

# Barrow Catchment Assessment 2010-2015 (HA 14)



Catchment Science & Management Unit

Environmental Protection Agency

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## Preface

This document provides a summary of the characterisation outcomes for the water resources of the Barrow Catchment, which have been compiled and assessed by the EPA, with the assistance of local authorities and RPS consultants. The information presented includes status and risk categories of all water bodies, details on protected areas, significant issues, significant pressures, load reduction assessments, recommendations on future investigative assessments, areas for actions and environmental objectives. The characterisation assessments are based on information available to the end of 2015. Additional, more detailed characterisation information is available to public bodies on the EPA WFD Application via the EDEN portal, and more widely on the [catchments.ie](http://catchments.ie) website. The purpose of this document is to provide an overview of the situation in the catchment and help inform further action and analysis of appropriate measures and management strategies.

This document is supported by, and can be read in conjunction with, a series of other documents which provide explanations of the elements it contains:

1. An explanatory document setting out the full characterisation process, including water body, subcatchment and catchment characterisation.
2. The Final River Basin Management Plan, which can be accessed on: [www.catchments.ie](http://www.catchments.ie).
3. A published paper on Source Load Apportionment Modelling, which can be accessed at: <http://www.jstor.org/stable/10.3318/bioe.2016.22>
4. A published paper on the role of pathways in transferring nutrients to streams and the relevance to water quality management strategies, which can be accessed at: <http://www.jstor.org/stable/pdf/10.3318/bioe.2016.19.pdf>
5. An article on Investigative Assessments which can be accessed at: <https://www.catchments.ie/download/catchments-newsletter-sharing-science-stories-june-2016/>

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## 1 Introduction

This catchment includes the area drained by the River Barrow upstream of the River Nore confluence and all streams entering tidal water between the Barrow railway bridge at Great Island and Ringwood, Co. Kilkenny, draining a total area of 3,025km<sup>2</sup>. The largest urban centre in the catchment is Carlow. The other main urban centres in this catchment are New Ross, Graiguenamanagh, Athy, Portlaoise, Mountmellick, Portarlinton, Monasterevin and Kildare. The total population of the catchment is approximately 188,100 with a population density of 62 people per km<sup>2</sup>.

The source of the River Barrow is located on the slopes of the Slieve Bloom Mountains from where the river flows, before being joined from the south by the Owenass and Triogue Rivers.

The Nore flows east through Portarlinton and is then joined by the Figile River from the north. The Figile River subcatchment includes the Cushina, Daingean and Slate Rivers. The area around Kildare Town is underlain by a highly productive gravel aquifer which discharges at Pollardstown Fen and into the River Slate.

The Barrow continues south though Monasterevin where it is joined by the Stradbally River from the west and the Kildoon River from the east. The geology in this area is complex, with the result that groundwater and surface water are closely and complexly linked in this catchment. At Athy the river is joined by the Athy stream and continues south where the Rivers Greese and Lerr join. At Carlow Town, the Barrow is joined by the Burren River which drains much of the eastern edge of the catchment in this area.

The Barrow then flows south and is joined by the Fushoge, Monefelim and Gowran Rivers. Flood relief works were completed on the Barron around Carlow during 2013. To the south of Borris, 3 rivers, the Mountain River, the Ballyroughan Little River, and the Aughnavaud River flow into the Barrow from the western slopes of the Blackstairs Mountains. The Barrow continues in its meandering course south in a steep-sided valley, becoming tidal just north of Saint Mullin's and being joined by the Aughnacrew River, before reaching its confluence with the River Nore. The Barrow continues south through New Ross, flowing into the Suir Estuary at Cheekpoint.

The Barrow catchment comprises 20 subcatchments (Table 1, Figure 1) with 145 river water bodies, six transitional water bodies, and 29 groundwater bodies.

Table 1. List of subcatchments in the Barrow catchment

Subcatchment ID	Subcatchment Name
14_1	Barrow_SC_030
14_2	Barrow_SC_080
14_3	Figile_SC_010
14_4	Barrow_SC_100
14_5	Barrow_SC_110
14_6	Lerr_SC_010
14_7	Barrow_SC_130
14_8	Barrow_SC_120
14_9	Greese_SC_010
14_10	Barrow_SC_140
14_11	Barrow_SC_020
14_12	Barrow_SC_070
14_13	Barrow_SC_090
14_14	Figile_SC_020
14_15	Barrow_SC_010
14_16	Slate_SC_010
14_17	Barrow_SC_050
14_18	Barrow_SC_060
14_19	Barrow_SC_150
14_20	Barrow_SC_040

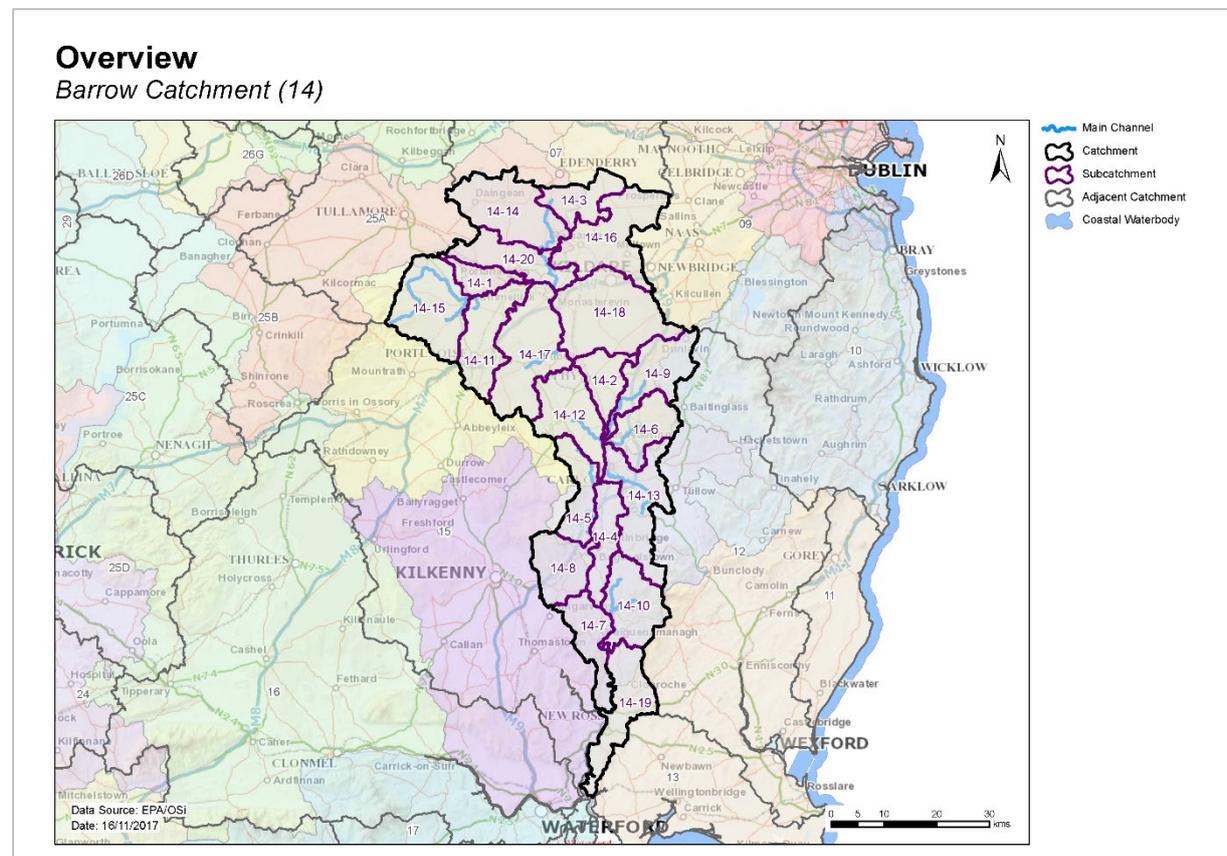


Figure 1. Subcatchments in the Barrow catchment

## 2 Water body status and risk of not meeting environmental objectives

### 2.1 Surface water ecological status

#### 2.1.1 Rivers

- ◆ There were 47 (32%) river water bodies at Good or High status, and 63 (44%) at less than Good status in 2015 (Table 2, Figure 2). Thirty-five (24%) river and lake water bodies are unassigned.
- ◆ Two river water bodies and sites have a high ecological status objective. In 2015, one of these water bodies were at High status (Barrow\_010), and one was at Good (Burren\_010) (Figure 5, Appendix 1).
- ◆ The numbers of river water bodies at each status class in 2007-09 and 2010-15 are shown in Figure 3.
- ◆ Since 2007-09 when WFD monitoring began, 30 water bodies have an improved status whereas 12 have deteriorated (Figure 6).
- ◆ The variation in nutrient concentrations and loads in the Barrow main channel is illustrated in Appendix 2.

#### 2.1.2 Transitional and Coastal (TraC)

- ◆ Of the six TraC water bodies, three are at Good status – Upper Barrow Estuary, Barrow Suir Nore Estuary and Barrow Nore Estuary Upper. Three are at Moderate status in 2015 – New Ross Port, Nore Estuary and the Lower Suir Estuary (Little Island - Cheekpoint) (Table 2).
- ◆ There are no TraC water bodies with a high ecological status objective.
- ◆ The numbers of TraC water bodies in each status class in 2007-09 and 2010-15 is shown in Figure 4.
- ◆ Since 2007-09, two transitional water bodies (Barrow Suir Nore Estuary and Upper Barrow Estuary) have an improved status whereas one (Lower Suir Estuary (Little Island - Cheekpoint)) has deteriorated (Figure 6)
- ◆ Note that Lower Suir Estuary (Little Island - Cheekpoint) transitional water body is shared with other catchments (HAs 15 and 16).

Table 2. Summary of surface water body status and risk categories

	Number of water bodies	2010-15 Status						Risk Categories		
		High	Good	Mod	Poor	Bad	Unassigned	<i>Not at Risk</i>	<i>Review</i>	<i>At Risk</i>
Rivers	145	2	45	45	18	0	35	41	40	64
TraC	6	0	3	3	0	0	0	1	2	3

# WFD Surface Water Body Status 2010 - 2015

Barrow Catchment (14)

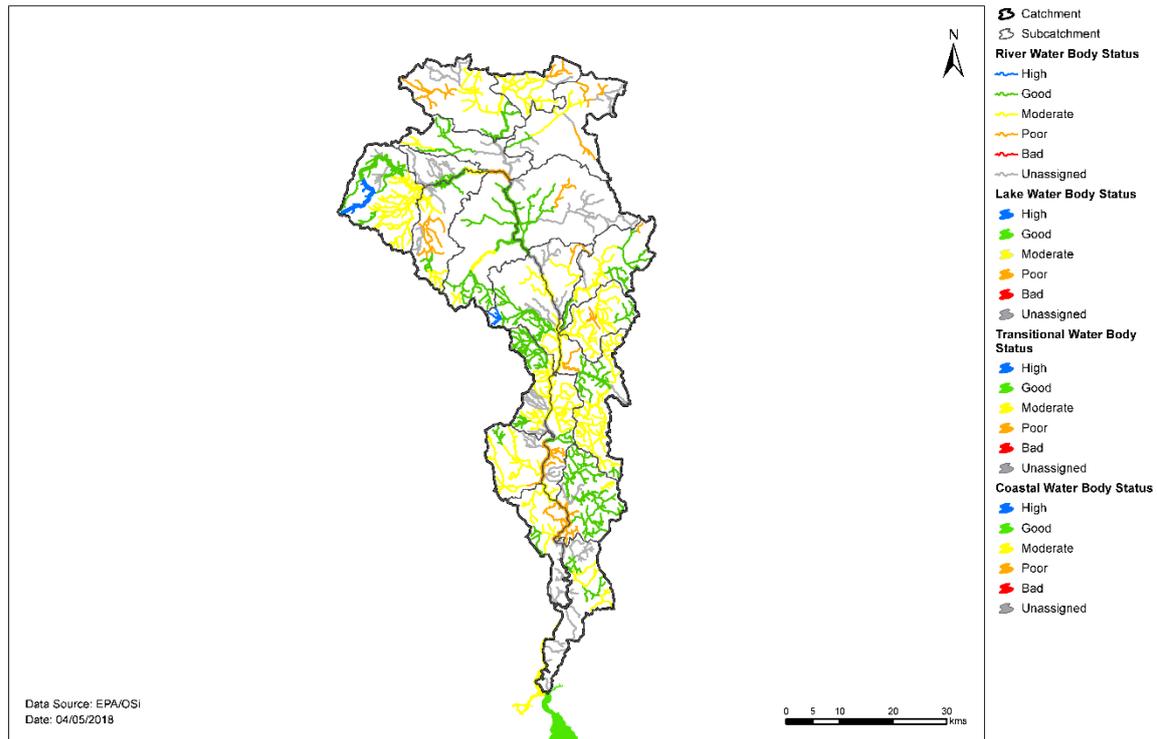


Figure 2. Surface water ecological status

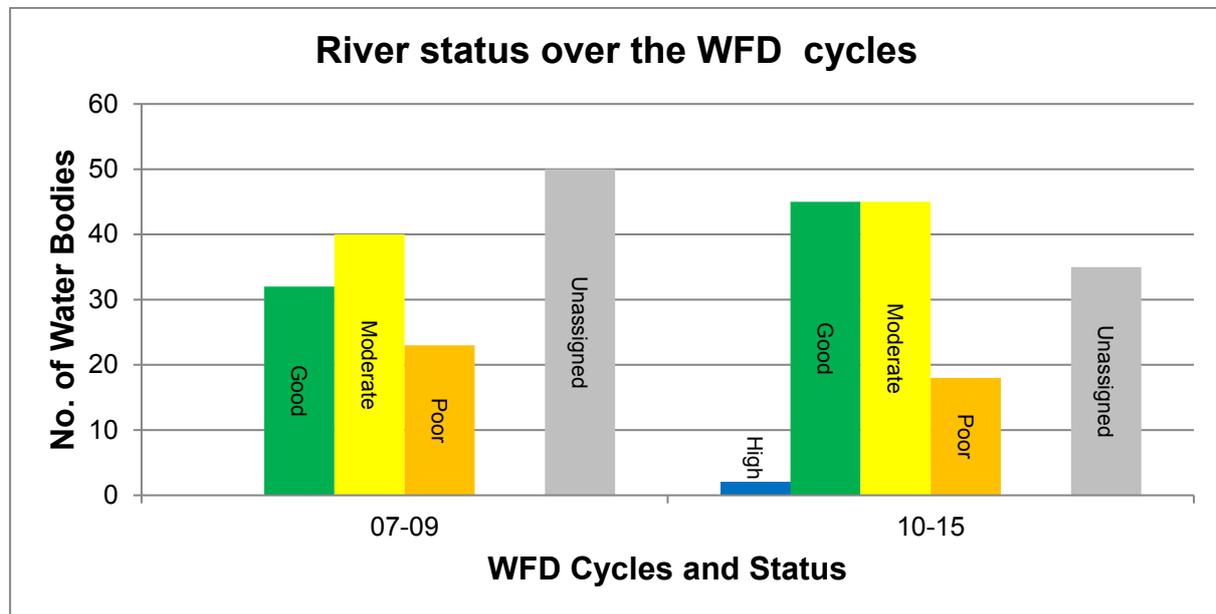


Figure 3. Number of rivers at each status class in 2007-09 and 2010-15

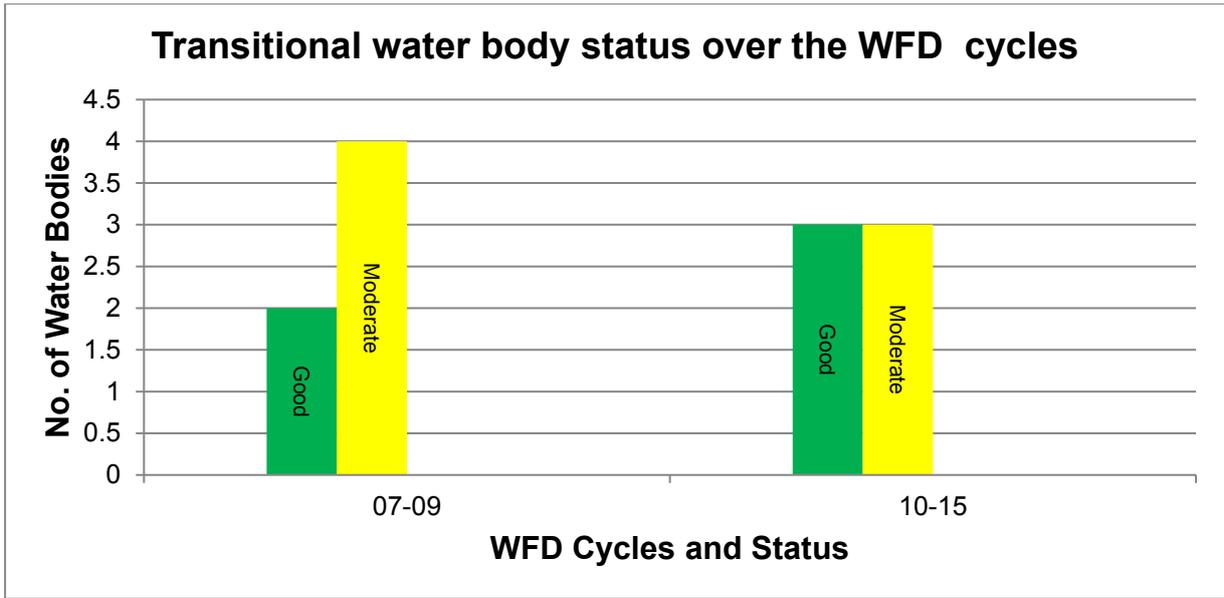


Figure 4. Number of transitional water bodies at each status class in 2007-09 and 2010-15

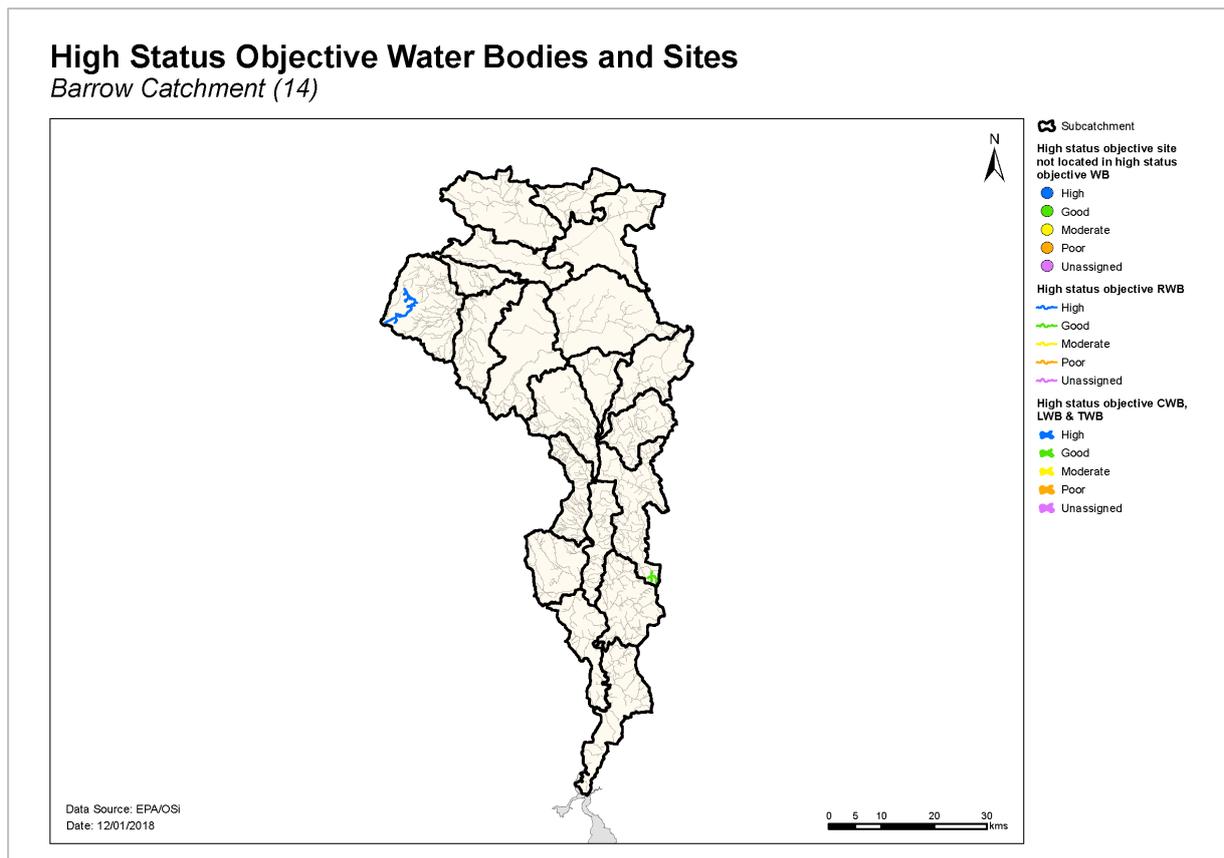


Figure 5. High ecological status objective water bodies and sites

## WFD Surface Water Body Status Change 2007 - 2009 to 2010 - 2015

Barrow Catchment (14)

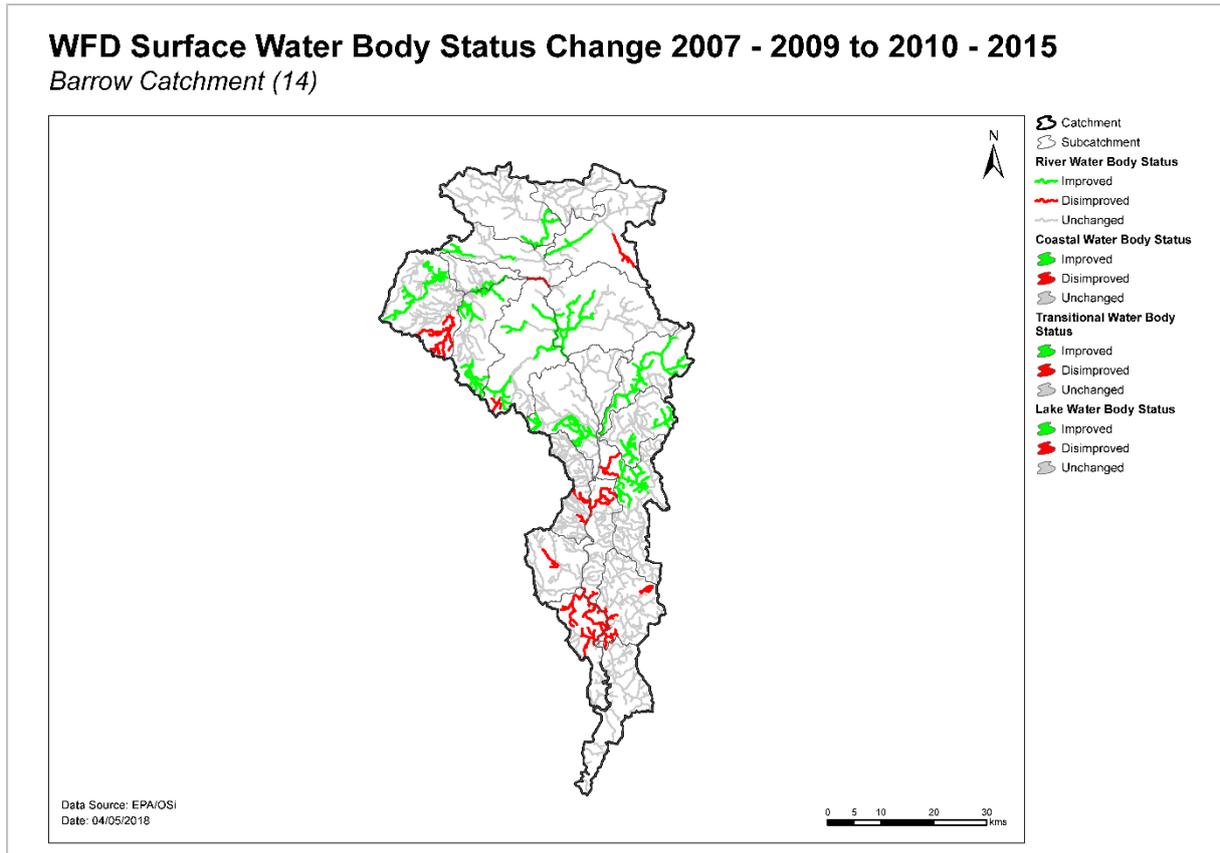


Figure 6. Surface water body status change from 2007-09 to 2010-15

### 2.2 Groundwater status

- ◆ There were 29 groundwater bodies at Good status and one at Poor status in 2015 (Table 3).
- ◆ This marks an improvement from Poor to Good for two of the water bodies between 2007-12 and 2010-15 (GWDTE-Pollardstown Fen (SAC000396) and Curragh Gravels West), due to improved information being available and the development of technical assessment approaches, rather than there being improvement in water quality in these water bodies between 2007-12 and 2010-15 (Industrial Facility (P0247-01)).

Table 3. Summary of groundwater body status and risk categories

	Number of water bodies	2010-15 Status		Risk Categories		
		Good	Poor	Not at Risk	Review	At Risk
Groundwater	30	29	1	20	9	1

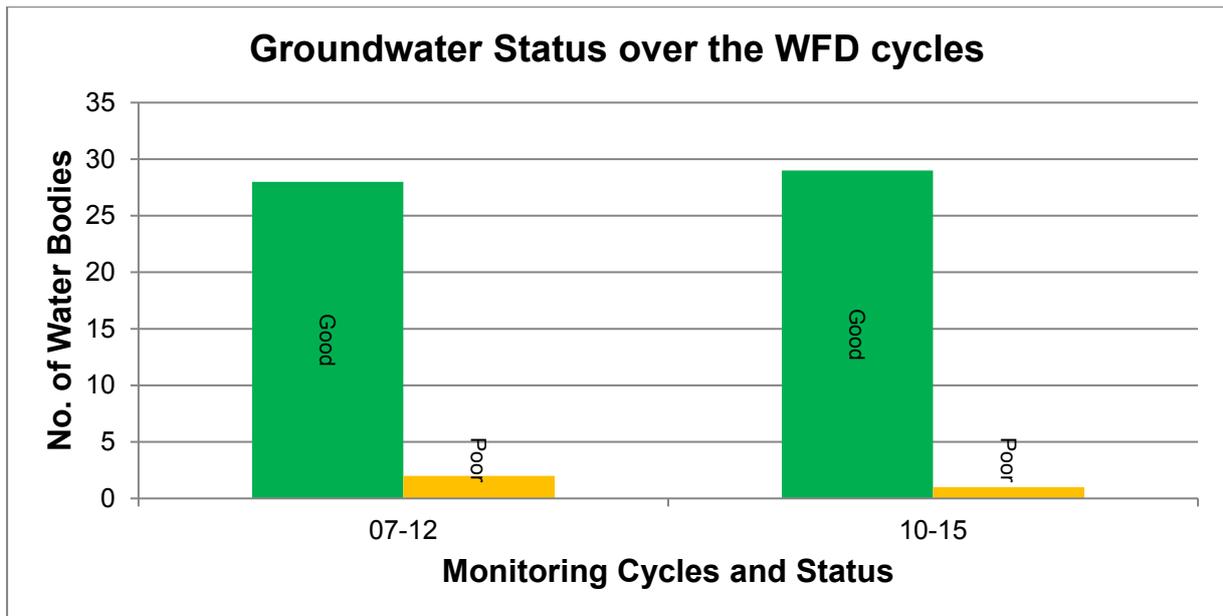


Figure 7. Number of groundwater bodies at each status class in 2007-12 and 2012-15

## 2.3 Risk of not meeting surface water environmental objectives

### 2.3.1 Rivers

- ◆ There are 41 *Not at Risk* river water bodies (Figure 8, Table 2) and these require no additional investigative assessment or measures to be applied, other than those measures that are already in place.
- ◆ There are 40 river water bodies in *Review*. This includes 35 water bodies where more information is required, and five water bodies where measures have recently been implemented and improvements have not yet been realised.
- ◆ Sixty-four surface water bodies in the catchment are *At Risk* of not meeting their water quality objectives. Measures will be needed in these water bodies to improve the water quality outcomes. Summary information for the *At Risk* water bodies is given in Appendix 3.

### 2.3.2 Transitional and Coastal (TraC)

- ◆ There is one *Not at Risk* TraC water body (Barrow Suir Nore Estuary) (Figure 8, Table 2) and therefore requires no additional investigative assessment or measures to be applied, other than those measures that are already in place.
- ◆ There are two TraC water bodies in *Review* – Upper Barrow Estuary and Barrow Nore Estuary Upper – and therefore more information is required.
- ◆ Three TraC water bodies in the catchment are *At Risk* of not meeting their water quality objectives – New Ross Port, Nore Estuary and the Lower Suir Estuary (Little Island - Cheekpoint). Measures will be needed in these water bodies to improve the water quality outcomes.

## Water Body Risk

### Barrow Catchment (14)

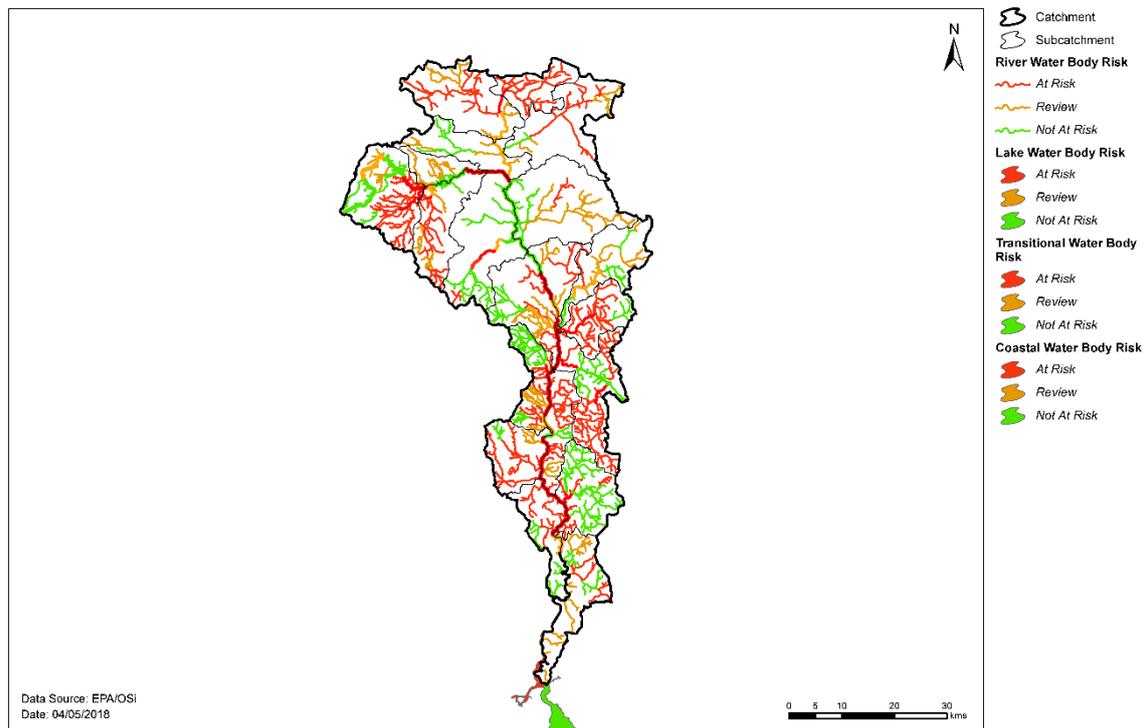


Figure 8. Surface water body risk

## 2.4 Risk of not meeting groundwater environmental objectives

- ◆ Twenty groundwater bodies are *Not at Risk* (Figure 9, Table 3) and require no additional investigative assessment or measures to be applied, other than those measures that are already in place.
- ◆ Nine groundwater bodies are in *Review*. Historic Waste Facility (S22-02443) (IE\_SE\_G\_177) is in *Review* due to a historic landfill site. Seven are in *Review* due to elevated nitrate concentrations, with two of the seven (Adamstown and Bagenalstown Lower) are also in *Review* due to the potential contribution of phosphate to surface waters that are *At Risk*. A third water body, Inistioge, is also in *Review*, solely due to the potential contribution of phosphate to surface water bodies that are *At Risk*.
- ◆ There is one groundwater body *At Risk*, Industrial Facility (P0247-01). Measures will be needed in this water body to improve water quality outcomes.

## 2.5 Protected areas

### 2.5.1 Drinking water protected areas

- ◆ There are 95 abstractions in the Barrow Catchment comprising five private group water schemes, 10 private supplies and 47 public supply schemes including regional supplies, water supply schemes and other schemes.
- ◆ Eighty-five of the abstractions are from eighteen groundwater bodies GWBs and the remainder are from seven river water bodies. The list of the public supplies and the associated water bodies is provided in Appendix 4.
- ◆ All drinking water sources were compliant with the standards for nitrate in 2015.

- ◆ Mount Lucas (Offaly; 2500PRI2017) was non-compliant due to exceedance of total pesticides in 2015 (Appendix 4). All other sources were compliant.

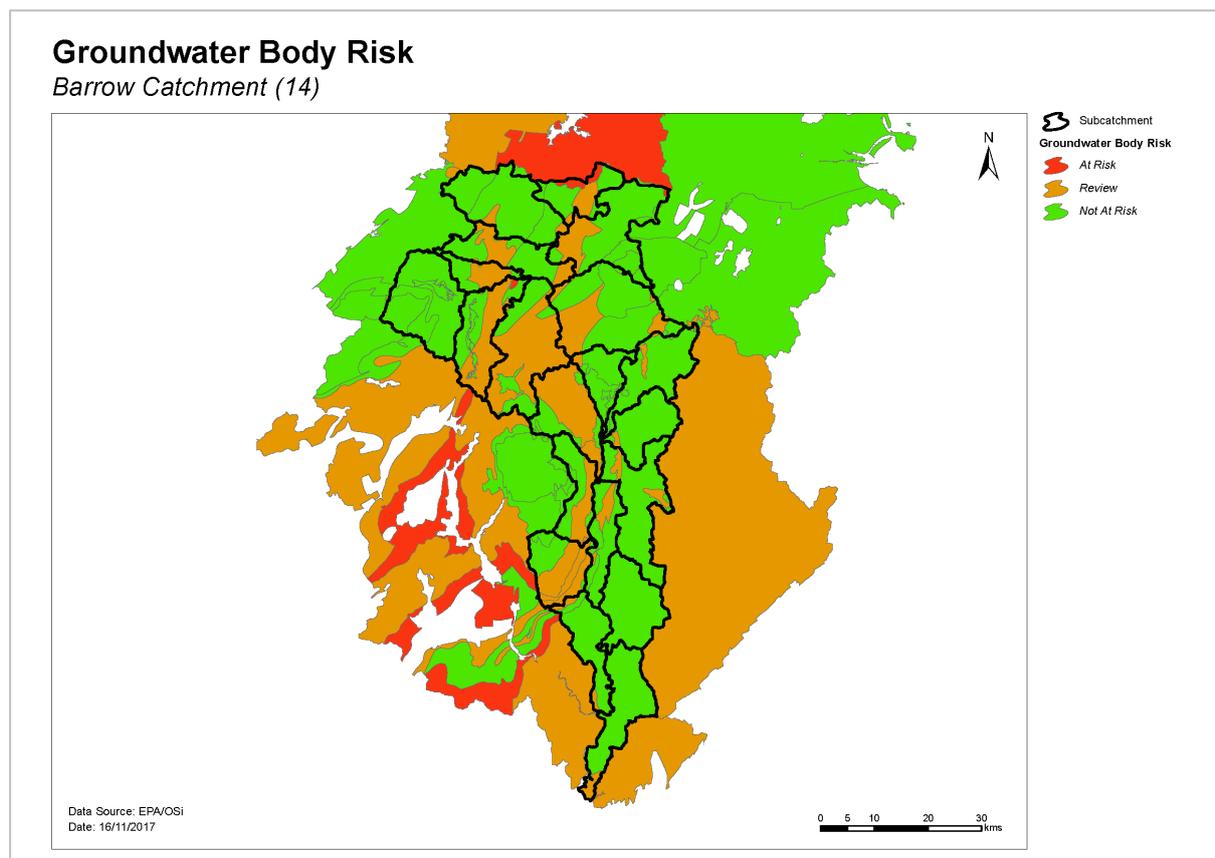


Figure 9. Groundwater body risk

### 2.5.2 Bathing waters

- ◆ There are no designated bathing waters in the catchment.

### 2.5.3 Shellfish areas

- ◆ There are three designated shellfish areas in the catchment (Table 4) all of which were compliant with the environmental objective for shellfish waters.

Table 4. Designated shellfish areas in the catchment

Shellfish area		Water body intersection		Objective met?	
Name	Code	Name	Code	Yes	No
Waterford Harbour (Cheekpoint/Arthurstown/Creadan)	IEPA2_0056	Lower Suir Estuary (Little Island – Cheekpoint)	IE_SE_100_0500	✓	
Waterford Harbour (Cheekpoint/Arthurstown/Creadan)	IEPA2_0056	New Ross Point	IE_SE_100_0200	✓	
Waterford Harbour (Cheekpoint/Arthurstown/Creadan)	IEPA2_0056	Barrow Suir Nore Estuary	IE_SE_100_0100	✓	

### 2.5.4 Nutrient sensitive areas

- ◆ There are five nutrient sensitive areas (NSAs) associated with six urban waste water treatment plants.
- ◆ All six urban waste water treatment plants have tertiary treatment and, therefore are compliant with the environmental objectives for NSAs.
- ◆ The list of NSAs, associated agglomerations and intersecting water bodies are provided in Table 5.

Table 5. Nutrient sensitive areas in the catchment

Nutrient Sensitive Area		Agglomeration		Water body name		Objective met?			
Name	Code	Name	Code	Name	Code	Yes	No		
Barrow (River)	IERI_SE_2001_0015	Kildare Town	D0178	BARROW_120	IE_SE_14B011500	✓			
				BARROW_130	IE_SE_14B011600				
		Athy	D0003	BARROW_140	IE_SE_14B011900	✓			
				BARROW_150	IE_SE_14B012000				
				BARROW_160	IE_SE_14B012460				
		Carlow	D0028	BARROW_160	IE_SE_14B012460	✓			
				BARROW_170	IE_SE_14B012600				
				BARROW_180	IE_SE_14B012700				
				BARROW_190	IE_SE_14B012820				
				BARROW_200	IE_SE_14B012920				
		Muinebheag	D0090	BARROW_210	IE_SE_14B013100	✓			
				BARROW_220	IE_SE_14B013300				
				BARROW_230	IE_SE_14B013514				
				BARROW_240	IE_SE_14B013600				
		Triogue (River)	IERI_SE_2001_0016	Portlaoise	D0001	TRIOGUE_020	IE_SE_14T010200	✓	
		Barrow (River)	IERI_SE_2010_0001			TRIOGUE_030	IE_SE_14T010300		
TRIOGUE_040	IE_SE_14T010400								
BARROW_050	IE_SE_14B010550								
BARROW_050	IE_SE_14B010550								
BARROW_060	IE_SE_14B010700								
BARROW_070	IE_SE_14B010780								
Barrow Estuary Lower	IETW_SE_2001_0030a	Muinebheag & Leighbidge	D0090	Barrow Nore Estuary Upper	IE_SE_100_0250	✓			
Barrow Estuary	IETW_SE_2001_0030b			Upper Barrow Estuary	IE_SE_100_0300				

### 2.5.5 Natura 2000 sites

- ◆ There are 10 Special Areas of Conservation (SACs) in the catchment (Appendix 5), not all of which have water quality and/or quantity conservation objectives for their qualifying interests.
- ◆ Seventeen rivers water bodies have been prioritised for action as the water conservation objectives for their habitats and/or species are not being supported by ecological status (Appendix 5).
- ◆ There is one Special Protected Area (SPA) in the catchment:
  - Slieve Bloom Mountains SPA (004160)

As there are no specific water quality and quantity supporting conditions identified in the site-specific conservation objectives for these SPAs, the intersecting water bodies are not assigned priority action for WFD protected area purposes in the second cycle.

## 2.6 Heavily modified water bodies

- ◆ There is one designated heavily modified water body (HMWB) in the catchment – New Ross Port due to port facilities. It was classified as having Moderate Ecological Potential in 2013-15.
- ◆ There are four designated artificial water bodies (AWB) in the catchment – Grand Canal Main West of Lowtown, Grand Canal Barrow Line, Grand Canal Milltown Feeder and Old Barrow Line and Grand Canal Main Line East of Lowtown.

## 3 Significant issues in *At Risk* water bodies

- ◆ Excess phosphate leading to eutrophication is the dominant issue in rivers in the Barrow catchment. While excess ammonia is also of concern, it is only for a limited number of water bodies.
- ◆ Alteration of hydromorphological (or physical) conditions is also a concern in rivers in the Barrow catchment due to impacts by excess fine sediment. Such impacts have altered the morphology of water bodies and in turn, altered habitat conditions.
- ◆ New Ross Port and the Lower Suir Estuary (Little Island - Cheekpoint) are *At Risk* and remain at Moderate status. Elevated nutrients are the significant issue. The Nore Estuary is also *At Risk* and is at Moderate status due to fish status; potentially nutrients are the significant issues. Of the 30 groundwater bodies one is *At Risk* from a discharge of Trichloroethylene (TCE) from an industrial facility.

## 4 Significant pressures

### 4.1 Water bodies

- ◆ Where water bodies have been classed as *At Risk*, by water quality or survey data, significant pressures have been identified.
- ◆ Figure 10 shows a breakdown of the number of *At Risk* surface water bodies in each significant pressure category.

#### 4.1.1 River, lakes, transitional and coastal (TraC)

- ◆ Significant pressures have been identified through the initial characterisation process in 62 surface water bodies, 33 of which have multiple pressures. The significant pressures will be refined as further characterisation is carried out.
- ◆ The significant pressure affecting the greatest number of river and lake water bodies is agriculture followed by hydromorphological pressures, urban waste water, peat, diffuse urban, forestry, industry, domestic waste water and other (Figure 10).
- ◆ There are no lake or coastal water bodies in the Barrow catchment. The significant pressure affecting the greatest number of transitional water bodies is agriculture.

#### 4.1.2 Groundwater

- ◆ The significant pressure affecting the Industrial Facility (P0247-01) IE\_SE\_G\_005 groundwater body is the licenced industrial facility P0247-01. The key concern is trichloroethylene (TCE).

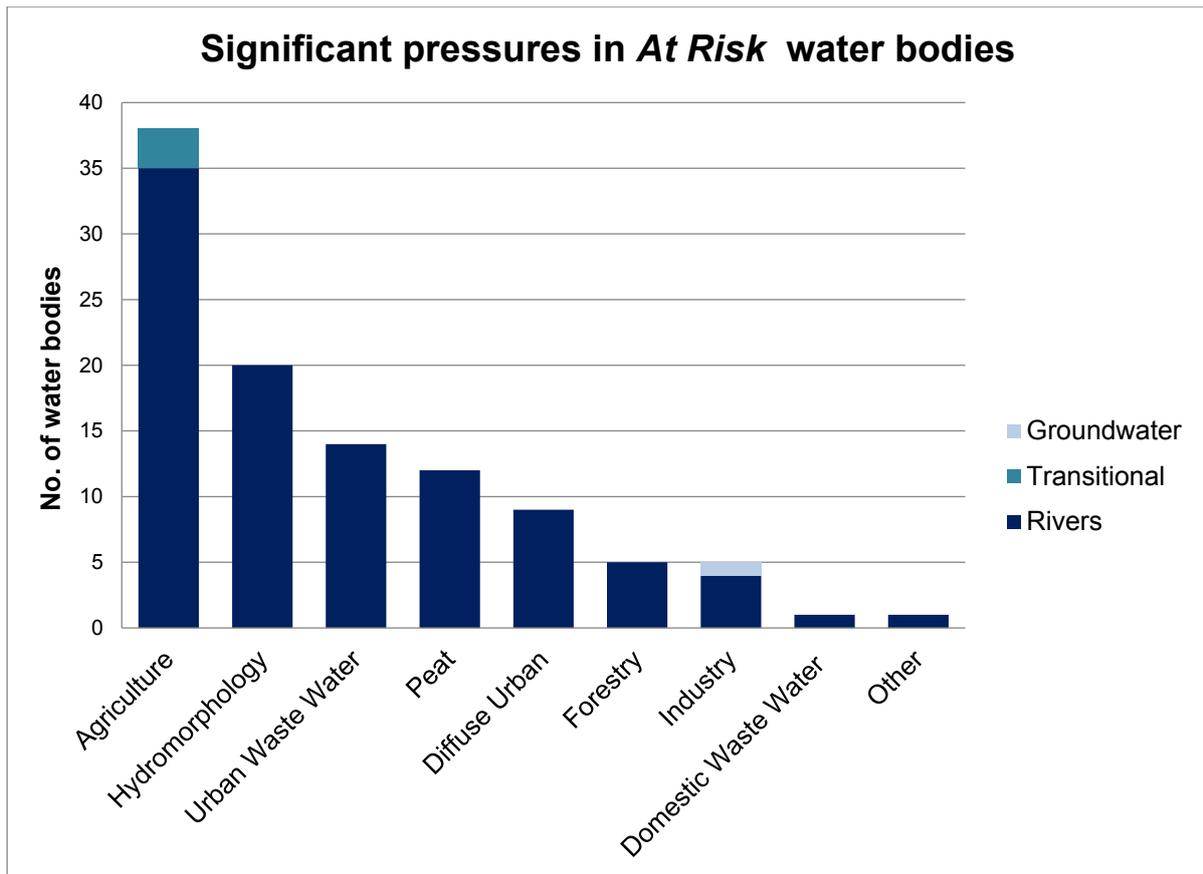


Figure 10. Significant pressures impacting on *At Risk* water bodies

## 4.2 Pressure type

### 4.2.1 Agriculture

- ◆ Agriculture is a significant pressure in 35 river water bodies across 14 subcatchments, and three transitional water bodies; the water bodies affected by farming are shown in Figure 11. The issues related to farming in this catchment include diffuse phosphorus loss to surface water from, for example, direct discharges; or runoff from yards, roadways or other compacted surfaces, or runoff from poorly draining soils. Sediment can also be a problem from land drainage works, bank erosion from animal access or stream. The pollution impact potential map showing areas of relative risk for phosphorus loss from agriculture to surface water is given in Appendix 6.

### 4.2.2 Hydromorphology

- ◆ Hydromorphological pressures are significant in 20 river water bodies (Figure 12/Table 5a). Eighteen water bodies are subject to extensive modification due to channelisation. An embankment scheme may also be impacting a river water body within the Figle subcatchment. The presence of barriers may be also impacting the hydromorphological conditions of five river water bodies, including fish migration. Bank erosion has also been noted due to animal access within a river water body on the Mountain River (Carlow).

Table 5a – Hydromorphological Pressures in the Barrow Catchment

Pressure	Sub-Catchment	Water body Code
Modification due to Drainage Schemes (Channelisation)	Barrow_SC_070	Barrow_140
	Barrow_SC_080	Barrow_140
	Figile_SC_010	Figile_010
	Barrow_SC_100	Barrow_170
	Barrow_SC_110	Barrow_170
	Lerr_SC_010	Graney_020
	Lerr_SC_010	Lerr_020
	Lerr_SC_010	Lerr_030
	Lerr_SC_010	Lerr_040
	Lerr_SC_010	Palatine Stream_010
	Barrow_SC_140	Mountain_010
	Barrow_SC_070	Barrow_140
	Barrow_SC_080	Barrow_140
	Barrow_SC_070	Barrow_160
	Barrow_SC_090	Barrow_160
	Barrow_SC_090	Burren_010
	Barrow_SC_090	Burren_020
	Barrow_SC_090	Burren_040
	Barrow_SC_090	Burren_060
	Slate_SC_010	Cloncumber Stream_010
	Slate_SC_010	Cloncumber Stream_020
	Slate_SC_010	Slate_050
	Barrow_SC_050	Barrow_090
Barrow_SC_040	Barrow_090	
Bank Modification (Embankments)	Figile_SC_010	Figile_010
Land Drainage	Lerr_SC_010	Lerr_020
In River Structures	Barrow_SC_100	Barrow_210
	Barrow_SC_120	Barrow_210
	Barrow_SC_130	Barrow_230
	Barrow_SC_140	Barrow_230
	Barrow_SC_090	Burren_010
	Slate_SC_010	Cloncumber Stream_010
Slate_SC_010	Cloncumber Stream_020	
Bank Erosion	Barrow_SC_140	Mountain_010

#### 4.2.3 Urban waste water treatment plants

- ◆ Urban Waste Water Treatment Plants (WWTPs) have been highlighted as a significant pressure in 14 *At Risk* water bodies; details are given in Table 6 and Figure 13. Five of these water bodies, Barrow\_080, Barrow\_210, Barrow\_220, Slate\_020 and Stradbally (Laois)\_030, are impacted by WWTPs where upgrade works are complete. Triogue\_020, which is impacted by Portlaoise WWTP, is due to be upgraded by 2024, Mountmellick WWTP, which impacts Owenass\_020, is scheduled to be upgraded by 2023 and Muinebheag and Leighlinbridge WWTP, which impacts Old Leighlin Stream\_020, is scheduled to be upgraded by 2024.
- ◆ Table 6. Waste Water Treatment Plants identified as Significant Pressures in *At Risk* water bodies and expected completion dates for associated upgrade works, where applicable.

Facility name	Facility Type	Water Body	2010-15 Ecological Status	Expected Completion Date
Portarlinton D0158	> 10,000 p.e.	Barrow_080	Moderate	Complete
Borris D0248	1,001 to 2,000 p.e.	Barrow_230	Poor	NA <sup>1</sup>
Borris D0248	1,001 to 2,000 p.e.	Mountain (Carlow)_030	<i>Unassigned</i> <sup>2</sup>	NA <sup>1</sup>
Portlaoise D0001	> 10,000 p.e.	Triogue_020	Poor	2024
Athy D0003	> 10,000 p.e.	Barrow_140	Moderate	NA <sup>1</sup>
Daingean D0226	1,001 to 2,000 p.e.	Daingean_020	Poor	NA <sup>1</sup>
Mountmellick D0152	2,001 to 10,000 p.e.	Owenass_020	Moderate	2023
Coill Dubh D0242	1,001 to 2,000 p.e.	Slate_020	Poor	Complete
Stradbally D0292	1,001 to 2,000 p.e.	Stradbally (Laois)_030	Moderate	Complete
Derrinturn D0244	1,001 to 2,000 p.e.	Figile_010	Poor	NA <sup>1</sup>
Goresbridge D0529	500 to 1,000 p.e.	Barrow_220	Moderate	Complete
Nurney A0080	< 500 p.e.	Ballynaboley Stream_010	Moderate	NA <sup>1</sup>
Muinebheag and Leighlinbridge D0090	2,001 to 10,000 p.e.	Barrow_210	Poor	2024
Old Leighlin A0096	< 500 p.e.	Old Leighlin Stream_020	Moderate	NA <sup>1</sup>

#### 4.2.4 Extractive industry

##### ◆ Peat

Peat and peat extraction has been identified as a significant pressure in 12 river water bodies (Figure 13). Excessive sedimentation and elevated nutrient concentrations, notably ammonia, are the significant issues (Figure 14). In Daingean\_010, \_020 and \_030 the siltation is so heavy that the river requires regular dredging to maintain it.

#### 4.2.5 Diffuse urban

- ◆ Diffuse urban pressures, caused by misconnections, leaking sewers and runoff from paved and unpaved areas, have been identified as a significant pressure in nine river water bodies (Figure 15). Elevated concentrations of phosphates and ammonia are the significant issues. Mountain

<sup>1</sup> Currently not specified in improvement plans.

<sup>2</sup> Ecological Status is not available for Mountain (Carlow)\_030, however, following discussions with Carlow County Council, this water body was deemed to be At Risk of not meeting its environmental objectives.

(Carlow)\_030 flows through the village of Borris; Triogue\_020 and Triogue\_030 are impacted by Portlaoise; Burren\_060 and Barrow\_160 are impacted by Carlow town; the monitoring station for Barrow\_210 is just downstream of Goresbridge; Leighlinbridge is located in the lower reaches of Barrow\_180; Slate\_060 is impacted by Rathangan, and Duiske\_020 is impacted by diffuse urban pressure from Graiguenamanagh.

#### 4.2.6 Forestry

- ◆ Forestry has been identified as a significant pressure in five river water bodies (Figure 16). This issue primarily arises because of clearfelling and associated sediment release but also includes excess nutrients in surface water bodies.

#### 4.2.7 Industry

- ◆ Industry has been identified as a significant pressure in four river water bodies (Figure 17). An industrial facility was identified as a significant pressure impacting Tully Stream\_010 and Tully Stream\_020, and other discharges impact Barrow\_210, and Figile\_010. Elevated orthophosphate and total ammonia are the predominant issues associated with these industrial discharges.
- ◆ Industrial Facility (P0247-01) has been identified as a significant pressure on groundwater body IE\_SE\_G\_005.

#### 4.2.8 Domestic waste water

- ◆ Domestic waste water has been identified as a significant pressure in one river water body, Aughnacrew\_010 (Figure 18). This is due to the presence of significant numbers of domestic waste water treatment systems that were identified by Carlow County Council.

#### 4.2.9 Other significant pressures

- ◆ *Aquaculture*  
There is a fish farm located on Pollmouny\_010 river water body that is having an impact. Moderate siltation was noted in 2014, with potential for filtration issues at the fish farm (Figure 19).

**At Risk Water Bodies where Agriculture is a significant pressure**  
*Barrow Catchment (14)*

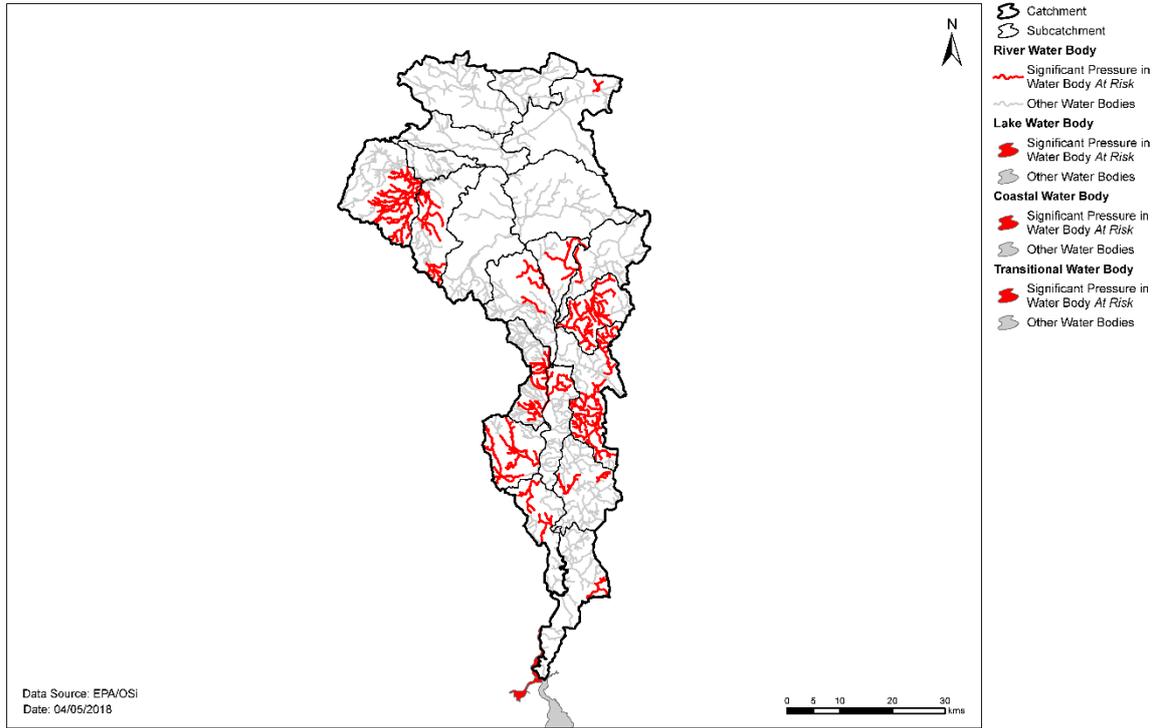


Figure 11. Water bodies that are *At Risk* and are impacted by agricultural activities

**At Risk Water Bodies where Hydromorphology is a significant pressure**  
*Barrow Catchment (14)*

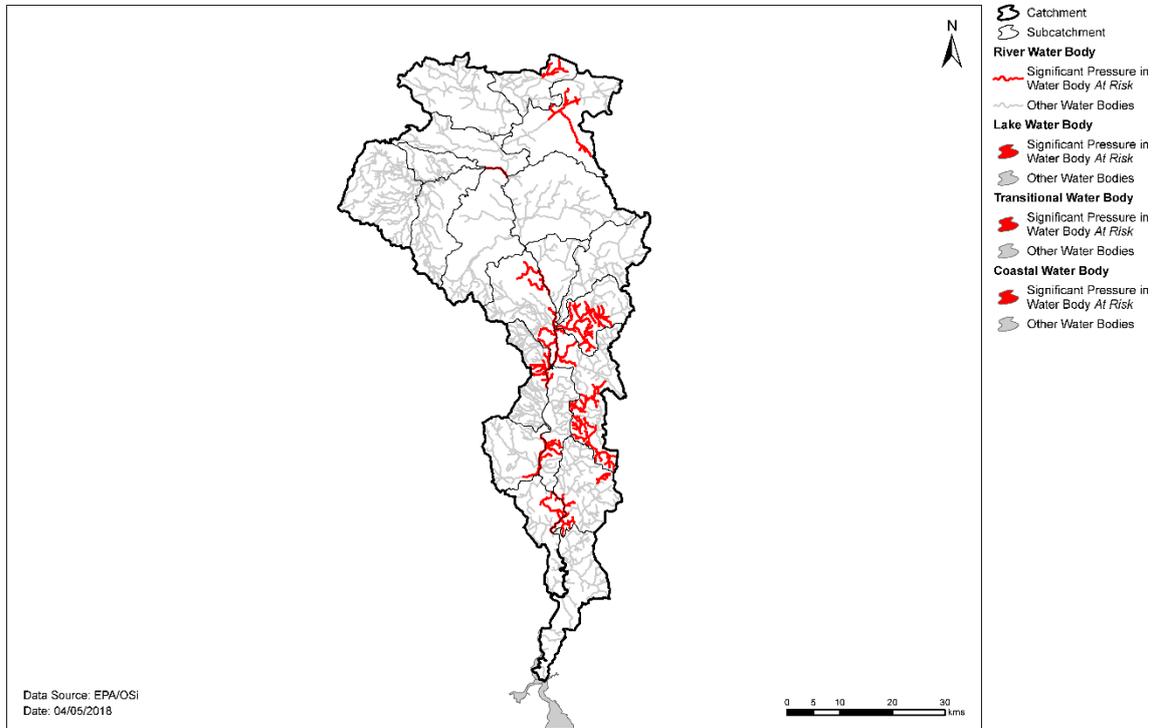


Figure 12. Water bodies that are *At Risk* and are impacted by hydromorphological pressures

**At Risk Water Bodies where *Urban Waste Water* is a significant pressure**  
*Barrow Catchment (14)*

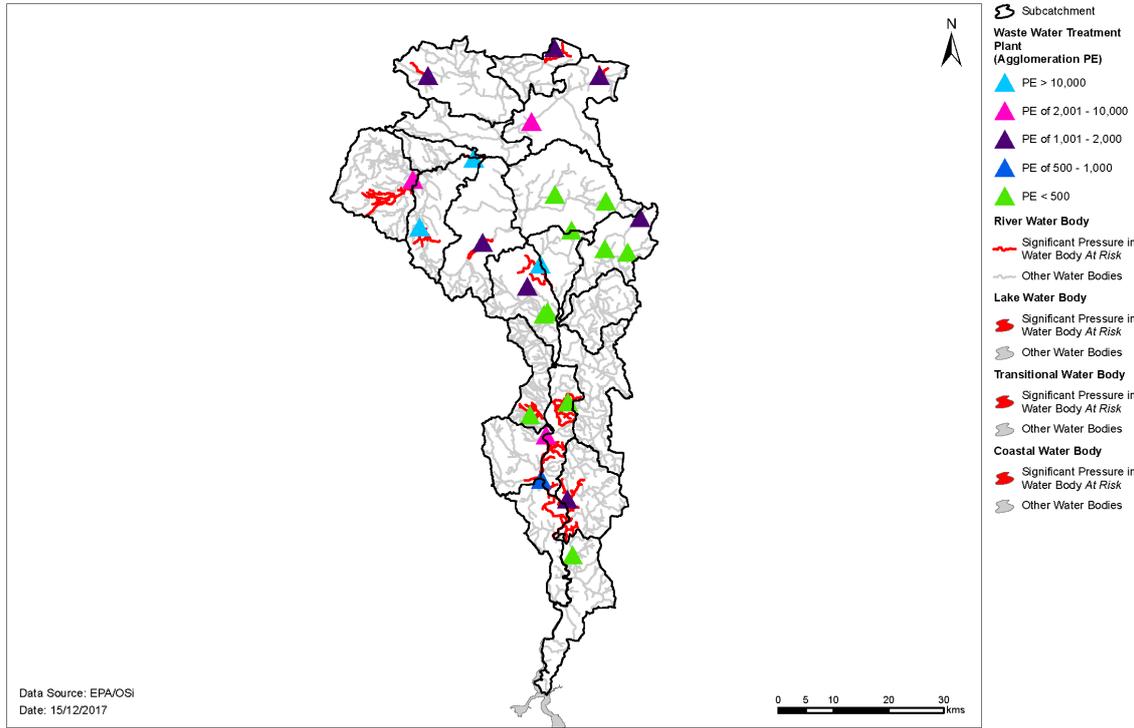


Figure 13. Water bodies that are *At Risk* and are impacted by urban waste water

**At Risk Water Bodies where *Extractive Industry* is a significant pressure**  
*Barrow Catchment (14)*

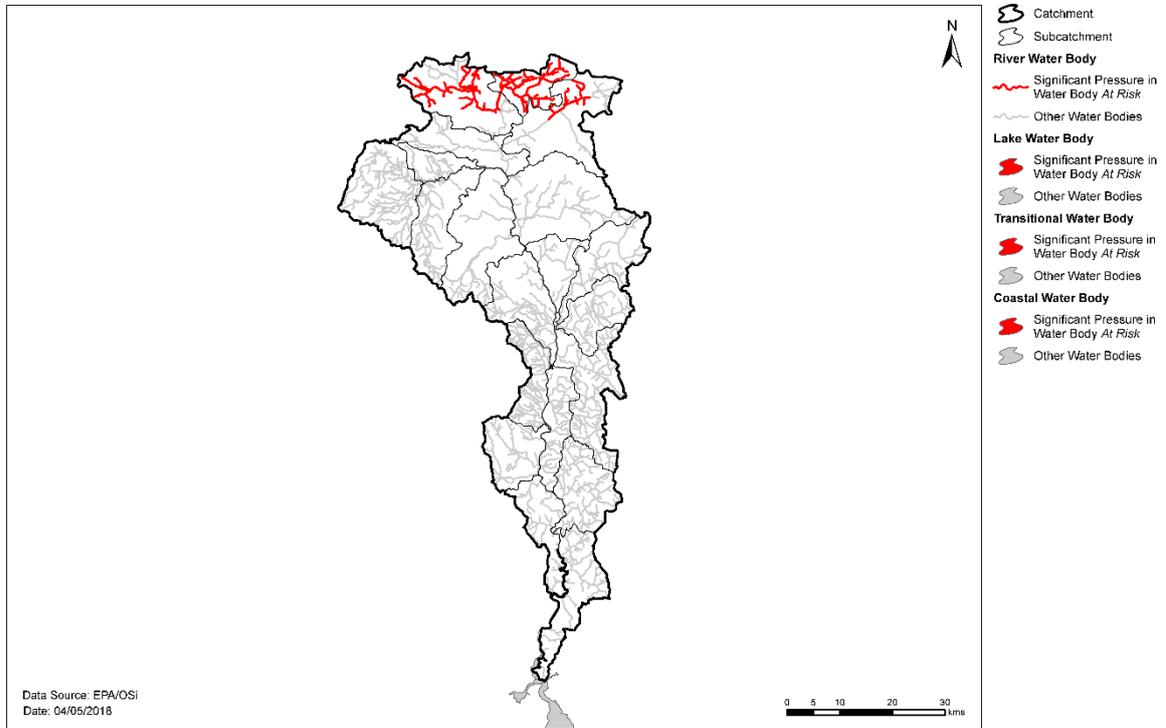


Figure 14. Water bodies that are *At Risk* and are impacted by the extractive industry

**At Risk Water Bodies where Diffuse Urban is a significant pressure**  
 Barrow Catchment (14)

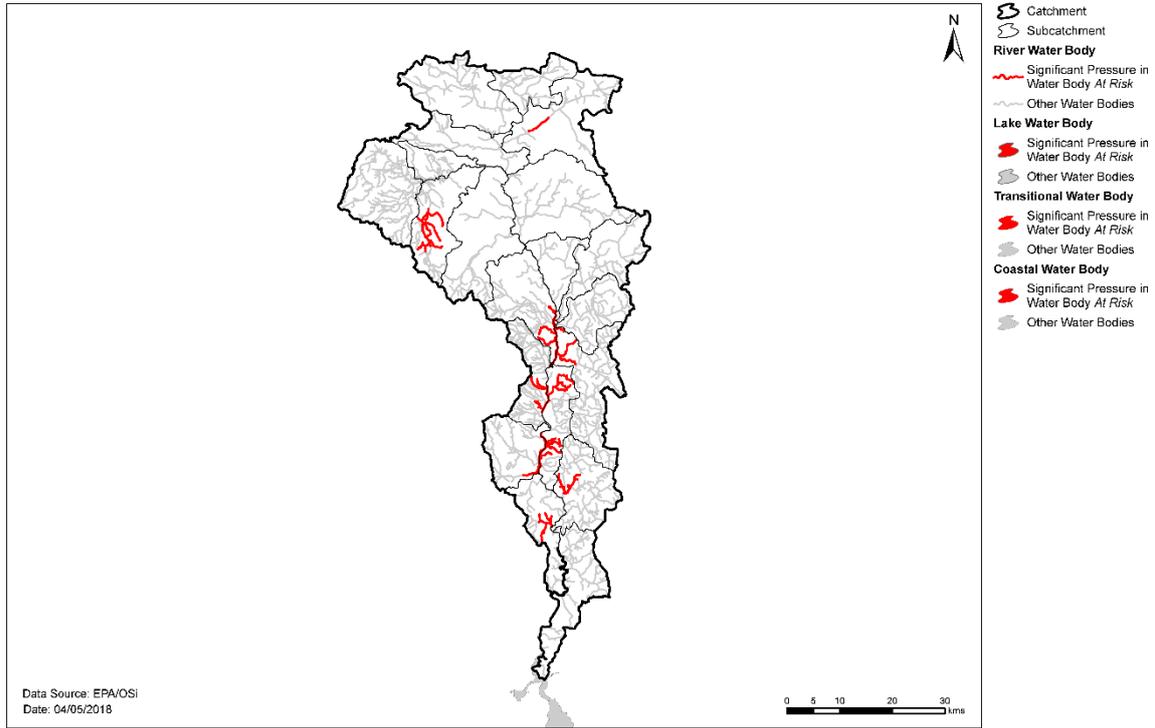


Figure 15. Water bodies that are *At Risk* and are impacted by diffuse urban impacts

**At Risk Water Bodies where Forestry is a significant pressure**  
 Barrow Catchment (14)

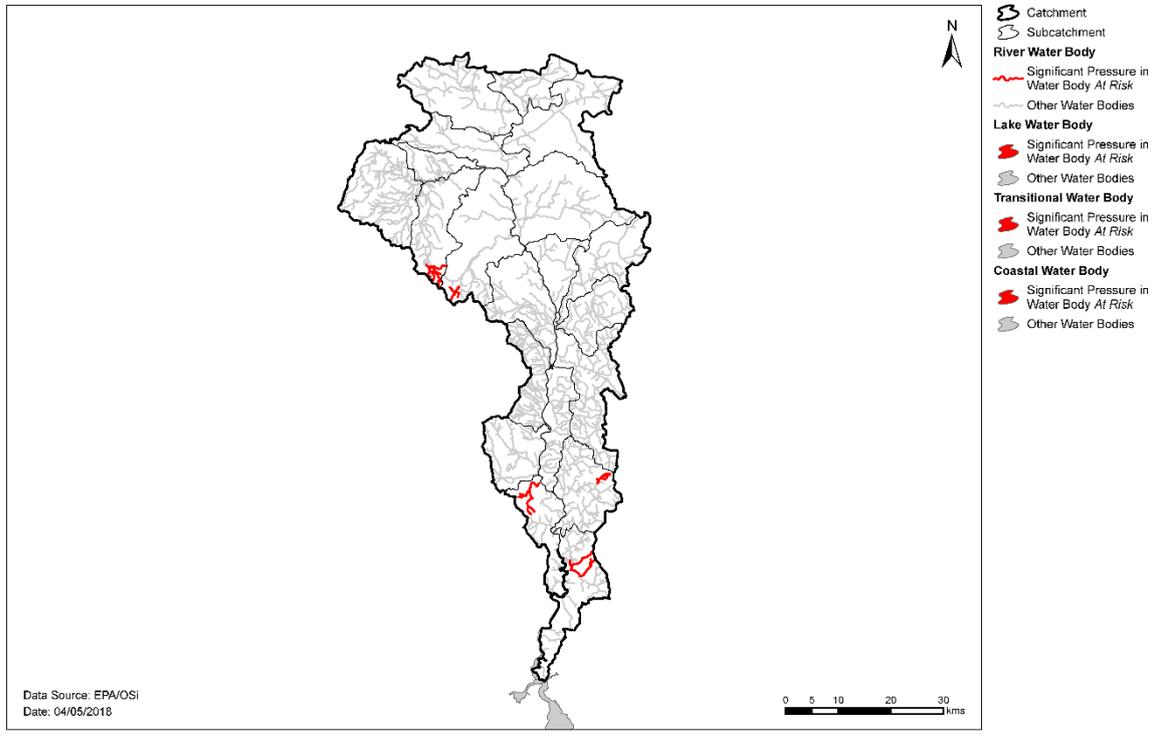


Figure 16. Water bodies that are *At Risk* and are impacted by forestry activities

**At Risk Water Bodies where *Industry* is a significant pressure**  
*Barrow Catchment (14)*

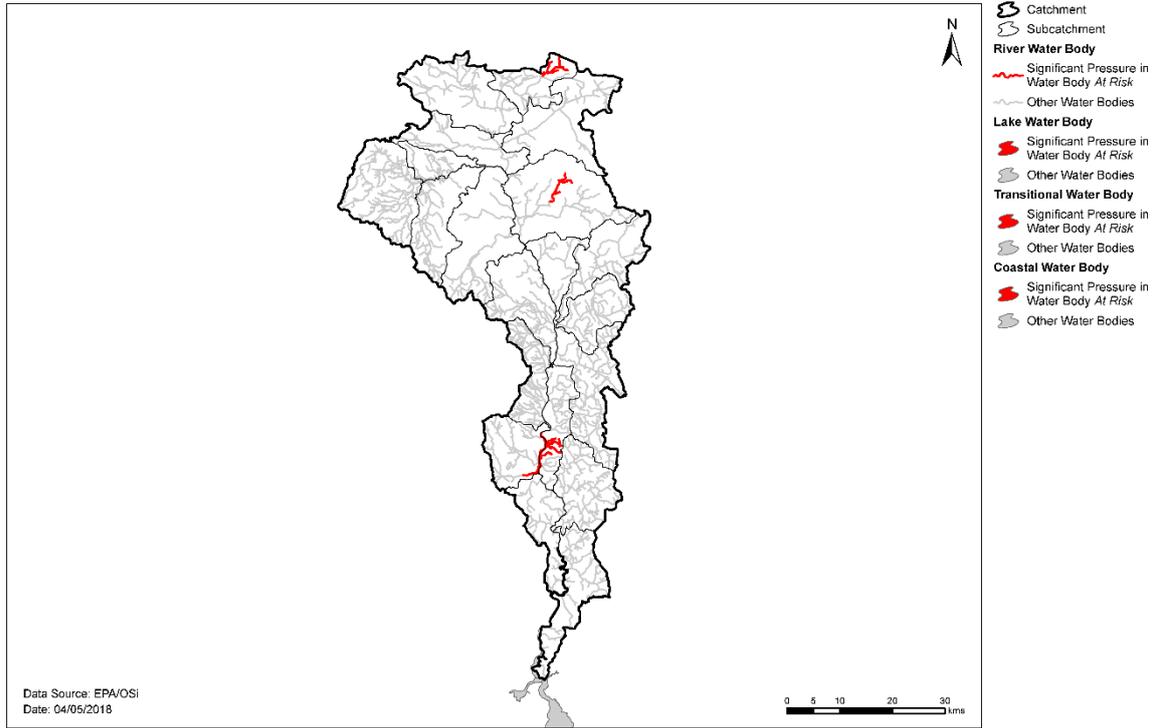


Figure 17. Water bodies that are *At Risk* and are impacted by industrial developments

**At Risk Water Bodies where *Domestic Waste Water* is a significant pressure**  
*Barrow Catchment (14)*

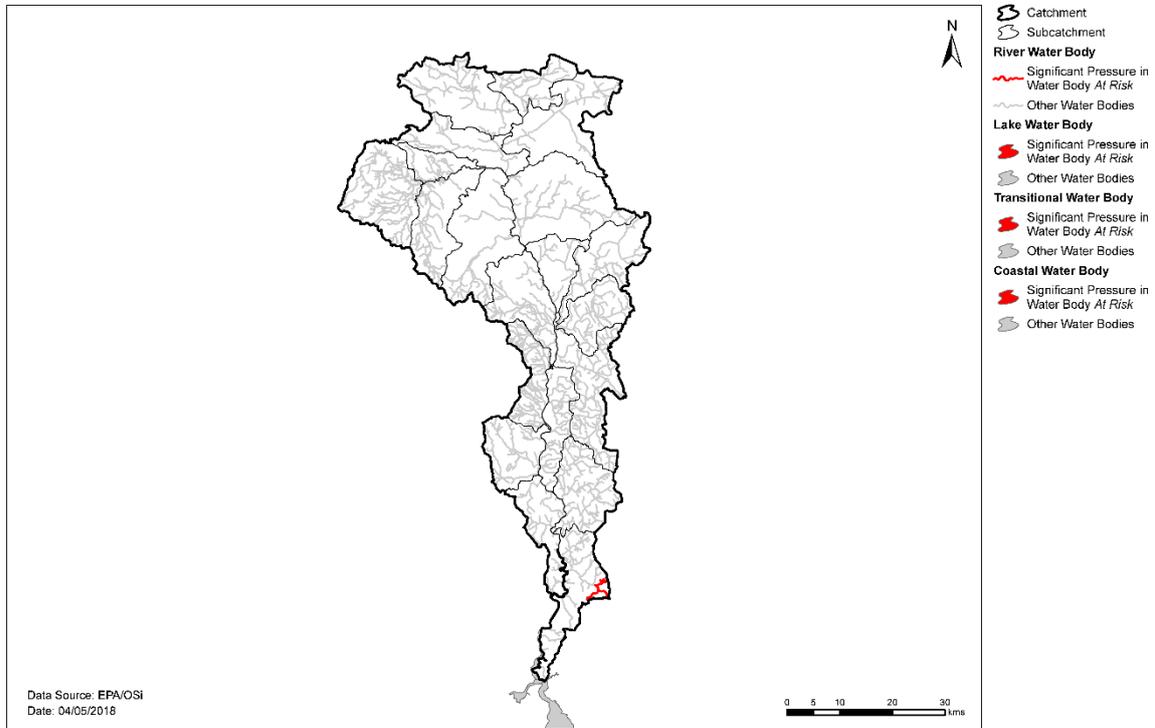


Figure 18. Water bodies that are *At Risk* and are impacted by domestic waste water

**At Risk Water Bodies where Aquaculture is a significant pressure**  
**Barrow Catchment (14)**



Figure 19. Water bodies that are *At Risk* and are impacted by aquaculture

## 5 Load reduction assessment

### 5.1 River water body load reductions

- ◆ The results of the main channel assessment for the Barrow main channel indicate that orthophosphate is the main parameter of concern (Appendix 2).
- ◆ For water bodies where phosphorus monitoring data are available, the reduction in P load that would be required to bring the mean concentration back to the EQS of 0.035 mg/l as P, can be estimated using a simple method based on the average 2013 to 2015 concentration and the average flow, or the estimated 30<sup>th</sup> percentile flow (Q30) where flow data are not available. The relative load reductions are ranked on a national scale from Very High (>1 kg/Ha/y), to High (0.5-1 kg/Ha/y), to Medium (0.25-0.5 kg/Ha/y) to Low (<0.25 kg/Ha/y). Note that P load reductions may also be required in other water bodies, but without chemistry monitoring data a quantitative estimate cannot be calculated.
- ◆ In the Barrow catchment, water chemistry data are available for 80 of the 114 water bodies monitoring stations. The available data indicate that orthophosphate load reduction is required in 21 river water bodies (Table 7).
- ◆ The nitrate assessment is aimed at reducing the nitrate loading to the associated TraC water bodies. For water bodies where nitrate monitoring data are available, the reduction in TON load that would be required to bring the annual concentrations back to 2.60 mg/l can be estimated.
- ◆ In the Barrow catchment, the available data indicate that load reductions are required in 20 river water bodies (Table 8).

Table 7. Relative P load reductions required in monitored water bodies that are *At Risk*.

Water Body	P Load Reduction Required
Barrow_160	V. High
Owenass_020	V. High
Barrow_040	V. High
Tully Stream_020	V. High
Mountain (Carlow)_030	V. High
Barrow_130	V. High
Daingean_020	V. High
Douglas (Laois)_030	Low
Figile_010	Med
Lerr_020	Med
Triogue_020	Low
Tully Stream_010	Low
Blackwater (Laois)_010	Low
Killeen Stream (Douglas)_010	Low
Douglas (Laois)_020	Low
Daingean_010	Low
Grangecon Stream_010	Low
Fushoge_020	Low
Aghalona_010	Low
Aghalona_020	Low
Greese_030	Low

Table 8. Relative N load reductions required in monitored water bodies.

Water body	N Load Reduction Required
BARROW_240	V. High
BARROW_170	V. High
SLATE_070	V. High
TULLY STREAM_040	High
BARROW_140	High
BURREN_050	High
LERR_040	V. High
POLLMOUNTY_010	V. High
LERR_020	V. High
BARROW_180	High
BARROW_130	V. High
BARROW_120	High
GREESE_040	High
BLACK (BORRIS)_020	V. High
BURREN_030	High
DUNRALLY STREAM_020	High
TULLY STREAM_030	High
BARROW_150	High
TRIOGUE_030	High
STRADBALLY (LAOIS)_020	High

## 5.2 TraC load reductions

Some 18 estuaries in Ireland have been monitored on a continual basis since 1990 as part of Ireland's commitment under the Convention for the Protection of the Marine Environment of the North-East Atlantic (the Oskar Convention). This has shown that generally over the long term, nutrients have decreased but further reduction will be required in many cases to support Good Ecological Status. However, many estuaries have not been monitored to the same degree, and where monitoring data is insufficient, an ongoing programme of modelling has been undertaken to estimate potential nutrient load removal from contributing sub-catchments.

Different estuaries may require reductions in different nutrients. Further modelling work is required to determine precisely what load reductions are required, but in the interim, further monitoring will be carried out to assess the improvements resulting from various planned measures, and to confirm the nature of the issues.

- ◆ Load reductions for the Nore Estuary and New Ross Port are outlined in the Nore Catchment Assessment, and load reductions for the Lower Suir Estuary (Little Island - Cheekpoint) are included in the Suir Catchment Assessment.

As part of the Ireland's commitment to the Oskar Convention, nutrient flux or load monitoring has been carried out on the Barrow Estuary since 1990 (Figure 19a and 19b). Further analysis of these nutrient load trends is available at <http://dx.doi.org/10.3318/BIOE.2016.23>.

Figure 19a – Total Nitrogen Load (Tonnes/year) 1990-2015

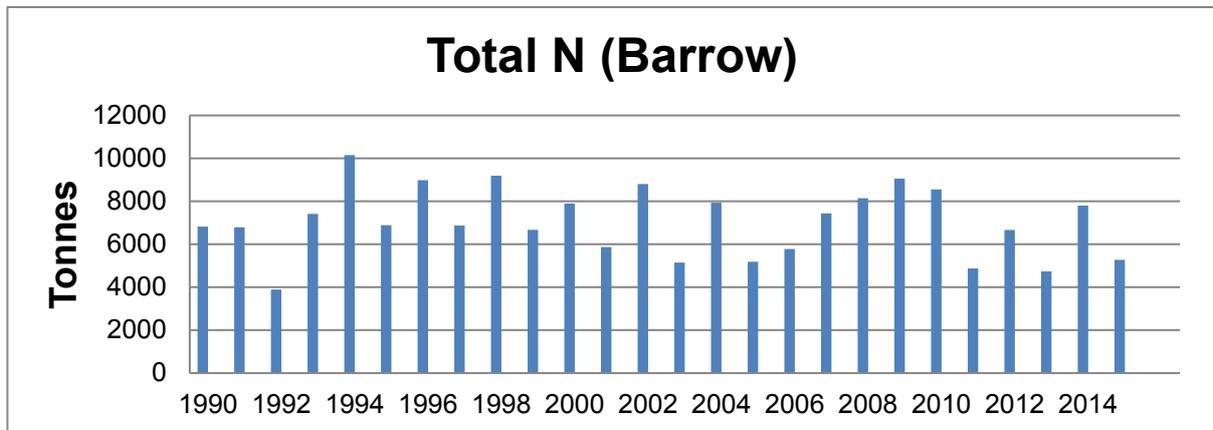
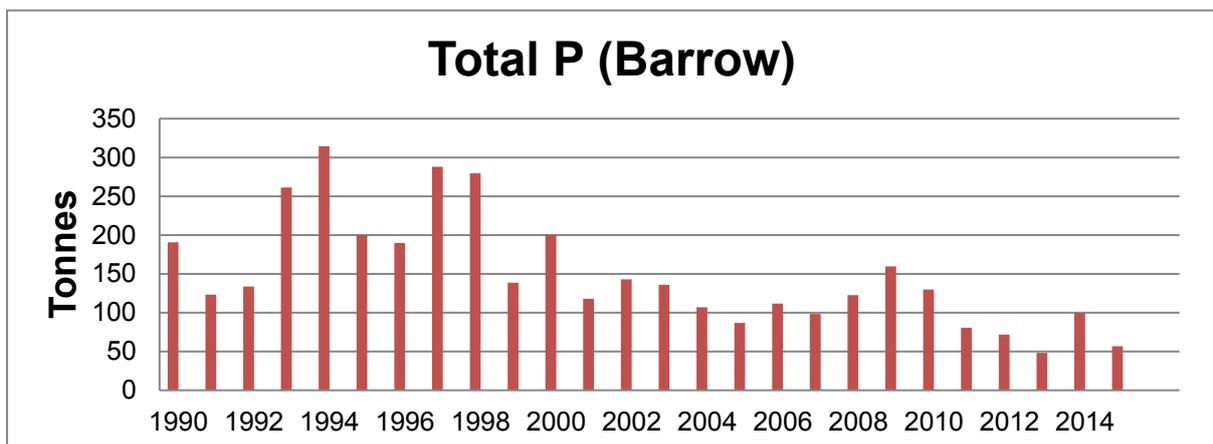


Figure 19b – Total Phosphorus Load (Tonnes/year) 1990-2015



## 6 Further characterisation and local catchment assessments

- ◆ Further characterisation through local catchment assessments (Table 9) is needed in 64 of the *At Risk* river water bodies to refine the understanding of the significant pressures at the site/field scale so that specific and targeted measures can be identified.
- ◆ Further characterisation through local catchment assessments is needed in 40 of the *Review* river water bodies to refine the understanding of the significant pressures at the site/field scale so that specific and targeted measures can be identified.
- ◆ Brief definitions on the 10 IA assessment scenarios are given in Appendix 7.

Table 9. Local catchment assessment allocation for *At Risk* and *Review* river water bodies in the catchment

Risk	IA 1	IA 2	IA 3	IA 4	IA 5	IA 6	IA 7	IA 8	IA 9	Total
<i>At Risk</i>	33	1	4	2	4	10	38	2	0	<b>94</b>
<i>Review</i>	16	1	25	0	2	1	2	0	0	<b>47</b>

Note water bodies may have multiple categories of Local Catchment Assessments

## 7 Catchment summary

- ◆ Of the 151 river and TraC water bodies, 70 are *At Risk* of not meeting their WFD objectives.
- ◆ Excess phosphorus leading to eutrophication is the dominant issue in river water bodies. While excess ammonium is also of concern, it is only for a limited number of water bodies.
- ◆ Hydromorphological (or physical) conditions (including the input of excessive fine sediment) and poor habitat quality are major issues for several river water bodies.
- ◆ Of the six transitional water bodies, three are *At Risk* of not meeting their WFD objectives. New Ross Port, Nore Estuary and the Lower Suir Estuary (Little Island - Cheekpoint) being impacted by excess nutrients, with the significant pressures being agriculture.
- ◆ There is one *At Risk* groundwater body – IE\_SE\_G\_005, Industrial Facility (P0247-01) due to the presence of TCE.

## 8 Areas for Action

The characterisation outcomes described above have highlighted that there is significant work to do in the catchment to protect and restore water quality, and meet the objectives of the WFD. During the development of the draft river basin management plan it became apparent that there would be a need to prioritise areas for collective action so that the best return on investment could be achieved. 190 Areas for action have been selected nationally in a process as described below. There are six areas for action in the Barrow catchment.

### 8.1 Process of Selection

Following the publication of the draft river basin management plan in early 2017, the EPA and the Local Authority Waters and Communities Office (LAWCO) jointly led a collaborative regional workshop process to determine where, from a technical and scientific perspective, actions should be prioritised in the second cycle. The prioritisation process was based on the priorities in the draft river basin management plan, the evidence from the characterisation process, and the expertise, data and knowledge of public body staff with responsibilities for water and the different pressure types. The

recommended areas for action selected during the workshops were then agreed by the Water and Environmental Regional Committees. Since this selection, the Local Authorities Water and Communities Office (LAWCO) have undertaken public engagement and feedback sessions in each local authority.

The recommended areas for action are an initial list of areas where action will be carried out in the second cycle. All water bodies that are At Risk still however, need to be addressed. As issues are resolved, or when feedback from the public engagement process is assessed, areas for action may be removed from the list and new areas will be added. If additional monitoring shows that new issues have arisen, new areas may become a priority and may need to be added to the work programme.

The initial list of areas for action is not therefore considered as a closed or finite list; it simply represents the initial areas where work will be carried out during the second WFD planning cycle from 2018 to 2021.

## 8.2 Overview of process

The outcomes for the Barrow catchment are summarised below.

- ◆ Six recommended areas for actions (Table 10, Figure 20) were selected.
- ◆ These are the Burren, Mountain, Graney-Lerr, Athy stream, Duiske and Portarlinton.
- ◆ These include 20 *At Risk* river water bodies.
- ◆ One groundwater body, that is in *Review* due to groundwater contribution of nutrients to surface water bodies, intersects with three of the recommended areas for action, see Table 11. Actions taken to improve surface water will need to take account of the groundwater contribution to surface water.

A remaining 89 *At Risk* and *Review* surface water bodies were not included in the recommended areas for action for the second cycle. The distribution of these is presented in Figure 21. These include:

- ◆ 84 river water bodies – 44 *At Risk* and 40 *Review*, and
- ◆ five transitional water bodies – three *At Risk* and two *Review*.

Table 10. Recommended Areas for Action in the Barrow catchment

Recommended area for action	Number of water bodies	SCs	Local authority	Reason for Selection
Burren	5	14_13	Carlow	<ul style="list-style-type: none"> <li>• Flows into Carlow town - important for local amenity.</li> <li>• Subcatchment project.</li> <li>• Building on improvement works completed by Inland Fisheries Ireland.</li> <li>• One potential 'quick win'.</li> <li>• One <i>At Risk</i> High Ecological Status objective water body.</li> <li>• One deteriorated water body.</li> </ul>
Mountain	2	14_10	Carlow	<ul style="list-style-type: none"> <li>• Two water bodies are failing to meet protected area objectives for Freshwater Pearl Mussel (19 of 27 catchments of S.I. 296 2009).</li> <li>• Important fish habitat.</li> <li>• Recently formed community group.</li> <li>• Strong local tidy towns.</li> <li>• Native oak woodland at downstream end of the Mountain river.</li> <li>• Woodland riparian scheme to improve riparian zone around the native woodland.</li> <li>• Teagasc EIP looking at sheep farming practices.</li> <li>• Building on completed and ongoing works by Blackstairs farming group.</li> <li>• One deteriorated water body.</li> <li>• One potential 'quick win'.</li> </ul>
Graney-Lerr	6	14_6	Kildare Carlow (upper reaches of Palatine stream_	<ul style="list-style-type: none"> <li>• Potential pilot project to examine nitrate sources from tillage.</li> <li>• Addressing a large portion of the eastern Barrow catchment.</li> <li>• Important Salmon run on this river.</li> <li>• Castledermot tidy towns are very active, an interested community group.</li> </ul>
Athy stream	3	14_2 14_12	Kildare Laois	<ul style="list-style-type: none"> <li>• Potential pilot project to examine high nitrates and siltation from tillage (Athy_020).</li> <li>• Protected area objectives not met (Crayfish).</li> <li>• Athy_010 declined between 10-12 and 13-15.</li> <li>• One potential 'quick win'.</li> </ul>
Duiske	2	14_7	Kilkenny	<ul style="list-style-type: none"> <li>• Would bring entire subcatchment to Good status.</li> <li>• The Catchment Flood Risk and Management Plan (CFRAM) identified this river as potential for Natural Water Retention Measures (NWRM).</li> <li>• Two deteriorated water bodies.</li> <li>• One potential 'quick win'.</li> </ul>
Portarlinton	2	14_1 14_17	Laois Kildare (Barrow_090 only) Offaly	<ul style="list-style-type: none"> <li>• Building on the 2017 upgrade of Portarlinton Agglomeration (Barrow_080).</li> <li>• One deteriorated water body (Barrow_090).</li> <li>• Protected area objectives not met (Crayfish and salmonids) for two water bodies (Barrow_080 and Barrow_090).</li> <li>• Community interest.</li> <li>• One potential 'quick win'</li> </ul>

Table 11 Groundwater bodies intersecting with surface water bodies in Recommended Areas for Action

Groundwater bodies			Intersecting surface water bodies		Recommended Area for Action
Code	Name	Risk	Code	Name	
IE_SE_G_157	Bagenalstown Lower	Review	IE_SE_14B050500	BURREN_060	Burren
			IE_SE_14P020400	POWERSTOWN_010	Duiske
			IE_SE_14L010250	LERR_030	Graney-Lerr
			IE_SE_14L010300	LERR_040	

## 9 Environmental Objectives

The environmental objectives are the target status for each *At Risk* or *Review* water body and the date by which that status is expected to be achieved (Appendix 3). Where a water body is *Not at Risk* and is already at its target status, the environmental objective is deemed to have been met.

### 9.1 Surface Water

- ◆ Assuming resources are available and actions are taken in the recommended areas for action, of the 20 *At Risk* surface water bodies, it is predicted that five (25%) will improve by 2021 and 15 (75%) will achieve their objective by 2027, see Table 12.

Table 12. Environmental objective dates for water bodies in the Recommended Areas for Action

Risk Category	No. of Water Bodies	No. of WBs for 2021 Improvement	No. of WBs for 2027 Status Improvement
<b>Rivers</b>			
<i>At Risk</i>	20	5	15
<i>Review</i>	0	0	0
<b>Total</b>	20	5	15

- ◆ Forty-two surface water bodies have met their 2015 environmental objective.
- ◆ An industrial facility is the single significant pressure in one of the remaining *At Risk* water bodies and, thus, a 2021 objective is set. Due to planned upgrade works at an urban waste water treatment plant, a 2021 objective is also applied to two of the *At Risk* water bodies.
- ◆ As action is not yet planned to be taken in the remaining 44 *At Risk* surface water bodies, a 2027 date is applied to all 44 the water bodies.
- ◆ For the 42 *Review* surface water bodies, the absence of information on these water bodies means that there is no scientific basis to quantify an environmental objective date and therefore a 2027 date is set, see Table 13.

Table 13. Environmental objectives dates in the *At Risk* and *Review* surface water bodies not included in Recommended Areas for Action

Risk Category	No. of Water Bodies	No. of WBs for 2021 Improvement	No. of WBs for 2027 Status Improvement
<b>Rivers</b>			
<i>At Risk</i>	44	3	41
<i>Review</i>	40	0	40
<b>TraCs</b>			
<i>At Risk</i>	3	0	3
<i>Review</i>	2	0	2
<b>Total</b>	89	3	86

## 9.2 Groundwater

- ◆ Twenty nine of the 30 groundwater bodies are currently Good status and, therefore, have met their environmental objectives.
- ◆ The one groundwater body, Industrial Facility (P0247-01), in the Barrow catchment that is less than Good status has an environmental objective date of beyond 2021.

## 10 Acknowledgements

This Barrow Catchment Assessment (Version 3) has been produced by the Catchment Science & Management Unit, EPA, with the assistance of the following:

- Carlow County Council.
- Laois County Council
- Offaly County Council.
- Kildare County Council.
- Kilkenny County Council.
- Wicklow County Council.
- Wexford County Council.
- Inland Fisheries Ireland.
- Local Authorities Waters & Communities Office.
- Irish Water.
- RPS Group.
- Ecological Monitoring & Assessment Unit, EPA.
- Hydrometric & Groundwater Section, EPA.
- Informatics Section, EPA.
- Laboratories, EPA.
- Office of Environmental Enforcement, EPA.
- Department of Housing, Planning and Local Government.
- DAFM Agriculture.
- DAFM Forest Service.
- Coillte.
- Teagasc.
- Geological Survey Ireland.
- National Federation of Group Water Schemes.
- National Parks and Wildlife Service.
- Waterways Ireland.

## Recommended Areas for Action Barrow Catchment (14)

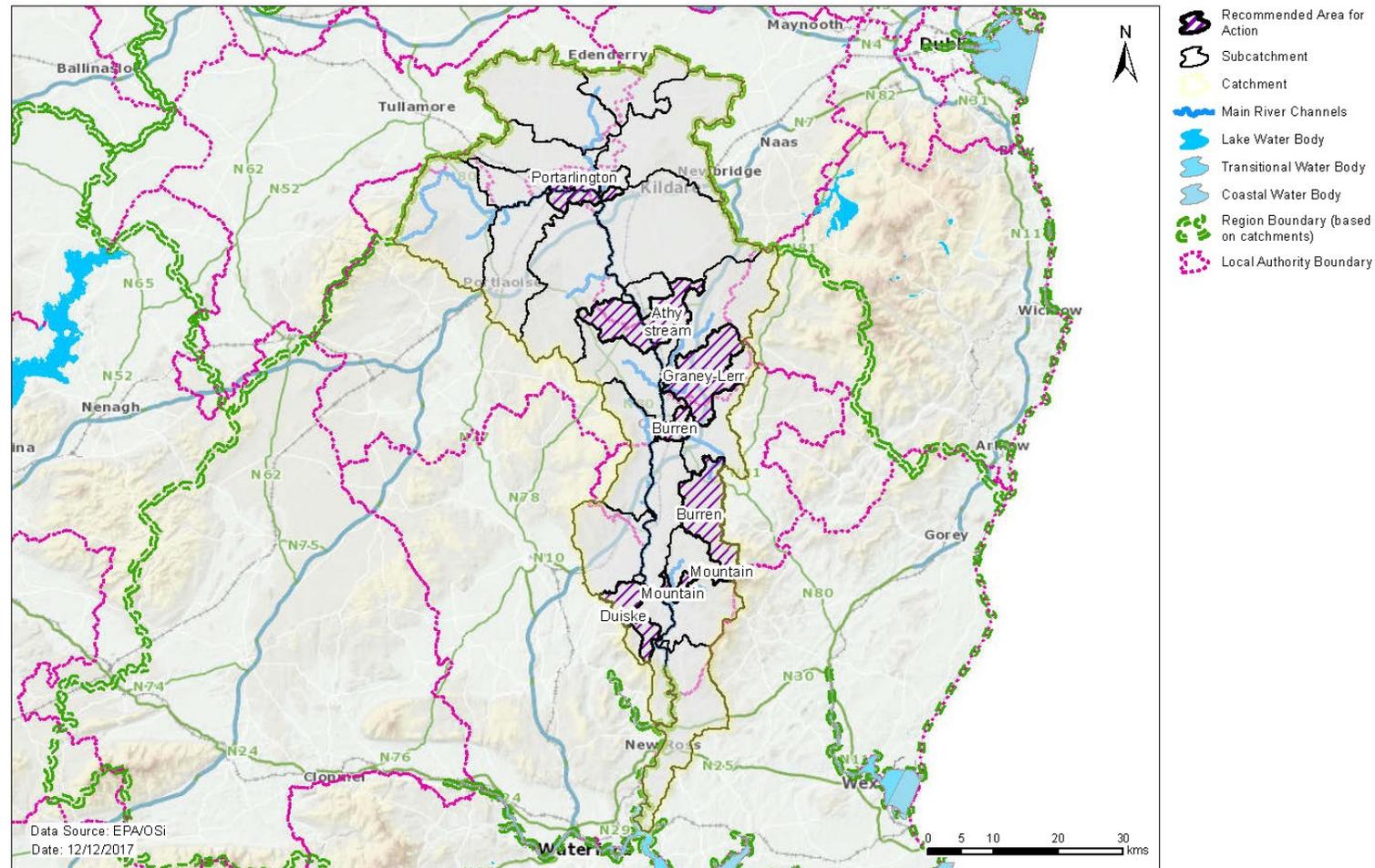


Figure 20. Location of Recommended Areas for Action in the Barrow Catchment

## Remaining *At Risk* and *Review* Water Bodies Barrow Catchment (14)

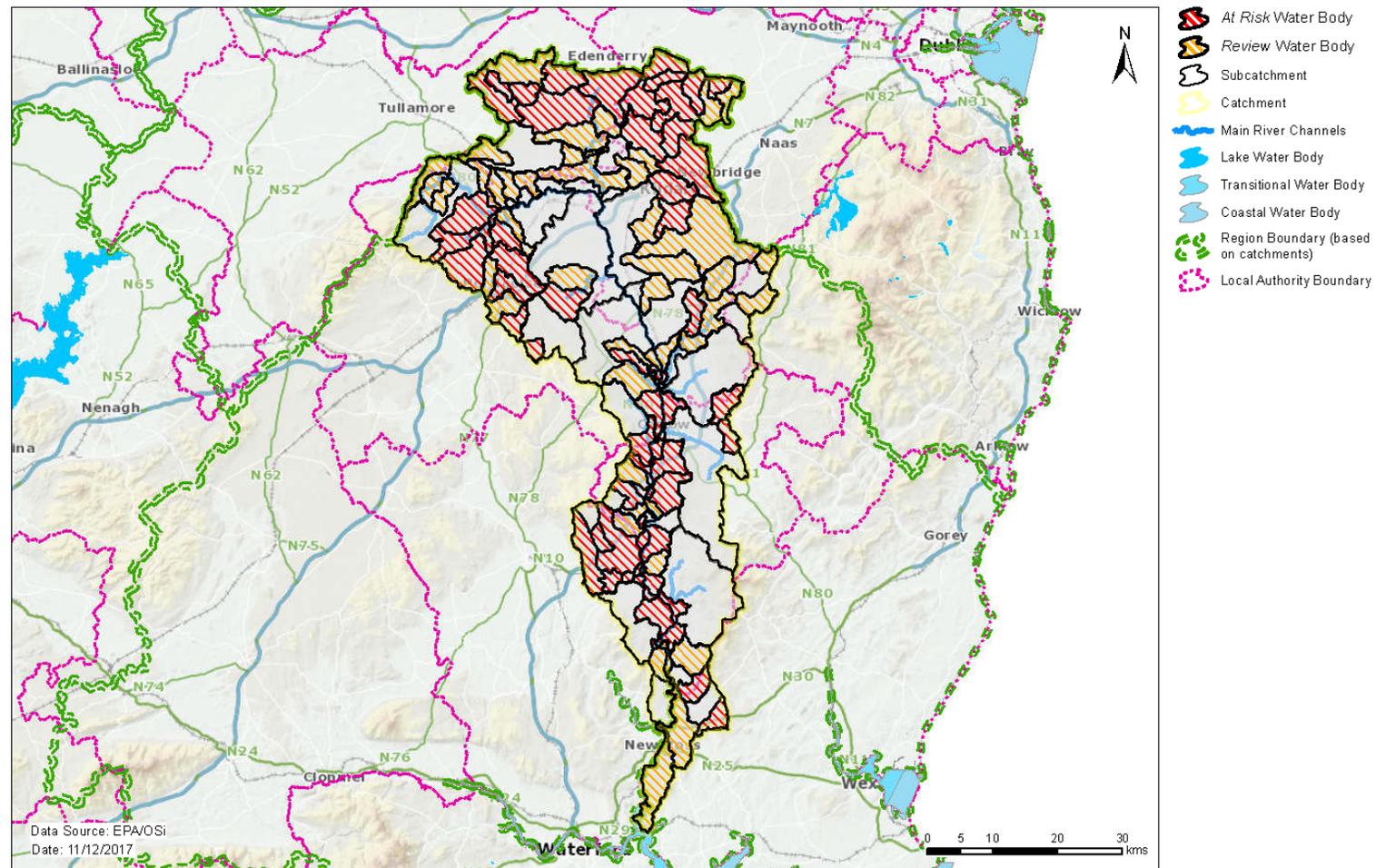


Figure 20 Location of *At Risk* and *Review* water bodies located outside Recommended Areas for Action in the Barrow Catchment

## Appendix 1 High ecological status objective water bodies and sites

Water body/ Site	Type	Codes	2015 Status
Barrow_010	River	IE_SE_14B010060	High
Burren_010	River	IE_SE_14B050020	Good

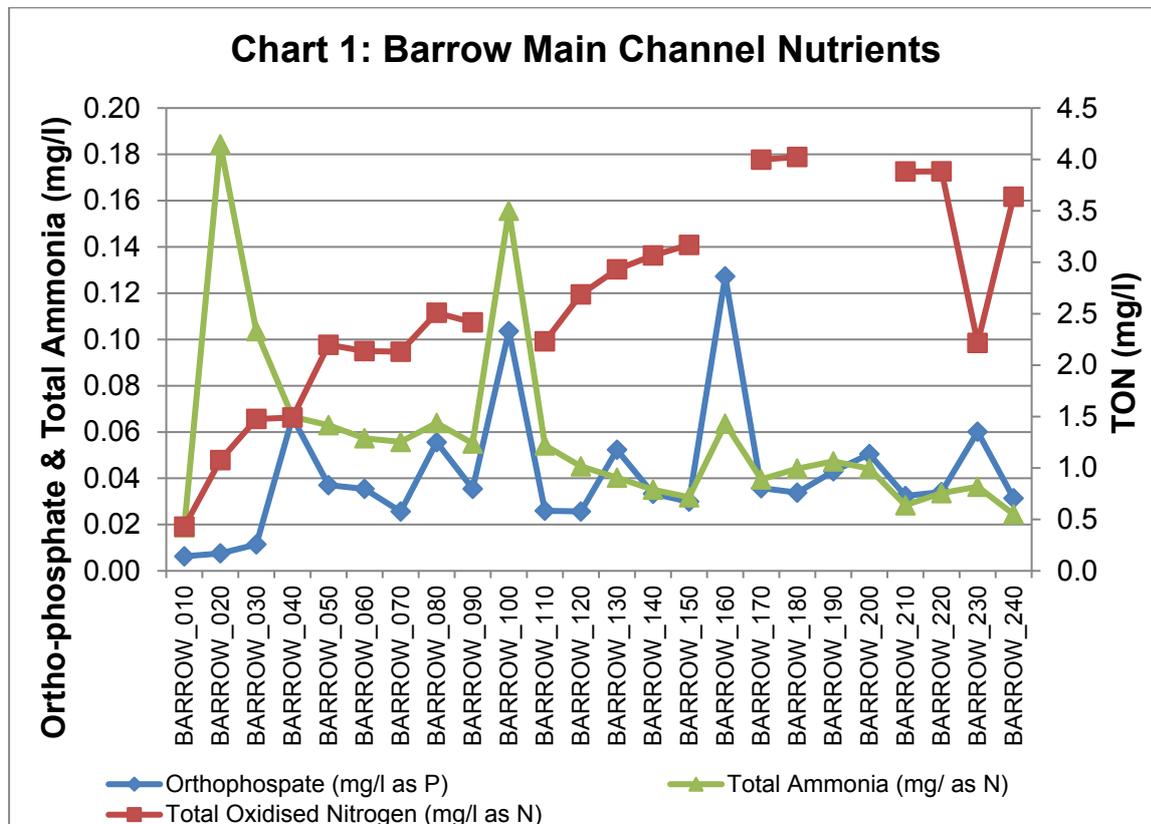
## Appendix 2 Catchment scale nutrient concentrations and in-stream loads

The results of the instream water quality assessment for the Barrow main channel are illustrated in Chart 1. Orthophosphate concentrations are moderately elevated throughout the main channel, exceeding the EQS (0.035mg/l) at 9 of the 24 channel sampling locations. Greatest exceedances of the EQS occurred at BARROW\_040 (0.07mg/l), BARROW\_100 (0.10mg/l) and BARROW\_160 (0.13mg/l).

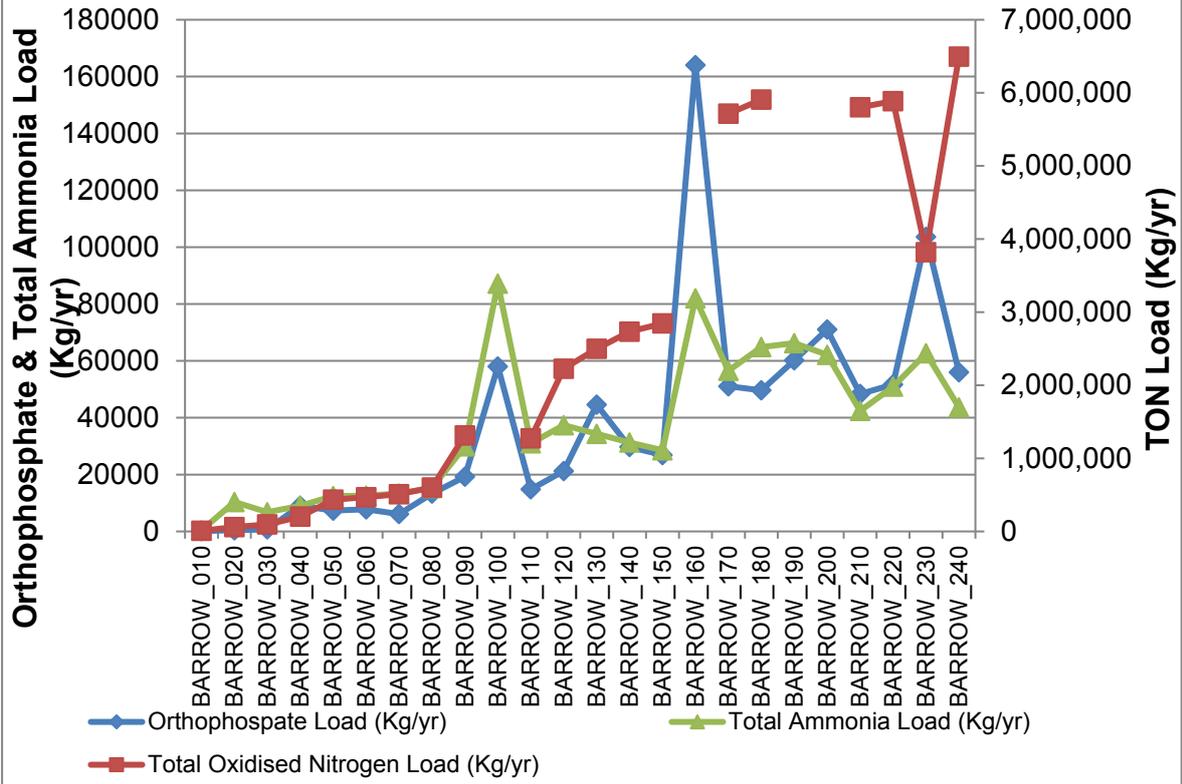
Total ammonia concentrations are typically below the EQS (0.065mg/l) except for BARROW\_020 and BARROW\_100 with average concentrations of 0.18mg/l and 0.16mg/l, respectively. Both ammonia and orthophosphate spike at BARROW\_100, there is however no TON data available for 2013 to 2015 for this location.

TON concentrations increase downstream from 0.04mg/l to a maximum of 4mg/l at Barrow\_180. There are nine water bodies with exceedances of the 2.6mg/l threshold between BARROW\_120 and BARROW\_240. A significant drop in concentration was also evident at BARROW\_230.

In the Barrow channel, river discharge increases from 0.6m<sup>3</sup>/s at BARROW\_010 to 56.6m<sup>3</sup>/s at BARROW\_240. Orthophosphate and total ammonia loads increased downstream corresponding to increasing flow, with localised concentration spikes at BARROW\_100 and BARROW\_230 resulting in significant orthophosphate loads. BARROW\_160 exhibits a substantial orthophosphate load (164,000Kg/yr). Localised spikes in ammonia concentration results in localised increases in ammonia load at BARROW\_100 and BARROW\_160. TON loads increased more steadily with increasing flow and concentration moving downstream.



**Chart 2: Barrow Main Channel Nutrient loads**



### Appendix 3 Summary information on *At Risk* and *Review* surface water bodies

Subcatchment code	Water body code	Water body name	Water body type	Risk	Ecological Status 07-09	Ecological Status 10-15	High Ecological Status Objective Water Body Y/N	Significant Pressures	Date to Meet Environmental Objective	Recommended Area for Action Name
14_1	IE_SE_14B010550	Barrow_050	River	Review	Unassigned	Unassigned	N		2027	
14_1	IE_SE_14B010900	Barrow_080	River	At risk	Moderate	Moderate	N	UWW	2021 (measures planned)	Portarlington
14_1	IE_SE_14C150500	Cottoners Brook_010	River	Review	Unassigned	Unassigned	N		2027	
14_1	IE_SE_14C510940	Clonygowan_010	River	Review	Unassigned	Unassigned	N		2027	
14_1	IE_SE_14K220850	Kilkeeran 14_010	River	Review	Unassigned	Unassigned	N		2027	
14_2	IE_SE_14A060200	Athy Stream_010	River	At risk	Unassigned	Poor	N	Ag	2021	Athy stream
14_2	IE_SE_14A060400	Athy Stream_020	River	At risk	Moderate	Moderate	N	Ag	2027	Athy stream
14_2	IE_SE_14A060600	Athy Stream_030	River	Review	Unassigned	Unassigned	N		2027	
14_3	IE_SE_14A010840	Abbeylough_010	River	At risk	Unassigned	Unassigned	N	Peat	2027	
14_3	IE_SE_14F010061	Figile_010	River	At risk	Poor	Poor	N	Hymo,Ind,Peat,UWW	2027	
14_3	IE_SE_14F010100	Figile_020	River	At risk	Moderate	Moderate	N	Peat	2027	
14_3	IE_SE_14F010200	Figile_030	River	At risk	Moderate	Moderate	N	Peat	2027	
14_4	IE_SE_14B012600	Barrow_170	River	At risk	Moderate	Moderate	N	Ag,Hymo	2027	
14_4	IE_SE_14B012700	Barrow_180	River	At risk	Good	Moderate	N	Ag,DU	2027	
14_4	IE_SE_14B012820	Barrow_190	River	Review	Unassigned	Unassigned	N		2027	
14_4	IE_SE_14B013100	Barrow_210	River	At risk	Poor	Poor	N	DU,Hymo,Ind,UWW	2027	
14_4	IE_SE_14B013300	Barrow_220	River	At risk	Good	Moderate	N	UWW	2021 (measures planned)	
14_4	IE_SE_14B080700	Ballynaboley Stream_010	River	At risk	Unassigned	Moderate	N	UWW	2027	
14_4	IE_SE_14H170950	Hillfort Ballinkillin_010	River	Review	Unassigned	Unassigned	N		2027	
14_5	IE_SE_14O020700	Old Leighlin Stream_020	River	At risk	Moderate	Moderate	N	Ag,UWW	2027	
14_5	IE_SE_14R430830	Rathornan_010	River	Review	Unassigned	Unassigned	N		2027	
14_6	IE_SE_14G070310	Graney (Lerr)_020	River	At risk	Unassigned	Moderate	N	Ag,Hymo	2027	Graney-Lerr
14_6	IE_SE_14L010080	Lerr_010	River	At risk	Moderate	Moderate	N	Ag	2027	Graney-Lerr
14_6	IE_SE_14L010155	Lerr_020	River	At risk	Poor	Poor	N	Ag,Hymo	2027	Graney-Lerr
14_6	IE_SE_14L010250	Lerr_030	River	At risk	Unassigned	Moderate	N	Ag,Hymo	2027	Graney-Lerr
14_6	IE_SE_14L010300	Lerr_040	River	At risk	Moderate	Moderate	N	Ag,Hymo	2027	Graney-Lerr
14_6	IE_SE_14P040200	Palatine Stream_010	River	At risk	Poor	Moderate	N	Ag,Hymo	2027	Graney-Lerr
14_7	IE_SE_14D040200	Duiske_020	River	At risk	Good	Moderate	N	Ag,DU	2027	Duiske
14_7	IE_SE_14P020400	Powerstown_010	River	At risk	Good	Moderate	N	Ag,For	2021	Duiske
14_8	IE_SE_14G030100	Gowran_010	River	At risk	Moderate	Moderate	N	Ag	2027	

Subcatchment code	Water body code	Water body name	Water body type	Risk	Ecological Status 07-09	Ecological Status 10-15	High Ecological Status Objective Water Body Y/N	Significant Pressures	Date to Meet Environmental Objective	Recommended Area for Action Name
14_8	IE_SE_14G030220	Gowran_020	River	At risk	Unassigned	Moderate	N	Ag	2027	
14_8	IE_SE_14M030600	Monefelim_020	River	At risk	Good	Moderate	N	Ag	2027	
14_8	IE_SE_14M031000	Monefelim_030	River	At risk	Moderate	Moderate	N	Ag	2027	
14_8	IE_SE_14M240860	Moanmore 14_010	River	Review	Unassigned	Unassigned	N		2027	
14_9	IE_SE_14B100300	Burtown Stream_010	River	At risk	Unassigned	Unassigned	N	Ag	2027	
14_9	IE_SE_14G040070	Greese_010	River	Review	Poor	Poor	N		2027	
14_9	IE_SE_14G040200	Greese_030	River	Review	Poor	Moderate	N		2027	
14_9	IE_SE_14G040350	Greese_040	River	Review	Poor	Moderate	N		2027	
14_9	IE_SE_14G040400	Greese_050	River	Review	Poor	Moderate	N		2027	
14_9	IE_SE_14G060100	Grangecon Stream_010	River	Review	Moderate	Good	N		2027	
14_10	IE_SE_14B013514	Barrow_230	River	At risk	Good	Poor	N	Hymo,UWW	2027	
14_10	IE_SE_14M010020	Mountain (Carlow)_010	River	At risk	Good	Moderate	N	Ag,For,Hymo	2021	Mountain
14_10	IE_SE_14M010160	Mountain (Carlow)_030	River	At risk	Unassigned	Unassigned	N	Ag,DU,UWW	2027	Mountain
14_11	IE_SE_14K060600	Kylegrove Stream_010	River	Review	Unassigned	Unassigned	N		2027	
14_11	IE_SE_14T010100	Triogue_010	River	Review	Moderate	Good	N		2027	
14_11	IE_SE_14T010200	Triogue_020	River	At risk	Poor	Poor	N	DU,UWW	2027	
14_11	IE_SE_14T010300	Triogue_030	River	At risk	Poor	Poor	N	Ag,DU	2027	
14_11	IE_SE_14T010400	Triogue_040	River	At risk	Poor	Moderate	N	Ag	2027	
14_11	IE_SE_14T450060	Trib Triogue Cush Bridge_010	River	At risk	Poor	Moderate	N	Ag,For	2027	
14_12	IE_SE_14B011900	Barrow_140	River	At risk	Unassigned	Moderate	N	Ag,Hymo,UWW	2027	Athy stream
14_12	IE_SE_14B012000	Barrow_150	River	Review	Unassigned	Unassigned	N		2027	
14_12	IE_SE_14B012460	Barrow_160	River	At risk	Moderate	Moderate	N	DU,Hymo	2027	
14_12	IE_SE_14D030300	Douglas (Laois)_030	River	Review	Moderate	Good	N		2027	
14_12	IE_SE_14G110800	Guillie_010	River	Review	Good	Unassigned	N		2027	
14_12	IE_SE_14K040200	Killeen Stream (Douglas)_010	River	At risk	Unassigned	Unassigned	N	Ag	2027	
14_13	IE_SE_14A020100	Aghalona_010	River	At risk	Unassigned	Moderate	N	Ag	2027	
14_13	IE_SE_14A020200	Aghalona_020	River	At risk	Moderate	Moderate	N	Ag	2027	
14_13	IE_SE_14B050020	Burren_010	River	At risk	Good	Good	Y	Hymo	2021	Burren
14_13	IE_SE_14B050110	Burren_020	River	At risk	Moderate	Moderate	N	Ag,Hymo	2027	Burren
14_13	IE_SE_14B050200	Burren_030	River	At risk	Moderate	Moderate	N	Ag	2027	Burren
14_13	IE_SE_14B050310	Burren_040	River	At risk	Moderate	Moderate	N	Ag,Hymo	2027	Burren
14_13	IE_SE_14B050500	Burren_060	River	At risk	Moderate	Poor	N	DU,Hymo	2027	Burren

Subcatchment code	Water body code	Water body name	Water body type	Risk	Ecological Status 07-09	Ecological Status 10-15	High Ecological Status Objective Water Body Y/N	Significant Pressures	Date to Meet Environmental Objective	Recommended Area for Action Name
14_14	IE_SE_14D060100	Daingean_010	River	At risk	Unassigned	Poor	N	Peat	2027	
14_14	IE_SE_14D060200	Daingean_020	River	At risk	Poor	Poor	N	Peat,UWW	2027	
14_14	IE_SE_14D060400	Daingean_030	River	At risk	Poor	Poor	N	Peat	2027	
14_14	IE_SE_14E010100	Esker Stream_010	River	Review	Unassigned	Unassigned	N		2027	
14_14	IE_SE_14E010200	Esker Stream_020	River	At risk	Moderate	Moderate	N	Peat	2027	
14_14	IE_SE_14F010300	Figile_040	River	At risk	Moderate	Moderate	N	Peat	2027	
14_14	IE_SE_14F010400	Figile_050	River	Review	Moderate	Good	N		2027	
14_14	IE_SE_14F010500	Figile_060	River	Review	Moderate	Good	N		2027	
14_15	IE_SE_14B010200	Barrow_020	River	Review	Good	Good	N		2027	
14_15	IE_SE_14B010500	Barrow_040	River	At risk	Moderate	Moderate	N	Ag	2027	
14_15	IE_SE_14B031000	Blackwater (Laois)_010	River	At risk	Good	Moderate	N	Ag	2027	
14_15	IE_SE_14D070500	Drummond Stream_010	River	Review	Unassigned	Unassigned	N		2027	
14_15	IE_SE_14O010300	Owenass_020	River	At risk	Moderate	Moderate	N	Ag,UWW	2027	
14_15	IE_SE_14P200000	Pigeonhouse_010	River	Review	Unassigned	Unassigned	N		2027	
14_16	IE_SE_14C170200	Cloncumber Stream_010	River	At risk	Moderate	Poor	N	Hymo	2027	
14_16	IE_SE_14C170250	Cloncumber Stream_020	River	At risk	Unassigned	Unassigned	N	Hymo	2027	
14_16	IE_SE_14K240670	Kilnantoge_Lower_010	River	Review	Unassigned	Unassigned	N		2027	
14_16	IE_SE_14R170990	Rathangan_Demesne_010	River	Review	Unassigned	Unassigned	N		2027	
14_16	IE_SE_14S010000	Slate_010	River	Review	Unassigned	Unassigned	N		2027	
14_16	IE_SE_14S010020	Slate_020	River	At risk	Poor	Poor	N	Ag,UWW	2027	
14_16	IE_SE_14S010036	Slate_030	River	Review	Unassigned	Unassigned	N		2027	
14_16	IE_SE_14S010050	Slate_040	River	At risk	Poor	Poor	N	Peat	2027	
14_16	IE_SE_14S010100	Slate_050	River	At risk	Unassigned	Moderate	N	Hymo,Peat	2027	
14_16	IE_SE_14S010210	Slate_060	River	At risk	Poor	Moderate	N	DU	2027	
14_17	IE_SE_14B011000	Barrow_090	River	At risk	Good	Poor	N	Hymo	2027	Portarlington
14_17	IE_SE_14S020030	Stradbally (Laois)_010	River	At risk	Good	Moderate	N	For	2027	
14_17	IE_SE_14S020350	Stradbally (Laois)_030	River	At risk	Moderate	Moderate	N	UWW	2021 (measures planned)	
14_17	IE_SE_14S020400	Stradbally (Laois)_040	River	Review	Moderate	Good	N		2027	
14_18	IE_SE_14K270950	Kildoon_010	River	Review	Unassigned	Unassigned	N		2027	
14_18	IE_SE_14T020200	Tully Stream_010	River	At risk	Poor	Poor	N	Ind	2021	
14_18	IE_SE_14T020409	Tully Stream_020	River	At risk	Poor	Poor	N	Ind	2027	
14_18	IE_SE_14T020500	Tully Stream_030	River	Review	Poor	Good	N		2027	

Subcatchment code	Water body code	Water body name	Water body type	Risk	Ecological Status 07-09	Ecological Status 10-15	High Ecological Status Objective Water Body Y/N	Significant Pressures	Date to Meet Environmental Objective	Recommended Area for Action Name
14_18	IE_SE_14T020600	Tully Stream_040	River	Review	Moderate	Good	N		2027	
14_19	IE_SE_14A040400	Aughavaud_010	River	Review	Unassigned	Unassigned	N		2027	
14_19	IE_SE_14A070300	Aughnacrew_010	River	At risk	Unassigned	Moderate	N	Ag,DWW	2027	
14_19	IE_SE_14B013600	Barrow_240	River	Review	Unassigned	Unassigned	N		2027	
14_19	IE_SE_14H090690	Hermitage 14_010	River	Review	Unassigned	Unassigned	N		2027	
14_19	IE_SE_14H110730	Hill Camlin_010	River	Review	Unassigned	Unassigned	N		2027	
14_19	IE_SE_14P030300	Pollmounty_010	River	At risk	Moderate	Moderate	N	For,Other	2027	
14_19	IE_SE_100_0200	New Ross Port	Transitional	At risk	Moderate	Moderate	N	Ag	2027	
14_19	IE_SE_100_0250	Barrow Nore Estuary Upper	Transitional	Review	Good	Good	N		2027	
14_19	IE_SE_100_0300	Upper Barrow Estuary	Transitional	Review	Moderate	Good	N		2027	
14_19	IE_SE_100_0400	Nore Estuary	Transitional	At risk	Moderate	Moderate	N	Ag	2027	
14_19	IE_SE_100_0500	Lower Suir Estuary (Little Island - Cheekpoint)	Transitional	At risk	Good	Moderate	N	Ag	2027	
14_20	IE_SE_14C040050	Cushina_010	River	Review	Poor	Moderate	N		2027	
14_20	IE_SE_14F010510	Figile_070	River	Review	Unassigned	Unassigned	N		2027	
14_20	IE_SE_14F010600	Figile_080	River	Review	Unassigned	Unassigned	N		2027	

**Ag:** Agriculture

**M+Q:** Mines and Quarries

**DWW:** Domestic Waste Water

**Peat:** Peat Drainage and Extraction

**For:** Forestry

**DU:** Diffuse Urban

**Hymo:** Hydromorphology

**UWW:** Urban Waste Water

**Ind:** Industry

**Note:** Significant Pressures for Review water bodies have not been included as they will need to be confirmed as part of an Investigative Assessment.

**Protected Area:** If a water body is one or more of the following: Drinking Water Protected Area; Bathing Water; Shellfish Area; Nutrient Sensitive Area or; a Natura 2000 site with a water dependent qualifying interest with a water quality and/or quantity conservation objective, then it has been highlighted as a protected area in this table.

## Appendix 4 Drinking water supplies in the catchment

Scheme Code	Scheme Name	Water Body	Water Body Code	Objective met? Yes /No	Reason why not
1500PRI3040_3	Castlewarren GWS	Castlecomer	IE_SE_G_034	Yes	n/a
1500PRI3040_4					
1500PRI3040_5					
1500PRI3040_6					
2500PUB1020_1	Tullamore P.W.S.	Clonaslee	IE_SE_G_039	Yes	n/a
2500PUB1020_7					
2500PUB1020_8					
3400PRI1101_2	Gormanstown Private GWS	Gormanstown Gravels	IE_EA_G_046	Yes	n/a
2500PUB1004_1	Clonbullogue P.W.S.	Cushina	IE_SE_G_048	Yes	n/a
2500PUB1017_1	Rhode RWSS P.W.S.	Daingean	IE_SE_G_049	Yes	n/a
2500PUB1017_2					
2500PUB1017_3					
2500PUB1017_4					
2500PUB1017_5					
2500PUB1006_1	Daingean P.W.S.				
1400PUB1025_1	Lughill Shallow Well*	Kildare	IE_SE_G_077	Yes	n/a
2500PRI2017_1	Mount Lucas	Rhode	IE_SE_G_116	No	Total Pesticides
2500PUB1010_1	Geashill P.W.S.	Rhode	IE_SE_G_116	Yes	n/a
2500PUB1021_1	Walsh Island P.W.S.				
1600PUB0027_1	The Strand WTP	Shanragh	IE_SE_G_124	Yes	n/a
1600PUB1104_1	Arles WTP				
1400PRI3041_1	Curragh Camp	Curragh Gravels West	IE_SE_G_133	Yes	n/a
1400PRI3041_2					
1400PRI3041_3					
1600PUB1093_1	SE Regional Scheme (Kyle)	Timahoe Gravels	IE_SE_G_144	Yes	n/a
0100PRI2103_1	Glynn/St Mullins	New Ross	IE_SE_G_152	Yes	n/a

Scheme Code	Scheme Name	Water Body	Water Body Code	Objective met? Yes /No	Reason why not
0100PRI2104_1	Ballyellen				
0100PUB1166_1	Ballinkillen				
0100UNK9033_1	St. Mullins Parish				
1400PUB1017_1	Kilkea Borehole*				
3300UNK9050_1	Dranagh Intake- Impoundment Reservoir*				
3400PUB1020_1	Dunlavin Public Supply				
3400PUB1020_2					
3400PUB1029_1	Stratford Public Supply				
3400PUB1029_2					
3400PUB1041_1	Grangecon Public Supply				
1500PUB1008_1	Graiguenamanagh Water Supply Scheme				
1500PUB1008_2					
1500PUB1008_3					
1400PUB1009_1	Castlemitchell Housing Bo*				
1400PUB1010_1	Castlemitchell Quarry Bor*	Bagenalstown Upper	IE_SE_G_153		
1400PUB1011_1	Castlemitchell Churchtown				
1400PUB1020_1	Monasterevin				
1400PUB1020_2					
1400PUB1020_3					
1400PUB1020_4					
1400PUB1020_5					
1400PUB1041_1	Rathangan				
1600PRI3024_1	The Heath				
1600PRI3040_1	Barrowhouse				
1600PUB0009_1	Coolenaugh WTP				
1600PUB0070_1	Portarlinton No 2 PWS (Lough)				
1600PUB1090_1	Timahoe PWS				

Scheme Code	Scheme Name	Water Body	Water Body Code	Objective met? Yes /No	Reason why not
1600PUB1100_1	Portarlington No 1 PWS (La Bergerie)				
1600PUB4006_1	Lough PWS (Killenard, Ballybrittas etc)				
1600PUB4006_2	Killenard				
2500PRI2008_1	Bracknagh				
2500PUB1024_1	Portarlington P.W.S.				
1600PUB1004_1	Portlaoise PWS				
1600PUB1004_2					
1600PUB1004_3					
1600PUB1004_7					
1600PUB1004_5	Portlaoise PWS	Portlaoise-Mountmellick Gravels	IE_SE_G_170	Yes	n/a
1600PUB1004_4	Portlaoise PWS	Portlaoise	IE_SE_G_107	Yes	n/a
1600PUB1004_6					
1600PUB1094_1	Rosenallis PWS				
1600PUB1097_1	Mountmellick 1 PWS (Derryguile)				
1600PUB1097_2	Mountmellick 1 PWS				
0100PRI2102_1	Ballinabrannagh GWS Fonthill Borehole	Bagenelstown Lower	IE_SE_G_157	Yes	n/a
0100PRI2102_2	Ballinabrannagh GWS Clogreannanne				
0100PUB1001_1	Carlow Town				
0100PUB1101_1	Leighlinbridge WSS Borehole 1				
0100PUB1101_2	Leighlinbridge WSS Borehole 2				
0100PUB1103_1	Old Leighlin				
0100PUB1161_1	Bagenelstown WSS Well 1				
0100PUB1161_2	Bagenelstown WSS Well 2				
1500PRI3253_1	Flagmount GWS				
1600PUB1066_1	Graigecullen PWS				

Scheme Code	Scheme Name	Water Body	Water Body Code	Objective met? Yes /No	Reason why not
0100PUB1161_3	Bagenalstown Treatment Plant Well C	Athy-Bagenalstown Gravels	IE_SE_G_160	Yes	n/a
0100PUB1161_4	Bagenalstown Treatment Plant Well A				
0100PUB1161_5	Bagenalstown Treatment Plant Well B				
0100PUB1001_1	Epa Scheme Name Carlow Town WSS				
1400PRI3032_1	Ballyroe/Leinster Lodge				
1500PUB1007_1	Gowran / Goresbridge / Paulstown WSS	Goresbridge North	IE_SE_G_165	Yes	n/a
1600PUB0005_1	Meelick PWS	Portlaoise-Mountmellick Gravels	IE_SE_G_170	Yes	n/a
1400PRI3036_1	Lipstown Narraghmore	Narraghmore Gravels	IE_SE_G_173	Yes	n/a
0100PRI2120_1	Knock/Ballyglisheen	Ballyroughan Little_010	IE_SE_14B210500	Yes	n/a
0100PUB1134_1	Epa Scheme Name Carlow CRWSS	Burren_020	IE_SE_14B050110	Yes	n/a
0100PUB1162_1	Epa Scheme Name Borris WSS	Mountain (Carlow)_030	IE_SE_14M010160	Yes	n/a
1400PUB1019_1	Leixlip Regional	Barrow_130	IE_SE_14B011600	Yes	n/a
1400PUB1060_1	Barrow Supply				
1600PUB1100_2	Portarlinton PWS	Barrow_070	IE_SE_14B010780	Yes	n/a
2500PRI2015_1	Killeigh/Cloneygowen	Not listed**	Not listed**	Yes	n/a
3300PUB1589_1	New Ross Town & Environs	Pollmounty_010	IE_SE_14P030300	Yes	n/a
3300PUB1589_2					

\* No scheme name listed in spreadsheet. Abstraction location used as substitute.

\*\* No source listed for supply

## Appendix 5 Prioritisation of water bodies with Natura 2000 site qualifying interests

Note that additional water dependent species have been added that are not qualifying interests within the SACs (i.e. the Freshwater Pearl Mussel (*Margaritifera margaritifera*; 1029) has been added to Blackstairs Mountains SAC). River water bodies that are also designated for Freshwater Pearl Mussel (under Freshwater pearl mussel regulations (S.I. 296 2009)), but that are not located within SACs have also been listed.

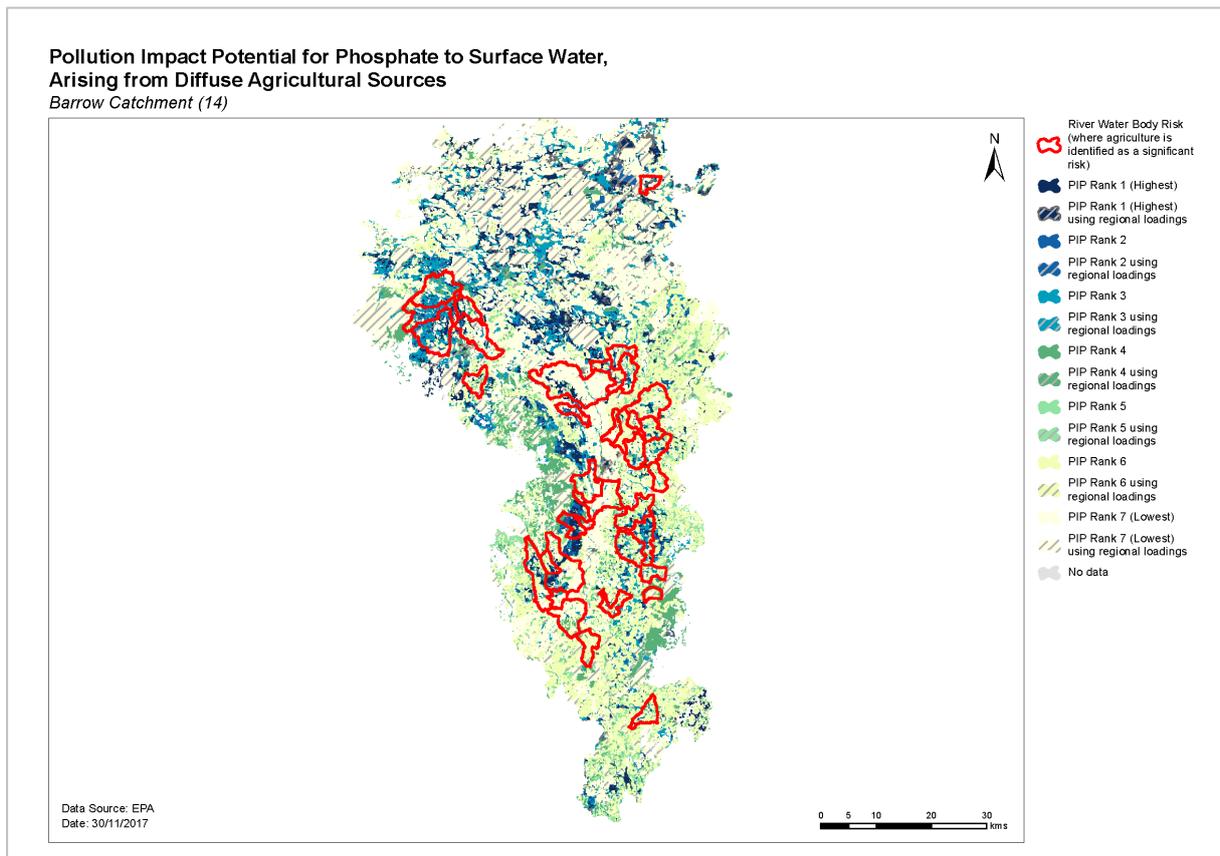
SAC Name	Relevant Qualifying interests	Target status	Water body type	Water bodies	Status (risk)	Prioritise?	Code	Survey data?
Ballynafagh Bog SAC 000391	none							
Ballynafagh Lake SAC 001387	7230	Good GW level	Groundwater	Kildare GWB	Good (NAR)	No	IE_SE_G_077	No
Ballyprior Grassland SAC 002256	none							
Blackstairs Mountains SAC 000770	1029 (19 of 27 catchments of S.I. 296 2009)(not listed)	Good	River	Aughnabrisky_010	Good (NAR)	No	IE_SE_14A050500	Yes
			River	Ballyroughan Little_010	Good (NAR)	No	IE_SE_14B210500	Yes
			River	Mountain (Carlow)_010	Moderate (AT RISK)	Yes	IE_SE_14M010020	Yes
Pollardstown Fen SAC 000396	7210	Good GW level	Groundwater	GWDE-Pollardstown Fen (SAC000396)	Good (NAR)	No	IE_SE_G_106	No
			Groundwater	Curragh Gravels West	Good (NAR)	No	IE_SE_G_133	No
	7230	Good GW level	Groundwater	GWDE-Pollardstown Fen (SAC000396)	Good (NAR)	No	IE_SE_G_106	No
			Groundwater	Curragh Gravels West	Good (NAR)	No	IE_SE_G_133	No
Mouds Bog SAC 002331	none							
Mountmellick SAC 002141	none							
Slieve Bloom Mountains SAC 000412	none							
The Long Derries, Edenderry SAC 000925	none							
Freshwater pearl mussel (outside SACs)	1029 (19 of 27 catchments of S.I. 296 2009)	Good	River	Black (Borris)_010	Good (NAR)	No	IE_SE_14B060700	Yes
			River	Black (Borris)_020	Good (NAR)	No	IE_SE_14B061380	Yes
SAC Name	Relevant Qualifying interests	Target status	Water body type	Water bodies	Status (risk)	Prioritise?	Code	Survey data?

River Barrow And River Nore SAC 002162	1092	At least Moderate	River	Glenlahan_010	Good (NAR)	No	IE_SE_14G020300	Yes
			River	Owenass_020	Moderate (AT RISK)	No	IE_SE_14O010300	Yes
			River	Barrow_010	High (NAR - HES obj)	No	IE_SE_14B010060	Yes
			River	Barrow_020	Good (R)	No	IE_SE_14B010200	Yes
			River	Barrow_030	Good (NAR)	No	IE_SE_14B010300	Yes
			River	Barrow_040	Moderate (AT RISK)	No	IE_SE_14B010500	Yes
			River	Barrow_050	Unassigned (R)	Yes	IE_SE_14B010550	Yes
			River	Barrow_060	Good (NAR)	No	IE_SE_14B010700	Yes
			River	Barrow_070	Good (NAR)	No	IE_SE_14B010780	Yes
			River	Barrow_080	Moderate (AT RISK)	No	IE_SE_14B010900	Yes
			River	Barrow_090	Poor (AT RISK)	Yes	IE_SE_14B011000	Yes
			River	Barrow_100	Unassigned (NAR)	No	IE_SE_14B011130	Yes
			River	Barrow_110	Good (NAR)	No	IE_SE_14B011300	Yes
			River	Barrow_120	Good (NAR)	No	IE_SE_14B011500	Yes
			River	Barrow_130	Unassigned (NAR)	No	IE_SE_14B011600	Yes
			River	Barrow_140	Moderate (AT RISK)	No	IE_SE_14B011900	Yes
			River	Barrow_150	Unassigned (R)	Yes	IE_SE_14B012000	Yes
			River	Barrow_160	Moderate (AT RISK)	No	IE_SE_14B012460	Yes
			River	Barrow_170	Moderate (AT RISK)	No	IE_SE_14B012600	Yes
			River	Barrow_180	Moderate (AT RISK)	No	IE_SE_14B012700	Yes
			River	Barrow_190	Unassigned (R)	Yes	IE_SE_14B012820	Yes
			River	Barrow_200	Good (NAR)	No	IE_SE_14B012920	Yes
			River	Barrow_210	Poor (AT RISK)	Yes	IE_SE_14B013100	Yes
			River	Barrow_220	Moderate (AT RISK)	No	IE_SE_14B013300	Yes
			River	Barrow_230	Poor (AT RISK)	Yes	IE_SE_14B013514	Yes
			River	Stradbally (Laois)_030	Moderate (AT RISK)	No	IE_SE_14S020350	Yes
			River	Stradbally (Laois)_040	Good (R)	No	IE_SE_14S020400	Yes
			River	Tully Stream_040	Good (R)	No	IE_SE_14T020600	Yes
			River	Greese_060	Good (NAR)	No	IE_SE_14G040600	Yes
			River	Douglas (Laois)_030	Good (R)	No	IE_SE_14D030300	Yes
River	Lerr_010	Moderate (R)	No	IE_SE_14L010080	Yes			
River	Lerr_030	Moderate (AT RISK)	No	IE_SE_14L010250	Yes			
River	Lerr_040	Moderate (AT RISK)	No	IE_SE_14L010300	Yes			
River	Old Leighlin Stream_020	Moderate (AT RISK)	No	IE_SE_14O020700	Yes			
SAC Name	Relevant Qualifying interests	Target status	Water body type	Water bodies	Status (risk)	Prioritise?	Code	Survey data?

River Barrow And River Nore SAC 002162	1106	Good	River	Owenass_010	Good (NAR)	No	IE_SE_14O010050	No
			River	Owenass_020	Moderate (AT RISK)	Yes	IE_SE_14O010300	No
			River	Barrow_010	High (NAR - HES obj)	No	IE_SE_14B010060	No
			River	Barrow_020	Good (R)	No	IE_SE_14B010200	No
			River	Barrow_030	Good (NAR)	No	IE_SE_14B010300	No
			River	Barrow_040	Moderate (AT RISK)	Yes	IE_SE_14B010500	No
			River	Barrow_050	Unassigned (R)	No	IE_SE_14B010550	No
			River	Barrow_060	Good (NAR)	No	IE_SE_14B010700	No
			River	Barrow_070	Good (NAR)	No	IE_SE_14B010780	No
			River	Barrow_080	Moderate (AT RISK)	Yes	IE_SE_14B010900	No
			River	Barrow_090	Poor (AT RISK)	Yes	IE_SE_14B011000	No
			River	Barrow_100	Unassigned (NAR)	No	IE_SE_14B011130	No
			River	Barrow_110	Good (NAR)	No	IE_SE_14B011300	No
			River	Barrow_120	Good (NAR)	No	IE_SE_14B011500	No
			River	Barrow_130	Unassigned (NAR)	No	IE_SE_14B011600	No
			River	Barrow_140	Moderate (AT RISK)	Yes	IE_SE_14B011900	No
			River	Barrow_150	Unassigned (R)	No	IE_SE_14B012000	No
			River	Barrow_160	Moderate (AT RISK)	Yes	IE_SE_14B012460	No
			River	Barrow_170	Moderate (AT RISK)	Yes	IE_SE_14B012600	No
			River	Barrow_180	Moderate (AT RISK)	Yes	IE_SE_14B012700	No
			River	Barrow_190	Unassigned (R)	No	IE_SE_14B012820	No
			River	Barrow_200	Good (NAR)	No	IE_SE_14B012920	No
			River	Barrow_210	Poor (AT RISK)	Yes	IE_SE_14B013100	No
			River	Barrow_220	Moderate (AT RISK)	Yes	IE_SE_14B013300	No
River	Barrow_230	Poor (AT RISK)	Yes	IE_SE_14B013514	No			
River	Barrow_240	Unassigned (R)	No	IE_SE_14B013600	No			
River Barrow And River Nore SAC 002162	1029 (19 of 27 catchments of S.I. 296 2009)	Good	River	Aughnabrisky_010	Good (NAR)	No	IE_SE_14A050500	Yes
			River	Mountain (Carlow)_020	Good (NAR)	No	IE_SE_14M010070	Yes
			River	Mountain (Carlow)_030	Unassigned (AT RISK)	Yes	IE_SE_14M010160	Yes
			River	Barrow_230	Poor (AT RISK)	Yes	IE_SE_14B013514	Yes
			River	Ballyroughan Little_010	Good (NAR)	No	IE_SE_14B210500	Yes
			River	Aughavaud_010	Unassigned (R)	Yes	IE_SE_14A040400	Yes

## Appendix 6 Pollution Impact Potential (PIP) Map for Phosphorus

For areas where agriculture is deemed as the significant pressure, areas of high risk to surface water can be targeted. The map below shows relative risk of loss of phosphorus to surface water. The risk of phosphorus losses is strongly correlated on whether the land is poorly draining or free draining and the loadings applied i.e. significant loadings applied on poorly draining areas result in a high potential risk to surface water. However, this figure does not imply that actual losses from these areas are occurring but is a useful tool for informing where resources should be focused (i.e. by allowing high risk areas to be identified and prioritised for further investigation). PIP maps are available online at a scale of 1:20,000 and can be accessed by public bodies via the EDEN process.



## Appendix 7 local catchment assessment Categories

Category	Assessment & Measures Evaluation Details
IA1	Further information provision (e.g. from IFI, LAs, EPA)
IA2	Point source desk-based assessment
IA3	Assessment of unassigned status water bodies, requiring field visit(s)
IA4	Regulated point sources, requiring field visit/s
IA5	Stream (catchment) walk to evaluate multiple sources in a defined (1 km) river stretch (used as the basis for estimating resource requirements)
IA6	Stream (catchment) walk in urban areas
IA7	Stream (catchment) walk along >1 km river stretches
IA8	Stream (catchment) walk along high ecological status (HES) objective rivers
IA9	Lakes assessment, requiring field visits
IA10	Groundwater assessments, requiring field visits