

# Report on River Water Quality in Waterford City & County 2011

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## Overview

This report gives an assessment of river water quality in Waterford City & County in 2011. It should be read in conjunction with the main report and the appendices for a complete picture of water quality in the county.

The first section of this report identifies the priority polluted sites and suspected causes of pollution. They were selected based on having a Q value less than 4 (i.e. moderate or worse status), or there were other significant pollution issues.

The next two sections show trends in river water quality since 1980, and give a summary assessment of water quality for each river in the county. The assessment is based on the experience and expert judgement of the author, in conjunction with an evaluation of the relevant Q values and physico-chemical data. Future reports will evaluate rivers to more stringent WFD criteria.

Finally there is a set of maps indicating river water quality for 6 parameters – ammonium, BOD, dissolved oxygen, o-phosphate, pH, o-phosphate and total oxidised nitrogen.

## General Assessment

Physico-chemical monitoring of rivers in Waterford indicates a slight improvement in the Clodiagh and Dawn during 2011. However the Brickey, Dunhill, Mahon and Suir all continue to have problems at certain locations. The St. John's River continues to have poor ecological status over most of its length.

These problems are caused in the main by municipal waste, landfill waste and diffuse agricultural pollution. Further details of these sites are available in the following table.

It is hoped that targeting pollution at these sites will lead to continued improvement in river water quality in the county.

## Priority Polluted Sites

### Table showing Polluted sites in Waterford City and County and Suspected Causes

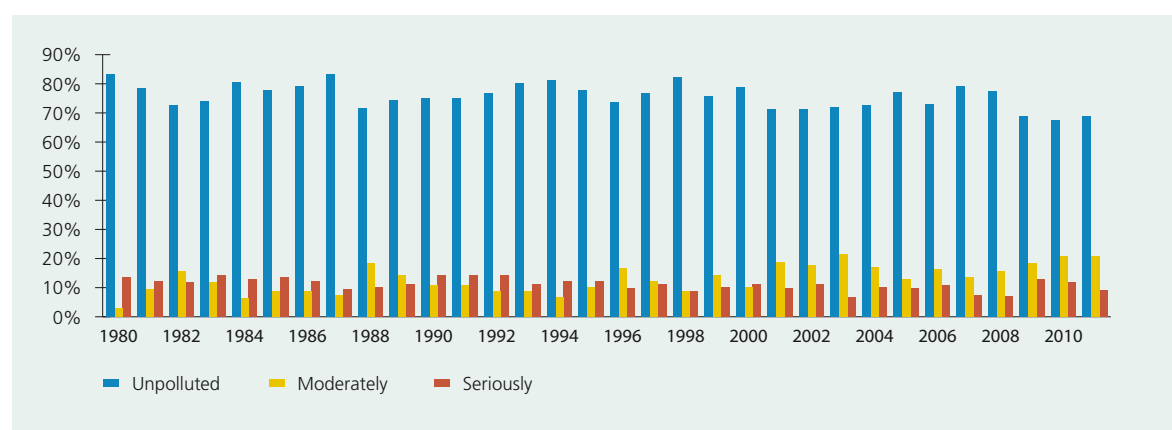
There are over 900 river sites of less than good status across the country – i.e. they have a Q value of 3-4 or less. The table below lists those river sites in the county where the most recent Q value is 3-4 or less. There are up to three suspected causes of pollution listed for each site. Roughly 50% are polluted due to point sources and 50% due to diffuse sources.

This list may be useful in assisting with investigative monitoring, particularly of diffuse sources of pollution. The point source discharges may be dealt with separately through licensing and enforcement measures. If sources of pollution affecting rivers can be reduced or eliminated, this will have a positive knock-on effect on lakes, estuaries and ground-waters in the region.

River	Code	Location	Q Value	Year	Category	Suspected Cause	Comments
SUIR	16S02-2700	Kilsheelan Br	3-4	2011	Urban		
ST JOHN'S	16S03-0500	Wyse's Bridge (Bath Street)	2-3	2009	Municipal	CSOs – Storm Overflows	
ST JOHN'S	16S03-0300	Bleach Bridge	2	2011	Landfill	Landfill	Oil released from substratum
BRICKEY	17B01-0050	Knockmahon Br	3-4	2011	Agriculture	Agricultural: Diffuse	
DUNHILL	17D02-0100	Ballyphilip Br	3-4	2010	Municipal	Integrated Constructed Wetlands	ICWs treating effluent from Dunhill Village
MAHON	17M01-0200	Br just S of Kilmacthomas	3-4	2010	Municipal	Sewage	

## Overall Trend of Water Quality in Waterford City &amp; County since 1980.

Year	Number of Rivers Monitored	Total Number of Sample Stations	Number of Sample Stations in each category			Percent of Sample Stations in each Category		
			Un-Polluted	Moderately Polluted	Seriously Polluted	Un-Polluted	Moderately Polluted	Seriously Polluted
1980	17	66	55	2	9	83.3%	3.0%	13.6%
1981	18	74	58	7	9	78.4%	9.5%	12.2%
1982	18	77	56	12	9	72.7%	15.6%	11.7%
1983	18	77	57	9	11	74.0%	11.7%	14.3%
1984	18	77	62	5	10	80.5%	6.5%	13.0%
1985	18	81	63	7	11	77.8%	8.6%	13.6%
1986	18	81	64	7	10	79.0%	8.6%	12.3%
1987	19	95	79	7	9	83.2%	7.4%	9.5%
1988	19	88	63	16	9	71.6%	18.2%	10.2%
1989	19	90	67	13	10	74.4%	14.4%	11.1%
1990	20	92	69	10	13	75.0%	10.9%	14.1%
1991	20	92	69	10	13	75.0%	10.9%	14.1%
1992	20	90	69	8	13	76.7%	8.9%	14.4%
1993	21	91	73	8	10	80.2%	8.8%	11.0%
1994	21	91	74	6	11	81.3%	6.6%	12.1%
1995	21	90	70	9	11	77.8%	10.0%	12.2%
1996	21	91	67	15	9	73.6%	16.5%	9.9%
1997	22	90	69	11	10	76.7%	12.2%	11.1%
1998	22	90	74	8	8	82.2%	8.9%	8.9%
1999	22	90	68	13	9	75.6%	14.4%	10.0%
2000	22	90	71	9	10	78.9%	10.0%	11.1%
2001	22	91	65	17	9	71.4%	18.7%	9.9%
2002	22	91	65	16	10	71.4%	17.6%	11.0%
2003	22	89	64	19	6	71.9%	21.3%	6.7%
2004	22	88	64	15	9	72.7%	17.0%	10.2%
2005	22	92	71	12	9	77.2%	13.0%	9.8%
2006	22	92	67	15	10	72.8%	16.3%	10.9%
2007	27	67	53	9	5	79.1%	13.4%	7.5%
2008	27	71	55	11	5	77.5%	15.5%	7.0%
2009	27	77	53	14	10	68.8%	18.2%	13.0%
2010	27	77	52	16	9	67.5%	20.8%	11.7%
2011	27	77	53	16	7	68.8%	20.8%	9.1%



## 2011 Summary of River Water Quality in Waterford City and County

**This assessment is based on the experience and expert judgement of the author, in conjunction with an evaluation of relevant Q values and physico-chemical data. Future reports will evaluate rivers to more stringent WFD criteria.**

River	Number of Sampling Stations in each category			Remarks	Change from 2010
	Generally Satisfactory	Moderately Polluted at times	Seriously Polluted at times		
<b>Clodiagh (Waterford) (16C03)</b> <i>Q 4 through length of river (2011)</i> The Clodiagh rises in the Commeraghs and flows through Clonea and Portlaw. Station 0600 flows through the old tannery in Portlaw.	5	1		High levels of ammonia at station 0600 (caused by leachate from landfill at the old tannery in Portlaw which closed in 1985) dropped dramatically from May.	Improvement at station 0600, otherwise no significant change.
<b>Carrickphilip (16C05)</b> This small stream feeds Knockaderry reservoir.	1			Improvement in quality – BOD and o-phosphate dropped, but DO levels were low (possibly due to groundwater inflow) throughout the year.	Improvement noted in 2009 (and not continued in 2010) was observed again in 2011.
<b>Dawn (16D04)</b> The first station on this river is an abstraction point for East Waterford Regional water supply. There have been reports of siltation near Carroll's Cross.	3			Quality has improved from 2010 when BODs were frequently elevated. o-Phosphate is also within accepted limits.	Improvement from 2010.
<b>Glenary (16G02)</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.	2			Satisfactory quality	No change from 2010.
<b>Nier (16N01)</b> <i>Q value range 4 to 4-5 (2011)</i> This river rises in the Commeraghs and flows through Ballymacarbry village	3			BOD, o-phosphate and ammonia were high at station 0100 (Ballymacarbry) in May, indicating intermittent pollution, otherwise satisfactory quality	No change from 2010.

River	Number of Sampling Stations in each category			Remarks	Change from 2010
	Generally Satisfactory	Moderately Polluted at times	Seriously Polluted at times		
<b>Suir (16S02)</b> <i>Q value range 3 to 4 (2011)</i> 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 in to Waterford Harbour.	4	3		DO and BOD are periodically elevated at station 2700 (Kilsheelin Br). DO is also elevated at station 2800 (Coolnamuck Weir) and station 2900 (d/s Carrick-on-Suir). Overall biological monitoring indicates an improving situation with 4 stations improving from Q3 in 2008 to Q3/4 in 2011.	The improvement in water quality continues.
<b>St. John's River (&amp; tributaries) (16S03)</b> <i>Q value range 2 to 2-3 (2009 &amp; 2011)</i> This river flows through Waterford City and a significant portion of it is tidal. Sewage, industrial effluents and leachates that previously were discharge to the river are now collected and treated at the new WWTP at Belview Port which was commissioned in 2008-2009.	1	4	7	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).	The improved collection and treatment system for sewage, leachate and industrial effluents that came into operation in 2008/2009 is not reflected in improved conditions for this river. No significant change from 2010.
<b>Whelans Bridge (16W01)</b> This stream flows from Knockaderry Reservoir, through Kilmeaden Village to the River Suir.	1	1		BOD, colour and pH were high at station 0100 (Knockaderry Reservoir) in August and November. Satisfactory at station 0400 (Whelan's Bridge).	No significant change from 2010.
<b>Araglin (Colligan) (17A01)</b> <i>Q 4-5 at station 0300 (2010)</i> Monitoring of this river commenced in 2007 under the Water Framework Directive.	2			Satisfactory quality	No change from 2010.
<b>Brickey (17B01)</b> <i>Q 3-4 at station 0050 (2010)</i> This river discharges into Dungarvan Harbour. The upper reaches have been drained and now comprise mainly drainage ditches and sluices.		2		Nitrates are elevated at both stations throughout the year. Station 0200 was only sampled once during 2011 and there is insufficient data to make an assessment of water quality at this location.	No change from 2010.

River	Number of Sampling Stations in each category			Remarks	Change from 2010
	Generally Satisfactory	Moderately Polluted at times	Seriously Polluted at times		
<b>Ballyscanlon Lake (17B02)</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 (S.I. 294 of 1989))	1			BOD was slightly elevated in July, this may be due to plankton present in the lake. Otherwise quality is satisfactory.	No change from 2010.
<b>Belle Lake (17B04)</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 (S.I. 294 of 1989)).	1			Quality is satisfactory.	No change from 2010.
<b>Colligan (17C01)</b> <i>Q value range 4 to 4-5 (2010)</i> This river flows into Dungarvan Harbour and the lower reaches are tidal.	3			Satisfactory quality.	No change from 2010.
<b>Carrigavantry Lake (17C02)</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 (S.I. 294 of 1989)).	1			BOD was slightly elevated in March, this may be due to plankton present in the lake. Otherwise quality is satisfactory.	No change from 2010.
<b>Dalligan (17D01)</b> <i>Q 4-5 (2010)</i>	1			Satisfactory quality	No change from 2010.

River	Number of Sampling Stations in each category			Remarks	Change from 2010
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<b>Dunhill (Annestown) Stream (17D02)</b> <i>Q 3-4 at station 0100 (2010)</i> There are a number of constructed wetlands (reed beds) located along this catchment, and one is used to treat sewage from Dunhill Village.	1	3		Nitrates are periodically elevated, and there are variations in DO, indicating eutrophic conditions, especially in the lower reaches. High ammonia was recorded at station 0100 (Ballyphilip Bridge) in May and August (this bridge is d/s of the reed-bed for Dunhill Village), however o-phosphate and BOD levels were lower at this station than in 2010.	Slight improvement noted at Ballyphilip Bridge – biological monitoring also indicates moderate quality.
<b>Kilmurrin Cove (17K01)</b> This stream receives effluent from Kill Village.		1		Elevated BOD, o-Phosphate, ammonia and nitrite in this river – moderate quality.	No change from 2010.
<b>Mahon (17M01)</b> <i>Q value range 3-4 to 4-5 (2010)</i> This river flows through Kilmacthomas.	3	1		pH was low at station 0100 (Mahon Bridge) in November. Periodically high DOs indicate eutrophic conditions.	No change from 2010.
<b>Tay (17T01)</b> <i>Q value range 4 to 4-5 (2010)</i> This river rises in the Monavullagh Mountains and flows into the sea at Stradbally.	3			Satisfactory quality.	No change from 2010.
<b>Blackwater (18B02)</b> <i>Q 4 over length of river (2009)</i> 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 (S.I. 296 Of 2009).	5			BOD was slightly elevated at Lismore Bridge in January and November, and d/s Lismore STW in June. Colour can also be high on occasion. Overall quality is satisfactory. The east channel of the river 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.	No significant change from 2010.
<b>Bride (18B05)</b> <i>Q 4 at station 0800 (2009)</i> 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.	2			Nitrates can be elevated at both stations, and BOD was elevated in July u/s of the Blackwater confluence, otherwise quality is satisfactory.	No change from 2010.



River	Number of Sampling Stations in each category			Remarks	Change from 2010
	Generally Satisfactory	Moderately Polluted at times	Seriously Polluted at times		
<b>Finisk (18F02)</b> <i>Q 4 over length of river (2009)</i> This river joins the Blackwater d/s Cappoquin.	3			Satisfactory quality.	No change from 2010.
<b>Glendine (18G07)</b> <i>Q 4 (2009)</i> This river drains an area north of Youghal and is a tributary of the Blackwater.	1			Satisfactory quality.	No change from 2010.
<b>Glennafallia (18G10)</b> <i>Q 4 (2009)</i> This river rises in the Knockmealdown Mountains and is a tributary of the Blackwater.	1			Satisfactory quality.	No change from 2010.
<b>Goish (18G12)</b> <i>Q 4 (2009)</i> This river drains an area east of Villierstown and is a tributary of the Blackwater.	2			Satisfactory quality.	No change from 2010.
<b>Lickey (18L01)</b> <i>Q 4 (2009)</i> Station 0100 is a surveillance site under the Water framework Directive. This sub-catchment is a protected habitat under the Freshwater Pearl Mussel Regulations (S.I. 296 of 2009).	1			Satisfactory quality.	No change from 2010.
<b>Owennashad (18O08)</b> <i>Q value range 4 to 4-5 (2009)</i> This river rises in the Knockmealdown Mountains and joins the Blackwater at Lismore.	2			o-Phosphate was elevated in September at station 0060 (Footbridge E of Glendish). Otherwise satisfactory quality.	No significant change from 2010.
<b>Total number of stations in each category</b>	53	16	7		

