-2000 Q4 (2010)</b><br><b>12S02-2100 Q3-4 (2010)</b><br><b>12S01-2200 Q4 (2010)</b><br><b>12S02-2250</b><br><b>12S02-2300</b><br><b>12S02-2350</b><br><b>12S02-2400</b><br><b>12S02-2500</b> | The Slaney rises in the Wicklow mountains and flows through Carlow and Wexford, before flowing into the sea at Wexford Harbour. This table deals with the freshwater stretches that flow through Carlow and Wexford. BOD, o-phosphate and ammonia have reduced compared with 2011 levels d/s Tullow STW (station 1400), otherwise quality is satisfactory. BOD was high at several stations in April and August after heavy rain, otherwise physico-chemical monitoring was satisfactory. Ecological quality was only moderate at Ballycarney Bridge where considerable algal growth was observed. | Improved chemistry at station 1400, otherwise no significant change from 2011.                |

|   |   |                                  |
|---|---|----------------------------------|
| <b>Sow</b><br><b>12S03-0100 Q3-4 (2010)</b><br><b>12S03-0200</b><br><b>12S03-0300</b><br><b>12S03-0400</b><br><b>Q3-4 at station 0250 and</b><br><b>Q4 at station 0370</b><br><b>(2010)</b> | BOD was high in July at Kilmallock Bridge (station 0200), otherwise physico-chemical monitoring was satisfactory. Biological monitoring in 2010 indicated good to moderate conditions in the river. | No significant change from 2011. |
| <b>Tinnacross Stream</b><br><b>12T01-0600 Q3-4 (2010)</b>   | o-Phosphate was high in August, otherwise physico-chemical monitoring was satisfactory. Ecological quality was moderate, with heavy siltation.  | No change from 2011.             |
| <b>Urrin</b><br><b>12U01-0200 Q4 (2010)</b><br><b>12U01-0300 Q4 (2010)</b><br><b>12U01-0500 Q3-4 (2010)</b>   | Physico-chemical monitoring was satisfactory in 2012, however biological monitoring recorded slime growth at station 0500 in 2010.  | No change from 2011.             |



## Physico-chemical Trend in Water Quality in Catchment 12 – 2006 to 2012

|             | Pass | Concern | Fail | Total |
|-------------|------|---------|------|-------|
| <b>2006</b> | 17   | 59      | 0    | 76    |
| <b>2007</b> | 16   | 45      | 1    | 62    |
| <b>2008</b> | 16   | 46      | 0    | 62    |
| <b>2009</b> | 18   | 44      | 1    | 63    |
| <b>2010</b> | 20   | 43      | 0    | 63    |
| <b>2011</b> | 19   | 40      | 1    | 62    |
| <b>2012</b> | 24   | 35      | 1    | 60    |

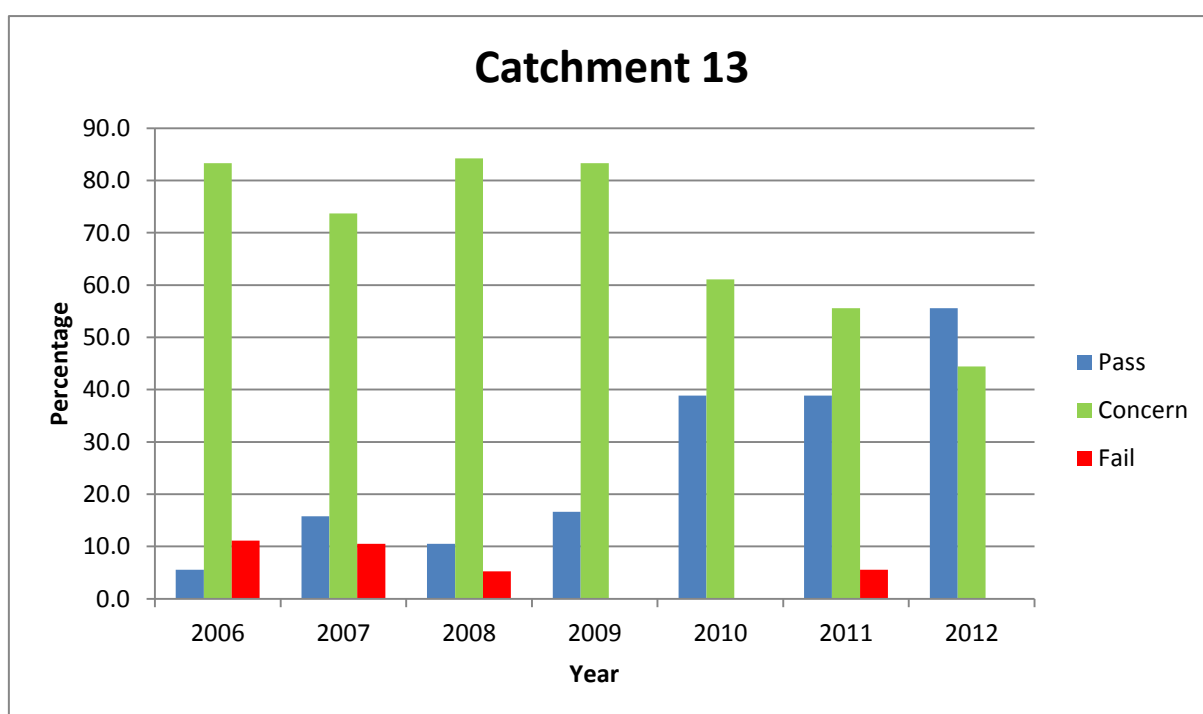


## 2012 Summary of River Water Quality in Hydrometric Area 13

| River   | Remarks   | Change from 2011  |
|---|---|---|
| <b>Bridgetown</b><br><b>13B01-0080 Q4 (2010)</b><br><b>13B01-0200</b><br><b>13B01-0400</b>  | The Bridgetown is a complex river system that drains low-lying land, and has been subject to land reclamation and arterial draining. Station 0080 is freshwater, stations 0200 and 0400 are tidal and mainly mud flats. The river discharges into Ballyteige Bay. BOD, o-phosphate and ammonia levels were elevated at stations 0200 & 0400.  | No change from 2011.                                    |
| <b>Corock</b><br><b>13C01-0020 Q4 (2010)</b><br><b>13C01-0100 Q4 (2010)</b><br><b>13C01-0300</b>                                  | This river discharges into Bannow Bay and the last station is tidal. BOD was high at all stations on occasion in 2012, and o-phosphate was also high at station 0100. Ecological quality was good in 2010.  | Deterioration in chemistry at station 0100 during 2012. |
| <b>Duncormick</b><br><b>13D01-0100</b><br><b>13D01-0220</b><br><b>13D01-0350</b><br><b>13D01-0400 Q4 (2010)</b>                   | This river discharges into Ballyteige Bay and the last station is tidal. Flows can be very low at the first station (0100) in summer. Overall quality is poor – particularly at station 0220 d/s Taghmon, where BOD, o-phosphate, ammonia and nitrite are all elevated. Station 0100 at Taghmon has elevated nitrate levels, and station 0350 (near Duncormick Railway station) also experienced high BOD and o-phosphate during 2012. Ecological quality upstream of station 0400 is poor to moderate. | No significant change from 2011.                        |
| <b>Mulmontry</b><br><b>13M01-0200 Q4 (2010)</b><br><b>13M01-0400</b><br><b>13M01-0700 Q4 (2010)</b>                               | This river is a tributary of the Corock. High BOD , o-phosphate and colour at all stations in June and August, after heavy rain. Ecological quality was good in 2010.   | No significant change from 2011.                        |
| <b>Owenduff</b><br><b>13O01-0100 Q4 (2010)</b><br><b>13O01-0180 Q4 (2010)</b><br><b>13O01-0240 Q4 (2010)</b><br><b>13O01-0300</b> | This river discharges into Bannow Bay and the last station is tidal. BOD, colour, o-Phosphate and nitrate were high at all stations at times during 2012, especially after heavy rain. Ecological quality was good in 2010.   | Slight deterioration in chemistry since 2011.           |
| <b>Tintern Abbey Stream</b><br><b>13T01-0900 Q3* (2012)</b>   | BOD was high in June and August after heavy rain, and siltation, noted in 2010 remains a problem in this stream.  | No change from 2011.                                    |

## Physico-chemical Trend in Water Quality in Catchment 13 – 2006 to 2012

|             | Pass | Concern | Fail | Total |
|-------------|------|---------|------|-------|
| <b>2006</b> | 1    | 15      | 2    | 18    |
| <b>2007</b> | 3    | 14      | 2    | 19    |
| <b>2008</b> | 2    | 16      | 1    | 19    |
| <b>2009</b> | 3    | 15      | 0    | 18    |
| <b>2010</b> | 7    | 11      | 0    | 18    |
| <b>2011</b> | 7    | 10      | 1    | 18    |
| <b>2012</b> | 10   | 8       | 0    | 18    |



## 2012 Summary of River Water Quality in Hydrometric Area 14

| River  | Remarks   | Change from 2011                 |
|--|---|----------------------------------|
| <b>Aghalona</b><br><b>14A02-0100 Q3-4 (2011)</b><br><b>14A02-0200 Q3-4 (2011)</b>  | <p>This river flows through a major tillage area, which explains the high nitrate levels seen once again in 2012. BOD and o-phosphate were also high in October. Biological assessment of Q3-4 in 2011 underlines the unsatisfactory moderate conditions.</p>   | No change observed.              |
| <b>Aughavaud</b><br><b>14A04-0580 Q 4-5 (2011)</b>   | <p>This river was added to the sampling programme in 2009 when the sub-catchment was designated a protected habitat under the Freshwater Pearl Mussel Regulations (SI 296 of 2009). BOD was elevated in October, otherwise chemical and biological monitoring indicate satisfactory conditions.</p>   | No change observed.              |
| <b>Barrow</b><br><b>14B01-0060</b><br><b>14B01-0100 Q4-5(2011)</b><br><b>14B01-0200 Q4 (2011)</b><br><b>14B01-0300 Q4 (2011)</b><br><b>14B01-0500 Q3-4 (2011)</b><br><b>14B01-0550</b><br><b>14B01-0700 Q4 (2011)</b><br><b>14B01-0780 Q4 (2011)</b><br><b>14B01-0900 Q3-4 (2011)</b><br><b>14B01-1000 Q4 (2011)</b><br><b>14B01-1300 Q4 (2011)</b><br><b>14B01-1500 Q3-4 (2011)</b><br><b>14B01-1600</b><br><b>14B01-1900 Q4 (2011)</b><br><b>14B01-2000</b><br><b>14B01-2200 Q3-4 (2011)</b><br><b>14B01-2450</b><br><b>14B01-2600 Q3-4 (2011)</b><br><b>14B01-2700 Q3-4 (2011)</b><br><b>14B01-2900 Q4 (2011)</b><br><b>14B01-3100 Q3-4 (2011)</b><br><b>14B01-3300 Q3-4 (2011)</b><br><b>14B01-3500 Q4 (2011)</b><br><b>14B01-3600 -</b> | <p>The Barrow rises in the Slieve Bloom mountains and flows through counties Laois, Kildare, Carlow, Kilkenny and Wexford. It converges with the Nore and Suir rivers before discharging to Waterford Harbour. The lowest reaches are tidal and they are dealt with under the Transitional Waters monitoring programme. Stations 1000, 1500 &amp; 1600 are in Kildare, but are included in this assessment of the Barrow for continuity. Ammonia levels have increased slightly at stations 0500, 0550, 0900 &amp; 1000 since 2011, this may be due in part to the high rainfall experienced during 2012. BOD &amp; o-phosphate have decreased slightly at station 1000. Biological monitoring of the river indicates good ecological conditions in most of this stretch, however quality remains moderate at station 0500 (d/s confluence with Owenass river and Mountmellick), and at stations 0900, 1500 and 2200. BOD and o-phosphate were slightly raised in June at Goresbridge, and BOD was slightly raised at Ballyteiglea Bridge in the same date. Biological monitoring indicates only moderate conditions at five of the seven stations monitored in Carlow.</p> | No significant change from 2011. |
| <b>Blackwater (Laois)</b><br><b>14B03-1000 Q4 (2011)</b>   | <p>This river is located between Portlaoise and Mountmellick in an agricultural area. River is coloured (naturally), otherwise satisfactory quality. BOD, ammonia and o-phosphate were high in August, otherwise chemical monitoring was satisfactory. Biological assessment in 2011 also indicated satisfactory quality.</p>   | No change from 2011.             |
| <b>Black (Borris)</b><br><b>14B06-1380 Q4-5 (2011)</b>   | <p>BOD was high on two occasions in 2012, otherwise chemistry was satisfactory, and biological monitoring indicates high ecological conditions.</p>   | No significant change from 2011. |

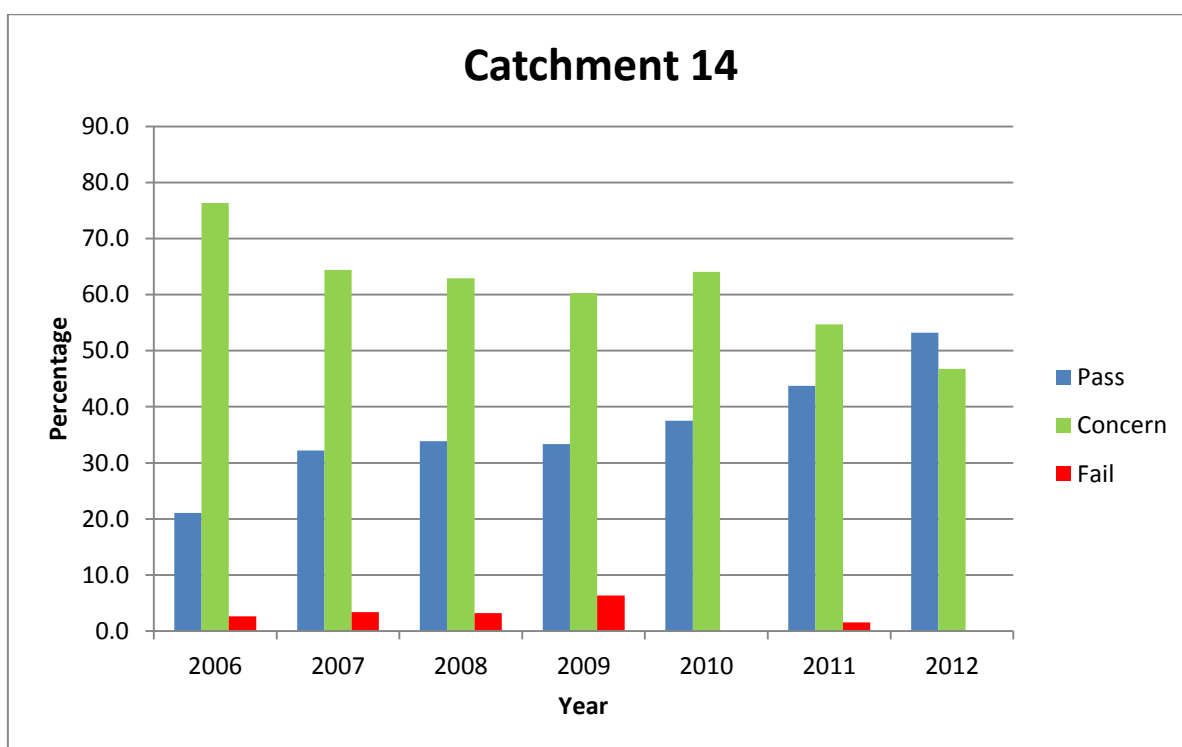
|   |   |                                      |
|---|---|--------------------------------------|
| <b>Burren</b><br><b>14B05-0020 Q4-5 (2011)</b><br><b>14B05-0100 Q3-4 (2011)</b><br><b>14B05-0200 Q3-4 (2011)</b><br><b>14B05-0300 Q4 (2011)</b><br><b>14B05-0400 Q3-4 (2011)</b><br><b>14B05-0500 -</b> | This river flows through a tillage area in north Co. Carlow hence the elevated nitrate levels in the lower reaches. Nitrates are high in the lower reaches of this river. o-Phosphate levels were high at station 0200, 0300 and 0400 in October. Biological monitoring reflects the moderate conditions at most of the stations surveyed.                                      | No significant change from 2011.     |
| <b>Ballymurphy (Barrow)</b><br><b>14B21-0500 Q4 (2011)</b>  | This river was added to the sampling programme in 2009 when the sub-catchment was designated a protected habitat under the Freshwater Pearl Mussel Regulations (SI 296 of 2009). Biological and chemical monitoring indicate satisfactory quality.  | No change from 2011.                 |
| <b>Crooked (Stradbally)</b><br><b>14C02-0600 Q3-4*(2011)</b>  | This river flows through agricultural land in Co. Laois and is a tributary of the Stradbally. High DO recorded in March, otherwise chemical monitoring was satisfactory, however the biological assessment in 2011 recorded abundant algal growth and heavy siltation and a deterioration from good to moderate quality since 2009.   | No change from 2011.                 |
| <b>Douglas</b><br><b>14D03-0100 Q4-5 (2011)</b><br><b>14D03-0300</b>  | This river flows through agricultural land in east Co. Laois. High BOD and o-phosphate recorded at station 0300 (Grange Br) in October (heavy rain). Biological monitoring indicates good ecological conditions at station 0100 (Gale's Bridge).  | No significant change from 2011.     |
| <b>Duiske</b><br><b>14D04-0150 Q4-5 at station 0100 (2011)</b>  | This is the SW abstraction point for Graiguenamanagh. Nitrates slightly elevated, otherwise satisfactory quality.   | No change from 2011.                 |
| <b>Dunrally Stream</b><br><b>14D05-0400 Q4 (2011)</b>   | Nitrates are elevated, otherwise chemical monitoring is satisfactory. Biological monitoring indicates good conditions.  | Improvement in chemistry since 2011. |
| <b>Fushoge</b><br><b>14F03-0250 Q3-4* (2011)</b>  | This river flows through agricultural land and is a tributary of the Barrow. BOD and o-phosphate were high in October (heavy rain). Biological monitoring indicates moderate quality, and excessive siltation was also recorded.  | No significant change from 2011.     |
| <b>Gowran</b><br><b>14G03-0100 Q3-4 (2011)</b><br><b>14G03-0300 Q4 (2011)</b><br><b>14G03-0400 Q2-3 (2011)</b>  | The Gowran is divided into two channels by a weir at station 0200, and stations 0300 and 0400 are on separate channels. High BOD and o-phosphate were recorded at station 0100 in October. Nitrates are moderate throughout the river. Biological monitoring indicates improved conditions north of Goresbridge in recent years, but conditions remain poor at Red Mill bridge. | No change from 2011.                 |
| <b>Kileen (Crumpaun)</b><br><b>14K04-0200</b>   | High BOD recorded in October during heavy rain, otherwise chemical monitoring was satisfactory.   | No change from 2011.                 |
| <b>Lerr</b><br><b>14L01-0300 Q3-4 (2011)</b>  | This river flows through areas of intensive tillage farming in Co. Kildare. Only station 0300 (u/s of Barrow) is monitored here. High nitrate levels are characteristic of this river and quality is only moderate with biological assessments indicating eutrophication and excessive siltation.   | No change from 2011.                 |

|  |  |   |
|--|--|---|
| <b>Mountain</b><br><b>14M01-0100 Q4-5 at</b><br><b>station 0070 (2011)</b><br><b>14M01-0200 Q4 (2009)</b>                            | The Mountain sub-catchment was designated a protected habitat under the Freshwater Pearl Mussel Regulations (SI 296 of 2009). BOD was high at station 0200 (d/s of Borris WWTP) in October (may be weather related). Overall quality is satisfactory.  | No significant change from 2011.                      |
| <b>Monefelim</b><br><b>14M03-1000 Q3-4 (2011)</b>  | A tributary of the Barrow, this river flows through an agricultural area. It was added to the work programme in 2007 under WFD. Chemistry is satisfactory, but biological assessments in 2011 indicate the deterioration to moderate quality at station 1000 remains. Siltation remains a problem in the upper reaches.                                | No significant change from 2011.                      |
| <b>Owenass</b><br><b>14O01-0050 Q4 (2009)</b><br><b>14O01-0220 Q4-5 (2011)</b><br><b>14O01-0300 Q3-4*(2011)</b>                      | This river rises in the Slieve Bloom mountains, and flows through agricultural land and through Mountmellick in Co. Laois. A welcome reduction in o-phosphate levels d/s Mountmellick STW was noted, and while biological monitoring indicates only moderate quality, there is an improved diversity of sensitive macroinvertebrates at this location. | Improved chemistry since 2011.                        |
| <b>Old Leighlin Stream</b><br><b>14O02-0700 Q3-4 (2011)</b>  | A tributary of the Barrow, this river flows through an agricultural area. It was added to the work programme in 2007 under WFD. The slight improvement in chemical quality noted in 2011 is reversed in 2012 with high BOD, colour and o-Phosphate measured in June and October. Biological assessments indicate eutrophic conditions.                 | Chemistry indicates slight deterioration during 2011. |
| <b>Powerstown Stream (Kilkenny)</b><br><b>14P02-0400 Q4 (2011)</b>   | This river joins the Barrow at south of Goresbridge, it was added to the work programme in 2007 under the WFD. It should not be confused with the Powerstown stream that flows beside the Powerstown landfill in Co. Carlow. Satisfactory chemistry, however biological assessments noted excessive siltation and compaction of the river bed.         | No change from 2011.                                  |
| <b>Pollmounty</b><br><b>14P03-0100</b><br><b>14P03-0200</b><br><b>14P03-0300 Q4 (2011)</b>   | Nitrates are elevated at stations 0200 and 0300, otherwise chemical was satisfactory in 2012. Biological monitoring indicated good quality downstream of the Aughananagh River confluence in 2011.   | No significant change from 2011.                      |
| <b>Stradbally (Bauteaogue)</b><br><b>14S02-0100 Q4 (2011)</b><br><b>14S02-0300</b><br><b>14S02-0400 Q4 (2011)</b>                    | High DO recorded through river at times. BOD, o-phosphate and colour all high in October during heavy rain. Biological monitoring indicates good ecological conditions.  | No significant change from 2011.                      |
| <b>Triogue</b><br><b>14T01-0100 Q3-4 (2011)</b><br><b>14T01-0170</b><br><b>14T01-0300 Q3 (2011)</b><br><b>14T01-0400 Q3-4 (2011)</b> | The Triogue is a small river that flows through Portlaoise. The final effluent from Portlaoise WWTP discharges to it u/s of station 0170. A slight increase in ammonia levels d/s of Portlaoise WWTP was recorded in 2012, however BOD levels decreased at the same location. Biological assessments indicate that quality remains only moderate.      | No significant change from 2011.                      |

|  |  |                                  |
|--|--|----------------------------------|
| <b>Tully Stream</b><br><b>14T02-0600 Q4 (2011)</b> | The Tully stream flows through Kildare town and can be seriously polluted between there and the confluence with the Barrow. Because of possible effects on the Barrow the last station on the Tully has been retained in the sampling programme (despite not being in the laboratory's normal area). Physico-chemical monitoring is satisfactory, and ecological quality was good in 2011. | No significant change from 20101 |
|--|--|----------------------------------|

## Physico-chemical Trend in Water Quality in Catchment 14 – 2006 to 2012

|             | Pass | Concern | Fail | Total |
|-------------|------|---------|------|-------|
| <b>2006</b> | 16   | 58      | 2    | 76    |
| <b>2007</b> | 19   | 38      | 2    | 59    |
| <b>2008</b> | 21   | 39      | 2    | 62    |
| <b>2009</b> | 21   | 38      | 4    | 63    |
| <b>2010</b> | 24   | 41      | 0    | 64    |
| <b>2011</b> | 28   | 35      | 1    | 64    |
| <b>2012</b> | 33   | 29      | 0    | 62    |





## 2012 Summary of River Water Quality in Hydrometric Area 15

The Nore sub-catchment upstream of Ballyragget is listed as a protected habitat under the Freshwater Pearl Mussel Regulations (SI 296 of 2009). The protected habitats include the main channel of the Nore upstream of Ballyragget, and all of the following tributaries: Ballyroan, Cappanacloghy, Delour, Donaghmore, Erkina, Errill, Goul, Gully, Killeen (Slieve Blooms), Mountrath, Owveg, Rathdowney Stream and Tonet.

| River   | Remarks  | Change from 2011                 |
|---|--|----------------------------------|
| <b>Arrigle</b><br><b>15A02-0100 Q4 (2010)</b><br><b>15A02-0300 Q4-5 (2010)</b>                                  | High BOD (9.0 mg/l O <sub>2</sub> ) recorded in July at station 0100, otherwise quality is satisfactory.   | No change from 2011.             |
| <b>Ballyroan (Gloreen)</b><br><b>15B01-0100 Q3-4 (2010)</b><br><b>15B01-0200 Q3 (2010)</b>                      | High BOD, ammonia, o-phosphate and nitrate recorded at times during 2012 at station 0200 (d/s Abbeyleix) and biological assessments indicate only poor quality at this station.  | No change from 2011.             |
| <b>Bregagh (Kilkenny)</b><br><b>15B02-0100</b><br><b>15B02-0300</b><br><b>15B02-0350 Q3 (2010)</b>              | This tributary of the Nore flows through agricultural land and then Kilkenny City. The river can be dry at times in the summer. o-Phosphate was high in October (after heavy rain), and biological assessment indicates moderate quality at station 0350 (Brewery Bridge).                                       | No change from 2011.             |
| <b>Brownstown (Pococke)</b><br><b>15B04-1100 Q3-4*(2010)</b>  | A tributary of the Nore, south of Kilkenny, this river is subject to intermittent discharges from agriculture and from the IDA industrial estate at Purcellsinch, Kilkenny. High BOD and o-phosphate in October (after heavy rain), and biological monitoring indicated moderate conditions with some siltation. | No significant change from 2011. |
| <b>Castlecomer Stream</b><br><b>15C01-0100 Q 4 (2010)</b>   | Colour can be high at times, otherwise quality is satisfactory.  | No change from 2011.             |
| <b>Clough</b><br><b>15C03-0300 Q 4 (2010)</b>   | DO is high at times, but biological monitoring in 2010 indicated satisfactory conditions.  | No significant change from 2011. |
| <b>Cappanacloghy</b><br><b>15C06-0600</b><br><b>15C06-0900 Q4 (2007)</b><br><b>(Q3 at station 0400 in 2011)</b> | This river is downstream of Coolnamona bog which causes high colour and siltation in the river. BOD and ammonia were high at station 0600 (Cloncourse Br) in August.   | No change from 2011.             |
| <b>Coalbrook Stream</b><br><b>15C20-0040 Q4 (2010)</b>  | Rising in the Slieveardagh Hills, this tributary of the Kings River flows past the village of Coalbrook in South Tipperary. BOD and colour were high in May due to heavy rain. Ecological quality was good in 2010.  | No significant change from 2011. |
| <b>Delour</b><br><b>15D01-0060 Q4-5 (2011)</b><br><b>15D01-0400 Q4-5 (2011)</b>                                 | The Delour rises in the Slieve Bloom Mountains and is a tributary of the Nore. Water can be coloured at times, but ecological quality is high.   | No change from 2011.             |

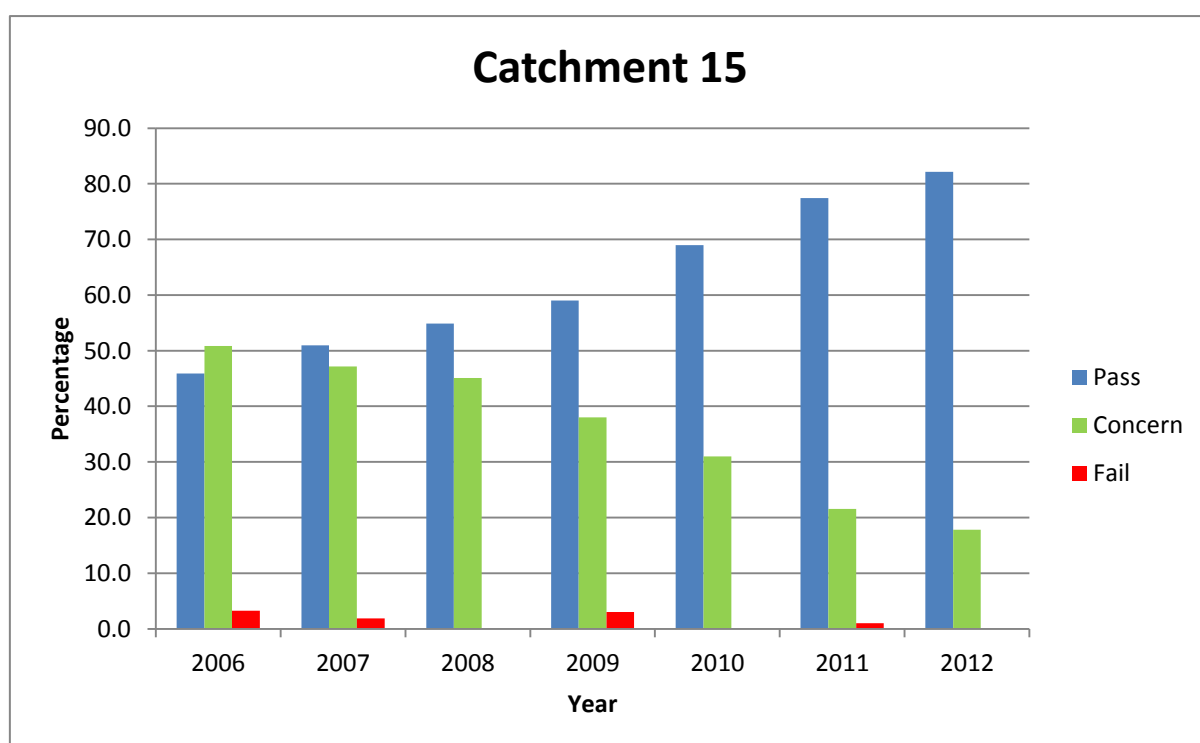
|  |   |   |
|--|---|---|
| <b>Dinin</b><br><b>15D02-0080 Q3-4 (2010)</b><br><b>15D02-0250</b><br><b>15D02-0400 Q4 (2010)</b><br><b>15D02-0450 Q4-5 (2010)</b><br><b>15D02-0600 Q4 (2010)</b><br><b>15D02-0700 Q4 (2010)</b><br><b>15D02-0800 Q4 (2010)</b>              | <p>There are two branches (north and south) that come together into a main channel for the final two sampling points. Wide variation in DO (46% to 131% satn) noted during the year at station 0250 (d/s Massford WWTP). This river can also be highly coloured at times. Bank erosion was noted at station 0080 in 2010.</p>   | <p>No significant change from 2011.</p>                                 |
| <b>Donaghmore</b><br><b>15D03-0700 Q3-4 (2010)</b>   | <p>This river is a tributary of the Erkina in Co. Laois. Colour can be slightly elevated at times, and ecological quality is moderate.</p>  | <p>No change from 2011.</p>   |
| <b>Erkina</b><br><b>15E01-0100</b><br><b>15E01-0200 Q3-4 (2010)</b><br><b>15E01-0550 Q4 (2010)</b>   | <p>The Erkina is a tributary of the Nore and flows through Rathdowney and Durrow. Decrease in BOD, ammonia and o-phosphate noted at station 0200 (d/s Rathdowney). Biological monitoring indicates moderate quality.</p>  | <p>Improvement at station 0200 continues.</p>                           |
| <b>Errill</b><br><b>15E03-0400</b><br><b>(Q3-4 at station 0500 in 2010)</b>  | <p>Colour is naturally high, BOD levels have reduced slightly from 2011 levels.</p>   | <p>Slight reduction in BOD since 2011.</p>                              |
| <b>Glory</b><br><b>15G01-0045 Q2-3 (2010)</b><br><b>15G01-0200 Q4 (2010)</b><br><b>15G01-0300 Q4 (2010)</b>  | <p>This river flows through agricultural land and the villages of Windgap, Kilmaganny and Dunnamaggin in Co. Kilkenny. On-going poor ecological quality at station 0045 (d/s Kilmaganny) as a result of sewage discharges.</p>  | <p>No change from 2011.</p>   |
| <b>Goul</b><br><b>15G02-0100</b><br><b>15G02-0200</b><br><b>15G02-0300 Q3-4 (2010)</b><br><b>15G02-0500 Q4 (2010)</b>  | <p>The Goul is a tributary of the Erkina and flows past Johnstown and Urlingford in Co. Kilkenny, before flowing into Co. Laois. It receives effluent from the lead and zinc mine at Galmoy. The high nutrients noticed in 2011 were not apparent in 2012. Biological monitoring indicates moderate quality at all stations except station 0500 where quality is good. Production at the mine ceased in late 2012. Ammonia and BOD levels have decreased at station 0500 in recent years.</p> | <p>Chemistry has improved since 2011.</p>                               |
| <b>Gully</b><br><b>15G03-0100 Q4 (2010)</b><br><b>15G03-0300 Q4 (2010)</b>   | <p>BOD, ammonia and o-phosphate concentrations have decreased in this river in recent years. Ecological conditions are good.</p>  | <p>Good quality in this river continues.</p>                            |
| <b>Holly Park Stream</b><br><b>15H01-0200</b><br><b>15H01-0300</b>   | <p>This river flows through agricultural land in south Co. Laois. Nutrient and BOD levels decreased during 2012 at station 0200, however nutrients remain elevated at station 0300.</p>   | <p>Improved chemistry u/s, but no significant change from 2011 d/s.</p> |
| <b>Killeen (S. Blooms)</b><br><b>15K01-0200 Q4-5 (2011)</b>  | <p>Natural colour can be high at times, but ecological quality is high.</p>   | <p>No change from 2011.</p>   |
| <b>Kings</b><br><b>15K02-0100</b><br><b>15K02-0200 Q4 (2010)</b><br><b>15K02-0400</b><br><b>15K02-0500 Q3-4 (2010)</b><br><b>15K02-0550</b><br><b>15K02-0600 Q4 (2010)</b><br><b>15K02-0800 Q3-4 (2010)</b><br><b>15K02-0900 Q3-4 (2010)</b> | <p>This river flows through Co. Tipperary and Co. Kilkenny, before it joins the Nore d/s of Bennettsbridge. It flows through Callan and Kells in Co. Kilkenny. BOD and ammonia were elevated from station 0200 (d/s Ballingarry STW) to station 0600 (d/s Callan) in May. o-Phosphate can also be elevated at times. Biological monitoring also indicates only moderate quality over much of the river's course.</p>  | <p>No significant change from 2011.</p>                                 |

|   |   |   |
|---|---|---|
| <b>Little Arrigle</b><br><b>15L01-0200</b>  | As in previous years, high BOD, ammonia and nitrite on occasion at Goat's Bridge indicate intermittent pollution.   | No change from 2011.  |
| <b>Mountrath</b><br><b>15M01-0080 Q4-5 (2011)</b><br><b>15M01-0100 Q4 (2011)</b><br><b>15M01-0300 Q4 (2011)</b>   | River can be coloured at times, otherwise the physico-chemical results are satisfactory, and this is reflected good to high ecological quality throughout the river.  | No change from 2011.  |
| <b>Muckalee</b><br><b>15M02-0100 Q4-5 (2010)</b><br><b>15M02-0140</b><br><b>15M02-0200 Q4 (2010)</b>  | This river provides raw water for Kilkenny City's drinking water supply at station 0140. Colour is naturally high, and BOD was high at station 0140 in August, otherwise quality is satisfactory. o-Phosphate reduced slightly at station 0200 during 2012.   | No significant change from 2011.  |
| <b>Munster</b><br><b>15M03-0200</b><br><b>15M03-0450 Q4 (2010)</b><br><b>15M03-0500 Q4 (2010)</b><br><b>15M03-0600 Q4 (2010)</b><br><b>15M03-0700 Q4 (2010)</b>   | There are two branches to this river – the east branch (formerly known as the Tullaroan Stream) and the main branch. The final station is below the confluence of the two branches. Low flows can be observed in the upper reaches at times. BOD was high in the river in May, and in contrast to 2011, no station was dry when visited in 2012. Biological monitoring indicates satisfactory quality.  | No significant change from 2011.  |
| <b>Nore</b><br><b>15N01-0080 Q4 (2010)</b><br><b>15N01-0100</b><br><b>15N01-0200</b><br><b>15N01-0300 Q4 (2010)</b><br><b>15N01-0400</b><br><b>15N01-0500 Q4 (2010)</b><br><b>15N01-0600</b><br><b>15N01-0700 Q4 (2010)</b><br><b>15N01-0800</b><br><b>15N01-0900 Q4 (2010)</b><br><b>15N01-1000</b><br><b>15N01-1100 Q4 (2010)</b><br><b>15N01-1200</b><br><b>15N01-1300 Q4 (2010)</b><br><b>15N01-1400</b><br><b>15N01-1500</b><br><b>15N01-1600</b><br><b>15N01-1700 Q4 (2010)</b><br><b>15N01-1750</b><br><b>15N01-1900</b><br><b>15N01-1950 Q4 (2010)</b><br><b>15N01-1980</b><br><b>15N01-2000 Q4* (2010)</b><br><b>15N01-2100</b><br><b>15N01-2180</b><br><b>15N01-2200 Q4 (2010)</b><br><b>15N01-2300 Q4 (2010)</b><br><b>15N01-2400 Q4 (2010)</b><br><b>15N01-2500</b> | This river is 141 km in length and has a catchment area of 2530 km <sup>2</sup> . It flows through counties Tipperary, Laois and Kilkenny, before joining the River Barrow at New Ross. These rivers then join the Suir and flow into Waterford Harbour. The Nore is a Designated Salmonid River under the Freshwater Fish Directive (78/659/EEC). It flows through mainly agricultural land, but also some peatland. It also passes through, or close to Borris-in Ossory, Mountrath, Abbeyleix, Durrow, Ballyragget, Kilkenny, Bennettsbridge and Thomastown. BOD and ammonia were elevated at stations 0100 to 0300 in April following heavy rain. The river is coloured at station 0300, d/s Monaincha Bog. Biological monitoring in 2010 indicated good ecological quality over most of the river. o-Phosphate and nitrate were high at station 1980 (u/s Kilkenny WWTP) in March. BOD and o-phosphate levels have been reducing in recent years. With the exception of station 2320 (1km d/s Thomastown), where ecological conditions remain poor, overall quality is satisfactory. | Slight increase in average ammonia concentration at station 0300 during 2012, otherwise no significant change from 2011. Biological monitoring in 2010 indicates an improvement in ecological quality over most of the river, but it remains moderate d/s Thomastown. |
| <b>Nuenna</b><br><b>15N02-0100 Q3-4 (2010)</b><br><b>15N02-0300 Q3-4 (2010)</b>   | BOD and ammonia were high at station 0100 in May, and nitrates are elevated at both stations. Biological monitoring indicates only moderate conditions.   | No change from 2011.  |

|  |   |                                  |
|--|---|----------------------------------|
| <b>Owveg (or Owenbeg)</b><br><b>15O01-0050 Q4 (2010)</b><br><b>15O01-0160 Q4 (2010)</b><br><b>15O01-0400 Q4 (2010)</b> | This river rises in Co. Laois and forms part of the Kilkenny/Laois border. BOD, ammonia and o-Phosphate were high throughout the river in October (after heavy rain). Ecological conditions are good at all stations.       | No significant change from 2011. |
| <b>Rathdowney Stream</b><br><b>15R03-0700 Q3-4*(2010)</b><br><b>16R03-1100 Q3-4*(2010)</b>                             | This is a small stream that rises in Galmoy (near the lead and zinc mine). It joins the Erkina near Rathdowney. Nitrates are elevated at station 0700, and ecological quality is moderate, with siltation at both stations. | No change from 2011.             |
| <b>Stoneyford Stream</b><br><b>15S01-0100</b>  | A tributary of the Kings, this river flows through Stoneyford village. Elevated ammonia recorded in March, otherwise quality is satisfactory.   | No significant change from 2011  |
| <b>Tonet</b><br><b>15T01-0400 Q4 (2011)</b><br><b>15T01-0600 Q4 (2011)</b>   | The Tonet rises in the Slieve Bloom mountains and flows in to the Delour. Physico-chemical and ecological monitoring are satisfactory.  | No change from 2011.             |

## Physico-chemical Trend in Water Quality in Catchment 15 – 2006 to 2012

|             | Pass | Concern | Fail | Total |
|-------------|------|---------|------|-------|
| <b>2006</b> | 56   | 62      | 4    | 122   |
| <b>2007</b> | 54   | 50      | 2    | 106   |
| <b>2008</b> | 56   | 46      | 0    | 102   |
| <b>2009</b> | 59   | 38      | 3    | 100   |
| <b>2010</b> | 69   | 31      | 0    | 100   |
| <b>2011</b> | 79   | 22      | 1    | 102   |
| <b>2012</b> | 83   | 18      | 0    | 101   |



## 2012 Summary of River Water Quality in Hydrometric Area 16

| River  | Remarks   | Change from 2011   |
|--|---|--|
| <b>Aherlow</b><br><b>16A01-0100</b><br><b>16A01-0200 Q4(2011)</b><br><b>16A01-0300 Q4(2011)</b><br><b>16A01-0500 Q4(2011)</b><br><b>16A01-0600</b><br><b>16A01-0700 Q4(2011)</b><br><b>16A01-0800 Q4-5(2011)</b><br><b>16A01-0900 Q4-5(2011)</b> | <p>The Aherlow is a Designated Salmonid River under the Freshwater Fish Directive (78/659/EEC). It flows through Co. Limerick and South Tipperary. BOD, ammonia and o-phosphate were occasionally high at several stations in April and August (the river has a history of pollution from slurry run-offs after heavy rain). Monitoring in 2011 indicated good to high ecological conditions.</p>   | No change from 2011.   |
| <b>Anner</b><br><b>16A02-0100 Q3 (2011)</b><br><b>16A02-0200</b><br><b>16A02-0300</b><br><b>16A02-0500</b><br><b>16A02-0600 Q3-4 (2011)</b><br><b>16A02-0800 Q4 (2011)</b><br><b>16A02-0900 Q4 (2011)</b><br><b>16A02-1100 Q4 (2011)</b>         | <p>There are two branches in the upper Anner – the first three stations are on the western branch (Drangan), the next is on the eastern branch (Mullinahone) the remaining stations are on the main channel after the confluence. Physico-chemical results were slightly improved from 2011, especially on the eastern branch (but this may be related to high rainfall), however BOD, ammonia, nitrite and o-phosphate were still high on occasion. Biological monitoring indicated good quality in the lower reaches in 2011.</p> | Slight improvement in nutrient and BOD levels in 2012, but it remains to be seen if this is a trend. |
| <b>Ara</b><br><b>16A03-0100 Q3 (2011)</b><br><b>16A03-0300 Q3 (2011)</b><br><b>16A03-0400</b><br><b>16A03-0600 Q4 (2011)</b>   | <p>The Ara flows through Tipperary town and is a tributary of the Aherlow. BOD colour and o-phosphate were high at all stations in August after heavy rain, otherwise nutrient levels decreased slightly during 2012. Ecological monitoring indicated moderate conditions u/s and d/s of Tipperary Town.</p>  | Slight improvement in nutrient levels in 2012, but it remains to be seen if this is a trend.         |
| <b>Arglo</b><br><b>16A04-0100 Q4 (2011)</b><br><b>16A04-0200 Q4 (2011)</b>   | Overall quality is good.  | No change from 2011.   |
| <b>Black (Twomileborris)</b><br><b>16B01-0100 Q4 (2011)</b>  | <p>This river is quite coloured. Biological assessment in 2011 indicated an improvement from moderate conditions observed in 2008.</p>  | No change from 2011.   |
| <b>Blackwater (Kilmacow)</b><br><b>16B02-0080 Q4 (2012)</b><br><b>16B02-0300 Q4 (2012)</b><br><b>16B02-0450 Q3-4 (2012)</b>  | <p>Slight reduction on o-phosphate concentration over the length of the river. Chemistry is satisfactory, but only moderate ecological quality was recorded in October 2012.</p>  | No significant change from 2011.   |
| <b>Bregagh (Tipperary)</b><br><b>16B03-0200</b><br><b>16B02-0400</b>   | <p>River coloured at station 0200 near Littleton Bog, otherwise satisfactory physico-chemical results.</p>  | The deterioration noted at station 0200 in 2011 appears to have been reversed in 2012.               |
| <b>Burncourt</b><br><b>16B04-0200</b><br><b>16B04-0310 Q4 at station 0300 (2011)</b>   | <p>This river rises in the Galtee mountains and is a tributary of the Tar. Colour was high on occasion in 2012, otherwise quality is satisfactory. Ecology was high to good on this stream in 2011.</p>   | No change from 2011.   |

|   |  |  |
|---|--|--|
| <b>Black Stream (Cashel)</b><br><b>16B05-0100 Q3 (2011)</b>   | This small stream receives sewage discharge at Cashel. BOD, colour and o-phosphate were high in August after heavy rain. DO has been decreasing gradually since 2010. Poor ecological quality (though crayfish were noted for the first time in 2011).   | Decreasing DO is of concern.   |
| <b>Clashawley</b><br><b>16C01-0100</b><br><b>16C01-0200</b><br><b>16C01-0300</b><br><b>16C01-0400 Q4 (2011)</b><br><b>16C01-0500 Q4 (2011)</b><br><b>16C01-0600 Q4 (2011)</b> | There are two branches to the Clashawley, which join to form the main channel for the final two stations. BOD was high at station 0200 in October and o-phosphate was elevated d/s Killenaule. Ecology is good over the length of the river.   | No significant change from 2011.   |
| <b>Clodiagh (Tipperary)</b><br><b>16C02-0080 Q4-5 (2011)</b><br><b>16C02-0200 Q4 (2011)</b><br><b>16C02-0500</b>  | Physico-chemical monitoring is satisfactory, and ecological monitoring indicates high or good ecological quality.  | No change from 2011.   |
| <b>Clodiagh (Waterford)</b><br><b>16C03-0050</b><br><b>16C03-0100</b><br><b>16C03-0300 Q4 (2011)</b><br><b>16C03-0400 Q4 (2011)</b><br><b>16C03-0600</b><br><b>16C03-0700</b> | The Clodiagh rises in the Comeraghs and flows through Clonea and Portlaw. Station 0600 flows through the old tannery in Portlaw. Ammonia levels at station 0600 (caused by leachate from landfill at the old tannery in Portlaw which closed in 1985) were high again during 2012. BOD, o-phosphate and colour were high at several stations in August during heavy rain.  | No significant change during 2012.   |
| <b>Carrickphilip</b><br><b>16C05-0100</b>   | This small stream feeds Knockaderry reservoir. DO levels were low (possibly due to groundwater inflow) throughout the year.  | No significant change from 2011.   |
| <b>College Stream</b><br><b>16C10-0100</b>  | This stream is an abstraction point for the Galtee Regional water supply. Can be coloured at times, otherwise satisfactory quality.  | No change from 2011.   |
| <b>Drish</b><br><b>16D02-0068</b><br><b>16D02-0070 Q3/0 (2011)</b><br><b>16D02-0100 Q3 (2011)</b><br><b>16D02-0200 Q3-4 (2011)</b><br><b>16D02-0400 Q4 (2011)</b>             | This river is adjacent to the Lisheen lead and zinc mine, which discharges u/s of station 0070 (NE of Castletown). Ammonia and nitrite levels that were high u/s of the mine discharge in 2011 decreased in 2012, however they remain high d/s of the mine discharge and further downstream at station 0100(Boolbeha Bridge) Quality improves at station 0200 (Athlummon). The river is also coloured – especially at station 0068 d/s of Derryfada Bog. | No significant change since 2011. Biological monitoring in 2011 indicated an improvement u/s Suir confluence (station 0400), but toxic effects remain d/s of the mine. |
| <b>Duag</b><br><b>16D03-0100 Q4 (2011)</b><br><b>16D03-0400 Q4 (2011)</b><br><b>16D03-1100 Q4 (2011)</b><br><b>16D03-1400</b>   | The final station on this river (1400) is a tributary of the Duag (Mountanglesby Spring) and is used as a raw water supply. BOD, colour, o-phosphate and ammonia elevated u/s Ballyporeen occasionally, and BOD and colour elevated d/s Ballyporeen WWTP and at Clogheen, all after rain.  | No significant change from 2011.   |
| <b>Dawn</b><br><b>16D04-0100</b><br><b>16D04-0300</b><br><b>16D04-0500</b>  | The first station on this river is an abstraction point for East Waterford Regional water supply. BOD, colour and o-Phosphate were high in August during heavy rain.   | No significant change from 2011.   |
| <b>Fidaghta</b><br><b>16F01-0100 Q3 (2011)</b><br><b>16F01-0300 Q3-4 (2011)</b>   | Nitrates are slightly elevated, otherwise chemical quality is satisfactory. Ecological quality is poor to moderate.  | No change from 2011.   |



|  |  |  |
|--|--|--|
| <b>Farneybridge</b><br><b>16F02-0500 Q3-4 (2011)</b>   | BOD was high in September, otherwise physico-chemical monitoring was satisfactory. Biological monitoring indicates moderate ecological conditions.   | No significant change from 2011.   |
| <b>Fishmoyne</b><br><b>16F03-0100</b><br><b>16F03-0200 Q4 (2011)</b><br><b>16F03-0300 Q3 (2011)</b>  | Nitrite and BOD were high at station 0100 in September, and sewage fungus was observed at the same location on the same date.  | No significant change from 2011, but the presence of sewage fungus is a concern. |
| <b>Glenary</b><br><b>16G02-0050</b>  | This river rises in the Comeragh Mountains, the first station is a raw water abstraction point for Clonmel. Cryptosporidium contamination was reported in 2007, but not observed since. Satisfactory quality   | No change from 2011.   |
| <b>Glenbrook</b><br><b>16G04-0100</b><br><b>16G04-0200</b>   | This tributary of the Suir flows through Carrick-on-Suir. Colour and o-phosphate were high on occasion at both stations.   | No significant change from 2011.   |
| <b>Lingaun</b><br><b>16L01-0050 Q4-5 (2011)</b><br><b>16L01-0200 Q4 (2011)</b><br><b>16L01-0300 Q4-5 (2011)</b><br><b>16L01-0400 Q4 (2011)</b><br><b>16L01-0550</b><br><b>16L01-0600 Q3-4 (2011)</b>   | This river rises in Slievenamon and flows along the Kilkenny/Tipperary border. The water supply for Carrick-on-Suir is abstracted near station 0550. Chemistry is satisfactory, but ecological quality is only moderate at The Three Bridges (station 0600).   | No change from 2011.   |
| <b>Moyle</b><br><b>16M01-0100</b><br><b>16M01-0200</b><br><b>16M01-0300</b><br><b>16M01-0400 Q3 (2011)</b>   | There is a history of serious pollution in this river d/s National Proteins (station 0100). The upper stations can have very low or no flow in dry weather. Nitrate and o-phosphate were high on occasion at the first two stations. Poor ecological quality where sampled.                                | No change from 2011.   |
| <b>Multeen</b><br><b>16M02-0050</b><br><b>16M02-0300 Q4 (2011)</b><br><b>16M02-0500 Q4 (2011)</b><br><b>16M02-0520</b><br><b>16M02-0600 Q4-5 (2011)</b><br><b>16M02-0900 Q4-5 (2011)</b><br><b>16M02-1000 Q4-5 (2011)</b><br><b>16M02-1100 Q4-5 (2011)</b> | There are two raw water abstraction points on the Multeen for Dundrum water supply. The river is also an important habitat for the freshwater pearl mussel and crayfish. River can be coloured at times, otherwise physico-chemical monitoring was satisfactory. Ecological quality was high to good also. | No significant change from 2011.   |
| <b>Nier</b><br><b>16N01-0010 Q4-5 (2011)</b><br><b>16N01-0100 Q4-5 (2011)</b><br><b>16N01-0400 Q4 (2011)</b>   | This river rises in the Comeraghs and flows through Ballymacarbry village. Physico-chemical results were satisfactory during 2012, and ecological quality is high to good.   | No change from 2011.   |
| <b>Outeragh Stream</b><br><b>16O01-0100</b><br><b>16O01-0200 Q3-4 (2012)</b>   | Station 0100 is d/s of New Inn village (but u/s of WWTP discharge) and station 0200 is d/s Dairygold Creamery at New Inn. Nitrates are elevated, and ecological quality is moderate.   | No change from 2011.   |
| <b>Pollanassa</b><br><b>16P02-0100 Q4 (2011)</b><br><b>16P02-0200</b>  | This river is a tributary of the Blackwater (Kilmacow). Station 0200 is an abstraction point for Mooncoin Regional Water supply. Quality was satisfactory.   | No change from 2011.   |

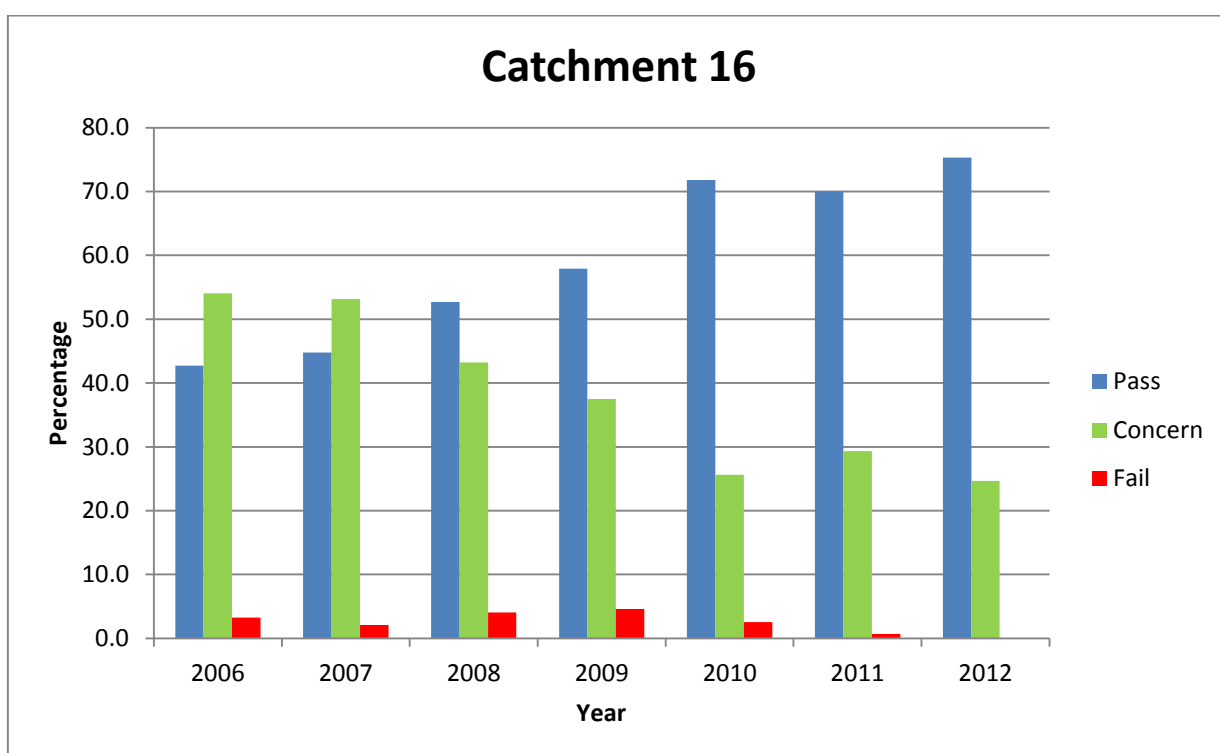


|  |  |   |
|--|--|---|
| <b>Rossestown</b><br><b>16R01-0040 Q3* (2011)</b><br><b>16R01-0150 Q3 (2011)</b><br><b>16R01-0300 Q3-4 (2011)</b>  | This river flows near the Lisheen mine and Derryfada Bog - the first station is d/s of the mine discharge. Overall quality is poor, particularly at stations 0040 (d/s mine) and 0150 (W of mine) where ammonia was high. Biological monitoring in 2011 indicated only poor to moderate quality also.  | No significant change from 2011.  |
| <b>Rockwell Stream</b><br><b>16R02-0200</b>  | BOD , colour and o-phosphate were high in August, otherwise satisfactory quality.  | No change from 2011.  |
| <b>Suir</b><br><b>16S02-0100 Q4 (2011)</b><br><b>16S02-0200 Q3-4 (2011)</b><br><b>16S02-0300 Q3-4 (2011)</b><br><b>16S02-0400</b><br><b>16S02-0500 Q4 (2011)</b><br><b>16S02-0600 Q3 (2011)</b><br><b>16S02-0800</b><br><b>16S02-0900 Q3-4 (2011)</b><br><b>16S02-1100 Q3-4 (2011)</b><br><b>16S02-1200 Q4 (2011)</b><br><b>16S02-1300 Q4 (2011)</b><br><b>16S02-1400 Q4 (2011)</b><br><b>16S02-1500 Q4 (2011)</b><br><b>16S02-1600 Q4 (2011)</b><br><b>16S02-1700 Q4 (2011)</b><br><b>16S02-1900</b><br><b>16S02-2000 Q3-4 (2011)</b><br><b>16S02-2200 Q4 (2011)</b><br><b>16S02-2300 Q4 (2011)</b><br><b>16S02-2400 Q4 (2011)</b><br><b>16S02-2600</b><br><b>16S02-2700 Q4 (2011)</b><br><b>16S02-2740 Q4 (2011)</b><br><b>16S02-2800</b><br><b>16S02-2900</b> | This river is 184 km long and has a catchment area of 3613 km <sup>2</sup> . The Suir rises in North Tipperary and flows through Tipperary, along the Tipperary/ Waterford and the Kilkenny/Waterford borders before discharging into Waterford Harbour. Physico-chemical monitoring was satisfactory during 2012, BOD is still periodically elevated at station 0200, but average concentration has reduced in recent years. Chemistry remains good at station 0300 (d/s Templemore STW), and this is reflected in improved ecology.<br>The high DOs observed at Kilsheelin Bridge (station 2700) and at Coolnamuck Weir (station 2800) in 2011 were not observed this year. Overall biological monitoring indicates good ecological conditions on this stretch of the river, however quality deteriorated from Q4 to Q3-4 at station 2000 (Ardfinnan Bridge) in 2011. Overall biological monitoring also indicates an improving situation. | The improvement in water quality seen in recent years continues.  |
| <b>St. John's River (&amp; tributaries)</b><br><b>16S03-0050</b><br><b>16S03-0100</b><br><b>16S03-0200</b><br><b>16S03-0300 Q2 (2012)</b><br><b>16S03-0330</b><br><b>16S03-0350</b><br><b>16S03-0400</b><br><b>15S03-0500</b><br><b>16S03-0600</b><br><b>16S03-0310(trib)</b><br><b>16S03-0315(trib)</b><br><b>16S03-0320(trib)</b>  | This river flows through Waterford City and a significant portion of it is tidal. Sewage, industrial effluents and leachates that previously were discharged to the river are now collected and treated at the new WWTP at Belview Port which was commissioned in 2008-2009. This small river is seriously polluted along most of its length. DOs are frequently low; BOD, ammonia, o-phosphate, nitrite and nitrate are frequently elevated. Quality is reasonably satisfactory above Waterford City (Station 0330 – Sheep's Bridge).Bad ecological quality at Bleach Bridge in 2012.   | The quality of this river remains poor, despite the improved collection and treatment system for sewage, leachate and industrial effluents that came into operation in 2008/2009. |
| <b>Smartscastle Stream</b><br><b>16S07-0800 Q3-4 (2012)</b>  | This stream was added to the work programme in 2007 under the Water Framework Directive. It flows through agricultural land in SE Kilkenny. It is a tributary of the Blackwater (Kilmacow). Chemistry is satisfactory, but the deterioration in ecological conditions from good to moderate is disappointing.  | Deterioration in ecological conditions to moderate.   |

|   |  |                                  |
|---|--|----------------------------------|
| <b>Tar</b><br><b>16T01-0030 Q4-5 (2011)</b><br><b>16T01-0300 Q4-5 (2011)</b><br><b>16T01-0600 Q4 (2011)</b> | BOD slightly high in May after rain. High to good ecological conditions.   | No change from 2011.             |
| <b>Thonoge</b><br><b>16T02-0080 Q4 (2011)</b><br><b>16T02-0200 Q4 (2011)</b>                                | Satisfactory physico-chemical results. Ecological quality is good.   | No change from 2011.             |
| <b>Whelans Bridge</b><br><b>16W01-0100</b><br><b>16W01-0400</b>   | This stream flows from Knockaderry Reservoir, through Kilmeaden Village to the River Suir. BOD and colour were intermittently high at both stations during the year. | No significant change from 2011. |

## Physico-chemical Trend in Water Quality in Catchment 16 – 2006 to 2012

|             | Pass | Concern | Fail | Total |
|-------------|------|---------|------|-------|
| <b>2006</b> | 79   | 100     | 6    | 185   |
| <b>2007</b> | 64   | 76      | 3    | 143   |
| <b>2008</b> | 78   | 64      | 6    | 148   |
| <b>2009</b> | 88   | 57      | 7    | 152   |
| <b>2010</b> | 112  | 40      | 4    | 156   |
| <b>2011</b> | 105  | 44      | 1    | 150   |
| <b>2012</b> | 113  | 37      | 0    | 150   |



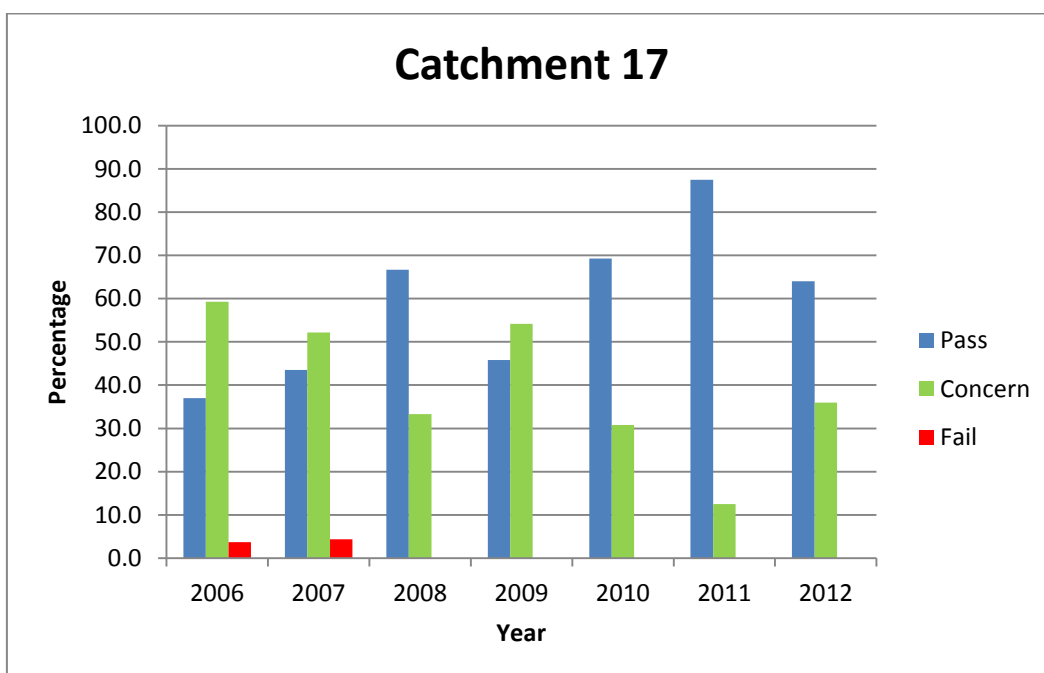
## 2012 Summary of River Water Quality in Hydrometric Area 17

| River   | Remarks   | Change from 2011                 |
|---|---|----------------------------------|
| <b>Araglin (Colligan)</b><br><b>17A01-0300 Q4-5 (2010)</b><br><b>17A01-0400</b>   | Satisfactory quality  | No change from 2011.             |
| <b>Brickey</b><br><b>17B01-0050 Q3-4 (2010)</b><br><b>17B01-0090</b><br><b>17B01-0200</b>   | This river discharges into Dungarvan Harbour. The upper reaches have been drained and now comprise mainly drainage ditches and sluices. Nitrates are elevated at all stations throughout the year. Ammonia was high at station 0200 in May.   | No significant change from 2011. |
| <b>Ballyscanlon Lake</b><br><b>17B02-0100</b>   | This is an abstraction point for Tramore water supply. It was added to the monitoring programme under the Water Framework Directive in 2007 (but had previously been monitored under the Surface Water for the Abstraction of Drinking Water Regulations (SI 294 of 1989)). BOD was slightly elevated in August, this may be due to plankton present in the lake.                                 | No change from 2011.             |
| <b>Belle Lake</b><br><b>17B04-0100</b>  | This is the abstraction point for Dunmore East water supply. It was added to the monitoring programme under the Water Framework Directive in 2007 (but had previously been monitored under the Surface Water for the Abstraction of Drinking Water Regs (SI 294 of 1989). Quality is satisfactory.  | No change from 2011.             |
| <b>Colligan</b><br><b>17C01-0150 Q4-5 (2010)</b><br><b>17C01-0250 Q4 (2010)</b><br><b>17C01-0300</b>                              | This river flows into Dungarvan Harbour and the lower reaches are tidal. Physico-chemical monitoring was satisfactory during 2012, and ecological quality was good to high in 2010.   | No change from 2011.             |
| <b>Carrigavantry Lake</b><br><b>17C02-0100</b>  | This lake is an abstraction point for Tramore water supply. It was added to the monitoring programme under the Water Framework Directive in 2007 (but had previously been monitored under the Surface Water for the Abstraction of Drinking Water Regs (SI 294 of 1989). BOD was slightly elevated in August, this may be due to plankton present in the lake. Otherwise quality is satisfactory. | No change from 2011.             |
| <b>Dalligan</b><br><b>17D01-0300 Q4-5 (2010)</b>  | Physico-chemical monitoring was satisfactory during 2012, and ecological quality was high in 2010.  | No change from 2011.             |
| <b>Dunhill (Annestown) Stream</b><br><b>17D02-0050</b><br><b>17D02-0100 Q3-4 (2010)</b><br><b>17D02-0200</b><br><b>17D02-0300</b> | There are a number of constructed wetlands (reed beds) located along this catchment, and one is used to treat sewage from Dunhill Village. Nitrates are frequently elevated. High ammonia, o-phosphate and colour were recorded at station 0100 (Ballyphilip Bridge) at times in 2012 (this bridge is d/s of the reed-bed for Dunhill Village).   | No change from 2011.             |
| <b>Kilmurrin Cove</b><br><b>17K03-0200</b>  | This stream receives effluent from Kill Village. Elevated BOD, o-phosphate, ammonia, nitrite and nitrite in this river were recorded in 2012.   | No change from 2011.             |

|  |  |                      |
|--|--|----------------------|
| <b>Mahon</b><br><b>17M01-0100 Q4-5 (2010)</b><br><b>17M01-0200 Q3-4 (2010)</b><br><b>17M01-0300</b><br><b>17M01-0350 Q4 (2010)</b> | This river flows through Kilmacthomas. Physico-chemical monitoring was satisfactory during 2012. Biological monitoring indicates moderate quality d/s of Kilmacthomas.                     | No change from 2011. |
| <b>Tay</b><br><b>17T01-0050 Q4-5 (2010)</b><br><b>17T01-0300</b><br><b>17T01-0400 Q4 (2010)</b>                                    | This river rises in the Monavullagh Mountains and flows into the sea at Stradbally. Physico-chemical monitoring was satisfactory during 2012. Ecological quality was good to high in 2010. | No change from 2011. |

## Physico-chemical Trend in Water Quality in Catchment 17 – 2006 to 2012

|             | Pass | Concern | Fail | Total |
|-------------|------|---------|------|-------|
| <b>2006</b> | 10   | 16      | 1    | 27    |
| <b>2007</b> | 10   | 12      | 1    | 23    |
| <b>2008</b> | 16   | 8       | 0    | 24    |
| <b>2009</b> | 11   | 13      | 0    | 24    |
| <b>2010</b> | 18   | 8       | 0    | 26    |
| <b>2011</b> | 21   | 3       | 0    | 24    |
| <b>2012</b> | 16   | 8       | 0    | 24    |



## 2012 Summary of River Water Quality in Hydrometric Area 18

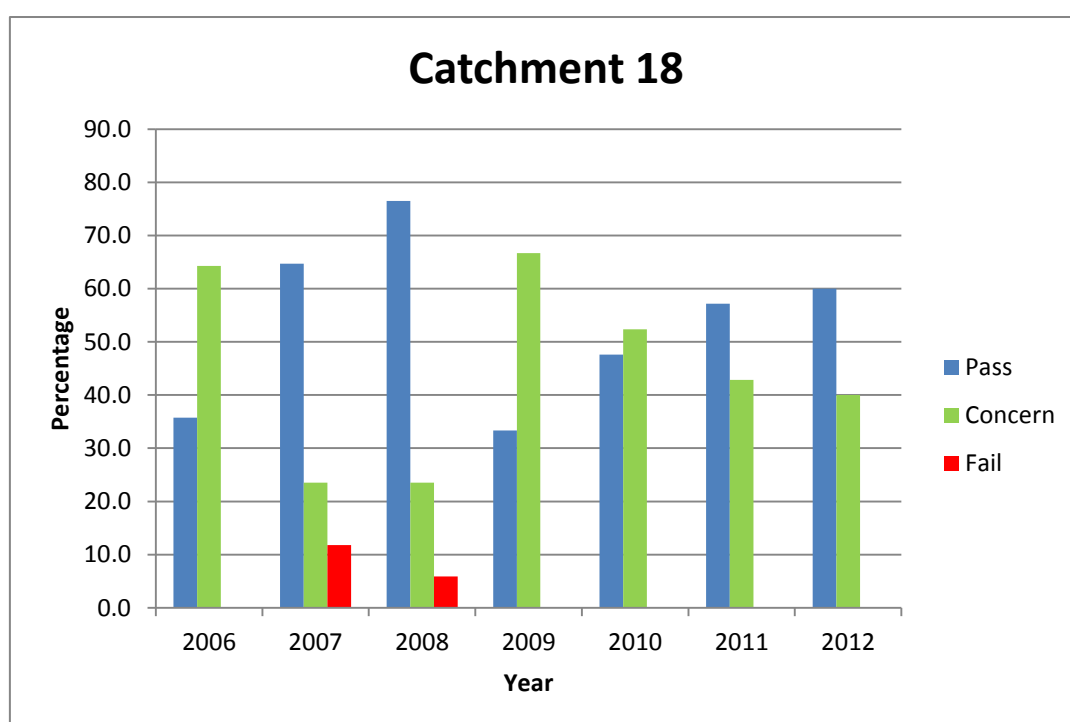
| River   | Remarks   | Change from 2011  |
|---|---|---|
| <b>Blackwater</b><br><b>18B02-1900 Q4 (2012)</b><br><b>18B02-2500 Q4 (2012)</b><br><b>18B02-2600 Q4 (2012)</b><br><b>18B02-2700 Q4 (2012)</b><br><b>18B02-2900</b><br><b>18B02-3000</b> | <p>The Blackwater is a Designated Salmonid River under the Freshwater Fish Directive (78/659/EEC). It rises in Co. Cork and flows into Co. Waterford. Only the latter stretch is covered in this report. Parts of the river are a protected habitat under the Freshwater Pearl Mussel Regulations (SI 296 Of 2009). BOD was slightly elevated at Killavullen Bridge (d/s Mallow) in November and December, and at Lismore Bridge in December. Colour is also intermittently high, otherwise physico-chemical monitoring was satisfactory. Biological monitoring in 2012 indicated good to high ecological conditions with pearl mussels and most recently, crayfish being found. Part of the upper Blackwater Estuary at Cappoquin has suffered in the past from the effects of effluent from Cappoquin Poultry. This facility was granted an IPPC licence by the EPA in 2008, and the company is working with the Agency to improve the quality of its effluent.</p> | <p>Ecology of this river has improved since the last biological assessment in 2009.</p> |
| <b>Bride</b><br><b>18B05-0800 Q4 (2012)</b><br><b>18B05-1000</b>  | <p>The Bride is a Designated Salmonid River under the Freshwater Fish Directive (78/659/EEC). It rises in Co. Cork and flows into Co. Waterford. Only the latter stretch is covered in this report. Nitrates can be elevated at both stations, and BOD was elevated in June at Tallowbridge, ecological quality was good at Tallowbridge in 2012.</p>   | <p>No change from 2011.</p>   |
| <b>Finisk</b><br><b>18F02-0100</b><br><b>18F02-0300 Q4 (2012)</b><br><b>18F02-0500 Q4-5(2012)</b>   | <p>This river joins the Blackwater d/s Cappoquin. Satisfactory with good to high ecological quality.</p>  | <p>No change from 2011.</p>   |
| <b>Glendine</b><br><b>18G07-0300 Q4 at station 0290 (2012)</b>  | <p>This river drains an area north of Youghal and is a tributary of the Blackwater. Satisfactory with good ecological quality.</p>  | <p>No change from 2011.</p>   |
| <b>Glennafallia</b><br><b>18G10-0200 Q4 (2012)</b>  | <p>This river rises in the Knockmealdown Mountains and is a tributary of the Blackwater. Satisfactory with good ecological quality.</p>   | <p>No change from 2011.</p>   |
| <b>Goish</b><br><b>18G12-0200</b><br><b>18G12-0300 Q4 (2012)</b>  | <p>This river drains an area east of Villierstown and is a tributary of the Blackwater. Satisfactory with good ecological quality.</p>  | <p>No change from 2011.</p>   |
| <b>Lickey</b><br><b>18L01-0100 Q4 (2012)</b>  | <p>Station 0100 is a surveillance site under the Water Framework Directive. This sub-catchment is a protected habitat under the Freshwater Pearl Mussel Regulations (SI 296 of 2009). BOD and ammonia were high in April after heavy rain, otherwise satisfactory with good ecological quality.</p>   | <p>No change from 2011.</p>   |

|   |  |  |
|---|--|--|
| <b>Owennashad</b><br><b>18O08-0060 Q4-5</b><br><b>(2012)</b><br><b>18O01-0200 Q4-5</b><br><b>(2012)</b> | This river rises in the Knockmealdown Mountains and joins the Blackwater at Lismore. Satisfactory quality – ecological quality has improved from good to high at station 0200 (u/s Blackwater confluence). | Ecological quality has improved to high. |
|---|--|--|



## Physico-chemical Trend in Water Quality in Catchment 18 – 2006 to 2012

|             | Pass | Concern | Fail | Total |
|-------------|------|---------|------|-------|
| <b>2006</b> | 10   | 18      | 0    | 28    |
| <b>2007</b> | 11   | 4       | 2    | 17    |
| <b>2008</b> | 13   | 4       | 1    | 17    |
| <b>2009</b> | 7    | 14      | 0    | 21    |
| <b>2010</b> | 10   | 11      | 0    | 21    |
| <b>2011</b> | 12   | 9       | 0    | 21    |
| <b>2012</b> | 12   | 8       | 0    | 20    |



## 2012 Summary of River Water Quality in Hydrometric Area 25

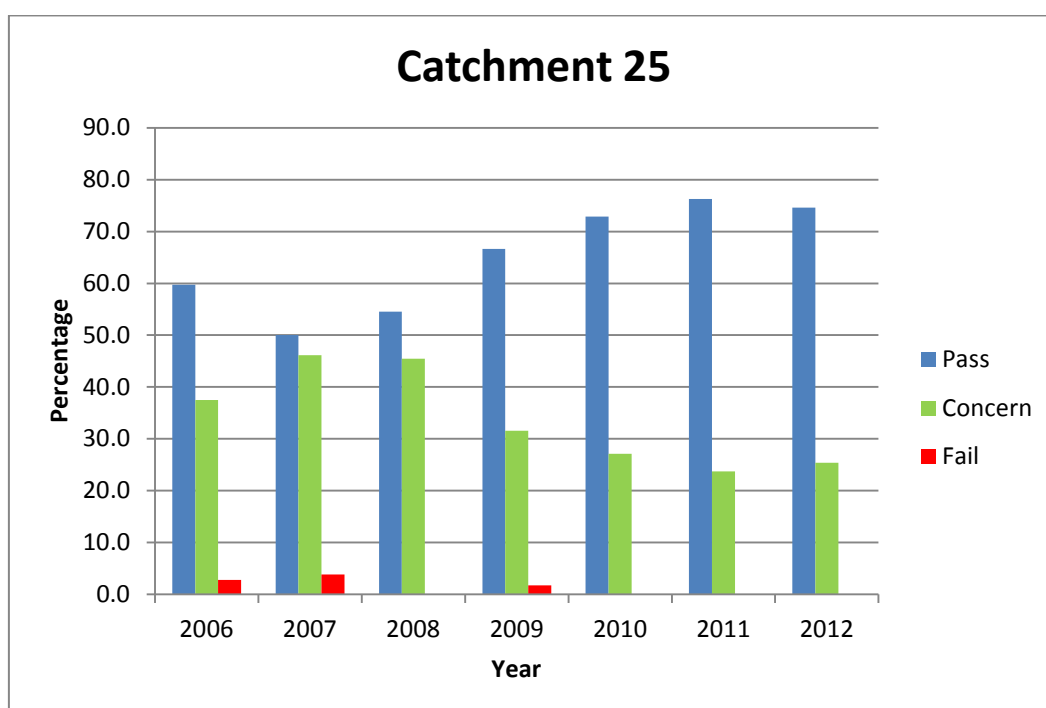
| River   | Remarks   | Change from 2011   |
|---|---|--|
| <b>Annagh</b><br><b>25A02-0200 Q4 (2012)</b><br><b>25A02-0300 Q4-5 (2012)</b>   | This river is a tributary of the Newport. Good to high ecological conditions throughout this river.   | No change from 2011.   |
| <b>Ballintotty</b><br><b>25B01-0100 Q4 (2012)</b><br><b>25B01-0300 Q4 (2012)</b>  | Ecology of this river has improved from moderate to good since 2008. Chemistry remains good.  | Ecology reflects the improvements in chemistry in recent years.                |
| <b>Ballyfinboy</b><br><b>25B02-0300 Q3-4 (2011)</b> <b>25B02-0600 Q3-4 (2011)</b><br><b>25B02-0800 Q3-4 (2011)</b>        | This river flows through Cloughjordan and Borrisokane. Physico-chemical monitoring was satisfactory in 2012, however biological monitoring in 2011 only indicated moderate ecological quality.  | No significant change from 2011.   |
| <b>Bunow (Mooneen)</b><br><b>25B25-0400 Q4 (2011)</b>   | This river flows through Roscrea and is a tributary of the Little Brosna. Physico-chemical monitoring showed a continuing reduction in nutrient levels in 2012, and ecology was good in 2011.   | No significant change from 2011.   |
| <b>Cahernahallia</b><br><b>25C01-0060</b>   | This river rises in Co. Tipperary and flows into Co. Limerick. This report deals with the Co. Tipperary stretch only. BOD high in September, otherwise satisfactory quality   | No change from 2011.   |
| <b>Clodiagh (Tullamore)</b><br><b>25C06-0090 Q4 (2008)</b><br><b>25C06-0220 Q4* (2011)</b><br><b>25C06-0500 Q4 (2011)</b> | The Clodiagh rises in the Slieve Bloom mountains and flows through Clonaslee into Co. Offaly. There is a SW abstraction point above the first station, which supplies water for Clonaslee and Tullamore. Much improved chemistry in 2012, following upgrades to the WWTP at Clonaslee – BOD, ammonia, o-phosphate and nitrite concentrations have all reduced d/s Clonaslee and at Rahan. The biological assessment in 2011 indicated good quality all along the river. | Water quality much improved since 2011.  |
| <b>Cappawhite Stream</b><br><b>25C10-0200 Q3-4 (2012)</b>   | BOD, colour and ammonia were high on occasion during 2012 due to the effects of sewage from Cappawhite. Ecological conditions improved from poor to moderate in 2012.   | Conditions appear to be improving gradually.                                   |
| <b>Clareen (Nenagh)</b><br><b>25C11-0300</b>  | This river flows through Nenagh town and receives effluent from Nenagh Co-op and local sewage discharges. Average BOD and o-phosphate concentrations reduced during 2012 (but still remain high), however ammonia and TON concentrations did not, and the quality of this river remains poor. DO levels also remain low.  | No change - the poor quality observed in this river over many years continues. |

|  |   |                                  |
|--|---|----------------------------------|
| <b>Carrigahorig Stream</b><br><b>25C16-0500 Q3-4</b><br><b>(2011)</b>  | This stream flows through Carrigahorig village and into the north end of Lough Derg. Satisfactory physico-chemical quality in 2012, however the biological monitoring in 2011 indicated only moderate ecological conditions.  | No change from 2011.             |
| <b>Dead</b><br><b>25D01-0100 Q3-4</b><br><b>(2012)</b>   | This river rises in Co. Tipperary and flows into Co. Limerick. This report deals with the Co. Tipperary stretch only. The Donohill landfill is within its catchment. o-Phosphate, BOD and colour were elevated at times during the year. The river has been subject to intermittent pollution over the years – probably from agriculture and the landfill at Donohill.  | No change from 2011.             |
| <b>Golden Grove Stream</b><br><b>25G06-0200 Q3-4</b><br><b>(2011)</b>  | This river is a tributary of the Little Brosna. Quality in this river is moderate – ammonia was again elevated in 2012, probably due to the fish farm u/s of the sampling station.  | No significant change from 2010. |
| <b>Gorragh</b><br><b>25G09-0300 Q4 (2011)</b>  | This river is a tributary of the Clodiagh (Tullamore). Physico-chemical monitoring was satisfactory in 2012 & ecological conditions are good.   | No change from 2011.             |
| <b>Grange (25G10)</b>  | Satisfactory conditions.  | No change from 2011.             |
| <b>Kilmastulla</b><br><b>25K04-0100</b><br><b>25K04-0200</b><br><b>25K04-0300</b><br><b>25K04-0400 Q3/0</b><br><b>(2005)</b><br><b>25K04-0500 Q4 (2012)</b><br><b>25K04-0600 Q3-4</b><br><b>(2012)</b><br><b>25K04-0800 Q3-4</b><br><b>(2012)</b><br><b>25K04-1000 Q4 (2012)</b> | This river drains an old mining area at Silvermines in Co. Tipperary. Station 0400 (aka Garryard Stream) drains the mine and flows into the Yellow river, which in turn flows into the Kilmastulla. Lead and zinc mining ceased operations in 1982, however metals from the old mine and tailings pond continue to leach into the upper reaches of this river system. Biological monitoring in 2012 indicated good ecological conditions u/s of the mine discharge and at Cool Bridge (station 1000). | No significant change from 2011. |
| <b>Kilfadda Castle Stream</b><br><b>25K07-0600 Q3-4*</b><br><b>(2011)</b>  | This stream was added to the sampling programme in 2010 and is a tributary of the Carrigahorig Stream.  | No significant change from 2011. |
| <b>Little Brosna</b><br><b>25L02-0100 Q4 (2011)</b><br><b>25L02-0200</b><br><b>25L02-0400 Q3-4</b><br><b>(2011)</b><br><b>25L02-0600 Q4 (2011)</b><br><b>25L02-0700 Q4 (2011)</b><br><b>25L02-1000 Q4 (2011)</b>   | The first 4 stations on this river are in Co. Offaly, but are impacted at station 0400 by discharges from Roscrea. The lower portion flows along the Offaly/Tipperary border. Chemistry improved during 2012 at station 0200 (Abstraction point for Roscrea DW) and station 0300 (d/s Roscrea STW). Ecology is good except d/s Roscrea WWTP.  | No significant change from 2011. |
| <b>Lorrha Stream</b><br><b>25L05-0200 Q4 (2011)</b>  | This stream was added to the sampling programme in 2010 and flows into Lough Derg. This stream can be coloured at times.  | No change from 2011.             |

|   |   |                                       |
|---|---|---------------------------------------|
| <b>Nenagh</b><br><b>25N01-0200 Q4-5 (2012)</b><br><b>25N01-0300 Q4-5 (2012)</b><br><b>25N01-0500 Q4 (2012)</b><br><b>25N01-0640</b><br><b>25N01-0660</b><br><b>25N01-0800 Q3-4 (2012)</b>   | This river flows through Nenagh town and into Lough Derg at Dromineer. Physico-chemical monitoring was satisfactory during 2012, and biological monitoring indicated good ecological quality in the upper reaches (including an improvement at Tyrone Bridge (station 0500) with moderate quality downstream of Nenagh Town | Improved conditions in 2012.          |
| <b>Newport</b><br><b>25N02-0100 Q4-5 (2012)</b><br><b>25N02-0200 Q4-5 (2012)</b><br><b>25N02-0300 Q4-5 (2012)</b>   | Station 0200 is the abstraction point for Newport water supply. River can be coloured at times, and BOD was raised in September. Improvement to high ecological conditions in 2012.   | Improved conditions in 2012.          |
| <b>Newtown</b><br><b>25N03-0200 Q4 (2011)</b>   | This river flows into Lough Derg at Youghal Bay. Chemistry and ecological conditions good.  | No change from 2011.                  |
| <b>Ollatrim</b><br><b>25O01-0150 Q4-5 (2012)</b><br><b>25O01-0400 Q4 (2012)</b>   | Ecological conditions improved at Rathurles Bridge (station 0400) in 2012, however excessive siltation and some algal growth remain.  | Improved ecology in 2012.             |
| <b>Pallas</b><br><b>25P01-0500 Q4 (2011)</b>  | Satisfactory quality.   | No change from 2011.                  |
| <b>Shannon (L. Derg)</b><br><b>25S01-2200</b><br><b>25S01-2210</b><br><b>25S01-2220</b><br><b>25S01-2230</b><br><b>25S01-2240</b><br><b>25S01-2250</b><br><b>25S01-2260</b><br><b>25S01-2270</b><br><b>25S01-2280</b><br><b>25S01-2290</b><br><b>25S01-2230</b> | This report refers to the eastern shore of Lough Derg in Co. Tipperary only. Isolated outbreaks of cyanobacteria (blue-green algae) were reported in the past, however, these have not been reported in more recent years. Physico-chemical monitoring was satisfactory at all stations during 2012.                        | No change from 2011.                  |
| <b>Small</b><br><b>25S05-0200 Q4 (2012)</b>   | Colour is naturally high, and BOD was high in September.  | No change from 2011.                  |
| <b>Silvermines Village Stream</b><br><b>25S10-0100 Q3-4 (2012)</b>  | Ammonia and BOD were elevated on separate occasions in 2012, and the 2012 biological assessment indicated only moderate quality.  | No significant change from 2011.      |
| <b>Youghal</b><br><b>25Y02-0200 Q4-5 (2012)</b>   | This river runs through Youghal on Lough Derg and receives effluent from Portroe STW (u/s station 0200). Satisfactory physico-chemical results during 2012. Ecology improved to high quality in 2012.   | Quality has improved in recent years. |

## Physico-chemical Trend in Water Quality in Catchment 25 – 2006 to 2012

|      | Pass | Concern | Fail | Total |
|------|------|---------|------|-------|
| 2006 | 43   | 27      | 2    | 72    |
| 2007 | 26   | 24      | 2    | 52    |
| 2008 | 30   | 25      | 0    | 55    |
| 2009 | 38   | 18      | 1    | 57    |
| 2010 | 43   | 16      | 0    | 59    |
| 2011 | 45   | 14      | 0    | 59    |
| 2012 | 44   | 15      | 0    | 59    |



## Appendix 5 - Stations List

OM: Operational Monitoring, SM: Surveillance Monitoring, SW: Surface Water for the Abstraction of Drinking Water

### Sites monitored by the laboratory at EPA Kilkenny in 2012

| River                | Code       | Location   | Grid Ref of XY Coordinates |        | County  | Reason for Inclusion |
|----------------------|------------|--|----------------------------|--------|---------|----------------------|
| Aughboy (Wexford)    | 11A02-0200 | Br at Riverchapel  | 319509                     | 155596 | Wexford | OM                   |
| Banoge               | 11B02-0100 | Br just NE of Gorey                                      | T158<br>598                |        | Wexford | Other                |
| Banoge               | 11B02-0200 | 2 km S of Gorey (Knockduff)                              | 315761                     | 157999 | Wexford | OM                   |
| Banoge               | 11B02-0300 | Br u/s Owenavorrage R confl                              | 315952                     | 156318 | Wexford | OM & SM              |
| Blackwater (Wexford) | 11B03-0200 | Footbridge E of Blackwater at Mill                       | 312869                     | 133895 | Wexford | OM                   |
| Blackwater (Wexford) | 11B03-0300 | River Gap  | 313770                     | 132200 | Wexford | OM                   |
| Brackan              | 11B04-0200 | Essex Br   | 314724                     | 154284 | Wexford | OM                   |
| Clonough             | 11C01-0100 | Br ENE of St Austin's Ho                                 | 320000                     | 168686 | Wexford | OM                   |
| Clonough             | 11C02-0200 | Ballylarkin Br   | T207<br>682                |        | Wexford | Other                |
| Clonough             | 11C01-0300 | Clonough Br  | 321074                     | 166944 | Wexford | OM                   |
| Cahore Canal         | 11C02-0150 | Old Bawn Br  | 321638                     | 146210 | Wexford | OM                   |
| Inch (Wexford)       | 11I01-0130 | Br 1.5 km d/s Inch Village                               | 320212                     | 166532 | Wexford | OM                   |
| Inch (Wexford)       | 11I01-0200 | Castletown Br  | 321706                     | 164955 | Wexford | OM                   |
| Owenavorrage         | 11O01-0100 | Tomgarrow Br   | T137<br>430                |        | Wexford | Other                |
| Owenavorrage         | 11O01-0200 | Corbally Br  | T158<br>461                |        | Wexford | Other                |
| Owenavorrage         | 11O01-0300 | Br SW of Killenagh                                       | 316164                     | 149795 | Wexford | OM                   |
| Owenavorrage         | 11O01-0400 | Ballycanew Br  | 315225                     | 151979 | Wexford | OM                   |
| Owenavorrage         | 11O01-0500 | Br N of Ballinamona                                      | 315016                     | 154171 | Wexford | SM                   |
| Owenavorrage         | 11O01-0600 | Boleany Br   | 317009                     | 156050 | Wexford | OM                   |
| Owenavorrage         | 11O01-0700 | Ballinatray Br   | 319062                     | 156670 | Wexford | OM                   |
|                      |            |  |                            |        |         |                      |
| Assaly               | 12A02-0100 | Br. 100 m d/s of Finoge Bridge (d/s Piercestown Village) | 304073                     | 113896 | Wexford | OM                   |
| Assaly               | 12A02-0150 | Br at Rathmacknee Castle                                 | T032<br>139                |        | Wexford | Other                |
| Assaly               | 12A02-0300 | Asaly Br   | T052<br>133                |        | Wexford | Other                |
| Bann                 | 12B01-0100 | Pallis Br (Abstr for Gorey)                              | 311591                     | 168208 | Wexford | OM & SM              |
| Bann                 | 12B01-0300 | Kilmichael Br (Abstr for Gorey)                          | 312049                     | 162098 | Wexford | OM & SM              |
| Bann                 | 12B01-0400 | Margerry's Br  | 311485                     | 159358 | Wexford | OM                   |
| Bann                 | 12B01-0500 | Ballydaniel Br   | 307420                     | 153199 | Wexford | OM                   |
| Bann                 | 12B01-0600 | Milshoge Br  | 306357                     | 152217 | Wexford | OM                   |

| River                     | Code       | Location                                      | Grid Ref or XY Coordinates |        | County         | Reason for Inclusion |
|---------------------------|------------|---|----------------------------|--------|----------------|----------------------|
| Bann                      | 12B01-0800 | Milltown Br                                   | 303188                     | 149411 | Wexford        | OM                   |
| Bann                      | 12B01-0900 | Doran's Br                                    | 302213                     | 148485 | Wexford        | OM                   |
| Bann                      | 12B01-1000 | Bann Br                                       | 298773                     | 144825 | Wexford        | OM                   |
| Boro                      | 12B02-0010 | Corragean (Abstr for Rathnure)                | 280400                     | 142300 | Wexford        | OM & SM              |
| Boro                      | 12B02-0012 | SW of Slievebaun (Abstr for Ballywiliam)      | 280400                     | 141900 | Wexford        | OM & SM              |
| Boro                      | 12B02-0200 | Ballymackesy Br                               | 289100                     | 135130 | Wexford        | OM                   |
| Boro                      | 12B02-0340 | 2nd Br d/s Ballyeden Br                       | 291586                     | 132783 | Wexford        | OM                   |
| Boro                      | 12B02-0500 | Ballynapierce Br                              | 295600                     | 136400 | Wexford        | OM                   |
| Blacklion Stream (Carlow) | 12B04-0400 | Br u/s Derreen R confl                        | 287118                     | 170233 | Carlow/Wicklow | OM                   |
| Chapel Stream             | 12C01-0100 | Br u/s Boro R confl                           | 288900                     | 133822 | Wexford        | OM                   |
| Clody                     | 12C03-0100 | Ford NE of Craan (Abstr for Bunclody)         | 286800                     | 155000 | Wexford        | OM & SM              |
| Clody                     | 12C03-0200 | Ford (Br) 3km u/s Bunclody                    | 289682                     | 154877 | Carlow/Wexford | SM                   |
| Clonmore Stream           | 12C05-0100 | Aghinree Br                                   | 291205                     | 176245 | Carlow/Wicklow | OM                   |
| Camolin Stream            | 12C08-0400 | Bay Br  | 305642                     | 151987 | Wexford        | OM                   |
| Derreen                   | 12D01-0200 | Ford W of Rathnagrew (Abstr for Hacketstown)  | 298100                     | 181100 | Carlow         | OM & SM              |
| Derreen                   | 12D01-0300 | Hacketstown Br                                | 296822                     | 180758 | Carlow         | OM                   |
| Derreen                   | 12D01-0400 | Saulsford Br                                  | 294500                     | 180300 | Carlow         | OM                   |
| Derreen                   | 12D01-0550 | Knockeen Br                                   | 289532                     | 174694 | Carlow/Wicklow | OM                   |
| Derreen                   | 12D01-0700 | Rathglass Br                                  | 287089                     | 170322 | Carlow/Wicklow | OM                   |
| Derry                     | 12D02-0900 | Clonegall Br                                  | 291800                     | 160900 | Carlow/Wexford | OM                   |
| Douglas (Ballon)          | 12D03-0100 | Myshall Br                                    | 282212                     | 160836 | Carlow         | OM                   |
| Douglas (Ballon)          | 12D03-0200 | Sragh Br                                      | 284474                     | 163964 | Carlow         | SM                   |
| Douglas (Ballon)          | 12D03-0400 | Castlegrace Br                                | 284719                     | 168146 | Carlow         | OM                   |
| Douglas (Kilteegan)       | 12D04-0700 | Lucas Br                                      | 292749                     | 181645 | Carlow         | OM                   |
| Glasha (Slaney)           | 12G01-0100 | Br S of Gorteen                               | 289770                     | 149792 | Wexford        | OM                   |
| Glasha (Slaney)           | 12G01-0200 | Coolattin Br                                  | 294303                     | 152611 | Wexford        | OM                   |
| Kileen Stream (Boro)      | 12K03-0400 | Garraun Br                                    | 286785                     | 137886 | Wexford        | OM                   |
| Lask                      | 12L01-0200 | 2nd Br u/s Bann R confl (Ballinco)            | 309947                     | 159566 | Wexford        | OM                   |
| Little Slaney             | 12L02-0100 | Ford S of Coan                                | 298447                     | 191763 | Carlow/Wicklow | OM                   |
| Little Slaney             | 12L02-0400 | Ford d/s Rostyduff Br                         | 294960                     | 192335 | Carlow/Wicklow | OM                   |
| Mine                      | 12M01-0200 | Money Br                                      | 303119                     | 160397 | Wexford        | OM                   |
| Slaney                    | 12S02-0800 | Br W of Redwells Cross Rds                    | 288898                     | 185614 | Wexford        | OM                   |
| Slaney                    | 12S020950  | 0.2 km u/s Rathvilly Br (Abstr for Carlow NR) | 287883                     | 182300 | Carlow         | OM & SM              |
| Slaney                    | 12S021100  | Rathmore Br                                   | 285623                     | 178625 | Carlow         | OM                   |
| Slaney                    | 12S021300  | Tullow Br (Abstr for Tullow)                  | 285152                     | 173060 | Carlow         | OM & SM              |
| Slaney                    | 12S021400  | Ford 3km d/s Tullow Br                        | 285063                     | 171194 | Carlow         | OM                   |
| Slaney                    | 12S021600  | Kilcarry Br                                   | 289268                     | 162439 | Carlow         | OM                   |
| Slaney                    | 12S021800  | Slaney Br Bunclody                            | 291360                     | 156942 | Wexford        | OM                   |

| River                | Code      | Location   | Grid Ref or XY Coordinates |        | County  | Reason for Inclusion |
|----------------------|-----------|--|----------------------------|--------|---------|----------------------|
| Slaney               | 12S011900 | Clohamon Br d/s Bunclody STW and Slaney Meats    | S933 548                   |        | Wexford | OM                   |
| Slaney               | 12S022000 | 1.3km d/s Clohamon Br                            | 293337                     | 154002 | Wexford | OM                   |
| Slaney               | 12S022100 | Ballycarney Br                                   | 296784                     | 148846 | Wexford | SM                   |
| Slaney               | 12S022200 | Scarawalsh Br                                    | 298371                     | 145069 | Wexford | OM                   |
| Slaney               | 12S022250 | N of Greenmount Hse. (Abstr for Enniscorthy)     | 298600                     | 141700 | Wexford | OM & SM              |
| Slaney               | 12S012300 | Enniscorthy Br (tidal effects)                   | S973 400                   |        | Wexford | Other                |
| Slaney               | 12S012350 | Enniscorthy Lr Br                                |                            |        | Wexford | Other                |
| Slaney               | 12S022400 | 1 km d/s Enniscorthy Br                          | 297216                     | 138833 | Wexford | OM                   |
| Slaney               | 12S022500 | Edermine Br                                      | 297814                     | 134570 | Wexford | OM                   |
| Sow                  | 12S030100 | Ballinkeel Br                                    | 302894                     | 134688 | Wexford | OM                   |
| Sow                  | 12S030200 | Kilmallock Br (Abstr for Sow Regional WS)        | 303293                     | 131847 | Wexford | OM & SM              |
| Sow                  | 12S030300 | Coolamin Br.                                     | 303000                     | 129400 | Wexford | OM                   |
| Sow                  | 12S030400 | Br. near Edenvale House (Abstr for Wexford Town) | 304200                     | 127800 | Wexford | OM & SM              |
| Tinacross Stream     | 12T010600 | Br u/s Salsborough Br                            | 300956                     | 143700 | Wexford | OM                   |
| Urrin                | 12U010200 | Buck's Br  | 286973                     | 144130 | Wexford | OM                   |
| Urrin                | 12U010300 | Kiltrea Br                                       | 291944                     | 140836 | Wexford | OM                   |
| Urrin                | 12U010500 | John's Br  | 296965                     | 138914 | Wexford | OM                   |
|                      |           |  |                            |        |         |                      |
| Bridgetown (Wexford) | 13B010080 | Br E of Common                                   | 300109                     | 111409 | Wexford | OM                   |
| Bridgetown (Wexford) | 13B010200 | Br. W of Ballycross - tidal                      | 296800                     | 108800 | Wexford |                      |
| Bridgetown (Wexford) | 13B010400 | Br. 0.5 km SE of Duncormick - tidal              | 292600                     | 108400 | Wexford | OM                   |
| Corock               | 13C010020 | Aughaloe Bridge                                  | 284142                     | 126432 | Wexford | OM                   |
| Corock               | 13C010100 | Bridge E. of Foulkesmills                        | 285387                     | 118696 | Wexford | OM                   |
| Corock               | 13C010300 | Wellingtonbridge                                 | 285200                     | 113500 | Wexford | OM                   |
| Duncormick           | 13D010100 | Taghmon  | 292200                     | 119800 | Wexford | OM                   |
| Duncormick           | 13D010220 | d/s Taghmon STW                                  | 291627                     | 117130 | Wexford | OM                   |
| Duncormick           | 13D010350 | W Br near Duncormick Railway Stn                 | S913 109                   |        | Wexford | SM                   |
| Duncormick           | 13D010400 | Duncormick Br.                                   | 292700                     | 108500 | Wexford | OM                   |
| Mulmontry            | 13M010200 | Aughnagroagh Br. (Abstr for Taghmon)             | 293300                     | 120800 | Wexford | OM & SM              |
| Mulmontry            | 13M010400 | Mulmontry Br.                                    | 289700                     | 121300 | Wexford | OM                   |
| Mulmontry            | 13M010700 | Goff's Bridge                                    | 287163                     | 118531 | Wexford | OM                   |
| Owenduff (Wexford)   | 13O010020 | Ballynabola Bridge (Old)                         | 280700                     | 124400 | Wexford | OM                   |
| Owenduff (Wexford)   | 13O010100 | Ballygarvan Br                                   | S793 188                   |        | Wexford | Other                |
| Owenduff (Wexford)   | 13O010180 | Mullinderry Bridge                               | 280999                     | 116623 | Wexford | OM                   |



| River                | Code      | Location   | Grid Ref or XY Coordinates |        | County        | Reason for Inclusion |
|----------------------|-----------|--|----------------------------|--------|---------------|----------------------|
| Owenduff (Wexford)   | 13O010240 | Taylorstown Bridge (Abstr for Wexford S Regional WS)     | 282075                     | 114627 | Wexford       | SM & SW              |
| Owenduff (Wexford)   | 13O010300 | Nelson's Br.   | 283700                     | 113600 | Wexford       | OM                   |
| Tintern Abbey Stream | 13T010900 | Bridge near Tintern Abbey                                | 279387                     | 109968 | Wexford       | OM                   |
|                      |           |  |                            |        |               |                      |
| Aghalona             | 14A020100 | Friarstown Br  | 280461                     | 177301 | Carlow        | OM                   |
| Aghalona             | 14A020200 | Br nr Moatalusha House                                   | 280896                     | 172839 | Carlow        | OM                   |
| Aughavaud            | 14A040580 | Br SW Ballyknock (upper Br at St Mullins)                | S729 380                   |        | Carlow        | SW                   |
| Barrow               | 14B010060 | Rathcoffey Br  | 234724                     | 211060 | Laois         | OM                   |
| Barrow               | 14B010100 | Ford S of Rearyvalley                                    | 236128                     | 213024 | Laois         | OM                   |
| Barrow               | 14B010200 | Ballyclare Br  | 238591                     | 214722 | Laois         | OM                   |
| Barrow               | 14B010300 | Twomile Br   | 242280                     | 211786 | Laois         | OM                   |
| Barrow               | 14B010500 | Barranagh's Br   | 246396                     | 209279 | Laois         | OM                   |
| Barrow               | 14B010550 | Br SE of Hammerlane                                      | 247831                     | 209871 | Offaly        | OM                   |
| Barrow               | 14B010700 | Kilnahown Br   | 251371                     | 210752 | Laois         | OM                   |
| Barrow               | 14B010780 | Spa Br, Portarlinton (Abstr for Portarlinton)            | 254246                     | 212851 | Laois         | OM & SM              |
| Barrow               | 14B010900 | Ford S of Traskan  | 258196                     | 212310 | Laois/Offaly  | OM                   |
| Barrow               | 14B011000 | Pass Br  | 262277                     | 210933 | Kildare/Laois | SM                   |
| Barrow               | 14B011300 | Ford E of Fisherstown House                              | 263294                     | 205797 | Kildare/Laois | OM                   |
| Barrow               | 14B011500 | Bert Br  | 265925                     | 196929 | Kildare       | OM                   |
| Barrow               | 14B011600 | Athy Br  | 268232                     | 193913 | Kildare       | OM                   |
| Barrow               | 14B011900 | Tankardstown Br  | 270366                     | 188203 | Kildare       | OM                   |
| Barrow               | 14B012000 | Maganey Br   | 271712                     | 184733 | Kildare       | OM                   |
| Barrow               | 14B012200 | New Br 1km u/s Carlow Br                                 | 272007                     | 177797 | Kildare/Laois | OM                   |
| Barrow               | 14B012450 | Footbridge, Dolmen Hotel                                 | 270638                     | 174158 | Carlow/Laois  | OM                   |
| Barrow               | 14B012600 | Milford Br   | 269917                     | 170497 | Carlow        | OM                   |
| Barrow               | 14B012700 | Leighlinbridge   | 269067                     | 165467 | Carlow        | OM                   |
| Barrow               | 14B012900 | Royal Oak Br (LHS)                                       | 268937                     | 161444 | Carlow        | OM                   |
| Barrow               | 14B013100 | Goresbridge  | 268437                     | 153717 | Kilkenny      | OM                   |
| Barrow               | 14B013300 | Ballyteiglea Br  | 271000                     | 150410 | Kilkenny      | OM                   |
| Barrow               | 14B013500 | Graiguenamanagh Br                                       | 270973                     | 143539 | Kilkenny      | SM                   |
| Barrow               | 14B013600 | St Mullins   | 272780                     | 137846 | Carlow        | OM                   |
| Blackwater (Laois)   | 14B031000 | Blackwater Br  | 243586                     | 205685 | Laois         | OM                   |
| Burren               | 14B050020 | Burren Br 3km S of Myshall (Abstr for Carlow Central WS) | 281929                     | 156877 | Carlow        | OM & SM              |
| Burren               | 14B050100 | Ullard Br  | 279287                     | 162876 | Carlow        | SM                   |
| Burren               | 14B050200 | Ballintrane Br   | 279706                     | 167716 | Carlow        | OM                   |
| Burren               | 14B050300 | Rathoe Br  | 280786                     | 171368 | Carlow        | OM                   |
| Burren               | 14B050400 | Br NW of Ballycrogue (Abstr for Carlow)                  | 275361                     | 174616 | Carlow        | OM & SM              |
| Burren               | 14B050500 | Burren Br Carlow (RHS)                                   | 271994                     | 176563 | Carlow        | OM                   |

| River                   | Code      | Location   | Grid Ref or XY Coordinates |        | County         | Reason for Inclusion |
|-------------------------|-----------|--|----------------------------|--------|----------------|----------------------|
| Black (Borris)          | 14B061380 | 1.2 km u/s Br in Borris                                | 273295                     | 151081 | Carlow         | OM                   |
| Ballymurphy             | 14B210500 | Be SW Ballyroughan Little (0.5 km u/s Clashganny Lock) | S740 463                   |        | Carlow         | Other                |
| Crooked (Stradbally)    | 14C020600 | Timoge Br (W of Ballintestock)                         | 255408                     | 193702 | Laois          | OM                   |
| Douglas (Laois)         | 14D030100 | Gale's Br  | 265901                     | 186004 | Laois          | OM                   |
| Douglas (Laois)         | 14D030300 | Grange Br  | 271097                     | 182299 | Laois          | OM                   |
| Duiske                  | 14D040150 | 2.5 km d/s Aghclare Br (Abstr for Graiguenamanagh)     | 269900                     | 144200 | Kilkenny       | OM & SM              |
| Dunrally Stream         | 14D050400 | Br u/s Barrow R confl                                  | 262941                     | 202614 | Laois          | OM                   |
| Fushoge                 | 14F030250 | Br S of Crockaun                                       | 269148                     | 175642 | Laois          | OM                   |
| Gowran                  | 14G030100 | Br at W side of Gowran                                 | 262853                     | 153090 | Kilkenny       | OM                   |
| Gowran                  | 14G030300 | Br N of Goresbridge (S Channel)                        | 268220                     | 153895 | Kilkenny       | SM                   |
| Gowran                  | 14G030400 | Br at Red Mill (N Channel)                             | 268153                     | 154292 | Kilkenny       | OM                   |
| Kileen Stream (Douglas) | 14K040200 | Br at Killeen  | 269492                     | 184440 | Laois          | OM                   |
| Lerr                    | 14L010300 | Lerr Br  | 271808                     | 181498 | Carlow/Kildare | OM                   |
| Mountain (Carlow)       | 14M010100 | Br in Borris (Abstr for Borris)                        | 273437                     | 149877 | Carlow         | OM & SM              |
| Mountain (Carlow)       | 14M010200 | Just u/s Barrow R confl                                | 272969                     | 149751 | Carlow         | OM                   |
| Monefelim               | 14M031000 | Br u/s Barrow R confl (d/s side)                       | 268471                     | 155575 | Kilkenny       | OM                   |
| Owenass                 | 14O010050 | Cathole Br (Abstr for Mountmellick)                    | 237703                     | 204894 | Laois          | OM & SM              |
| Owenass                 | 14O010220 | Br N of Irishtown Ho on N80                            | 244998                     | 207295 | Laois          | OM                   |
| Owenass                 | 14O010300 | 1.7 km d/s Mountmellick                                | 245973                     | 208897 | Laois          | OM                   |
| Old Leighlin Stream     | 14O020700 | Br u/s Barrow R confl                                  | 268738                     | 164563 | Carlow         | OM                   |
| Powerstown (Kilkenny)   | 14P020400 | Br u/s Barrow R confl - 1.5 km S Goresbridge           | 268492                     | 152046 | Kilkenny       | OM                   |
| Pollmounty              | 14P030100 | Br N of Ballywilliam                                   | 277291                     | 135021 | Wexford        | OM                   |
| Pollmounty              | 14P030200 | 750 m d/s Mill NW of Ballywilliam (Abstr for New Ross) | 275748                     | 135016 | Wexford        | OM & SM              |
| Pollmounty              | 14P030300 | Below confl w Aughamanagh River                        | S741 354                   |        |                | Other                |
| Stradbally (Laois)      | 14S020100 | Bauteoge Br  | 255244                     | 193990 | Laois          | OM                   |
| Stradbally (Laois)      | 14S020300 | d/s Stradbally STW                                     | 271600                     | 176700 | Laois          | OM                   |
| Stradbally (Laois)      | 14S020400 | Derrybrock Br. (nr Camac Aquaduct)                     | 261383                     | 199088 | Laois          | OM                   |
| Triogue                 | 14T010100 | Br. 1.6km u/s Portlaoise (beside Equestrian Centre)    | 247861                     | 197129 | Laois          | OM                   |
| Triogue                 | 14T010170 | d/s STW outfall  | 246851                     | 199059 | Laois          | OM                   |

| River                | Code      | Location                               | Grid Ref or XY Coordinates |        | County    | Reason for Inclusion |
|----------------------|-----------|--|----------------------------|--------|-----------|----------------------|
| Triogue              | 14T010300 | Eyne Br                                | 247474                     | 204196 | Laois     | OM                   |
| Triogue              | 14T010400 | Triogue Br (Br u/s Barrow R Con        | 247578                     | 207414 | Laois     | OM                   |
| Tully Stream         | 14T020600 | Cloney Br                              | 265497                     | 201233 | Kildare   | OM                   |
|                      |           |  |                            |        |           |                      |
| Arrigle              | 15A020100 | Br W of Ballyconnaught                 | 262180                     | 130064 | Kilkenny  | OM                   |
| Arrigle              | 15A020300 | Br u/s Nore River confl                | 260809                     | 138221 | Kilkenny  |                      |
| Ballyroan            | 15B010100 | Sallagh Br                             | 244363                     | 187557 | Laois     | OM                   |
| Ballyroan            | 15B010200 | Gloreen Br                             | 242068                     | 185179 | Laois     | OM                   |
| Bregagh (Kilkenny)   | 15B020100 | Bridge N. of Tinnypark House           | 249477                     | 155768 | Kilkenny  | OM                   |
| Bregagh (Kilkenny)   | 15B020300 | Br E of Kilcreen House                 | 248797                     | 153165 | Kilkenny  | OM                   |
| Bregagh (Kilkenny)   | 15B020350 | Brewery Br                             | 250546                     | 156366 | Kilkenny  | OM                   |
| Brownstown (Pococke) | 15B041100 | Br u/s Nore R confl                    | 253026                     | 154893 | Kilkenny  | OM                   |
| Castlecomer Stream   | 15C010100 | Br at N end of Castlecomer             | 253248                     | 173188 | Kilkenny  | OM                   |
| Clough               | 15C030300 | Clogh Br                               | 256567                     | 179014 | Kilkenny  | OM                   |
| Cappanacloghy        | 15C060600 | Br E of Clooncullen                    | 239724                     | 197380 | Laois     | OM                   |
| Cappanacloghy        | 15C060900 | Br E of Cromoge                        | 240302                     | 189619 | Laois     | OM                   |
| Coalbrook Stream     | 15C200040 | Br u/s confl with Kings River          | 229814                     | 149889 | Tipperary | OM                   |
| Delour               | 15D010060 | Br at Sallybrook                       | 230174                     | 200409 | Laois     | OM                   |
| Delour               | 15D010400 | Derrynaseera Br                        | 229478                     | 192448 | Laois     | OM                   |
| Dinin (North)        | 15D070080 | Killeen Br                             | 259788                     | 177331 | Laois     | OM                   |
| Dinin (North)        | 15D070250 | 2 km d/s Massford Br.                  | 254200                     | 175700 | Kilkenny  | OM                   |
| Dinin (North)        | 15D070400 | Dysart Br (North Channel)              | 253172                     | 170014 | Kilkenny  | OM                   |
| Dinin (South)        | 15D080450 | Black Br                               | 261777                     | 170074 | Carlow    | OM                   |
| Dinin (South)        | 15D080600 | Dysart Br                              | 253118                     | 169885 | Kilkenny  | OM                   |
| Dinin (Main Channel) | 15D020700 | Lisnafunshion Abstr for Kilkenny City) | 252151                     | 168072 | Kilkenny  | OM & SM              |
| Dinin (Main Channel) | 15D020800 | Dinin Br                               | 247899                     | 162847 | Kilkenny  | SM                   |
| Donaghmore Stream    | 15D030700 | Br in Donaghmore                       | 226761                     | 180169 | Laois     | OM                   |
| Erkina               | 15E010100 | Br SE of Beechmount                    | 226656                     | 178749 | Laois     | OM                   |
| Erkina               | 15E010200 | Coneyburrow Br                         | 229067                     | 178386 | Laois     | OM                   |
| Erkina               | 15E010550 | Durrow Br                              | 240813                     | 177488 | Laois     | OM                   |
| Errill               | 15E030400 | Br SE of Errill                        | 222110                     | 178070 | Kilkenny  | OM                   |
| Glory                | 15G010045 | 0.1 km d/s Br N of Kilmaganny          | 245775                     | 135218 | Kilkenny  | OM                   |
| Glory                | 15G010200 | Br E of Raheen                         | 248509                     | 139863 | Kilkenny  | OM                   |
| Glory                | 15G010300 | Br u/s King's R confl                  | 248364                     | 143103 | Kilkenny  | OM                   |
| Goul                 | 15G020100 | Br NW of Urlingford                    | 228068                     | 163753 | Kilkenny  | OM                   |
| Goul                 | 15G020200 | Br W of Johnstown                      | 228301                     | 166795 | Kilkenny  | OM                   |
| Goul                 | 15G020300 | Fertagh Br                             | 230637                     | 170320 | Kilkenny  | OM                   |
| Goul                 | 15G020500 | Br near Newtown Mills                  | 236339                     | 177355 | Laois     | OM                   |

| River                             | Code      | Location                                    | Grid Ref or XY Coordinates |        | County             | Reason for Inclusion |
|-----------------------------------|-----------|---|----------------------------|--------|--------------------|----------------------|
| Gully                             | 15G030100 | Gortclea Br (1km N.E. of Ballycu            | 236076                     | 186396 | Laois              | OM                   |
| Gully                             | 15G030400 | Br d/s Colooney Br                          |                            |        | Laois              | OM                   |
| Glenbeha Stream                   | 15G040100 | Stream from spring (Abstr for Roscrea)      | 212200                     | 185500 | Tipperary N        | OM & SM              |
| Holly Park Stream                 | 15H010200 | Br N of Holly Park                          | 261519                     | 181253 | Laois              | OM                   |
| Holly Park Stream                 | 15H010300 | Br u/s Dinan Confl. (Sally's Br)            | 260853                     | 179131 | Laois              | OM                   |
| Killeen (Delour)                  | 15K010200 | Cardtown Br (NE of Cappanarrow)             | 227157                     | 197960 | Laois              | OM                   |
| Kings (Kilkenny                   | 15K020100 | Ballingarry Br                              | 229608                     | 149021 | Kilkenny           | OM                   |
| Kings (Kilkenny                   | 15K020200 | At Garrynoe                                 | 229351                     | 147669 | Tipperary          | OM                   |
| Kings (Kilkenny                   | 15K020400 | Br near Physicianstown                      | 237106                     | 143804 | Kilkenny           | OM                   |
| Kings (Kilkenny                   | 15K020500 | Br in Callan                                | 241539                     | 143878 | Kilkenny           | OM                   |
| Kings (Kilkenny                   | 15K020550 | 1 km d/s Br in Callan                       | 242154                     | 143188 | Kilkenny           | OM                   |
| Kings (Kilkenny                   | 15K020600 | 2 km d/s Callan - nr Old Mill               | 243160                     | 142720 | Kilkenny           | OM                   |
| Kings (Kilkenny                   | 15K020800 | Kells Br                                    | 249411                     | 143685 | Kilkenny           | SM                   |
| Kings (Kilkenny                   | 15K020900 | Br N of Stonyford                           | 252605                     | 143932 | Kilkenny           | OM                   |
| Little Arrigle                    | 15L010200 | Goat's Br                                   | 256729                     | 139782 | Kilkenny           | OM                   |
| Mountrath                         | 15M010080 | Roundwood Br                                | 232350                     | 197600 | Laois              | OM                   |
| Mountrath                         | 15M010100 | Paddock Br (near Rushin House)              | 233923                     | 196765 | Laois              | OM                   |
| Mountrath                         | 15M010300 | Forest Br                                   | 235418                     | 191833 | Laois              | OM                   |
| Muckalee                          | 15M020100 | Br N of Cloghpook                           | 254855                     | 165682 | Kilkenny           | OM                   |
| Muckalee                          | 15M020140 | Muckalee Reservoir Abstr for Kilkenny City) | 253400                     | 166000 | Kilkenny           | OM & SM              |
| Muckalee                          | 15M020200 | Br u/s Dinin R confl                        | 251298                     | 166322 | Kilkenny           | OM                   |
| Munster (east - Tullaroan Stream) | 15M030200 | Br 0.5 km d/s Tullaroan                     | S380 563                   |        |                    | Other                |
| Munster (east - Tullaroan Stream) | 15M030450 | Br u/s main Munster confl.                  |                            |        |                    | Other                |
| Munster                           | 15M030500 | Br SW of Gortnagap                          | 233413                     | 154399 | Kilkenny/Tipperary | OM                   |
| Munster                           | 15M030600 | Br SW of Kilbraghan                         | 236133                     | 148542 | Kilkenny           | OM                   |
| Munster                           | 15M030700 | Br u/s King's R confl                       | 239277                     | 145283 | Kilkenny           | OM                   |
| Nore                              | 15N010080 | Nore Br                                     | 213153                     | 181463 | Tipperary          | OM                   |
| Nore                              | 15N010100 | Curraguneen Br                              | S142 818                   |        |                    | Salmonid             |
| Nore                              | 15N010200 | Nore Br                                     | S172 856                   |        |                    | Salmonid             |
| Nore                              | 15N010300 | Quakers Bridge                              | 221099                     | 186962 | Tipperary          | OM                   |
| Nore                              | 15N010400 | New Br, NNW of Borris-in-Ossory             | S23729 87                  |        |                    | Salmonid             |
| Nore                              | 15N010500 | Br S of Coolrain, Kildrigh                  | 229321                     | 190565 | Laois              | OM                   |
| Nore                              | 15N010600 | Castletown (New Road) Br                    | S33981 92                  |        |                    | Salmonid             |
| Nore                              | 15N010700 | Kilbrickin Br                               | 236144                     | 190004 | Laois              | OM                   |
| Nore                              | 15N010800 | New Bridge                                  | S37416 87                  |        |                    | Salmonid             |
| Nore                              | 15N010900 | Poorman's Br                                | 240775                     | 185967 | Laois              | OM                   |

| River                        | Code      | Location  | Grid Ref or XY Coordinates |        | County      | Reason for Inclusion |
|------------------------------|-----------|---|----------------------------|--------|-------------|----------------------|
| Nore                         | 15N011000 | Waterloo Br d/s Abbeyleix                               | S4256880                   |        |             | Salmonid             |
| Nore                         | 15N011100 | Watercastle Br  | 242572                     | 180312 | Laois       | OM                   |
| Nore                         | 15N011200 | New Bridge, u/s Durrow                                  | S425786                    |        |             | Salmonid             |
| Nore                         | 15N011300 | Tallyho Br  | 242319                     | 176232 | Laois       | OM                   |
| Nore                         | 15N011400 | 0.5 km u/s Ballyragget                                  | 244267                     | 171182 | Kilkenny    | OM                   |
| Nore                         | 15N011500 | 1.5 km d/s Ballyragget                                  | 244009                     | 169382 | Kilkenny    | OM                   |
| Nore                         | 15N011600 | Lismaine Br   | 244102                     | 166118 | Kilkenny    | OM                   |
| Nore                         | 15N011700 | Threecastles Br   | 245811                     | 162687 | Kilkenny    | OM                   |
| Nore                         | 15N011750 | ENE of Troyswood House (Abstr for Kilkenny Regional WS) | 249539                     | 159374 | Kilkenny    | OM & SM              |
| Nore                         | 15N011900 | St John's Br, Kilkenny                                  | 251080                     | 155819 | Kilkenny    | OM                   |
| Nore                         | 15N011950 | Fennessy's Mill (Ossory Br)                             | 252280                     | 154969 | Kilkenny    | OM                   |
| Nore                         | 15N011980 | Brett's Weir, just u/s Kilkenny City WWTP               |                            |        |             | Other                |
| Nore                         | 15N012000 | NE of Warrington, d/s Kilkenny                          | 253739                     | 154473 | Kilkenny    | OM                   |
| Nore                         | 15N012100 | Bennettsbridge, 600 m d/s Br                            | 255340                     | 148725 | Kilkenny    | OM                   |
| Nore                         | 15N012180 | u/s King's R confl (u/s abstr)                          | 254800                     | 146600 | Kilkenny    | OM                   |
| Nore                         | 15N012200 | Ballylinch Br   | 254688                     | 143592 | Kilkenny    | OM                   |
| Nore                         | 15N012300 | Thomastown Br (Mid) (Abstr for Thomastown)              | 258564                     | 141719 | Kilkenny    | OM & SM              |
| Nore                         | 15N012400 | Brownsbarn Br   | 261808                     | 139168 | Kilkenny    | SM                   |
| Nore                         | 15N012500 | Inistioge Br  | 263649                     | 137631 | Kilkenny    | OM                   |
| Nuenna                       | 15N020100 | Br d/s Clomantagh                                       | 236280                     | 163720 | Kilkenny    | OM                   |
| Nuenna                       | 15N020300 | 1km d/s Freshford                                       | 241320                     | 164642 | Kilkenny    | OM                   |
| Owveg (Nore)                 | 15O010050 | Br W of Spink   | 251915                     | 183643 | Laois       | OM                   |
| Owveg (Nore)                 | 15O010160 | Br WNW of Boleybawn (Cloghoge)                          | 247994                     | 181032 | Laois       | OM                   |
| Owveg (Nore)                 | 15O010400 | Br E of Attanagh  | 244170                     | 175889 | Laois       | OM                   |
| Rathdowney Stream            | 15R030700 | Br W of Glasha Crossroads                               | 227098                     | 175990 | Laois       | OM                   |
| Rathdowney Stream            | 15R031100 | Br. in Rathdowney                                       | 227973                     | 178139 | Laois       | OM                   |
| Stoneyford Stream (Kilkenny) | 15S010100 | Br u/s King's River confl                               | 252503                     | 143656 | Kilkenny    | OM                   |
| Tonet                        | 15T010400 | Rossnaclonagh Br  | 226445                     | 193201 | Laois       | OM                   |
| Tonet                        | 15T010600 | Anatrim Br  | 229465                     | 192339 | Laois       | OM                   |
|                              |           |   |                            |        |             |                      |
| Aherlow                      | 16A010100 | Br. W of Ardrahin                                       | 179200                     | 126700 | Tipperary   | OM                   |
| Aherlow                      | 16A010200 | d/s Galbally STW  | 180900                     | 128800 | Tipperary S |                      |
| Aherlow                      | 16A010300 | Stagdale Br   | 184343                     | 128727 | Tipperary   | OM                   |
| Aherlow                      | 16A010500 | Second Ford d/s New Br                                  | 188767                     | 129807 | Tipperary   | OM                   |
| Aherlow                      | 16A010600 | Br 2 km E of Streamhill Hse.                            | R918303                    |        |             | Salmonid             |
| Aherlow                      | 16A010700 | Br S of Ashgrove Ho                                     | 195110                     | 129405 | Tipperary   | OM                   |

| River                    | Code      | Location  | Grid Ref or XY Coordinates |        | County      | Reason for Inclusion |
|--------------------------|-----------|---|----------------------------|--------|-------------|----------------------|
| Aherlow                  | 16A010800 | Cappa Old Bridge  | R993<br>293                |        |             | Salmonid             |
| Aherlow                  | 16A010900 | Killardry Br  | 201667                     | 129489 | Tipperary   | SM                   |
| Anner                    | 16A020100 | Br just N of Drangan  | 228326                     | 140958 | Tipperary   | OM                   |
| Anner                    | 16A020200 | Br. 1.5 km d/s Drangan  | 229300                     | 140400 | Tipperary   | OM                   |
| Anner                    | 16A020300 | Br. SW of Ballinacloghy                                       | 231900                     | 138800 | Tipperary   | OM                   |
| Anner                    | 16A020500 | Br at Beeverstown Mill<br>(E Branch)                          | S335<br>388                |        |             | Other                |
| Anner                    | 16A020600 | Drummon Br  | 231423                     | 135470 | Tipperary   | OM                   |
| Anner                    | 16A020800 | Br SW of Killusty Castle                                      | 224621                     | 131759 | Tipperary   | OM                   |
| Anner                    | 16A020900 | Thorny Br   | 224763                     | 128072 | Tipperary   | OM                   |
| Anner                    | 16A021100 | Br nr Anner Ho  | 224448                     | 123239 | Tipperary   | OM                   |
| Ara                      | 16A030100 | Br SE of Shronell   | 184792                     | 134548 | Tipperary   | OM                   |
| Ara                      | 16A030300 | nr Railway Br Tipperary<br>Town                               | 189740                     | 135160 | Tipperary   | OM                   |
| Ara                      | 16A030400 | Br nr Cordangan Manor   | 190800                     | 133200 | Tipperary S | OM                   |
| Ara                      | 16A030600 | Ara Br, 2.8 km d/s<br>Bansha                                  | 197459                     | 131994 | Tipperary   | OM                   |
| Arglo                    | 16A040100 | Br nr Grangebeg Ho 6km<br>NE of Cash                          | 210350                     | 145664 | Tipperary   | OM                   |
| Arglo                    | 16A040200 | Arglo Br  | 206372                     | 144203 | Tipperary   | OM                   |
| Black<br>(Twomileborris) | 16B010100 | Br W of Twomileborris   | 219231                     | 157870 | Tipperary   | OM                   |
| Blackwater<br>(Kilmacow) | 16B020080 | Br to W of Mullinavat<br>(Abstr for Moncoin<br>Regional WS)   | 256266                     | 124239 | Kilkenny    | OM & SW              |
| Blackwater<br>(Kilmacow) | 16B020300 | Dangan Br   | 256994                     | 120101 | Kilkenny    | OM                   |
| Blackwater<br>(Kilmacow) | 16B020450 | Bridge SE of Kilmacow   |                            |        |             | Other                |
| Blackwater<br>(Kilmacow) | 16B020500 | Bridge near Dunkitt<br>House                                  | 258200                     | 115500 | Kilkenny    | OM                   |
| Bregagh                  | 16B030200 | Br. 1 km SSW of Littleton<br>(Littleton Bog)                  | 217400                     | 153900 | Tipperary N | OM                   |
| Bregagh                  | 16B030400 | Br. u/s Drish River<br>Confluence                             | 216800                     | 158000 | Tipperary N | OM                   |
| Burncourt                | 16B040200 | Mountain Lodge Hostel<br>(Abstr for<br>Burncourt/Ballyporeen) | R923<br>205                |        |             | OM & SW              |
| Burncourt                | 16B040310 | 100 m d/s Burncourt Old<br>Br, d/s discharge                  | 195400                     | 117900 | Tipperary   | OM                   |
| Black Stream<br>(Cashel) | 16B050100 | Br 0.5 km u/s Suir R<br>confl                                 | 204522                     | 141142 | Tipperary   | OM                   |
| Clashawley               | 16C010100 | Br 1 km S (d/s) Killenaule<br>(east branch)                   | S227<br>453                |        |             | Other                |
| Clashawley               | 16C010200 | Br near Johnstown<br>Castle (east branch)                     | S231<br>413                |        |             | Other                |
| Clashawley               | 16C010300 | Saucestown Br (east<br>branch)                                | S220<br>363                |        |             | Other                |
| Clashawley               | 16C010400 | Br at Ballybough  | 219910                     | 136245 | Tipperary   | OM                   |
| Clashawley               | 16C010500 | Br 2 km SE of Fethard   | 221732                     | 134629 | Tipperary S | OM                   |
| CLASHAWLEY               | 16C010600 | Loughcapple Br  | 223868                     | 131074 | Tipperary   | OM                   |
| Clodiagh<br>(Tipperary)  | 16C020080 | Br E of Rathcardan  | 202241                     | 163820 | Tipperary   | OM                   |

| River                | Code      | Location  | Grid Ref or XY Coordinates |        | County      | Reason for Inclusion |
|----------------------|-----------|---|----------------------------|--------|-------------|----------------------|
| Clodiagh (Tipperary) | 16C020200 | Drumminagleagh Br   | 204512                     | 159766 | Tipperary   | OM                   |
| Clodiagh (Tipperary) | 16C020500 | Rathkennan Br   | 205150                     | 153070 | Tipperary   | OM                   |
| Clodiagh (Portlaw)   | 16C030050 | Crottys lake (on tributary) (Abstr for Carrick-on-Suir)       | S327 126                   |        |             | OM & SW              |
| Clodiagh (Portlaw)   | 16C030100 | Br E of Shanakill Ho  | 234401                     | 115950 | Waterford   | OM                   |
| Clodiagh (Portlaw)   | 16C030300 | Clonea Br   | 238452                     | 114185 | Waterford   | OM                   |
| Clodiagh (Portlaw)   | 16C030400 | Lowry's Br  | 242123                     | 114873 | Waterford   | OM                   |
| Clodiagh (Portlaw)   | 16C030600 | Portlaw Br. (Canal/North branch)                              | 246600                     | 114900 | Waterford   | OM                   |
| Clodiagh (Portlaw)   | 16C030700 | Portlaw Br. (S Channel) (Abstr for E Waterford Regional WS)   | 246791                     | 115038 | Waterford   | OM & SW              |
| Clodiagh (Portlaw)   | 16C030800 | Clodiagh Bridge   | 247931                     | 115030 | Waterford   | OM                   |
| Carrickphilip        | 16C050100 | 0.5 km u/s Knockaderry Reservoir                              | 249000                     | 106500 | Waterford   | OM                   |
| College Stream       | 16C100100 | 2 km S of Rossbog (Abstr for Galtee Regional WS)              | 191300                     | 127800 | Tipperary   | OM                   |
| Drish                | 16D020068 | 20 m u/s Minorco mine discharge                               | 221900                     | 163500 | Tipperary   | OM & SW              |
| Drish                | 16D020070 | Br NE of Castletown   | 221729                     | 163525 | Tipperary   | OM                   |
| Drish                | 16D020100 | Boolabehe Br  | 219086                     | 161952 | Tipperary   | OM                   |
| Drish                | 16D020200 | Br S of Athlummon   | 217645                     | 159416 | Tipperary   | OM                   |
| Drish                | 16D020400 | Br u/s Suir R confl   | 213693                     | 157096 | Tipperary   | OM                   |
| Duag                 | 16D030100 | Br u/s Ballyporeen  | 191954                     | 112644 | Tipperary   | OM                   |
| Duag                 | 16D030400 | Br S of Kilcarroon  | 195133                     | 113029 | Tipperary   | OM                   |
| Duag                 | 16D031100 | Br at S end of Clogheen                                       | 200375                     | 113616 | Tipperary   | OM                   |
| Duag (Tributary)     | 16D031400 | Mountanglesby Spring (Abstr for Old Clogheen)                 | 200800                     | 112400 | Tipperary S | OM & SW              |
| Dawn                 | 16D040100 | Br. at Ballyshunnock Res. (Abstr for E Waterford Regional WS) | 245100                     | 109600 | Waterford   | OM & SW              |
| Dawn                 | 16D040300 | Br. E Kildermody  | 248100                     | 109700 | Waterford   | OM                   |
| Dawn                 | 16D040500 | Br. NW Stpnehouse - tidal                                     | 250500                     | 112000 | Waterford   | OM                   |
| Fidaghta             | 16F010100 | Br nr Aughnagower Crossroads                                  | 195733                     | 135009 | Tipperary   | OM                   |
| Fidaghta             | 16F010300 | Kilnacask Br  | 200736                     | 131700 | Tipperary   | OM                   |
| Farneybridge         | 16F020500 | Ballynahow Br   | S086 597                   |        |             | Other                |
| Fishmoyne            | 16F030100 | 0.5 km SE of Borrisoleigh (tributary)                         | S034 662                   |        |             | Other                |
| Fishmoyne            | 16F030200 | Br 2 km SE of Borrisoleigh                                    | 204815                     | 165661 | Tipperary   | OM                   |
| Fishmoyne            | 16F030300 | Monroe Br   | 205071                     | 162559 | Tipperary   | OM                   |
| Glenary              | 16G020050 | Kilcommon (Abstr for Clonmel)                                 | 220100                     | 119200 | Waterford   | OM & SW              |
| Glenary              | 16G020200 | Kilmanahan Bridge   | 215249                     | 118308 | Waterford   | OM                   |



| River            | Code       | Location  | Grid Ref or XY Coordinates |        | County      | Reason for Inclusion |
|------------------|------------|---|----------------------------|--------|-------------|----------------------|
| Glenbrook        | 16G040100  | Second Br. u/s Suir Confluence                                | 239700                     | 122400 | Tipperary   | OM                   |
| Glenbrook        | 16G040200  | First Br. u/s Suir, Carrick-on-Suir                           | 239700                     | 121800 | Tipperary   | OM                   |
| Lingaun          | 16L010050  | Br u/s Whitehall Br   | 234106                     | 132327 | Tipperary   | OM                   |
| Lingaun          | 16L010200  | Lingaun Br  | 236496                     | 131073 | Tipperary   | OM                   |
| Lingaun          | 16L010300  | Br at Inchanaglogh  | 241367                     | 130868 | Kilkenny/   | OM                   |
| Lingaun          | 16L010400  | Br nr Annsborough Ho  | 241499                     | 126917 | Kilkenny    | OM                   |
| Lingaun          | 16L010550  | Footbridge 500 m u/s The Three Br (Abstr for Carrick-on-Suir) | 241650                     | 123000 | Tipperary S | OM & SW              |
| Lingaun          | 16L010600  | The Three Bridges   | S422 225                   |        |             | Other                |
| Moyle            | 16M010100  | Moyle Br.   | 215900                     | 130600 | Tipperary   | OM                   |
| Moyle            | 16M010200  | Ballinavoher Br   | 218626                     | 129686 | Tipperary   | OM                   |
| Moyle            | 16M010300  | Br W of Annsfort  | 221900                     | 128500 | Tipperary   | OM                   |
| Moyle            | 16M010400  | Br u/s Anner R confl  | 224383                     | 128027 | Tipperary   | OM                   |
| Multeen (East)   | 16M02-0050 | Turraheen Upper Stook (Rossmore) (Abstr for Dundrum)          | R976 559                   |        |             | SW                   |
| Multeen (East)   | 16M02-0300 | Clonedarby Br   | S001 490                   |        |             | Other                |
| Multeen (East)   | 16M02-0500 | Aughnagross Br  | R989 413                   |        |             | Other                |
| Multeen (Spring) | 16M02-0520 | 1.5 km NE Hollyford (Abstr for Dundrum)                       | R936 549                   |        |             | SW                   |
| Multenn (West)   | 16M020600  | 1 km SE of Inchinsquillib                                     | 191291                     | 149635 | Tipperary   | OM                   |
| Multenn (West)   | 16M020900  | Morpeth Br  | 194074                     | 141705 | Tipperary   | OM                   |
| Multenn (West)   | 16M021000  | Ballinaclogh Br   | 198561                     | 140864 | Tipperary   | OM                   |
| Multenn (West)   | 16M021100  | Ballygriffin Br   | 200582                     | 140392 | Tipperary   | SM                   |
| Nier             | 16N010010  | Br SW of Glennanore   | 224995                     | 113971 | Waterford   | OM                   |
| Nier             | 16N010100  | Br. ENE of Ballymacarby                                       | 219900                     | 112900 | Waterford   | OM                   |
| Nier             | 16N010400  | Ballymakee Br   | 215032                     | 113697 | Waterford   | OM                   |
| Outeragh Stream  | 16O010100  | Br. Just N of Outeragh House (d/s New Inn village)            | 207500                     | 130500 | Tipperary   | OM                   |
| Outeragh Stream  | 16O010200  | Br u/s Suir R confl   | 206169                     | 127522 | Tipperary   | OM                   |
| Pollanassa       | 16P020100  | Br SE of Harristown   | 251822                     | 128009 | Kilkenny    | OM                   |
| Pollanassa       | 16P020200  | Br W of Ballykiminin (Abstr for Mooncoin Regional WS)         | 252836                     | 126520 | Kilkenny    | OM & SW              |
| Rossestown       | 16R010040  | Br NE of Barnalisheen   | 220183                     | 169246 | Tipperary   | OM                   |
| Rossestown       | 16R010150  | Br W of Ballyerk  | 217544                     | 166777 | Tipperary   | OM                   |
| Rossestown       | 16R010300  | Br u/s Suir R confl   | 214571                     | 163223 | Tipperary   | OM                   |
| Rockwell Stream  | 16R020200  | Br. On New Inn - Golden Road                                  | 205600                     | 133800 | Tipperary   | OM                   |
| Suir             | 16S020100  | Knockanroe Br   | 213506                     | 177642 | Tipperary   | OM                   |
| Suir             | 16S020200  | Knocknageragh Br  | 213093                     | 172534 | Tipperary   | OM                   |
| Suir             | 16S020300  | Penane Br   | 212437                     | 169265 | Tipperary   | OM                   |



| River               | Code       | Location                                | Grid Ref or XY Coordinates |        | County              | Reason for Inclusion |
|---------------------|------------|---|----------------------------|--------|---------------------|----------------------|
| Suir                | 16S020400  | Loughmore Br.                           | 211800                     | 167200 | Tipperary           | OM                   |
| Suir                | 16S020500  | Rossestown Br                           | 213394                     | 162447 | Tipperary           | OM                   |
| Suir                | 16S020600  | Thurles Br                              | 212895                     | 158636 | Tipperary           | OM                   |
| Suir                | 16S020800  | Just N of Turtulla House (Main Channel) | 213200                     | 156800 | Tipperary           | OM                   |
| Suir                | 16S020900  | Cabragh Br                              | 211242                     | 155876 | Tipperary           | OM                   |
| Suir                | 16S021100  | Holycross Br                            | 209054                     | 154131 | Tipperary           | OM                   |
| Suir                | 16S021200  | Twofords Br. (Main flow)                | 207100                     | 151500 | Tipperary           | OM                   |
| Suir                | 16S021300  | Ardmayle Br                             | 205194                     | 145971 | Tipperary           | OM                   |
| Suir                | 16S021400  | Camus Br                                | 204633                     | 143106 | Tipperary           | OM                   |
| Suir                | 16S021500  | Golden Br                               | 201224                     | 138387 | Tipperary           | OM                   |
| Suir                | 16S021600  | Br nr Suirville Ho (New Br)             | 200209                     | 134188 | Tipperary           | OM                   |
| Suir                | 16S021700  | 2 km u/s Cahir                          | 205946                     | 126322 | Tipperary           | OM                   |
| Suir                | 16S021900  | d/s Cahir STW + AIBP                    | 205600                     | 122100 | Tipperary S         | OM                   |
| Suir                | 16S022000  | Ardfinnan Br                            | 208308                     | 117567 | Tipperary           | OM                   |
| Suir                | 16S022200  | Newcastle Br                            | 213040                     | 113658 | Tipperary           | OM                   |
| Suir                | 16S022300  | Knocklofty Br                           | 214416                     | 120616 | Tipperary/Waterford | OM                   |
| Suir                | 16S022400  | Marfield                                | 217400                     | 121200 | Tipperary           | OM                   |
| Suir                | 16S022600  | Twomilebridge                           | 223847                     | 122857 | Tipperary/Waterford | OM                   |
| Suir                | 16S022700  | Kilsheelan Br.                          | 228600                     | 123200 | Tipperary           | OM                   |
| Suir                | 16S022740  | S of Ballynoran House (d/s M.S.D.)      | 233500                     | 122600 | Tipperary           | OM                   |
| Suir                | 16S022800  | Coolnamuck Weir (d/s Miloko)            | 236700                     | 122200 | Tipperary           | SM                   |
| Suir                | 16S022900  | Just d/s Carrick-on-Suir - tidal        | 239600                     | 121800 | Tipperary           | OM                   |
| St Johns River      | 16S030050  | Culvert on Waterford/Portlaw Road       | S577 116                   |        | Waterford City      | Other                |
| St Johns River      | 16S030100  | Brown's Road Br, u/s WIT                | S577 116                   |        | Waterford City      | Other                |
| St Johns River      | 16S030200  | Br just d/s WIT (Cork Road)             | S593 107                   |        | Waterford City      | Other                |
| St Johns River      | 16S030300  | Bleach Bridge                           | 259460                     | 110580 | Waterford City      | OM                   |
| St Johns River      | 16S030330  | Sheep's Bridge                          | 259720                     | 107800 | Waterford City      | OM                   |
| St Johns River      | 16S030350  | Br u/s Lisduggan Stream confl (tidal)   | S602 108                   |        | Waterford City      | Other                |
| St Johns River      | 16S03-0400 | Br on Tramore Road (tidal)              |                            |        | Waterford City      | Other                |
| St Johns River      | 16S030500  | Wyse's Bridge (Bath Street)             | 260630                     | 111590 | Waterford City      | OM                   |
| St Johns River      | 16S030600  | Hardy's Br N of Courthouse (tidal)      | S607 118                   |        | Waterford City      | Other                |
| St Johns River      | 16S030310  | Tributary S of Ballycashin              | S587 007                   |        | Waterford City      | Other                |
| St Johns River      | 16S030315  | Tributary - Duagh Stream                | S588 076                   |        | Waterford City      | Other                |
| St Johns River      | 16S030320  | Tributary - Course Road                 | S605 088                   |        | Waterford City      | Other                |
| Smartscastle Stream | 16S070800  | Br SW of Smartscastle (Main flow)       | 259406                     | 116096 | Kilkenny            | OM                   |
| Tar                 | 16T010030  | Br N of Redhill Ho                      | 197052                     | 119717 | Tipperary           | OM                   |
| Tar                 | 16T010300  | Clogheen Br                             | 200348                     | 114038 | Tipperary           | OM                   |

| River                | Code      | Location   | Grid Ref or XY Coordinates |        | County    | Reason for Inclusion |
|----------------------|-----------|--|----------------------------|--------|-----------|----------------------|
| Tar                  | 16T010600 | Ford u/s Tar Br  | 210541                     | 113401 | Tipperary | OM                   |
| Thonoge              | 16T020080 | Br u/s Ballylooby  | 200424                     | 119604 | Tipperary | OM                   |
| Thonoge              | 16T020200 | East Br, Tubbrid   | 203450                     | 118142 | Tipperary | OM                   |
| Whelans Bridge       | 16W010100 | Br. at Outlet from Knockaderry Reservoir (Abstr for E Waterford Regional WS) | 249900                     | 106600 | Waterford | OM & SW              |
| Whelans Bridge       | 16W010400 | Whelan's Bridge  | 252200                     | 110000 | Waterford | OM                   |
|                      |           |  |                            |        |           |                      |
| Araglin (Colligan)   | 17A010300 | Coum Br  | 224892                     | 103680 | Waterford | OM                   |
| Araglin (Colligan)   | 17A010400 | Br u/s Colligan R confl  | 223154                     | 102480 | Waterford |                      |
| Brickey              | 17B010050 | Knockmahon Br  | 218746                     | 93400  | Waterford | OM                   |
| Brickey              | 17B010090 | Br u/s Twomile Br  | 222101                     | 91318  | Waterford | OM                   |
| Brickey              | 17B010200 | Killongford Bridge   | 224337                     | 90233  | Waterford | OM                   |
| Ballyscanlon Lake    | 17B020100 | Water intake (Abstr for Tramore)   | 254300                     | 103000 | Waterford | OM                   |
| Belle Lake           | 17B040100 | Water Intake (Abstr for Dunmore East)  | 266500                     | 104800 | Waterford | OM & SW              |
| Colligan             | 17C010150 | Br ESE of Lackandarra  | 223066                     | 102061 | Waterford | OM                   |
| Colligan             | 17C010250 | Br nr Killadangan  | 223210                     | 95188  | Waterford | OM                   |
| Colligan             | 17C010300 | Ballyneety Br  | 224700                     | 94700  | Waterford | OM                   |
| Carrigavantry Lake   | 17C020100 | Water intake (Abstr for Tramore)   | 255000                     | 102400 | Waterford | OM & SW              |
| Dalligan             | 17D010300 | New Br, u/s Ballyvoyle Br  | 233814                     | 95971  | Waterford | OM                   |
| Dunhill              | 17D020050 | Br near Crough   | S508 034                   |        | Waterford | u/s Reedbeds         |
| Dunhill              | 17D020100 | Ballyphilip Br   | 250744                     | 102651 | Waterford | OM                   |
| Dunhill              | 17D020200 | Br at Dunhill Lodge  | S505 008                   |        | Waterford | d/s Reedbeds         |
| Dunhill              | 17D020300 | Br at Annestown (u/s sea)  | X497 988                   |        | Waterford | d/s Reedbeds         |
| Kilmurrin Cove       | 17K030200 | Br near Kilbeg (d/s Kill village)  | 246482                     | 101643 | Waterford | OM                   |
| Mahon                | 17M010100 | Mahon Br, Furraleigh   | 234225                     | 106019 | Waterford | OM                   |
| Mahon                | 17M010200 | Br just S of Kilmacthomas  | 239661                     | 105641 | Waterford | OM                   |
| Mahon                | 17M010300 | Aughshemus Br, Ballylaneen (Abstr for Kill/Annestown)                        | S415 027                   |        | Waterford | SW                   |
| Mahon                | 17M010350 | ENE of Seafield Ho   | 242275                     | 101069 | Waterford | SM                   |
| Tay                  | 17T010050 | Aughnacurra Br   | 231942                     | 104035 | Waterford | OM                   |
| Tay                  | 17T010300 | Br. S of Kilminin (Abstr for Stradbally)                                     | 234985                     | 98059  | Waterford | OM & SW              |
| Tay                  | 17T010400 | Stradbally Br  | 236823                     | 97209  | Waterford | OM                   |
|                      |           |  |                            |        |           |                      |
| Blackwater (Munster) | 18B022500 | Ballyduff Br   | 196540                     | 99120  | Waterford | OM                   |
| Blackwater (Munster) | 18B022600 | Lismore Bridge   | 204775                     | 98775  | Waterford | OM                   |

| River                   | Code       | Location                                       | Grid Ref or XY Coordinates |        | County              | Reason for Inclusion |
|-------------------------|------------|--|----------------------------|--------|---------------------|----------------------|
| Blackwater (Munster)    | 18B022700  | 2km d/s Lismore Br                             | 206647                     | 98827  | Waterford           | OM                   |
| Blackwater (Munster)    | 18B022900  | 1 km d/s Cappoquin - tidal                     | X098 990                   |        | Waterford           | Salmonid             |
| Blackwater (Munster)    | 18B023000  | Dromana Ferry Tidal                            | X093 927                   |        | Waterford           | Salmonid             |
| Bride (Blackwater)      | 18B050800  | Tallowbridge                                   | 199869                     | 94335  | Waterford           | OM                   |
| Bride (Blackwater)      | 18B051000  | Br u/s Blackwater R confl. (tidal)             | X079 923                   |        | Waterford           | Salmonid             |
| Finisk                  | 18F020100  | Ballynamult Br                                 | 218125                     | 106745 | Waterford/Tipperary | OM                   |
| Finisk                  | 18F020300  | Modelligo Br                                   | 217572                     | 99267  | Waterford           | OM                   |
| Finisk                  | 18F020500  | Kilmolash Br                                   | 213027                     | 94870  | Waterford           | OM                   |
| Glendine (Blackwater)   | 18G070300  | 100m d/sGlendine Ch, E of Ballycondon          | 206385                     | 83465  | Waterford           | OM                   |
| Glenafallia             | 18G100200  | Little Br (Cappoquin)                          | 210336                     | 99160  | Waterford           | OM                   |
| Goish                   | 18G120200  | Br N of Coolroe                                | 212119                     | 90300  | Waterford           | OM                   |
| Goish                   | 18G120300  | Br 2km NW of Aglish                            | 210470                     | 91409  | Waterford           | OM                   |
| Licky                   | 18L010100  | Br NE of Glenlicky                             | 220290                     | 85526  | Waterford           | OM                   |
| Owennashad              | 18O080060  | Foot-bridge E of Glendeish                     | 204662                     | 104198 | Waterford           | OM                   |
| Owennashad              | 18O080200  | Br u/s Blackwater R confl (Abstr for Lismore)  | 204817                     | 98938  | Waterford           | OM & SW              |
|                         |            |  |                            |        |                     |                      |
| Annagh                  | 25A020200  | Charlotte's Bridge                             | 175000                     | 159200 | Tipperary N         | OM                   |
| Annagh                  | 25A020300  | Ahacrossaun Bridge                             | 171800                     | 159400 | Tipperary N         | OM                   |
| Ballintotty             | 25B010100  | Phillabean Br                                  | 197081                     | 177644 | Tipperary N         | OM                   |
| Ballintotty             | 25B010300  | Br. U/s Ollatrim R. Confluence                 | 189460                     | 179030 | Tipperary N         | OM                   |
| Ballyfinboy             | 25B020300  | Modreeny bridge (North)                        | 195900                     | 189500 | Tipperary N         | OM                   |
| Ballyfinboy             | 25B020600  | Br. Near Ballyfinboy Castle                    | 189700                     | 193600 | Tipperary N         | OM                   |
| Ballyfinboy             | 25B020800  | Br just u/s L Derg                             | 183804                     | 198048 | Tipperary N         | SM                   |
| Brosna                  | 25B09-0760 | 0.5 km NW of Pollagh                           |                            |        | Tipperary N         | SM                   |
| Bunow                   | 25B09-1000 | Clonony Br (NW of Canal)                       |                            |        | Tipperary N         | SM                   |
| Bunow                   | 25B25-0100 | 2 km u/s Roscrea                               | 213800                     | 189500 | Tipperary N         | OM                   |
| Bunow                   | 25B25-0400 | Bunow Bridge                                   | 211000                     | 190200 | Tipperary N         | OM                   |
| Cahernahallia           | 25C010060  | Br u/s Dead R confl                            | 185284                     | 149087 | Tipperary N         | OM                   |
| Carrigahorig Stream     | 25C160500  | Bridge at Carrigahorig                         | 190400                     | 201500 | Tipperary N         | OM                   |
| Clodiagh (Tullamore)    | 25C060090  | u/s Clonaslee Waterworks (Abstr for Clonaslee) | 231751                     | 210810 | Laois               | OM & SW              |
| Clodiagh (Tullamore)    | 25C060220  | Just u/s Gorrage R confl                       | 232300                     | 212100 | Laois               | OM                   |
| Cappawhite Stream       | 25C100200  | Gortandrum Br                                  | 188000                     | 146200 | Tipperary South     | OM                   |
| Clareen (Nenagh) Stream | 25C110300  | u/s confl. with Nenagh river                   | 187412                     | 179200 | Tipperary N         | OM                   |
| Dead                    | 25D010100  | Pope's Bridge                                  | 185600                     | 143700 | Tipperary S         | OM                   |
| Golden Grove Stream     | 25G060200  | Br. just u/s Little Brosna R.                  | 210800                     | 190600 | Tipperary N         | OM                   |

| River               | Code       | Location                                    | Grid Ref or XY Coordinates |        | County      | Reason for Inclusion |
|---------------------|------------|---|----------------------------|--------|-------------|----------------------|
| Gorragh             | 25G090300  | Killart House                               | 232400                     | 212100 | Laois       | OM                   |
| Grange              | 25G10-0100 | Br N of Ballycorrigan                       | R716<br>739                |        | Tipperary N | OM                   |
| Kilmastulla         | 25K040100  | Br N of Silvermines Village                 | R804<br>727                |        | Tipperary N | Other                |
| Kilmastulla         | 25K040200  | u/s Tailings Pond Outfall                   | R804<br>724                |        | Tipperary N | Other                |
| Kilmastulla         | 25K040300  | U/s Yellow R confl                          | 180157                     | 172359 | Tipperary N | OM                   |
| Kilmastulla         | 25K040400  | Stream from Silvermines Complex             | R807<br>717                |        | Tipperary N | Other                |
| Kilmastulla         | 25K040500  | Yellow River, u/s Station 0400              | R808<br>717                |        | Tipperary N | Other                |
| Kilmastulla         | 25K040600  | Yellow River, d/s Station 0400              | R805<br>717                |        | Tipperary N | Other                |
| Kilmastulla         | 25K040800  | Cranna Bridge                               | 178500                     | 171900 | Tipperary N | OM                   |
| Kilmastulla         | 25K041000  | Cool Bridge                                 | 175400                     | 171100 | Tipperary N | OM                   |
| Kilfadda Castle     | 25K07-0600 | Br SE of Carrigahorigh                      | M915<br>007                |        | Tipperary N | Other                |
| Little              | 25L01-0200 | Br 2 km SW of Cloghan                       |                            |        | Tipperary N | SM                   |
| Little Brosna       | 25L020100  | Milltown Br (nr Mt Lucas)                   | 206992                     | 190924 | Tipperary N | OM                   |
| Little Brosna       | 25L020200  | Just u/s Mooneen Confl. (Abstr for Roscrea) | S105<br>902                |        | Tipperary N | SW                   |
| Little Brosna       | 25L020400  | Br nr Brosna House (Drumakeenan)            | 210000                     | 191700 | Offaly      | OM                   |
| Little Brosna       | 25L020600  | Sharavoge Br (SW of S. Ho) ( d/s on RHS)    | 205626                     | 196501 | Offaly      | OM                   |
| Little Brosna       | 25L020700  | Riverstown Br                               | 205269                     | 203512 | Offaly      | OM                   |
| Little Brosna       | 25L021000  | New Br                                      | 201600                     | 209100 | Offaly      | OM                   |
| Lorrha Stream       | 25L05-0200 | Br SW of Lorrha                             | M917<br>045                |        | Tipperary N | Other                |
| Nenagh              | 25N010200  | Lacken Bridge                               | 196000                     | 173000 | Tipperary N | OM                   |
| Nenagh              | 25N010300  | Ballysoilshaun bridge                       | 191600                     | 174000 | Tipperary N | OM                   |
| Nenagh              | 25N010500  | Bridge near Tyrone Abbey                    | 187700                     | 177900 | Tipperary N | OM                   |
| Nenagh              | 25N010640  | 200m u/s Nenagh Br (At Holywell)            | 186860                     | 181080 | Tipperary N | OM                   |
| Nenagh              | 25N010660  | 100m d/s Nenagh Meats                       | 186800                     | 181300 | Tipperary N | OM                   |
| Nenagh              | 25N010800  | Annaghbeg Bridge                            | 183100                     | 184900 | Tipperary N | SM                   |
| Newport (Tipperary) | 25N020100  | Ford u/s Doonane R confl.                   | 177500                     | 166900 | Tipperary N | SM                   |
| Newport (Tipperary) | 25N020200  | Br near Mackney (Abstr for Newport)         | R739<br>633                |        | Tipperary N | SM & SW              |
| Newport (Tipperary) | 25N020300  | Portryan Br - d/s Newport                   | 170200                     | 161800 | Tipperary N | OM                   |
| Newtown             | 25N030200  | Newtown Br                                  | 180441                     | 180696 | Tipperary N | OM                   |
| Ollatrim            | 25O010150  | Bridge d/s Ollatrim Br                      | 198800                     | 180900 | Tipperary N | OM                   |
| Ollatrim            | 25O010400  | Rathurles bridge                            | 190800                     | 179900 | Tipperary N | OM                   |
| Pallas              | 25P010500  | Nr Church d/s Pallas Bridge                 | 199900                     | 207200 | Tipperary N | OM                   |
| Shannon (L. Derg)   | 25S012200  | Portumna Br                                 | 186954                     | 204443 | Tipperary N | SM                   |
| Shannon (L. Derg)   | 25S012210  | Terryglass (Shore)                          | M873<br>017                |        | Tipperary N | Other                |

| River                      | Code       | Location  | Grid Ref or XY Coordinates |        | County      | Reason for Inclusion |
|----------------------------|------------|---|----------------------------|--------|-------------|----------------------|
| Shannon (L. Derg)          | 25S012220  | Kilgarvan Quay (Shore)                            | M826<br>963                |        | Tipperary N | Other                |
| Shannon (L. Derg)          | 25S012230  | Mota Qualy (Shore)                                | M820<br>957                |        | Tipperary N | Other                |
| Shannon (L. Derg)          | 25S012240  | Kilbarron Quay (Shore)<br>(near Abstr for Nenagh) | M817<br>913                |        | Tipperary N | SW                   |
| Shannon (L. Derg)          | 25S012250  | Luska (Shore)                                     | M821<br>894                |        | Tipperary N | Other                |
| Shannon (L. Derg)          | 25S012260  | Dromineer (Shore)                                 | M815<br>860                |        | Tipperary N | Other                |
| Shannon (L. Derg)          | 25S012270  | Youghal Carrow (Shore)                            | R792<br>829                |        | Tipperary N | Other                |
| Shannon (L. Derg)          | 25S012280  | Garrykennedy (Shore)                              | R768<br>838                |        | Tipperary N | Other                |
| Shannon (L. Derg)          | 25S012290  | Castlelough (Shore)                               | R739<br>828                |        | Tipperary N | Other                |
| Shannon (L. Derg)          | 25S012300  | Ballina/Killaloe Bridge                           | R705<br>730                |        | Tipperary N | Other                |
| Silver (Kilcormac)         | 25S02-0700 | Lumcloon Br                                       |                            |        | Tipperary N | Other                |
| Small                      | 25S050200  | U/s Newport River Confl                           | 174200                     | 162600 | Tipperary N | OM                   |
| Silvermines Village Stream | 25S100100  | Br d/s Silvermines Br                             | 183983                     | 172469 | Tipperary N | OM                   |
| Tullamore                  | 25T03-0400 | Br W of Ballycowan Br                             |                            |        | Offaly      | Other                |
| Youghal                    | 25Y020200  | Br. At Youghal                                    | 179000                     | 182000 | Tipperary N | OM                   |