

**Comhairle Chontae an Cabhain**

**CAVAN COUNTY COUNCIL**



**THE QUALITY OF RIVER & LAKE WATER IN COUNTY CAVAN**

**A Report for the Year 2013**

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## 2. Introduction

This report presents the summary monitoring data for 2013 for the rivers and lakes in County Cavan along with historical data; it can be viewed as a companion volume to those previously produced.

All chemical monitoring was undertaken by the Council's Environment Section. Monitoring complies with the requirements of the monitoring programme prescribed by the EPA in compliance with the requirements of the Water Framework Directive(WFD). Approximately 96 river stations and 21 lakes are monitored. The monitoring programme allows comparison, on an annual basis, of the chemical quality of the rivers and lakes.

The Biological monitoring referred to in this report on river stations was undertaken by the EPA as part of its National Programme of Biological Assessment of River Water Quality. The EPA's contribution is gratefully acknowledged.

The lake monitoring programme involves the monitoring of 21 lakes designated by the EPA. The number of stations monitored on each lake varies depending on a number of factors including lake size, historical data and uniformity of water body. Samples are taken at time intervals specified by the EPA. This involves a minimum of four samples taken once in April and three times between July and October.

The classification system of quality standards introduced in 2009 is defined in S.I. No. 272 of 2009 the EUROPEAN COMMUNITIES ENVIRONMENTAL OBJECTIVES (SURFACE WATERS) REGULATIONS 2009. The Classification tables are defined in schedules 4, 5 and 6 over 13 pages of these regulations.

In order to allow the reader assess the information regarding the quality of river water three tables are shown below.

Tables A and B set out the standards specified in the Local Government (Water Pollution) Act, 1977 (Water Quality Standards for Phosphorus), 1998 for rivers and lakes respectively. These regulations identify biological ratings and Molybdate-Reactive Phosphorus Annual Median concentrations for the rivers, and Chlorophyll and Total Phosphorus levels for the lakes, either of which must be at least maintained or improved in order to meet the relevant specified target standard.

**Note: The Phosphorus regulations have been revoked however this information is provided as an aide to interpretation of the results**

Table C sets out the standard specified in EC directive 78/659/EEC (Freshwater Fish).



**Table A: ‘Phosphorus Regs’, Local Government (Water Pollution) Act, 1977 (Water Quality Standards for Rivers), 1998**

Existing Biological Quality Q Rating	Molybdate -Reactive Phosphorus annual Median concentration (mg/l P)	Target Biological Quality (Q) Rating
5 }	0.015	5
4-5 } Unpolluted	0.020	4-5
4 }	0.030	4
3-4 } Slightly Polluted	0.030	4
3 } Moderately	0.05	3-4
2-3 } Polluted	0.070	3
< 2 } Seriously Polluted	0.070	3

**Table B: ‘Phosphorus Regs’, Trophic Classification System for Lakes**

Lake Trophic Category	Target Trophic Status	Total Phosphorus Average Concentration ( $\mu\text{g P/l}$ )	Annual Max. Chlorophyll ( $\text{mg/m}^3$ )
Ultra-Oligotrophic	Ultra-Oligotrophic	$\leq 5$	$< 2.5$
Oligotrophic	Oligotrophic	$> 5 \leq 10$	$> 2.5 < 8$
Mesotrophic	Mesotrophic	$> 10 \leq 20$	$\geq 8 < 25$
Eutrophic	Mesotrophic	$> 10 \leq 20$	$\geq 8 < 25$
Hypertrophic	Eutrophic	$> 20 \leq 50$	$\geq 25 < 75$

**Table C: EC Directive 78/659/EEC (Freshwater Fish)**

Parameter	Units	Salmonid Waters		Cyprinid Waters	
		Guide	Mandatory	Guide	Mandatory
Total Ammonia	mg/l N	< 0.03	< 0.78	< 0.16	< 0.78
B.O.D.	mg/l O <sub>2</sub>	100% < 3		100% < 6	
D.O.	mg/l O <sub>2</sub>	50% > 9	50% > 9	50% > 8	50% > 7
Total Phosphorus	mg/l P		0.065		0.13
PH	pH units		6-9		6-9

### 3. River Water Quality

**Rivers are listed in alphabetical order.**

**River name and catchment:** Included are the river name and the catchment name (namely: the Erne, the Boyne, the Shannon and the Glyde). Sub-catchments and water management units are not listed.

**Sampling stations:** Sampling stations are numbered according to the EPA assignment. In the case where the EPA has not assigned a sampling station number, no number is included. Stations are listed starting upstream and leading downstream and include stations that are biologically assessed. It is not always possible to use the same location for both chemical and biological assessment, as the requirements for both are different. A brief location description for each station is also given. The water body code is given for each station, and there may be more than one individual station in a single water body. The current ecological status as defined is given with target ecological status. The target ecological status cannot be lower than Good. A target date for reaching the target ecological status is included for each station.

**Biological Quality Ratings:** This report includes recent and historical data from the EPA's National Biological River Monitoring Programme. The Q ratings for 2013 are provisional. The biotic index classification is listed in Table A.

#### **MRP results**

Median annual MRP results from 1999-2013 are included in the summary data.

#### **Assessment**

A summary assessment of the water quality is given.

#### **Change from 2012**

Any significant changes in quality from 2012 are also given.

*Note: The analysis of MRP involves a specific procedure. Analytical procedures are designed to accurately detect concentration levels over a specific range. The upper and lower limits of this range are assigned as limits of quantification. The lower limit of quantification for MRP is assigned at 10µg P/l. In this section, if a result of  $\leq 10\mu\text{g P/l}$  is recorded, this is reported as 10 µg P/l.*

**List of Rivers Monitored**

<b><u>River</u></b>	<b><u>Catchment</u></b>
Annalee	Erne
Ballinagh	Erne
Bawnboy	Erne
Blackwater (Kells)	Boyne
Blackwater (Newtowngore)	Erne
Blackwater (Swanlinbar)	Erne
Bunnoe	Erne
Cavan	Erne
Chapel Lake Stream	Boyne
Cullies	Erne
Dee	Glyde
Dromore	Erne
Derrada	Erne
Drumane	Erne
Drumkeery Lough stream	Boyne
Drumsallagh	Glyde
Erne	Erne
Glyde	Glyde
Inny	Shannon
Knappagh	Erne
Laragh	Erne
Lislea	Boyne
Maudabawn	Erne
Mountnugent	Shannon
Moynalty	Boyne
Nadregeel Lough Stream	Boyne
Owenayle	Shannon
Owenmore (Glangevlin)	Shannon
Owensallagh	Erne
Rag	Erne
Roo	Erne
Shannon	Shannon
Sheelin Feeder Streams	Shannon
Stradone	Erne
Swanlinbar	Erne



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Templeport Lough Stream Woodford	Erne Erne
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River: **Annalee**

Catchment: **Erne**

**WFD Status**

Station Location	Station Number	Water Body Code	Current Ecological Status RWB	Target Ecological Status RWB	Target Date
2nd br. u/s L.Sillan	0080	NW_36_1947	Moderate	Good	2021
2nd br. d/s L. Sillan	0150	NW_36_1181	Poor	Good	2021
1st br. d/s L. Tacker	0250	NW_36_1072	Good	Good	2009
Br. Nr Anns fort	0350	NW_36_1102	Moderate	Good	2021
New Grove Br.	0500	NW_36_1102	Moderate	Good	2021
Br SE of Fort William	0600	NW_36_1102	Moderate	Good	2021
Br.NW of Rakenny Ho	0800	NW_36_2417	Poor	Good	2021
Ballynallon Br	0900	NW_36_2417	Poor	Good	2021
Ballyhaise Br.	1000	NW_36_2417	Poor	Good	2021
Br. Nr Curraghanoe	1150	NW_36_2417	Poor	Good	2021
0.2Km u/s Cavan R confl	1350	NW_36_2417	Poor	Good	2021
0.2km d/s Cavan R confl	1400	NW_36_2417	Poor	Good	2021

**Sampling Stations and Biological Quality Ratings**

Station Number	Station Location	Q'89	Q'93	Q'97	Q'98	Q'01	Q'04	Q'07	Q'10	Q'13
0080	2nd br. u/s L.Sillan	3-4	3-4	3-4	4-5	3-4	4	3-4	4	4
0150	2nd br. d/s L. Sillan	-	3-4	3	3	3	3	3	3	3
0250	1st br. d/s L. Tacker	3-4	3-4	4	3-4	3-4	3-4	-	-	-
0350	Br. Nr Anns fort	4	4	4	3-4	4	4	4	4	4
0500	New Grove Br.	4-5	4-5	4-5	3	4	4	4	4	4
0600	Br SE of Fort William	2-3	4	4-5	3-4	3-4	4	3-4	3-4	4
0800	Br.NW of Rakenny Ho	3-4	4-5	4-5	4	4-5	4	4	4	4
0900	Ballynallon Br	4	4	4	4	3-4	4	3-4	4	4
1000	Ballyhaise Br.	3-4	4	4	4	3-4	3-4	3-4	3-4	4
1150	Br. Nr Curraghanoe	3-4	4-5	4-5	4	3-4	4-5	-	4	4
1350	0.2Km u/s Cavan	4-5	4	3-4	4	3-4	3-4	-	3-4	4

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	R confl														
1400	0.2km d/s Cavan R confl	3-4	4	3-4	3-4	3	3-4	3-4	3-4	3-4	3-4	3-4	3-4	3-4	4

**MRP results**

Station	1999 Med (µg P/l)	2000 Med (µg P/l)	2001 Med (µg P/l)	2002 Med (µg P/l)	2003 Med (µg P/l)	2004 Med (µg P/l)	2005 Med (µg P/l)	2006 Med (µg P/l)	2007 Med (µg P/l)	2008 Med (µg P/l)	2009 Med (µg P/l)	2010 Med (µg P/l)	2011 Med (µg P/l)	2012 Med (µg P/l)	2013 Med (µg P/l)
0080	NM*	NM	24	17	17	17	19	15	20	30	16	12	16	23	12
0150	60	50	47	30	36	34	61	62	61	63	24	40	45	23	27
0250	NM	NM	41	24	24	30	25	60	43	-	-	-	-		
0350	NM	NM	35	21	24	35	33	23	44	30	24	30	21	23	19
0500	38	31	36	27	28	38	24	35	41	49	31	28	30	71	26
0600	NM	NM	32	30	23	35	34	35	49	50	56	33	33	37	29
0800										47	53	57	36	43	33
0900	52	42	40	40	24	42	41	35	44	45	56	54	38	41	32
1000	NM	NM	39	41	36	41	38	31	50	46	53	52	39	39	31
1150	NM	NM	39	41	35	40	36	34	33	-	-	-	-		
1350	41	40	41	41	35	40	38	38	47	41	36	51	39	42	32
1400	NM	NM	55	47	43	45	40	37	53	29	40	67	44	44	38

\*Not Measured

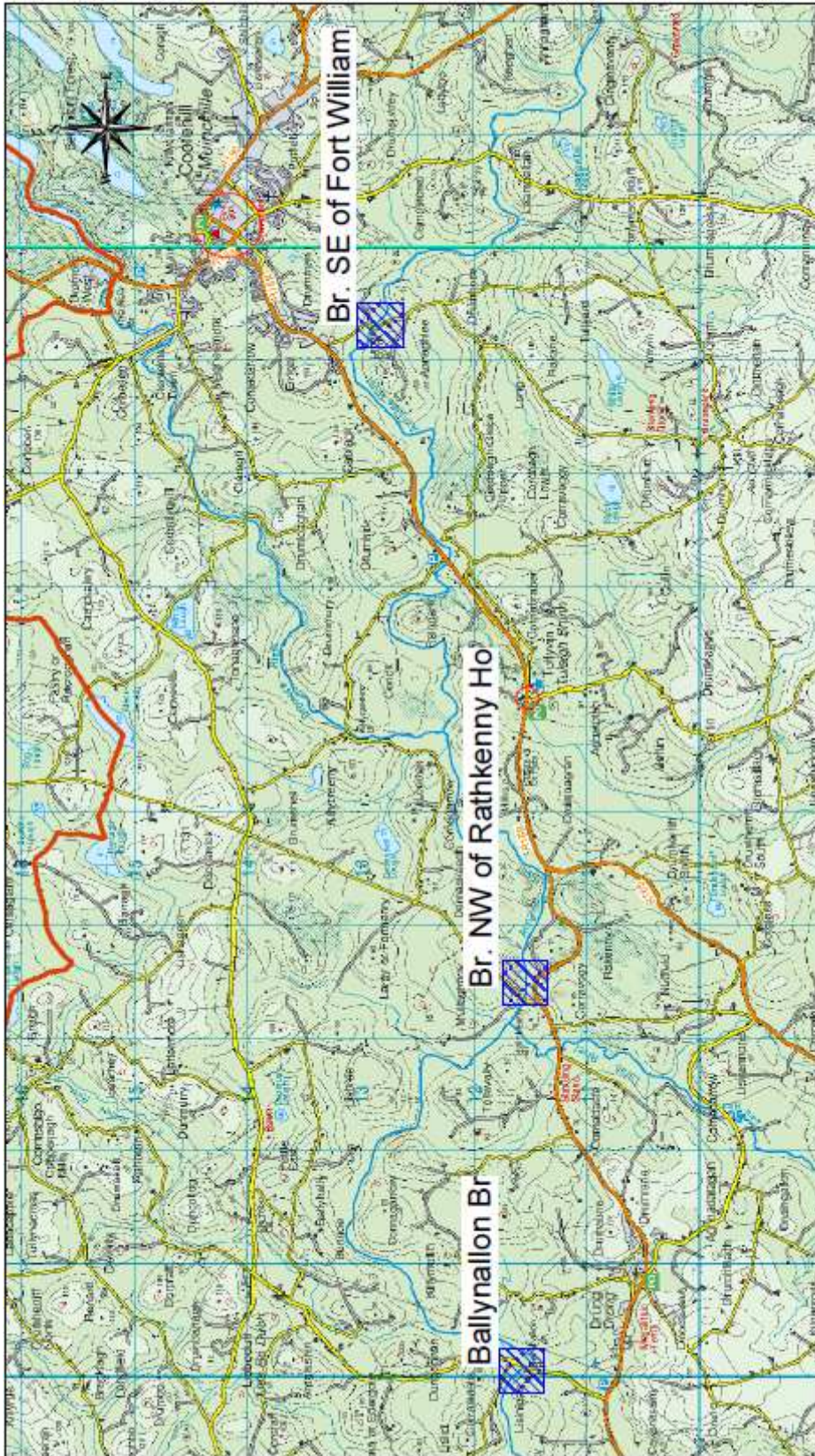
**Assessment**

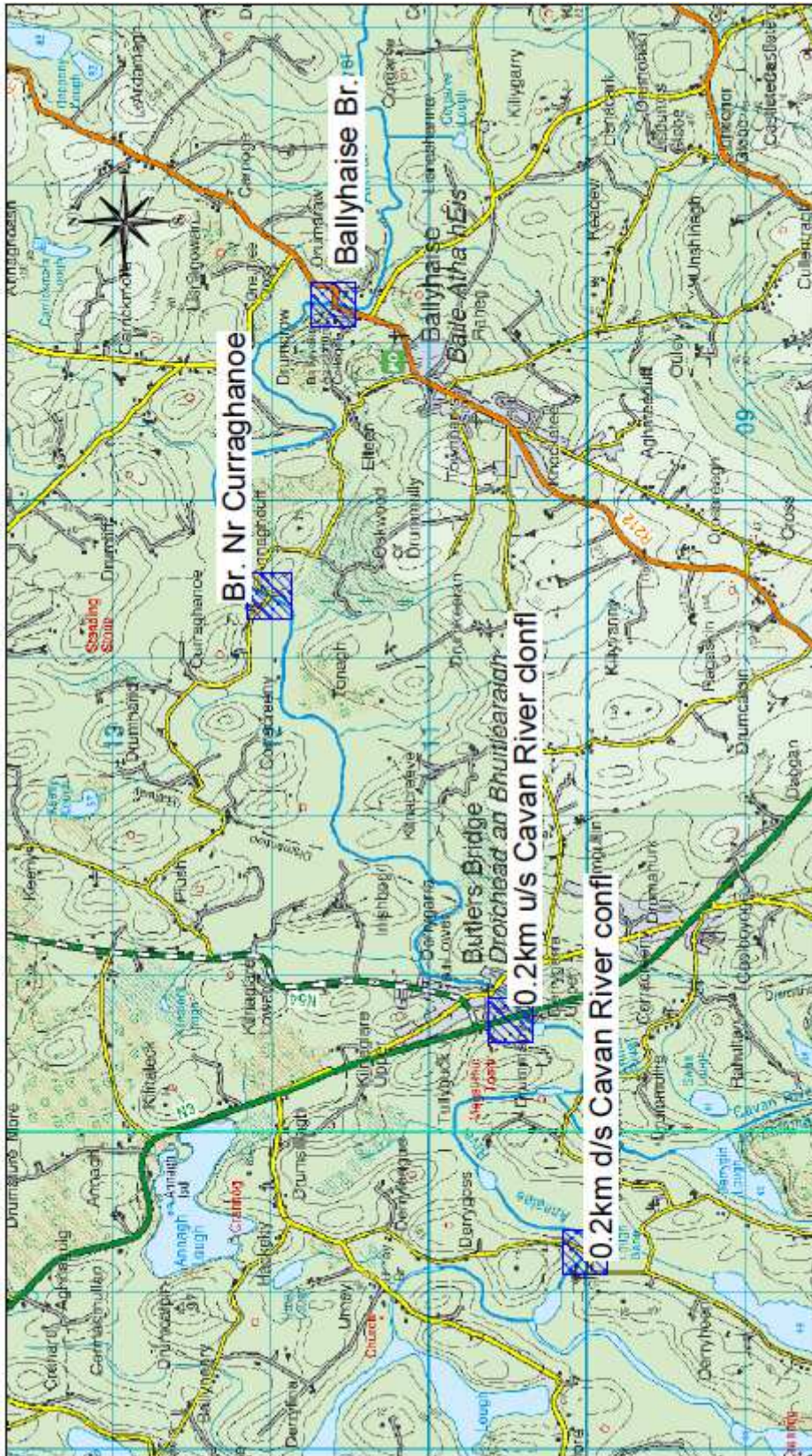
This river ranges from poor through to good ecological status. The majority of stations are poor or moderate.

**Change from 2012**

Some improvement in median ortho-phosphate levels at new grove bridge.







River: **Ballinagh**

Catchment: **Erne**

**WFD Status**

Station Location	Station Number	Water Body Code	Current Ecological Status RWB	Target Ecological Status RWB	Target Date
Ballinagh Bridge	0200	NW_36_2100	Good	Good	2009

**Sampling Stations and Biological Quality Ratings**

Station Number	Station Location	Q'86	Q'89
0200	Ballinagh Bridge	3	2-3

**MRP results**

Station	1999 Med (µg P/l)	2000 Med (µg P/l)	2001 Med (µg P/l)	2002 Med (µg P/l)	2003 Med (µg P/l)	2004 Med (µg P/l)	2005 Med (µg P/l)	2006 Med (µg P/l)	2007 Med (µg P/l)	2008 Med (µg P/l)	2009 Med (µg P/l)	2010 Med (µg P/l)	2011 Med (µg P/l)	2012 Med (µg P/l)	2013 Med (µg P/l)
0200	114	109	128	108	152	117	96	87	112	81	127	87	77	103	83

**Assessment**

The current ecological status is good. The water quality is poor according to chemical data.

**Change from 2012**

Reduction in median Ortho-P levels.



River: **Bawnboy**

Catchment: **Erne**

**WFD Status**

Station Location	Station Number	Water Body Code	Current Ecological Status RWB	Target Ecological Status RWB	Target Date
Br U/S Brackley Lough	0300	NW_36_1034	Good	Good	2009
Br U/S Bellaboy Lough	0500	NW_36_1034	Good	Good	2009

**Sampling Stations and Biological Quality Ratings**

Station Number	Station Location	Q'93	Q'97	Q'98	Q'01	Q'04	Q'07	Q'10	Q'13
0300	Br U/S Brackley Lough	4-5	4-5	5	NM	4-5	4	4	4-5
0500	Br U/S Bellaboy Lough	4-5	4	4	4	4	4	3	4-5

**MRP results**

Station	2000 Med (µg P/l)	2001 Med (µg P/l)	2002 Med (µg P/l)	2003 Med (µg P/l)	2004 Med (µg P/l)	2005 Med (µg P/l)	2006 Med (µg P/l)	2007 Med (µg P/l)	2008 Med (µg P/l)	2009 Med (µg P/l)	2010 Med (µg P/l)	2011 Med (µg P/l)	2012 Med (µg P/l)	2013 Med (µg P/l)
0300	NM	13	10	10	10	11	11	10	10	12	10	10	10	10
0500	NM	19	13	10	12	15	14	10	15	10	10	12	10	16

**Assessment**

The ecological status is good and the chemical results correspond with this status.

**Change from 2012**

No significant change.





River: **Blackwater (Kells)**

Catchment: **Boyne**

**WFD Status**

Station Location	Station Number	Water Body Code	Current Ecological Status RWB	Target Ecological Status RWB	Target Date
Br. 2km NE of Balieborough	0100	EA_07_581	Poor	Good	2015
U/S discharge pipe at Drumbannon	0160			Good	
Br.at Drumbannon	0170	EA_07_581	Poor	Good	2015
Footbridge u/s Castle lake	0200	EA_07_581	Poor	Good	2015
3rd bridge d/s Castle Lake	0280	EA_07_581	Poor	Good	2015
Br. D/s parkers br	0420	EA_07_581	Poor	Good	2015
Br in Killenkere	0500	EA_07_1035	Moderate	Good	2009
Stramaquerty Br (nr Drumagolan)	0600	EA_07_1035	Moderate	Good	2009
Br. u/s L. Ramor	0800	EA_07_1035	Moderate	Good	2009
Nine eyes Br	0900	EA_07_1536_1	Poor	Good	2027
Daly's bridge	1000	EA_07_1536_1	Poor	Good	2027

**Sampling Stations and Biological Quality Ratings**

Station Number	Station Location	Q'90	Q'94	Q'97	Q'00	Q'03	Q'06	Q'09	Q'12
0100	Br. 2km NE of Balieborough	-	4	4	4-5	4-5	4	4	4
0160	Upstream discharge pipe at Drumbannon	-	-	-	-	-	-	-	
0170	Br.at Drumbannon	1	2	2-3	2	2-3	2-3	3	3-4
0200	Footbridge u/s Castle lake	1	2	-	-		-	-	2-3
0280	3rd bridge d/s Castle Lake	3	3	3	3	3	3	-	3
0420	Br. D/s parkers br	3-4	3-4	3-4	4	3-4	3-4	3-4	3-4
0500	Br in Killenkere	4	3-4	3-4	3-4	4	4	4	4
0600	Stramaquerty Br (nr Drumagolan)	3-4	3-4	3-4	3-4	3-4	4	4	4
0800	Br. u/s Lough Ramor	4	3-4	4	4	4	4	4	4
0900	Nine eyes Br	3	3	3	3	3	3	-	-

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1000	Daly's bridge	3-4	3	3	3-4	3	3	3	3	3
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**MRP results**

Station	1999 Med (µg P/l)	2000 Med (µg P/l)	2001 Med (µg P/l)	2002 Med (µg P/l)	2003 Med (µg P/l)	2004 Med (µg P/l)	2005 Med (µg P/l)	2006 Med (µg P/l)	2007 Med (µg P/l)	2008 Med (µg P/l)	2009 Med (µg P/l)	2010 Med (µg P/l)	2011 Med (µg P/l)	2012 Med (µg P/l)	2013 Med (µg P/l)
0100	32	18	19	17	10	10	23	17	13	19	15	12	20	16	12
0160	-	-	-	-	69	51	71	82	90	105	158	42	34	28	19
0170	NM	NM	40	53	65	59	47	119	99	104	91	42	35	28	44
0200	55	38	-	-	-	-	-	-	-	-	-	-	-	-	-
0280	NM	NM	26	24	17	24	29	38	55	101	-	-	-	-	-
0300												46	30	46	44
0400	NM	NM	16	15	20	26	22	30	49	26	17	16	26	35	29
0450										30	23	17	27	33	30
0500	23	23	34	20	15	27	23	30	48	24	30	22	28	37	26
0600	NM	NM	16	21	16	19	25	26	42	20	27	23	27	37	28
0800	29	28	19	25	15	19	20	20	38	19	29	23	32	40	29
0900	NM	NM	17	15	10	10	32	25	30	-	-	-	-	-	-
1000	10	23	22	15	14	10	23	17	45	35	23	15	16	22	24

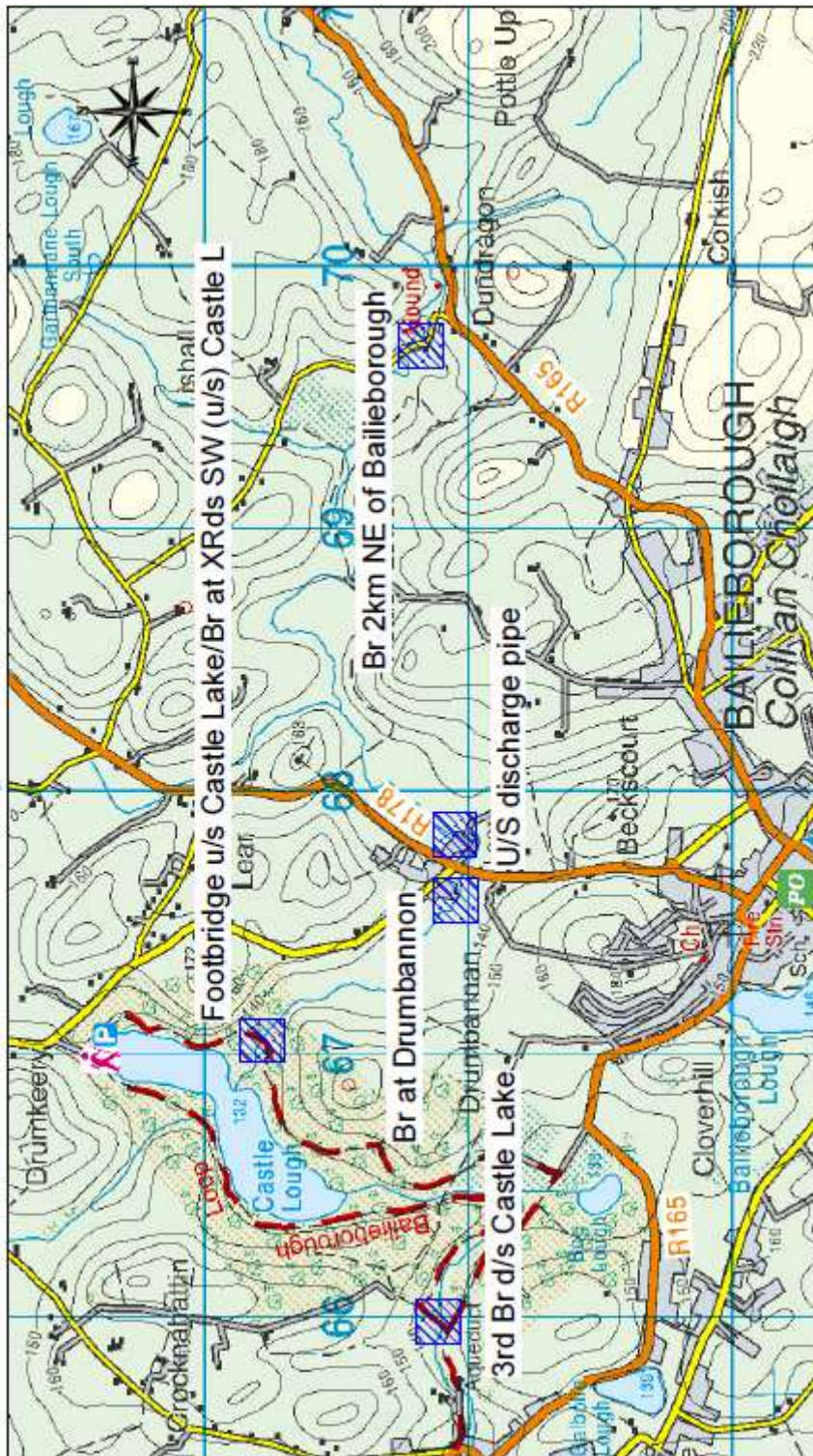
**Assessment**

The river is in general poor based on the ecological status at the upper reaches near Baileborough and is classified as poor until Killenkere. The stretch from Killenkere to Lough Ramor is classified as moderate. Two stations in the lower reaches downstream of Lough Ramor are poor. This is probably as a result of lake effects.

**Change from 2012**

No significant change slight improvement at most stations







River: **Blackwater (Newtowngore)**

Catchment: **Erne**

### Sampling Stations and Biological Quality Ratings

#### WFD Status

Station Location	Station Number	Water Body Code	Current Ecological Status RWB	Target Ecological Status RWB	Target Date
Br west of Knockmore	0180	NW_36_323	Good	Good	2009
Br. NE of Stadiran	0200	NW_36_323	Good	Good	2009
Br. D/s Blackwater Br.	0400	NW_36_148	Moderate	Good	2021
Br. U/s Ballymagauran Lough	0600	-	-	-	-

### Sampling Stations and Biological Quality Ratings

Station Number	Station Location	Q'93	Q'97	Q'98	Q'01	Q'04	Q'07	Q'10	Q'13
0180	Br west of Knockmore	5	5	4-5	5	4-5	4	4	4-5
0200	Br. NE of Stadiran	4-5	4-5	4	5	4	4	4-5	4-5
0400	Br. D/s Blackwater Br.	5	5	4	-	4	3-4	4	4-5
0600	Br. U/s Ballymagauran L	4	4	4-5	-	4	-	4	4-5

#### MRP results

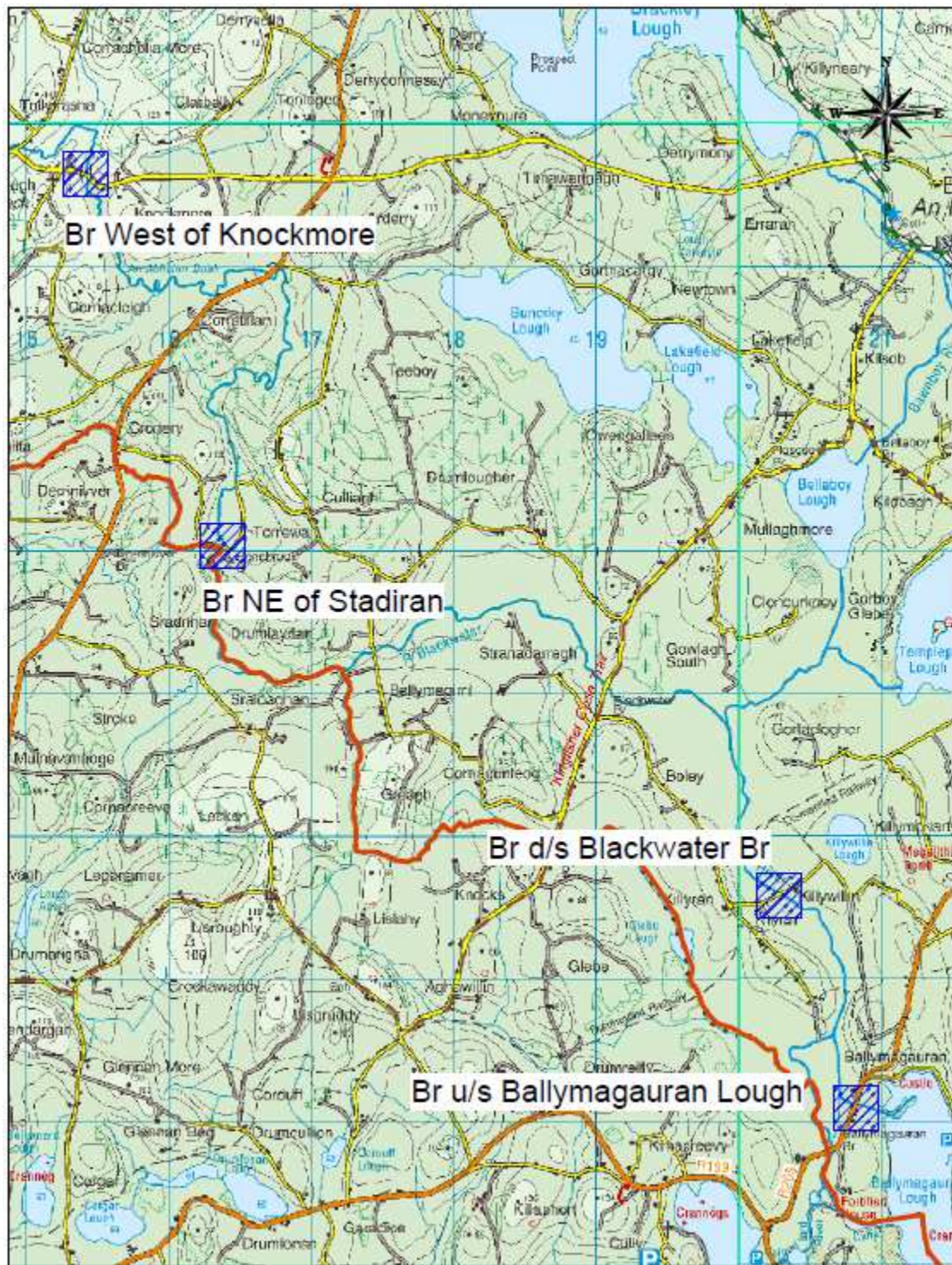
Station	1999 Med (µg P/l)	2000 Med (µg P/l)	2001 Med (µg P/l)	2002 Med (µg P/l)	2003 Med (µg P/l)	2004 Med (µg P/l)	2005 Med (µg p/l)	2006 Med (µg p/l)	2007 Med (µg P/l)	2008 Med (µg P/l)	2009 Med (µg P/l)	2010 Med (µg P/l)	2011 Med (µg P/l)	2012 Med (µg P/l)	2013 Med (µg P/l)
0180									10	10	10	10	18	20	10
0200	NM	NM	13	11	10	12	10	10	10	15	12	10	10	16	11
0400	12	11	13	14	10	12	10	10	14	16	10	10	10	13	11
0600	NM	NM	15	14	10	12	11	10	15	-	-	-	-	-	-

#### Assessment

The two stations in the upper reaches are classified as good. The bridge downstream of the Blackwater Bridge is classified as moderate. Chemical results indicate that river is in satisfactory condition.

#### Change from 2012

Slight improvement at all stations.





River: **Blackwater (Swanlinbar)**

Catchment: **Erne**

Now known as **Owensallagh 0800 Br. SE of Gorteen (on tributary) see Owensallagh**

**WFD Status**

Station Location	Station Number	Water Body Code	Current Ecological Status RWB	Target Ecological Status RWB	Target Date
Br. D/s Blackwater Br.	0400	NW_36_1161	Good	Good	2009

**Sampling Stations and Biological Quality Ratings**

Station Number	Station Location	Q'93	Q'97	Q'98	Q'01	Q'04	Q'07	Q'10	Q'13
0400	Br. D/s Blackwater Br.	4-5	4	4-5	5	5	4	4	4

**MRP results**

Station	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
	Med (µg P/l)	Med (µg P/l)	Med (µg P/l)	Med (µg P/l)	Med (µg P/l)	Med (µg P/l)	Med (µg P/l)	Med (µg P/l)	Med (µg P/l)	Med (µg P/l)	Med (µg P/l)	Med (µg P/l)	Med (µg P/l)
0400	NM	NM	12	13	10	10	14	14	12	10	16	10	11

**Assessment**

Good.

**Change from 2012**

Now known as **Owensallagh 0800 Br. SE of Gorteen (on tributary) see Owensallagh**