

Report on River Water Quality in County Wexford 2011

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Overview

This report gives an assessment of river water quality in County Wexford 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.

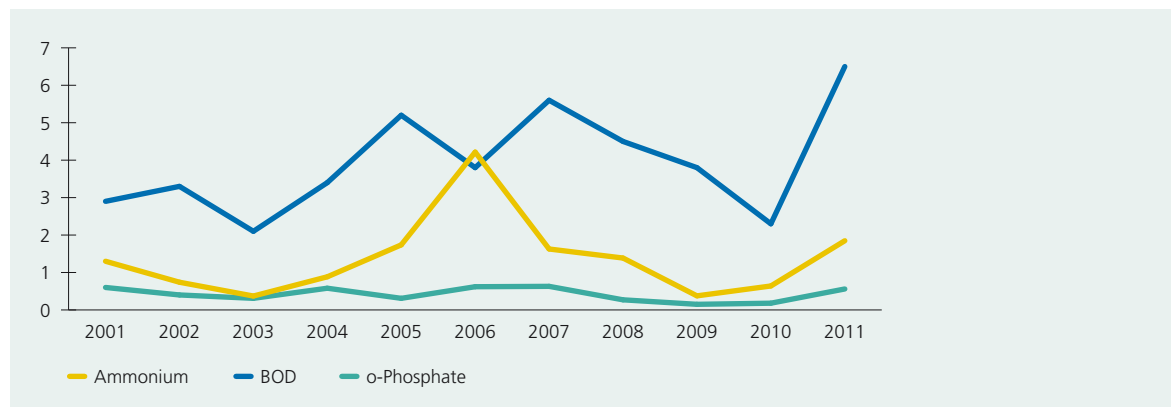
General Assessment

Physico-chemical monitoring of rivers in Wexford indicates a slight improvement in the Assaly and Bridgetown during 2011. However overall the quality of rivers in Wexford deteriorated. The Assaly, Aughboy, Bann, Banoge, Blackwater, Chapel, Clonough, Inch, Mulmontry, Owenavorrigh, Pollmounty, Slaney, Sow, Tinnacross Stream and Tintern Abbey Stream all have problems at certain locations.

The Duncormick at station 0220, downstream of Taghmon WWTP, has the highest average levels of ammonia, o-phosphate and BOD of any river in the south-east. The graph below shows the BOD, ammonium and phosphate levels since 2001. This plant has been identified in the WFD Water Management Unit study as requiring increased capacity and tertiary treatment/relocation of outfall. It failed to achieve the required effluent quality standards in 2010 (most recent data).

These problems are mainly caused by sewage 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 County Wexford 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.

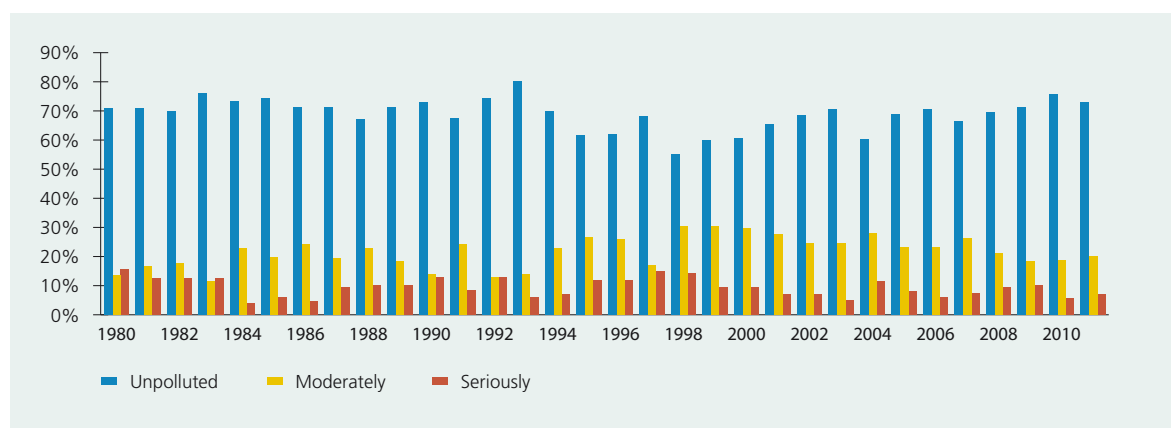
River	Code	Location	Q Value	Year	Category	Suspected Cause	Comments
ASSALY	12A02-0300	Assaly Br.	3-4	2007	Agriculture	Agricultural: Diffuse	Runs through intensive agricultural land including Johnstown Castle estate
AUGHBOY (WEXFORD)	11A02-0200	Br at Riverchapel	2-3	2010	Municipal		Diffuse urban
BANN	12B01-0800	Milltown Br	3	2010	Municipal	Sewage	Ferns WWTP located nearby on tributary which enters just u/s. Camolin stream and WWTPs also located u/s.
					Agriculture	Agricultural: Diffuse	Tillage & improved pasture u/s
BANOGE	11B02-0300	Br u/s Owenavorragh	3	2010	Municipal	Sewage	
BANOGE	11B02-0200	2 km S of Gorey (Knockduff)	2-3	2010	Municipal	Sewage	Gorey WWTP
BLACKWATER (WEXFORD)	11B03-0200	Footbridge E of Blackwater at Mill	3-4	2010	Municipal		Diffuse urban
					Agriculture	Agricultural: Diffuse	
BLACKWATER (WEXFORD)	11B03-0300	River Gap	3-4	2007	Municipal		Diffuse urban
					Agriculture	Agricultural: Diffuse	
CHAPEL STREAM	12C01-0100	Aughananna Br	3	2010	Municipal	Sewage	Clonroche village & WWTP located u/s
					Agriculture	Agricultural: Diffuse	
CLONOUGH	11C01-0300	Clonough Br	3-4	2010	Agriculture	Agricultural: Diffuse	

River	Code	Location	Q Value	Year	Category	Suspected Cause	Comments
CLONOUGH	11C01-0100	Br ENE of St Austin's Ho	3	2007	Municipal	Sewage	Clonough WWTP located u/s – new plant commissioned in 2009.
					Agriculture	Agricultural: Diffuse	
DUNCORMICK	13D01-0200	Br E of Ballynagale	3	2010	Municipal	Sewage	Taghmon agglomeration is 50% greater than treatment plant capacity.
INCH (WEXFORD)	11I01-0200	Castletown Br	3-4	2010	Agriculture	Agricultural: Diffuse	
MULMONTY	13M01-0400	Mulmonty Bridge	3-4	2007	Agriculture	Agricultural: Diffuse	Nitrate slightly raised
OWENA-VORRAGH	11O01-0400	Ballycanew Br	3-4	2007	Agriculture	Agricultural: Diffuse	Lot of pasture and tillage u/s
					Municipal		Diffuse urban – Lot of new houses u/s Ballycanew – Killenagh no indication of WWTP – Sewered to Ballycanew or septic tanks?
OWENA-VORRAGH	11O010600	Boleany Br	3-4	2007	Municipal	Sewage	Banoge river enters u/s impacted by Gorey WWTP
					Agriculture	Agricultural: Diffuse	
OWENA-VORRAGH	11O01-0500	Essex Br	3-4	2010	Municipal	Sewage	Ballycanew WWTP and village located u/s
					Agriculture	Agricultural: Diffuse	
POLLMOUNTY	14P03-0300	D/s Aughananagh R confl	3-4	2009	Industrial	Fish Farming rivers	
SLANEY	12S02-2400	1 km d/s Enniscorthy Br	3-4*	2007	Municipal	CSOs – Storm Overflows	Urban diffuse? CSO located u/s of Br – Enniscorthy town u/s but WWTP located d/s of sampling location
					Eutrophication	Regulation – Dams, Locks, Weirs, new impoundments	Tidal effects

River	Code	Location	Q Value	Year	Category	Suspected Cause	Comments
SLANEY	12S02-2100	Ballycarney Br	3-4	2010	Agriculture	Agricultural: Diffuse	
					Municipal	Sewage	Ballycarney town at bridge, nearest WWTP noted on map at Castledockerell east of Ballycarney – urban diffuse?
SOW	12S03-0100	Ballinkeel Br	3-4*	2010	Municipal	Sewage	Ballaghkeen WWTP discharges in upper reaches, lot of new houses located nearby
					Agriculture	Agricultural: Diffuse	
TINNACROSS STREAM	12T01-0400	Carrigeen Br	3-4	2010	Agriculture	Agricultural: Diffuse	
					Municipal	Urban – few new houses located nearby??	
TINTERN ABBEY STREAM	13T01-0900	Bridge near Tintern Abbey	3*	2007	Agriculture	Agricultural: Diffuse	Nitrate levels raised.
					Agriculture	Siltation	Silted

Overall Trend of Water Quality in County Wexford 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	24	96	68	13	15	70.8%	13.5%	15.6%
1981	24	96	68	16	12	70.8%	16.7%	12.5%
1982	24	96	67	17	12	69.8%	17.7%	12.5%
1983	24	96	73	11	12	76.0%	11.5%	12.5%
1984	24	101	74	23	4	73.3%	22.8%	4.0%
1985	24	102	76	20	6	74.5%	19.6%	5.9%
1986	25	108	77	26	5	71.3%	24.1%	4.6%
1987	25	108	77	21	10	71.3%	19.4%	9.3%
1988	25	97	65	22	10	67.0%	22.7%	10.3%
1989	25	98	70	18	10	71.4%	18.4%	10.2%
1990	26	100	73	14	13	73.0%	14.0%	13.0%
1991	26	108	73	26	9	67.6%	24.1%	8.3%
1992	26	101	75	13	13	74.3%	12.9%	12.9%
1993	26	101	81	14	6	80.2%	13.9%	5.9%
1994	26	100	70	23	7	70.0%	23.0%	7.0%
1995	26	102	63	27	12	61.8%	26.5%	11.8%
1996	26	100	62	26	12	62.0%	26.0%	12.0%
1997	26	100	68	17	15	68.0%	17.0%	15.0%
1998	27	105	58	32	15	55.2%	30.5%	14.3%
1999	27	105	63	32	10	60.0%	30.5%	9.5%
2000	27	94	57	28	9	60.6%	29.8%	9.6%
2001	27	98	64	27	7	65.3%	27.6%	7.1%
2002	27	98	67	24	7	68.4%	24.5%	7.1%
2003	28	98	69	24	5	70.4%	24.5%	5.1%
2004	28	96	58	27	11	60.4%	28.1%	11.5%
2005	28	99	68	23	8	68.7%	23.2%	8.1%
2006	28	99	70	23	6	70.7%	23.2%	6.1%
2007	30	80	53	21	6	66.3%	26.3%	7.5%
2008	30	85	59	18	8	69.4%	21.2%	9.4%
2009	28	87	62	16	9	71.3%	18.4%	10.3%
2010	31	86	65	16	5	75.6%	18.6%	5.8%
2011	31	85	62	17	6	72.9%	20.0%	7.1%



2011 Summary of River Water Quality in County Wexford

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		
Aughboy (11A02) <i>Q 2-3 (2009)</i> This river discharges to the sea at Courtown harbour			1	The Aughboy is seriously polluted at Riverchapel. o-Phosphate, ammonia, nitrite and BOD are all high at times. Dissolved Oxygen can be low. The Q 2-3 biological quality rating underlines the problem.	No change from 2010.
Banoge (11B02) <i>Q value range 2-3 to 3 (2010)</i> Gorey STW discharges to this river u/s of station 0200	1	1	1	Nutrient levels, in particular ammonia d/s of Gorey STW are very high and Q values indicate moderate to poor ecological quality.	No significant change from 2010.
Blackwater (11B03) <i>Q 2-3 at station 0200 (2010)</i>	2			Nitrate levels remain elevated, and Q values indicate only moderate to poor ecological quality.	No change from 2010.
Brackan (11B04) <i>Q3-4 (2010)</i>	1			Generally satisfactory quality, however biological monitoring indicates a slight deterioration in quality since 2007.	No significant change.
Clonough (11C01) <i>Q 3-4 (2010)</i>	2	1		The improvement seen in 2010 has been maintained, however o-phosphate and nitrate levels remain high.	No change from 2010.
Cahore Canal (11C02) The Cahore Canal flows through an agricultural area in east County Wexford and water quality has been poor since monitoring started in 1986.			1	Poor quality with elevated levels of BOD and o-Phosphate. Dissolved oxygen levels can be very low a times.	No change from previous years.
Inch (11I01) <i>Q 3-4 at station 0200 (2010)</i>	2			Nitrate levels can be elevated at times, as can colour, otherwise satisfactory.	No change.

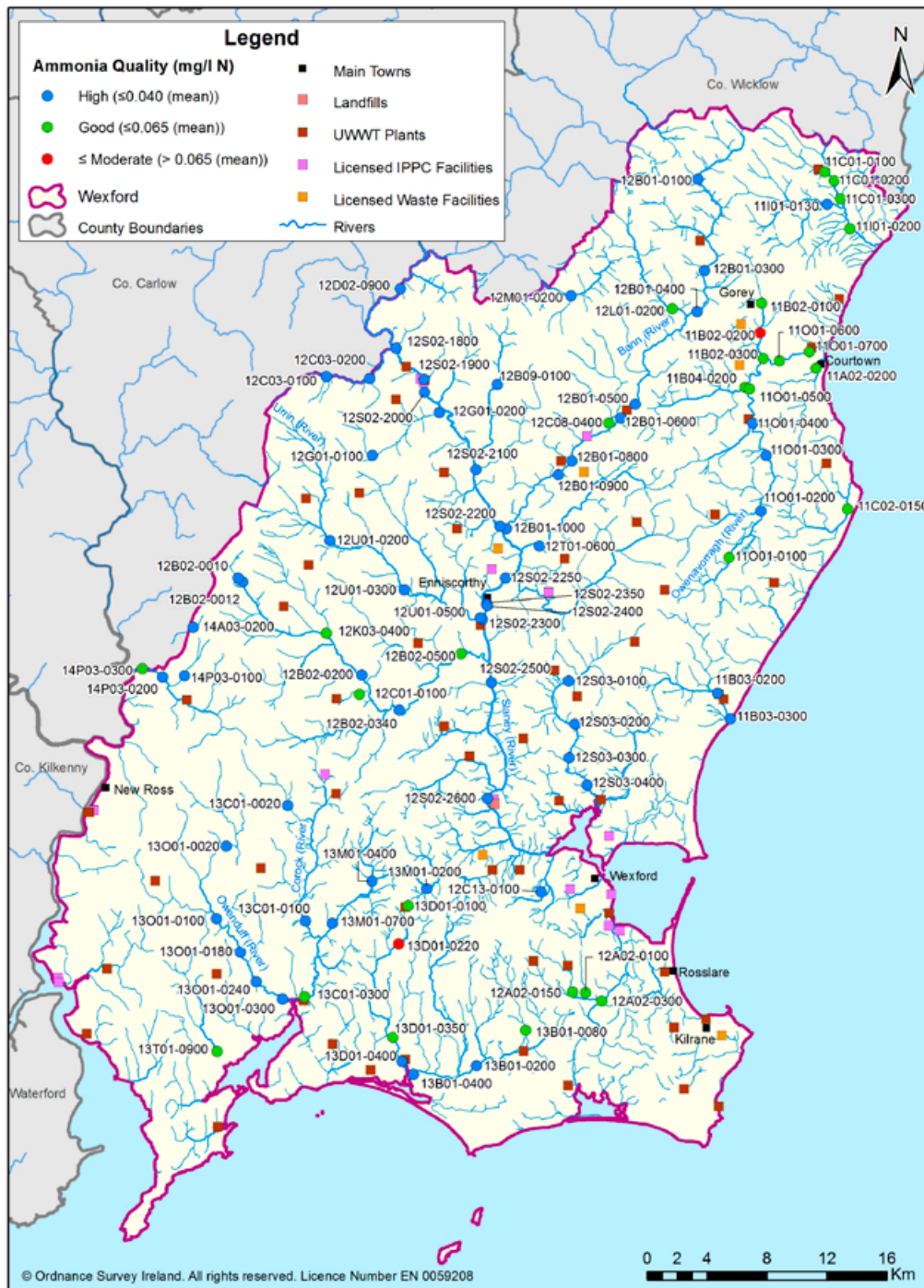
River	Number of Sampling Stations in each category			Remarks	Change from 2010
	Generally Satisfactory	Moderately Polluted at times	Seriously Polluted at times		
Owenavorragh (11O01) <i>Q value range 3-4 to 4 (2010)</i> This river flows through low-lying agricultural land with drainage channels. It also receives treated effluent from Gorey STW via the Banoge	4	3		Low DO has been observed at Corabally Bridge (Station 0200) where a lot of algal growth has also been noted. BOD, o-Phosphate and Nitrite levels have all been elevated at times in the lower reaches of this river. Overall quality is moderate.	No change.
Assaly (12A01) <i>Q 3-4 at station 0300 (2007)</i> There are several branches to this river. Station 0100 can be dry at times. Station 0200 was replaced with 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.		3		River water quality is poor – while there has been a reduction in BOD levels since 2009, o-phosphate and nitrite levels remain high. Colour is also high. There has been a slight improvement in water quality at station 0100 (d/s Piercestown Village)	Slight improvement at Station 0100, otherwise no change.
Bann (12B01) <i>Q value range 4-5 to 3 (2010)</i>	8			Nitrate levels can be elevated in the lower reaches of this river, otherwise quality is satisfactory. Biological monitoring indicates only moderate quality at Station 0800 (d/s Irish Country Meats).	No significant change.
Boro (12B02) <i>Q 4 over length of river (2010)</i>	5			Nitrate levels are elevated from Ballymackesy Br (Station 0200) downstream, otherwise quality is generally satisfactory.	Nitrate levels have reduced slightly since 2010.
Chapel Stream (12C01) <i>Q 3 (2007)</i> This river receives sewage effluent from Clonroche.			1	Poor quality with elevated o-phosphate and nitrate levels. The Q3 biological quality rating underlines the problem.	No change from 2010.
Clody (12C03) <i>Q 4-5 at station 0300 (2010)</i>	2			Generally satisfactory quality	No change from 2010.
Camolin Stream (12C08) <i>Q 3-4 at station 0300 (2010)</i>	1			Nitrates are elevated, 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		
Derry (12D02) <i>Q 4 (2007)</i> This report only deals with the Carlow/Wexford stretch of the river, however biological monitoring indicates moderate to good conditions in Co. Wicklow in 2010.	1			Satisfactory quality	No change.
Glasha (12G01) <i>Q value range 4 to 4-5 (2010)</i> The Glasha is a tributary of the Slaney, south of Clohamon.	2			Satisfactory quality	No change from 2010.
Kileen Stream (12K03) <i>Q 4 (2010)</i> A tributary of the Boro and Slaney, first sampled in 2007 under the WFD.	1			Nitrates are elevated, otherwise quality is satisfactory.	No change from 2010.
Lask (12L01) <i>Q 3-4 (2010)</i>		1		Nitrates are elevated.	No change from 2010.
Mine (12M01) <i>Q 3-4 (2010)</i> A tributary of the Derry and Slaney first sampled in 2007 under the WFD.	1			Slight decrease in nitrate levels since 2009. Satisfactory quality.	No change from 2010.
Slaney (12S02) <i>Q value range 3-4 to 4 (2010)</i> The Slaney rises in the Wicklow mountains and flows through Carlow and Wexford, before meeting flowing into the sea at Wexford Harbour. This report deals with the freshwater stretches that flow through Carlow and Wexford.	9			BOD and o-Phosphate are elevated on occasion in Enniscorthy. Nitrate levels can also be slightly elevated in the lower reaches, otherwise quality is satisfactory.	No change from 2010.
Sow (12S03) <i>Q value range 3-4 over length of river (2010)</i>	3	1		Dissolved oxygen can be low in the upper reaches at times. There has been a reduction in o-phosphate and BOD levels from 2009, but nitrate levels remain elevated (and have been increasing since monitoring began in 1978).	No significant 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		
Tinnacross Stream (12T01) <i>Q 3-4 (2010)</i>	1			Satisfactory quality.	No change.
Urrin (12U01) <i>Q value range 3-4 to 4 (2010)</i>	3			Satisfactory quality. However biological monitoring recorded slime growth at station 0500 in 2010.	No change.
Bridgetown (13B01) <i>Q 4 at station 0080 (2010)</i> 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.	1	1	1	BOD, o-phosphate and ammonia levels are elevated at station 0200. An improvement has been observed at station 0400. Colour has also reduced.	Improvement in river quality in 2011.
Corock (13C01) <i>Q 4 over length of river (2010)</i> This river discharges into Bannow Bay and the last station is tidal.	2	1		Nitrates can be elevated in the upper reaches. BOD is high at Wellingtonbridge.	No significant change observed.
Duncormick (13D01) <i>Q 4 at station 0350 (2010)</i> This river discharges into Ballyteige Bay and the last station is tidal. Flows can be very low at the first station (0100) in summer.		3	1	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.	No significant change from 2010.
Mulmontry (13M01) <i>Q 4 over length of river (2010)</i> This river is a tributary of the Corock.	3			High BOD and o-phosphate at all stations in February (also observed in February 2010). Otherwise quality is satisfactory.	No significant change observed.
Owenduff (13O01) <i>Q 4 over length of river (2010)</i> This river discharges into Bannow Bay and the last station is tidal.	5			Nitrates are elevated at all stations on this river. BOD was high on occasion through the length of the river, otherwise satisfactory quality.	No significant change observed.

River	Number of Sampling Stations in each category			Remarks	Change from 2010
	Generally Satisfactory	Moderately Polluted at times	Seriously Polluted at times		
Tintern Abbey Stream Q 3* (2010)		1		BOD, o-phosphate and ammonia were high in February, indicating intermittent pollution.	Slight deterioration in quality since 2010.
Pollmounty (14P03) <i>Q 4 at station 0300 (2011)</i>	2	1		Nitrates are elevated, otherwise quality is satisfactory at the two upper stations. BOD, o-phosphate and ammonia were elevated at station 0300 (below confluence with Aughamanagh River and d/s of a fish farm), however the biological assessment indicates good quality here.	No significant change from 2010.
Total stations in each category	62	17	6		

River Water Quality: Wexford Ammonia Assessment



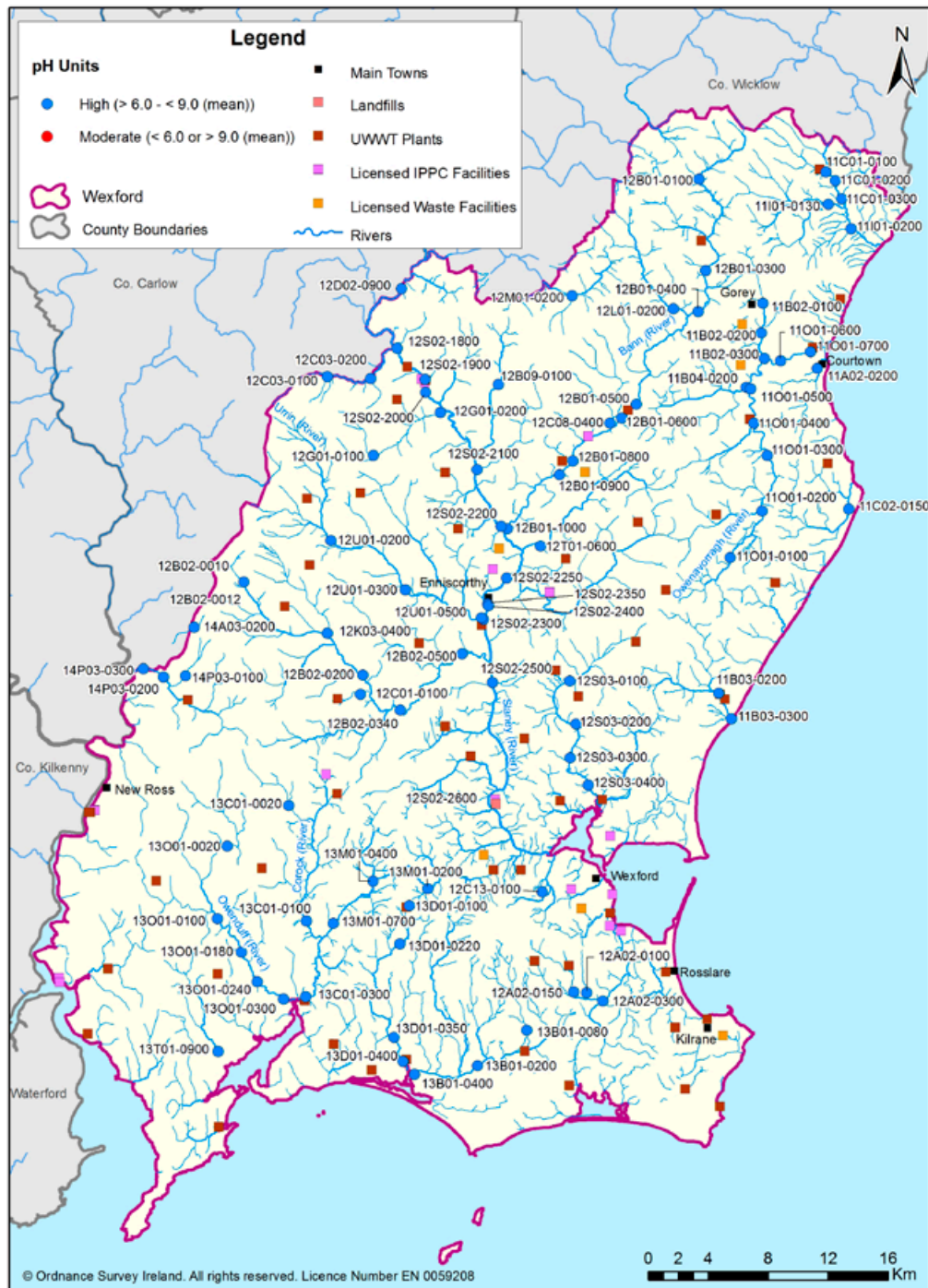
River Water Quality: Wexford BOD Assessment

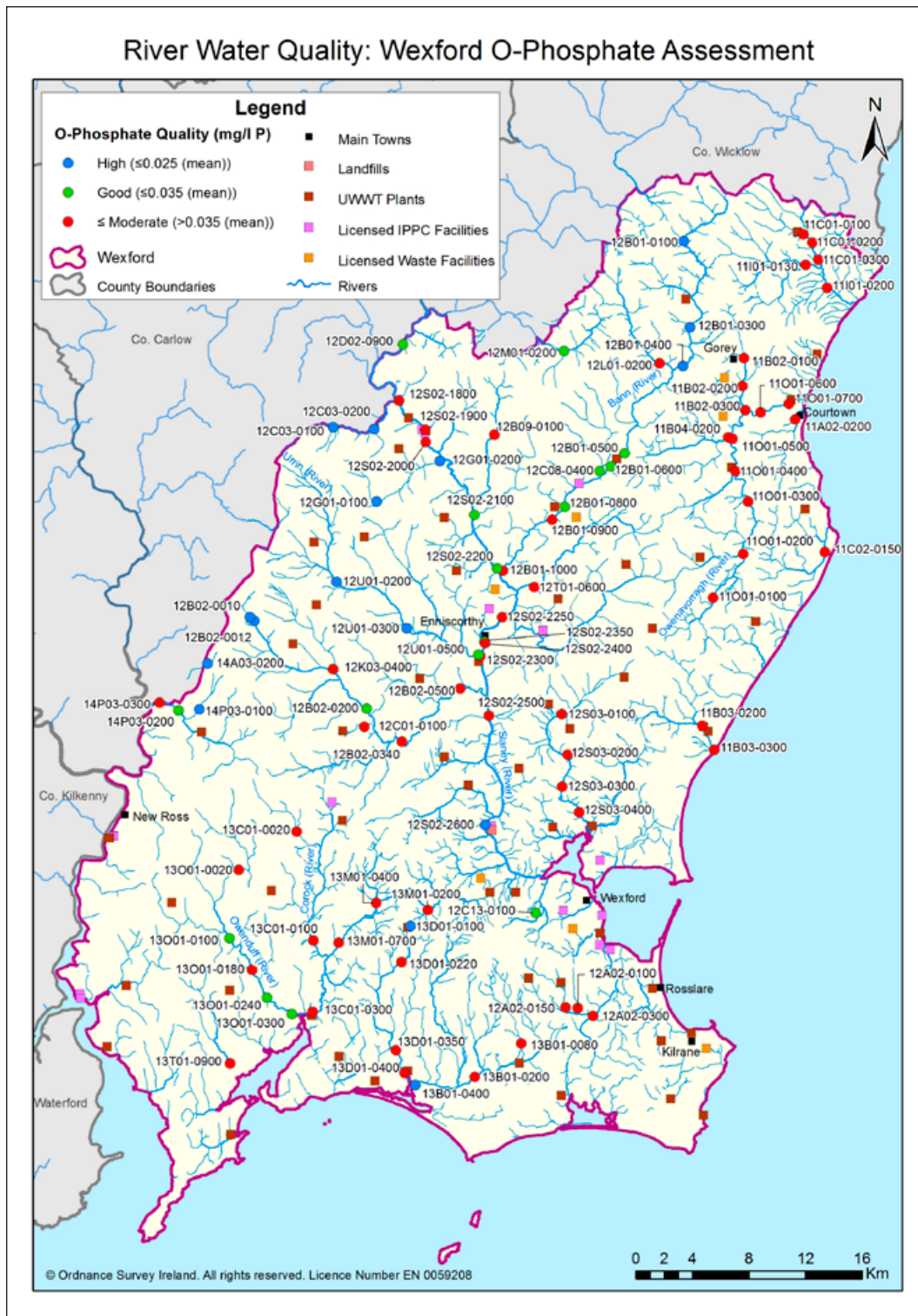


River Water Quality: Wexford Dissolved Oxygen Assessment



River Water Quality: Wexford pH Assessment





River Water Quality: Wexford Total Oxidised Nitrogen Assessment

