

Report on River Water Quality in County Laois 2011

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Overview

This report gives an assessment of river water quality in County Laois 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 indicates an overall improvement in river water quality in the county, notably in the Kileen (Crumpaun) and Dinin during 2011, and more modestly in the Triogue (however this is not reflected in improved ecological quality). Certain sections of other rivers have also improved – for example the Barrow. However the Ballyroan, Clodiagh, Donaghmore Stream, Owenass and Rathdowney Stream as well as parts of the Barrow have problems at certain locations.

These are caused mainly diffuse agricultural pollution, or point source pollution from waste water treatment plants. 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 Laois and Suspected Causes

There are over 900 river sites of less than good status across the country – that is 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.

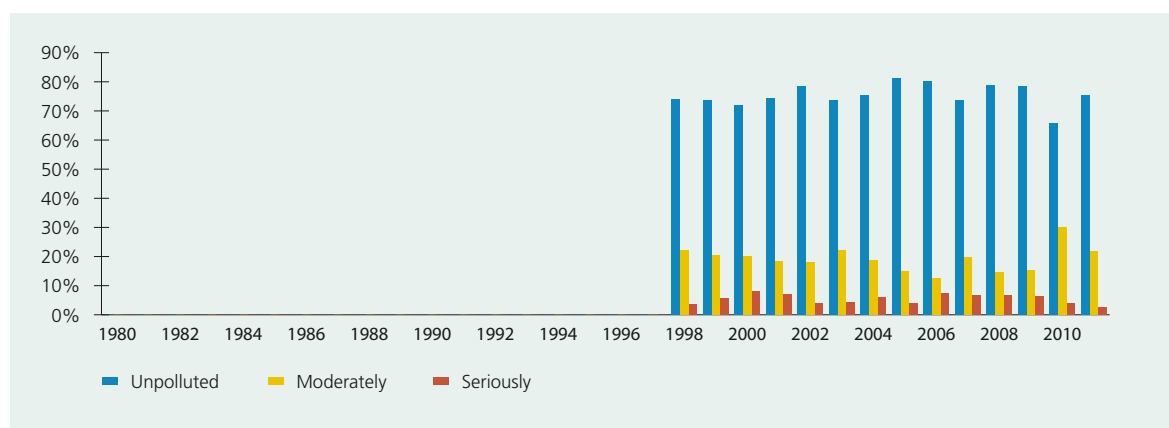
This list may be useful in assisting with investigative monitoring, particularly of diffuse sources of pollution. The point source discharges may be dealt with separately through licensing and enforcement measures. If sources of pollution affecting rivers can be reduced or eliminated, this will have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

River	Code	Location	Q Value	Year	Category	Suspected Cause	Comments
BARROW	14B01-2455	Br at Dolmen Hotel	3-4	2011	Municipal Agriculture	Sewage	Mortarstown WWTP & Carlow Town located u/s
						Agricultural: Diffuse	
BARROW	14B01-2200	New Br 1km u/s Carlow Br	3-4	2011	Municipal	Sewage	Sewage from Greese, Lerr & Douglas Rivers
					Agriculture	Agricultural: Diffuse	
BARROW	14B01-0500	Borness Br	3-4	2011	Agriculture	Agricultural: Diffuse	Improved pasture & tillage u/s
					Municipal	Sewage	Mountmellick WWTP discharges into Owenass which enters Barrow just u/s
BARROW	14B010900	Ford S of Trascan	3-4	2011	Municipal	Sewage	Portarlinton WWTP located u/s and failing due to poor effluent quality
					Agriculture	Agricultural: Diffuse	
BALLYROAN	15B01-0200	Gloreen Br	3	2010	Municipal	Sewage	Abbeyleix is u/s. High o-Phosphate, Ammonia & Nitrite Abbeyleix u/s
CLODIAGH (TULLAMORE)	25C06-0220	Just u/s Gorragh R confl	4*	2011	Municipal	Sewage	Clonaslee WWTP located just u/s. Improved from 2007 (Q2), but siltation and excessive algal growth indicate enrichment.
DONAGH-MORE STREAM	15D03-0700	Donaghmore Br	3-4	2010	Agriculture	Agricultural: Diffuse	
					Domestic	Sewage	Small discharge from pub
ERKINA	15E01-0200	Coneyburrow Br	3-4	2010	Municipal	Sewage	
					Industrial	Industrial IPPC	
GLORY	15G01-0040	Br N of Kilmaganny	2-3	2010	Municipal	Sewage	Seriously polluted in past
OWENASS	14O01-0300	1.7 km d/s Mountmellick	3-4*	2011	Municipal	Sewage	Mountmellick WWTP located u/s and failing on poor effluent. Lot of new houses indicated on GIS. Siltation
					Agriculture	Agricultural: Diffuse	
RATH-DOWNEY STREAM	15R03-0700	Br W of Glasha Crossroads	3-4*	2010	Siltation	Mining	

River	Code	Location	Q Value	Year	Category	Suspected Cause	Comments
RATH-DOWNEY STREAM	15R03-1100	Br in Rathdowney	3-4*	2010	Urban	Diffuse Urban	
TRIOGUE	14T01-0100	Equestrian Centre Br on R426	3-4	2011	Agriculture	Agricultural: Diffuse	
					Municipal	Sewage	Couple of houses u/s – septic tanks??
TRIOGUE	14T01-0300	Eyne Br	3	2011	Municipal	Sewage	Ratheven stream enters u/s from Portlaoise and Redhill stream
					Agriculture	Agricultural: Diffuse	
TRIOGUE	14T01-0400	Triogue Br (on R422)	3-4	2011	Agriculture	Agricultural: Diffuse	Slight improvement from 2009 (Q3)
					Municipal	Sewage	Portlaoise & diffuse urban pollution from Mountmellick.

Overall Trend of Water Quality in County Laois since 1998.

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								
1981								
1982								
1983								
1984								
1985								
1986								
1987								
1988								
1989								
1990								
1991								
1992								
1993								
1994								
1995								
1996								
1997								
County Laois was not monitored on a systematic basis by the Kilkenny Laboratory prior to 1998.								
1998	28	108	80	24	4	74.1%	22.2%	3.7%
1999	28	103	76	21	6	73.8%	20.4%	5.8%
2000	28	100	72	20	8	72.0%	20.0%	8.0%
2001	28	98	73	18	7	74.5%	18.4%	7.1%
2002	28	106	83	19	4	78.3%	17.9%	3.8%
2003	29	95	70	21	4	73.7%	22.1%	4.2%
2004	30	102	77	19	6	75.5%	18.6%	5.9%
2005	30	101	82	15	4	81.2%	14.9%	4.0%
2006	30	96	77	12	7	80.2%	12.5%	7.3%
2007	30	76	56	15	5	73.7%	19.7%	6.6%
2008	30	76	60	11	5	78.9%	14.5%	6.6%
2009	31	79	62	12	5	78.5%	15.2%	6.3%
2010	28	73	48	22	3	65.8%	30.1%	4.1%
2011	28	73	55	16	2	75.3%	21.9%	2.7%



2011 Summary of River Water Quality in Co. Laois

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.

The Nore sub-catchment upstream of Ballyragget is listed as a protected habitat under the Freshwater Pearl Mussel Regulations (S.I. 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	Number of Sampling Stations in each category			Remarks	Change from 2010
	Generally Satisfactory	Moderately Polluted at times	Seriously Polluted at times		
Barrow (14B01) <i>Q value range 3-4 to 4-5 over length of river (2011)</i> 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.	14			Ammonia levels have decreased at station 0200 (Ballyclare Bridge) since 2010. o-Phosphate has decreased at station 0500 (Barranagh's Bridge) since 2010. Water quality at Pass Bridge (Station 1000) has also improved. Overall the physico-chemical quality of the river has improved since 2010.	Improvement in river quality since 2010.
Blackwater (Laois) (14B03) <i>Q 4 (2011)</i> This river is located between Portlaoise and Mountmellick in an agricultural area.	1			River is coloured (naturally), otherwise satisfactory quality. Biological assessment in 2009 indicated satisfactory quality also (Q4).	No change from 2010.
Crooked (Stradbally) (14C02) <i>Q 3-4* (2011)</i> This river flows through agricultural land in Co. Laois and is a tributary of the Stradbally.	1			Quality is satisfactory, however the biological assessment in 2009 recorded heavy siltation	No change from 2010.
Douglas (14D03) <i>Q 4-5 at station 0100 (2011)</i> This river flows through agricultural land in east Co. Laois.	1	1		High DO recorded at station 0300 (Grange Br) and there is evidence of eutrophication. Quality is good at the upper station 0100 (Gale's Br) – Q-value was 4-5 in 2009	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		
Dunrally Stream (14D05) <i>Q 4 to 4-5 over length of stream (2011)</i>		1		Nitrates are elevated, and dissolved oxygen can be high at times. High ammonia was recorded in March. Biological monitoring indicated only moderate conditions further upstream.	Slight deterioration since 2010.
Fushoge (14F03) <i>Q 3-4* (2011)</i> This river flows through agricultural land and is a tributary of the Barrow.	1			BOD was high in July, otherwise quality is satisfactory. Excessive siltation also can be seen.	No significant change from 2010.
Kileen (Crumpaun) (14K04)	1			The deterioration noted observed during 2010 appears to have been reversed.	Improvement from 2010.
Owenass (14O01) <i>Q value range 3-4* to 4-5 (2011)</i> This river rises in the Slieve Bloom mountains, and flows through agricultural land and through Mountmellick in Co. Laois.	1	1	1	Water quality is poor at station 0300 (d/s Mountmellick STW). Chemical data indicate quality is satisfactory in the upper reaches, however biological data indicate only moderate quality at station 0220 (Irishtown Br, Mountmellick).	No significant change from 2010.
Stradbally (Bauteaogue) (14S02) <i>Q value range 4 to 4-5 over length of river (2011)</i>	2	1		Elevated levels of ammonia and nitrite were measured at station 0300 (d/s Stradbally STW). Nitrates are slightly elevated at all stations and biological assessments indicate improved quality.	No change from 2010.
Triogue (14T01) <i>Q value range 3* to 3-4 (2011)</i> The Triogue is a small river that flows through Portlaoise. The final effluent from Portlaoise WWTP discharges to it u/s of station 0170.	1	3		Ammonia and o-phosphate levels have improved over 2010 levels, but conductivity and chloride are elevated at times d/s of Portlaoise WWTP. Chloride remains elevated at the lower two stations also. Biological assessments indicate that quality remains only moderate.	The improvement in nutrient levels observed in 2009 continues.
Ballyroan (Gloreen) (15B01) <i>Q value range 3 to 3-4 (2010)</i>		2		Nutrients were elevated at both stations, in particular at station 0200 (d/s Abbeyleix) – biological assessments indicate only moderate quality at this station.	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		
Cappanacloyghy (15C06) <i>Q 4 at station 0900 (2007)</i> This river is downstream of Coolnamona bog which causes high colour and siltation in the river.	1	1		Ammonia was raised at station 0600 (Cloncourse Br) in February and May. Conditions were satisfactory at station 0900.	No significant change from 2010.
Delour (15D01) The Delour rises in the Slieve Bloom Mountains and is a tributary of the Nore. In 2007 stations 0100 and 0400 were replaced with stations 0060 and 0400 under the Water Framework Directive.	2			Water can be coloured at times, otherwise quality is satisfactory.	No change from 2010.
Dinin (15D02) <i>Q value range 3-4 to 4-5 over length of river (2010)</i> There are two branches (north – in Co. Laois – and south) that come together into a main channel for the final two sampling points. Some sampling locations were changed in 2007 under the WFD.		1		This river can be highly coloured at times. BOD and o-phosphate are also periodically elevated, especially in the north and main channels.	Improvements noted in 2009 (and reversed in 2010) have reappeared.
Donaghmore (15D03) <i>Q 3-4 (2010)</i> This river is a tributary of the Erkina in Co. Laois.	1			Colour can be slightly elevated at times, otherwise quality is satisfactory.	No change from 2010.
Erkina (15E01) <i>Q value range 3-4 to 4 (2010)</i> The Erkina is a tributary of the Nore and flows through Rathdowney and Durrow.	2	1		Slight improvement in water quality at station 0200 d/s of Rathdowney, but ammonia and nitrite are still elevated on occasion. Otherwise quality is satisfactory.	Improvement at station 0200, otherwise no change from 2010.
Errill (15E03) <i>Q value 3-4 at station 0500 (2010)</i>	1			Colour is naturally high, and BOD levels have been increasing in recent years.	BOD levels are increasing and may affect river quality.

River	Number of Sampling Stations in each category			Remarks	Change from 2010
	Generally Satisfactory	Moderately Polluted at times	Seriously Polluted at times		
Goul (15G02) <i>Q value range over length of river 3 to 4 (2010)</i> 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.	1			Satisfactory quality	Little change from 2010. Q values indicate good quality at Newtown Mills (final station).
Gully (15G03) <i>Q value range 4 over length of river (2010)</i>	2			River can be coloured at times, otherwise quality is satisfactory.	No change from 2010.
Holly Park Stream (15H01) This river flows through agricultural land in south Co. Laois.	1	1		Quality is satisfactory u/s, however, BOD and ammonia are periodically elevated d/s, indicating intermittent pollution.	No significant change from 2010.
Killeen (S. Blooms) (15K01)	1			Natural colour can be high at times, otherwise quality is satisfactory.	No change from 2010.
Mountrath (15M01) <i>Q value range 4 to 4-5 (2011)</i>	3			River can be coloured at times, otherwise the physico-chemical results are satisfactory, and this is reflected in the improvements in the biology on this river also.	No significant change from 2009.

River	Number of Sampling Stations in each category			Remarks	Change from 2010
	Generally Satisfactory	Moderately Polluted at times	Seriously Polluted at times		
Nore (15N01) <i>Q value range 3 to 4 (4*) (2010)</i> This river is 141 km in length and has a catchment area of 2530 km ² . 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.	11			The quality of this stretch of the Nore is moderate to good. The low DO and high ammonia observed at station 0300 (d/s Monainch Bog) in 2010 were not apparent in 2011 (though the water remains coloured).	No significant change from 2009. Biological monitoring in 2010 indicates an improvement in ecological quality over most of the river.
Owveg (or Owenbeg) (15O01) <i>Q 4 over length of river (2010)</i> This river rises in Co. Laois and forms part of the Kilkenny/Laois border.	3			Colour can be naturally high, otherwise satisfactory quality.	No change from 2010.
Rathdowney Stream (15R03) <i>Q 3-4* over length of river (2010)</i> This is a small stream that rises in Galmoy (near the lead and zinc mine). It joins the Erkina near Rathdowney.		2		Nitrates are elevated, otherwise quality is moderate to good.	No change from 2010. Biological monitoring in 2010 indicated moderate ecological quality.
Tonet (15T01) <i>Q 4 (2011)</i> The Tonet rises in the Slieve Bloom mountains and flows in to the Delour.	2			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		
Clodiagh (Tullamore) (25C06) <i>Q 4 (4*) (2011)</i> This report refers to the stretch in Co. Laois only. 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.	1		1	The top station is satisfactory, however the two lower stations – d/s Clonaslee STW and at Rahan Bridge indicate poor water quality – BOD, o-phosphate, nitrite and particularly ammonia are all elevated at times. The biological assessment in 2011 indicated good quality d/s Clonaslee WWTP (except for enhanced algal growth and siltation) which is at variance with the chemical data for 2011.	No change from 2010.
Gorragh (25G09) <i>Q 4 (2011)</i> This river is a tributary of the Clodiagh (Tullamore).	1			Satisfactory conditions – slight decline in ecological conditions from Q4-5 in 2008.	No significant change from 2010.
Total number of stations in each category	55	16	2		

