Gweebarra-Sheephaven Catchment Assessment 2010-2015 (HA 38)

Catchment Science & Management Unit

Environmental Protection Agency

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epaCatchments
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Preface

This document provides a summary of the characterisation outcomes for the water resources of the Gweebarra-Sheephaven 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 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.
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 all streams entering tidal water in Gweebarra River, Sheephaven Bay and between Rossan Point and Fanad Head, Co. Donegal, on a total area of 1,450 km². The largest urban centre in the catchment is Falcarragh. The other main urban centres in this catchment are Glenties, Dunglow, Dunfanaghy, Creeslough and Carrowkeel. The total population of the catchment is approximately 28,100 with a population density of 19 people per km².

The western part of Fanad and the land to the west of Mulroy Bay is drained by several small rivers, the largest of which are the Rathgory, Burnside, Loughkeel (burn), Bunlin, Big (burn), Tulach, and Carrickart Rivers. These rivers discharge into Mulroy Bay and flow out to sea between Ballyhoorisky Point and Melmore Head.

The Owenveagh River flows northeast through Glenveagh into Lough Beagh. It then continues as the Owencarrow River flowing through Glen Lough from where it again changes name to the Lackagh River and outflows onto Doo Castle Strand and out to sea via Sheep Haven.

The area between Creeslough and Dunfanaghy is drained by the Faymore and Knocknafaugher Rivers, both of which drain into Sheep Haven. The Ray River rises in Lough Aluirg, flowing northwest and draining the northern slopes of Aghla Beg and Muckish Mountains before flowing out to sea at Finlays Bar. The Tullaghobegly River flows north from the slopes of Dooish Mountain, through Lough Altan and into the eastern side of Ballyness Bay near Falcarragh. The area from Gortahork to Derrybeg is drained by the Glenna, Geln (Meenclady) and Owencronahulla Rivers.

The Clady River rises as the Cronaniv (Burn) in the Poisoned Glen before being joined by the Delvin and Owenwee rivers and flowing into Dunlewy Lough and then into the Upper and Lower Lough Nacungs. At the outfall of the lower lough, part of the flow is diverted southwest in a pipe as part of the ESB Clady hydroelectric scheme. The remaining flow continues west and out to sea at Bunbeg.

The Gweedore River flows from the southwestern end of the Derryveagh Mountains, northwest into Lough Anure before making its way out to sea via the estuary west of Bunbeg. The Dunglow river flows from Crovehy Mountain, in a westerly direction before flowing through Dunglow and out to sea. The Owenamarve River flows southwest from Crocknahallin Mountain, and into Trawenagh Bay before flowing to sea via Gweebarra bay.

The Gweebarra River rises in the Derryveagh Mountains, flowing southwest through Lough Barra and onward, being joined by the Glenleheen River and through Doocharry, where it is joined by the Owenwee River. The Gweebarra then enters Gweebarra bay.

The catchment south of here is drained by two main rivers, the Owenea and Owentocker Rivers. The Owenea rises on the western slopes of Croveenananta, flowing west and through Glenties, before making its way to the sea north of Ardara. The Owentocker River rises on the western side of Carnaween Mountain, flowing west and into the sea at Ardara where it joins the outfall of the Oweea River and reaches the sea via Loughros More Bay. The southern part of the catchment from Ardara to Glencolumbkille is drained by numerous small rivers, the most significant of which (east to west) are the Bracky, Owenree and Murlin Rivers.

There are nine designated marine bathing waters, seven designated shellfish areas, 22 Special Area of Conservation (SAC) and seven Special Protection Areas (SPAs) areas in the catchment.

The Gweebarra-Sheephaven catchment comprises nine sub-catchments with 88 river water bodies, 83 lakes, 10 transitional and 14 coastal water bodies of which two are shared with another catchment.

There is one groundwater body in this catchment. There are three heavily modified water bodies (HMWB) in the catchment - Nacung (Upper) and Dunlewy due to power generation, and Salt due to

drinking water supply. Nacung (Upper) and Dunlewy were classified as unassigned while Salt was classified as having Good Ecological Potential in 2010-2015.

Table 1. List of subcatchments in the Gweebarra-Sheephaven catchment

Subcatchment ID	Subcatchment Name
38_1	AN_CÉIDEADH_SC_010
38_2	Gweebarra_SC_010
38_3	Burnside_SC_010
38_4	Owentocker_SC_010
38_5	Lackagh_SC_010
38_6	Tullaghobegly_SC_010
38_7	Gweedore_SC_010
38_8	DOIRE_LEAC_CHONAILL_THEAS_SC_010
38_9	Owenea_SC_010

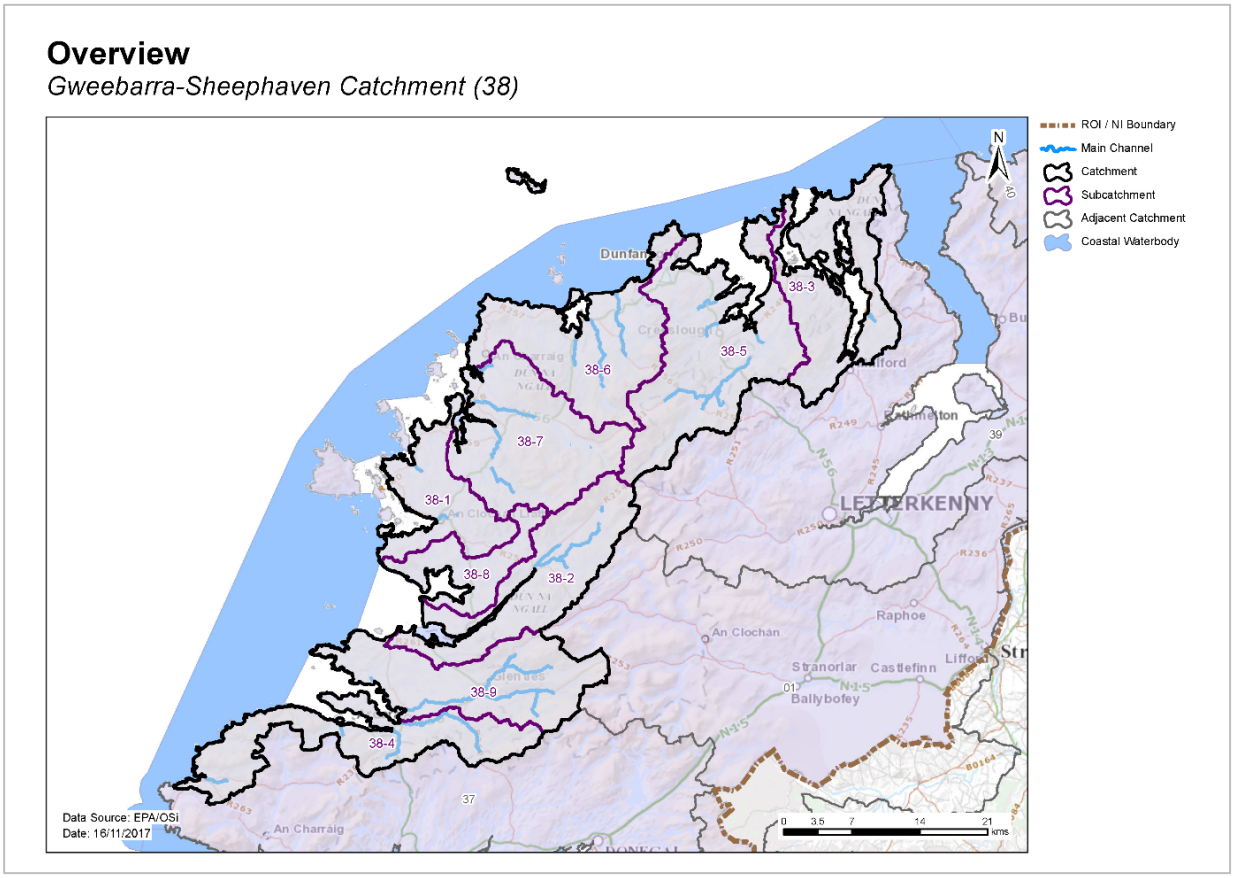


Figure 1. Location and subcatchments in the Gweebarra-Sheephaven catchment

2 Water body status and risk of not meeting environmental objectives

2.1 Surface water ecological status

2.1.1 Rivers and lakes

- There were 44 (26%) river and lake water bodies at Good or High status, and 25 (14%) at less than Good status in 2015 (Table 2 and Figure 2). There are 102 (60%) unmonitored river and lakes.
- Seven river water bodies and sites and six lakes have a High Ecological Status objective. In 2015, eight of these water bodies were at High status, four were at Good, and one was unmonitored in 2010-2015. (Appendix 1, Figure 3).
- The numbers of water bodies at each status class in 2007-09 and 2010-2015 are shown in Figure 4 (rivers) and Figure 5 (lakes), with the catchment-wide changes illustrated in Figure 6.
- Since 2007-09 when WFD monitoring began, 12 water bodies have improved and 16 have deteriorated with 35 showing no change in status (Figure 6 and Figure 7).
- The Gweebarra-Sheephaven catchment is characterised by a lack of data due to its fragmented and dispersed nature, with no baseline water chemistry for most the catchment's river water bodies. Based upon estimated Q30 flows, the Owenea and Owencarrow are the largest rivers in the catchment. Neither river however has associated water chemistry data. The five rivers which have data are described in the main channel assessment. The variation in nutrient concentrations and loads in the five rivers which have water chemistry data in the catchment are the Clady (Donegal), the Cronanivburn, the Gweedore, the Owentocker and the Stracashel, these make up the main channel which is illustrated in Appendix 2.

2.1.2 Transitional and Coastal (TraC)

- There were four (17%) TraC water bodies at Good and High status, and one (4%) at less than Good status in 2015 with the remaining 19 (79%) being unmonitored (Table 2 and Figure 7).
- Four of TraC water bodies have a High Ecological Status objective. In 2015, two were at High status and two were at Good (Appendix 1, Figure 3).
- The numbers of TraC water bodies at each status class in 2007-09 and 2010-2015 are shown in Figure 6.

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

	Number of water bodies	2010-2015 Status						Risk Categories		
		High	Good	Mod	Poor	Bad	Un-assigned	*Not at Risk*	*Review*	*At Risk*
Rivers	88	8	24	10	11	0	35	39	27	22
Lakes	83	2	10	4	0	0	67	70	6	7
TraCs	24	2	2	1	0	0	19	16	7	1

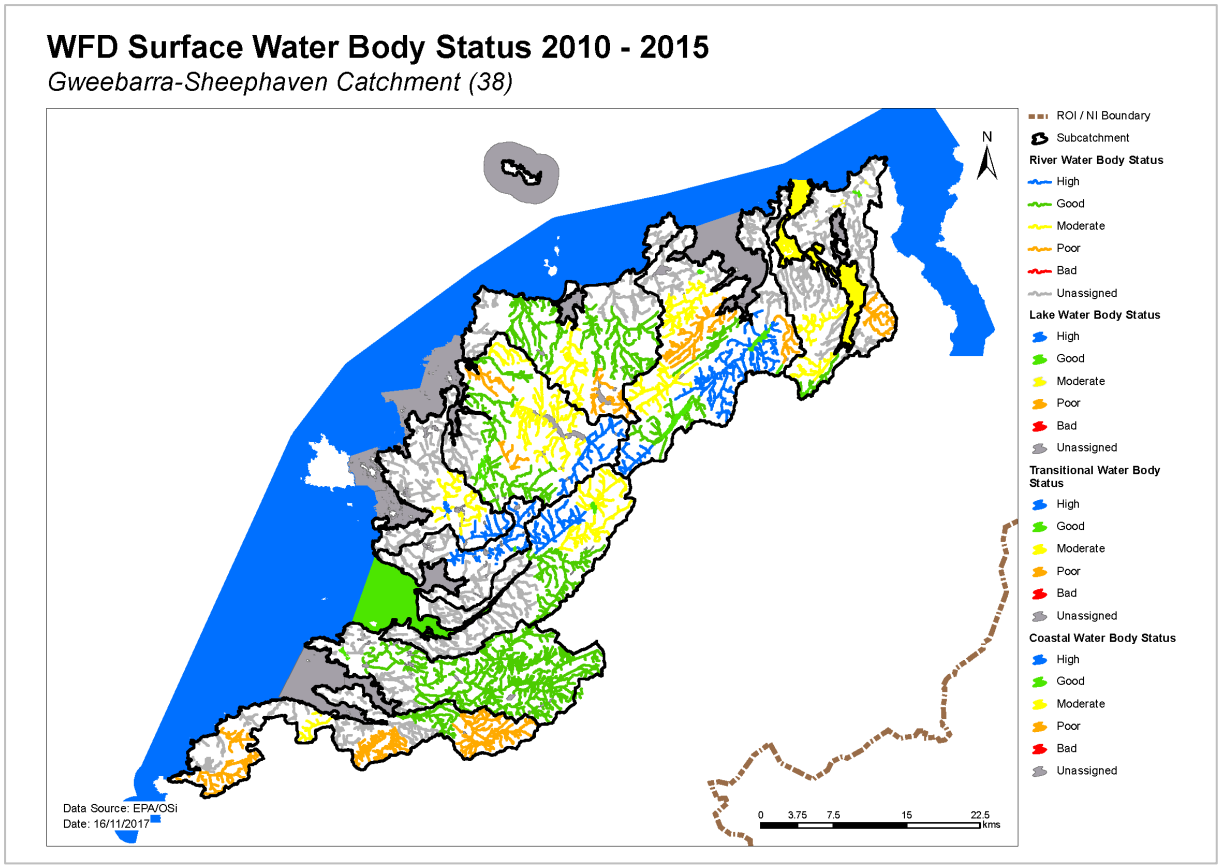


Figure 2. Surface water ecological status.

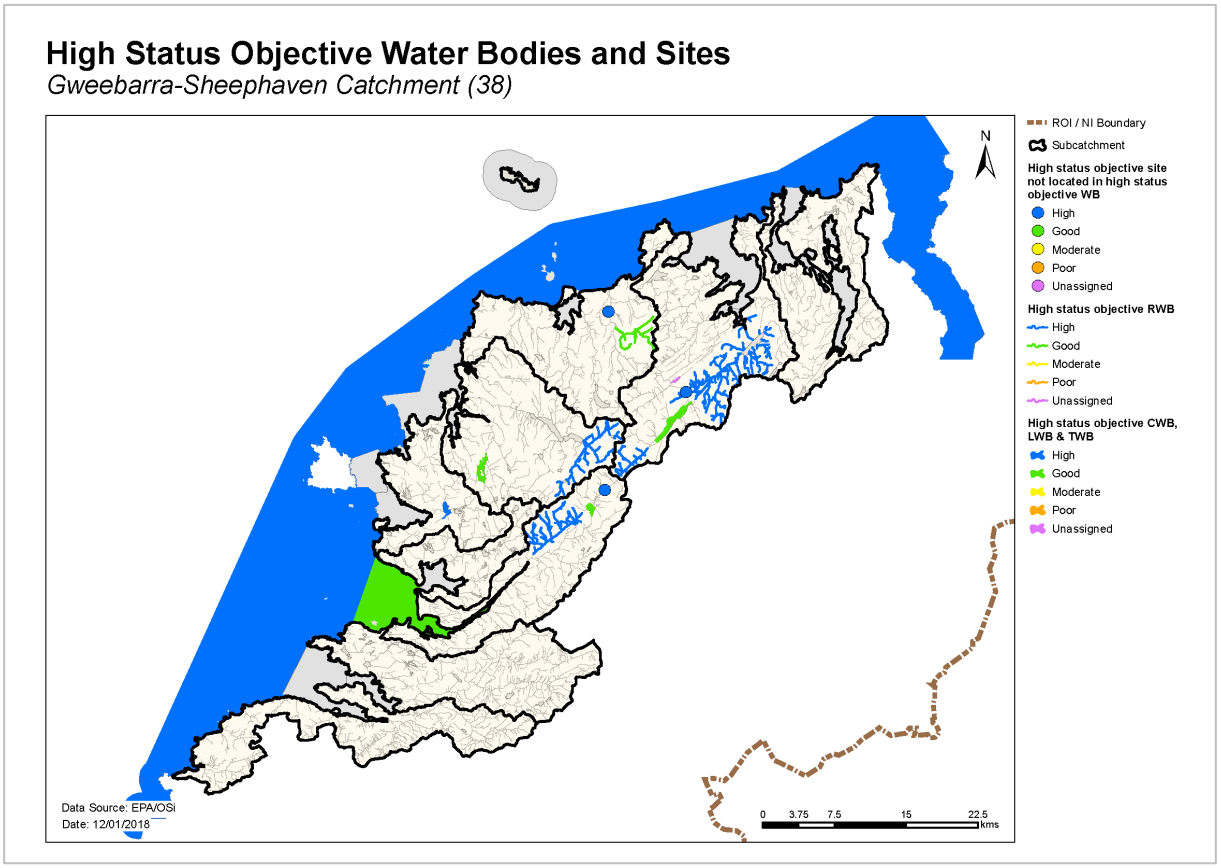


Figure 3. High ecological status objective water bodies and sites.

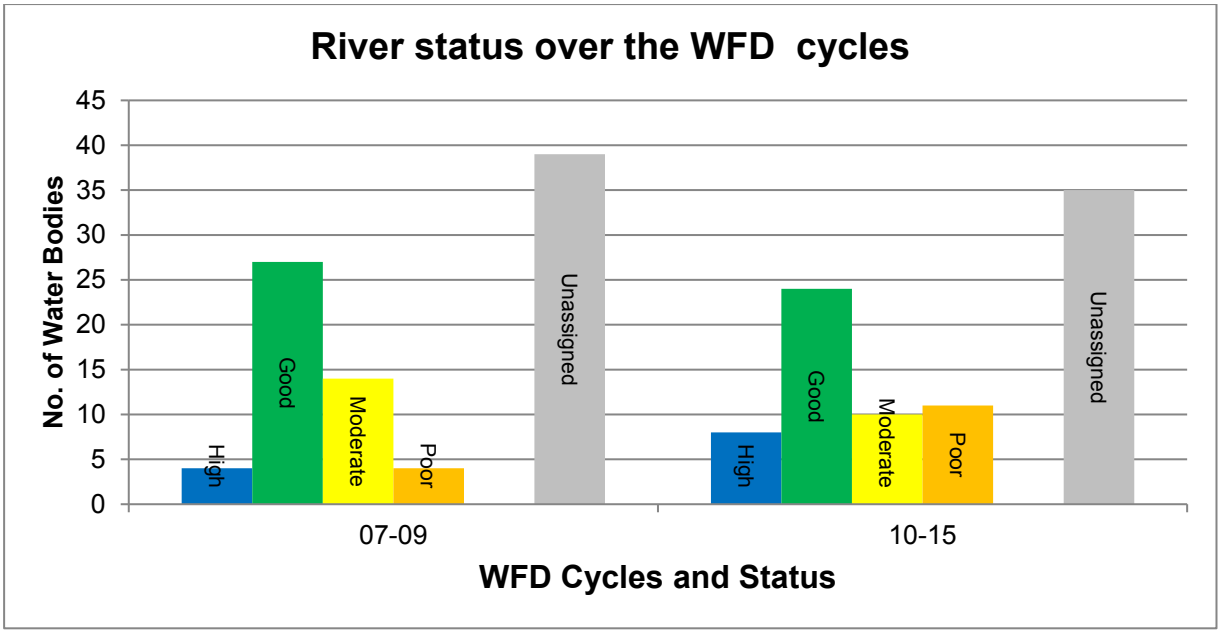


Figure 4. Number of rivers at each status class in 2007-09 and 2010-15

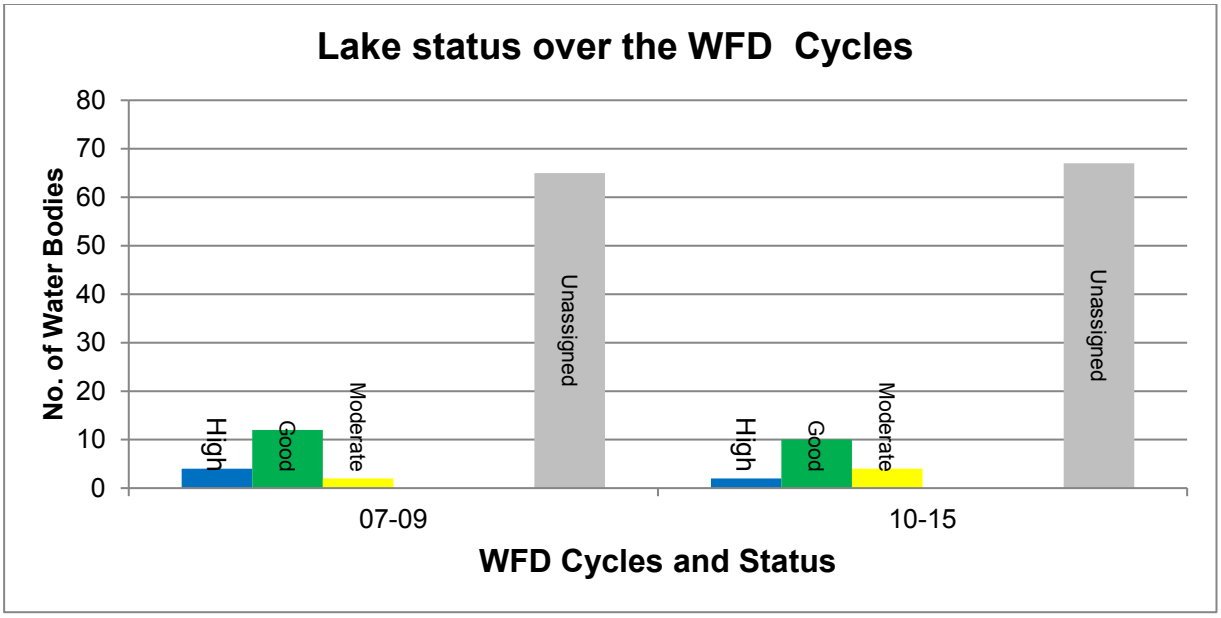


Figure 5. Number of lakes at each status class in 2007-09 and 2010-15

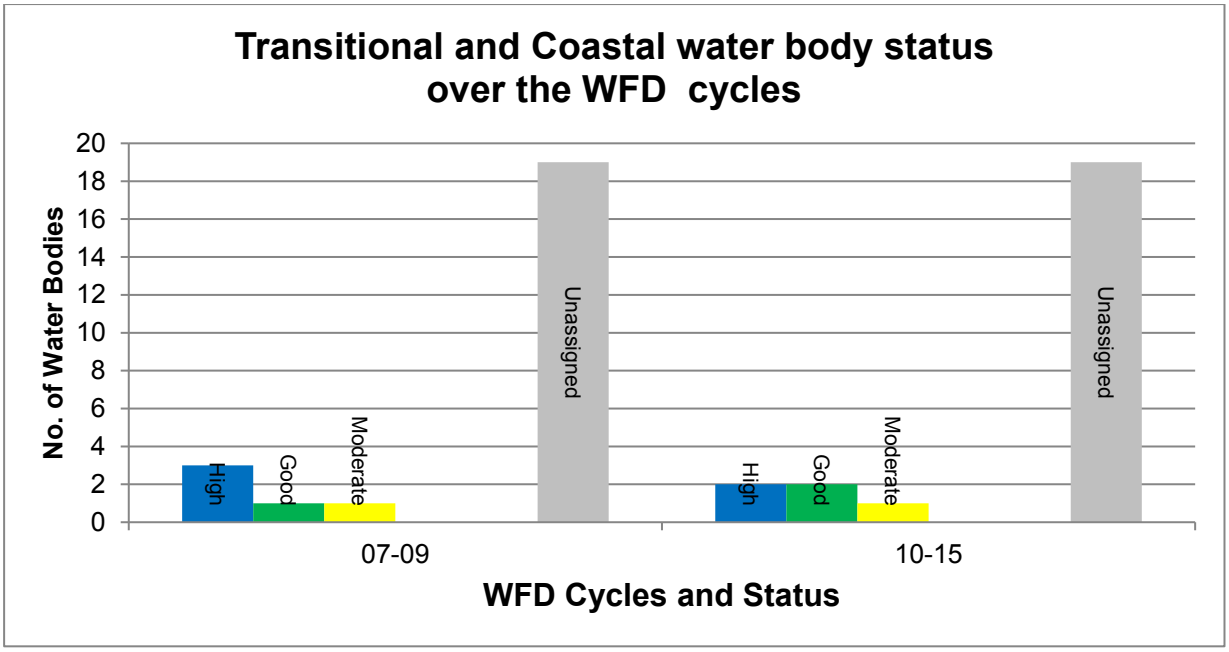


Figure 6. Number of transitional and coastal water bodies at each status class in 2007-09 and 2010-15

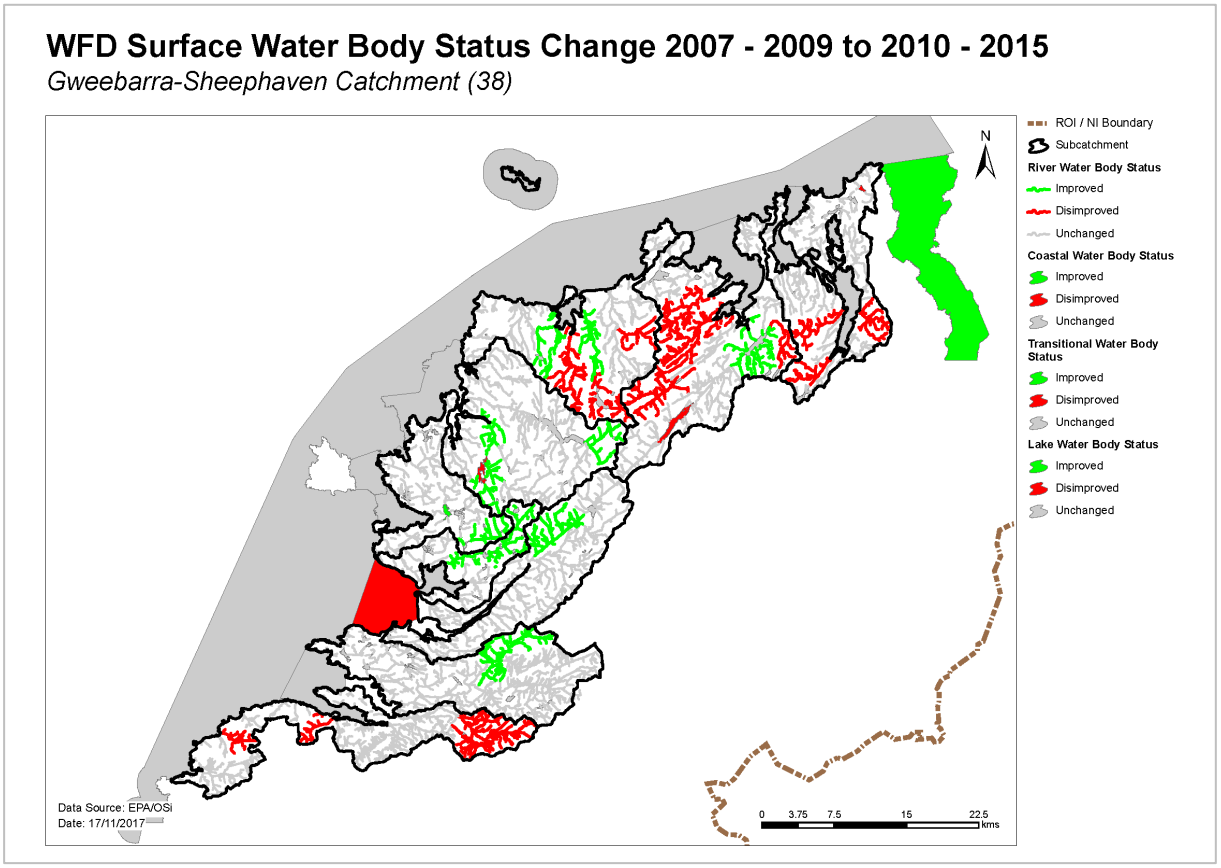


Figure 7 Surface water body status change from 2007-09 to 2010-2015.

2.2 Groundwater status

- The one groundwater body in the catchment was at Good status in 2015 (Table 3) and there was no change between 2007-2009 and 2010-2015.

Table 3. Summary of groundwater body status and risk

	Number of water bodies	2010-2015		Risk		
		Good	Poor	*Not at Risk*	*Review*	*At Risk*
Groundwater	1	1	0	0	1	0

2.3 Risk of not meeting surface water environmental objectives

2.3.1 Rivers and lakes

- There are 39 river and 70 lake water bodies *Not at Risk* (Figure 8, Table 2) as such no additional investigative assessment or measures need to be applied, other than those measures that are already in place.
- There are 27 river and six lake water bodies in *Review*. This includes 13 water bodies where more information is required and 20 water bodies where measures have recently been implemented and improvements have not yet been realised.
- Twenty-two river and seven lake 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)

- Sixteen TraC water bodies are *Not at Risk* (Figure 8, Table 2) and require no additional investigative assessment or measures to be applied, other than those measures that are already in place.
- Seven TraC water bodies are in *Review*.
- One TraC water body in the catchment is *At Risk* of not meeting their water quality objectives. Measures will be needed in these water bodies to improve the water quality outcomes.

2.4 Risk of not meeting groundwater body environmental objectives

- The one groundwater body in this catchment is in *Review* (Table 3, Figure 9) as it is hydrologically linked to *Review* surface waters that are not meeting water quality objectives where it is considered likely that groundwater is a contributing source of phosphorus.

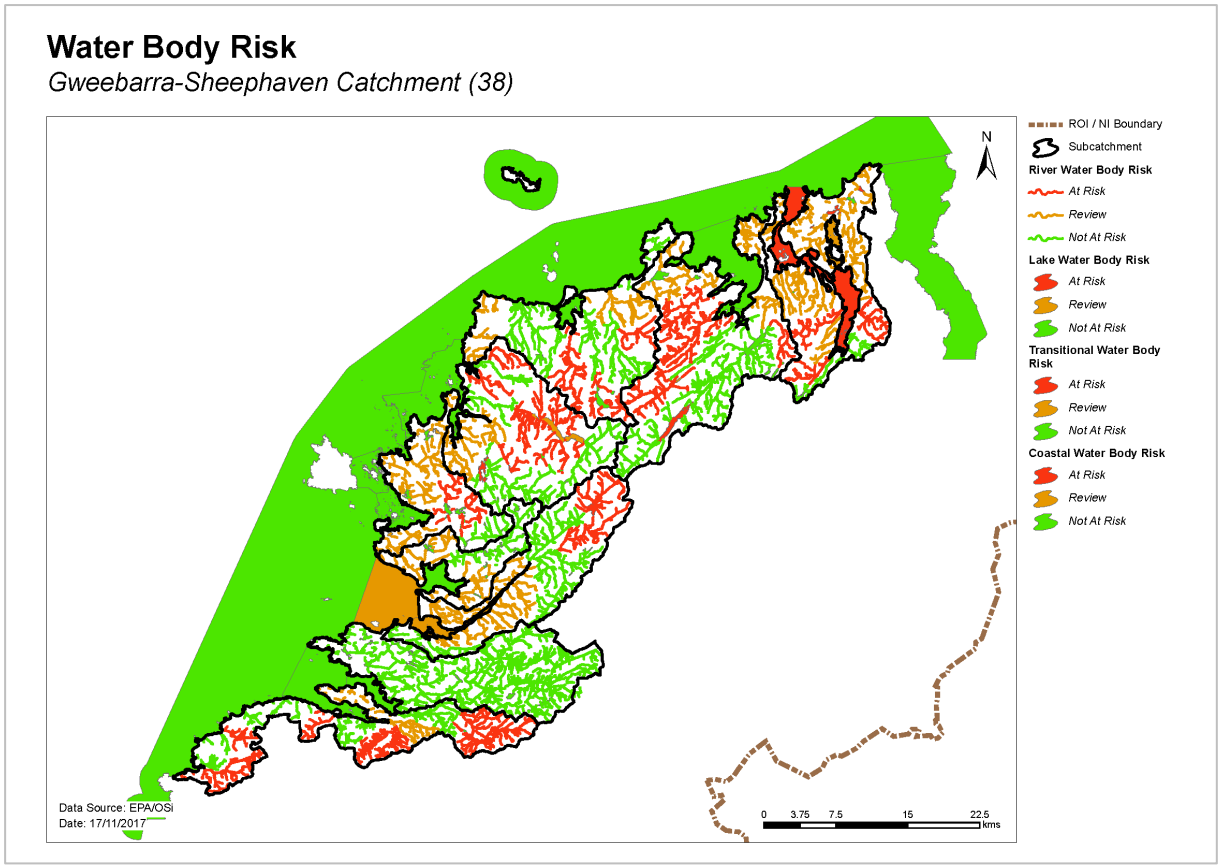


Figure 8. Surface water body risk.

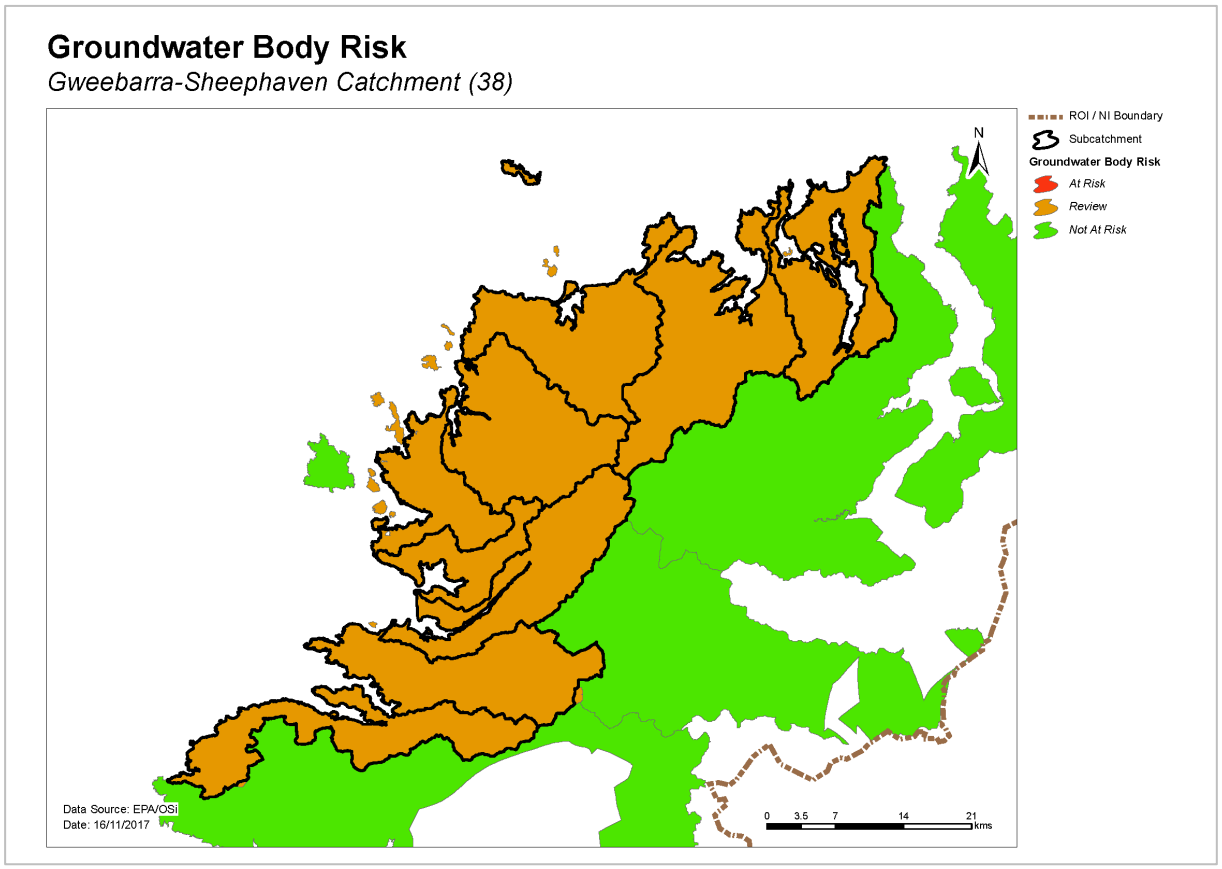


Figure 9. Groundwater body risk

2.5 Protected Areas

2.5.1 Drinking Water Protected Areas

- There are 10 drinking water abstractions in eight schemes (six private and two public) within 10 water bodies (two rivers and eight lakes).
- All the sources were compliant with the drinking water standards for nitrate and pesticides in 2015 Appendix 4.

2.5.2 Bathing Waters

- There are nine marine bathing waters in the catchment and all are compliant with their environmental objectives. The list of the bathing waters and their associated water bodies is provided in Table 4.

Table 4. Bathing Waters in the catchment

Bathing Water		Water body Intersection		Objective met?	
Name	Code	Name	Code	Yes	No
Naran	IENWBWC120_0000_0100	Gweebarra Bay	IE_NW_120_0000	✓	
Carrickfinn	IENWBWC160_0000_0200	Gweedore Bay	IE_NW_160_0000	✓	
Portarthur, Derrybeg	IENWBWC160_0000_0100	Gweedore Bay	IE_NW_160_0000	✓	
Drumnatinny	IENWBWC100_0000_0200	Ballyness Bay	IE_NW_170_0000	✓	
		North-western Atlantic Seaboard (HA37:37)	IE_NW_100_0000		
Killahoey	IENWBWC190_0000_0400	Sheephaven Bay	IE_NW_190_0000	✓	
Portnablagh	IENWBWC190_0000_0300	Sheephaven Bay	IE_NW_190_0000	✓	
Marble Hill	IENWBWC190_0000_0200	Sheephaven Bay	IE_NW_190_0000	✓	
Downings	IENWBWC190_0000_0100	Sheephaven Bay	IE_NW_190_0000	✓	
Ballyhiernan, Fanad	IENWBWC100_0000_0100	North-western Atlantic Seaboard (HA37:37)	IE_NW_100_0000	✓	

2.5.3 Shellfish Areas

- There are seven designated shellfish area in the catchment. Six of the seven shellfish areas are compliant with the relevant standards and there no water quality issues of concern. Loughras Bay failed microbial compliance in 2015. The percentage compliance with E. coli 230 MPN 100g-1 was less than 75%. The list of the shellfish waters and the associated water bodies is provided in Table 5.

2.5.4 Nutrient Sensitive Areas

- There are no designated Nutrient Sensitive Areas in the Gweebarra-Sheephaven catchment.

2.5.5 Natura 2000 Sites

- There are 22 Special Areas of Conservation (SACs) in the catchment, not all of which have water quality and/or quantity conservation objectives for their qualifying interests.
- Seven water bodies (2 rivers, 3 lakes, 2 transitional) 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 are seven Special Protected Areas (SPAs) in the catchment:
    - Derryveagh And Glendowan Mountains SPA
    - Falcarragh to Meenlaragh SPA
    - Fanad Head SPA
    - Horn Head to Fanad Head SPA
    - Lough Nillan Bog SPA
    - Sheskinmore Lough SPA
    - West Donegal Coast SPA

  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.

- There are four river water bodies that are designated as Freshwater Pearl Mussel rivers (under Freshwater pearl mussel regulations (S.I. 296 2009)) but are not located within SACs (Appendix 5).

Table 5. Shellfish Waters in the catchment

Shellfish Area		Water body Intersection		Objective met?		Comment
Name	Code	Name	Code	Yes	No	
Loughras Beg	IEPA2_0036	Loughros Bay	IE_NW_110_0000		✓	WFD Characterisation indicates that septic tanks are the significant pressure inputting to the Shellfish Area.
Gweebara Bay	IEPA2_0037	Gweebarra Estuary	IE_NW_120_0100	✓		
Trawenagh Bay	IEPA2_0038	Trawena Bay	IE_NW_130_0000	✓		
		Gweebarra Bay	IE_NW_120_0000			
Dunglow	IEPA2_0039	Dungloe Bay	IE_NW_140_0000	✓		
Gweedore Bay	IEPA2_0040	Gweedore Estuary	IE_NW_160_0200	✓		
		Meenaclady	IE_NW_160_0500			
		Gweedore Bay	IE_NW_160_0000			
Sheephaven	IEPA2_0041	Lackagh Estuary	IE_NW_190_0100	✓		
		Sheephaven Bay	IE_NW_190_0000			
Mulroy Bay	IEPA2_0013	Mulroy Bay Northwater	IE_NW_210_0000	✓		
		Mulroy Bay Broadwater	IE_NW_200_0000			

2.6 Heavily modified water bodies

- There are three designated heavily modified water bodies (HMWBs) in the catchment – Nacung (Upper) and Dunlewy – due to power generation and Salt due to a drinking water abstraction. Nacung (Upper) and Dunlewy were classified as Unassigned while Salt was classified as having Good Ecological Potential in 2010-2015.

- There are no designated artificial water bodies (AWBs) in the catchment.

3 Significant issues in *At Risk* water bodies

- The limited chemistry monitoring data in the Gweebarra-Sheephaven catchment makes it difficult to fully assess the level and possible impacts of nutrients on the water bodies.
- Excess nutrients, mainly phosphorus but in some case ammonia, are the dominant issues.
- Hydromorphological pressures are noted in the catchment, resulting in poor habitat quality.
- Pesticides, such as sheep dip, are an issue in a small number of water bodies.
- The Moderate ecological status of Mulroy Bay Broadwater is driven by moderate benthos status.

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* water bodies in each significant pressure category.

4.1.1 River, lakes and transitional and coastal (TraC)

- Significant pressures have been identified by the initial characterisation process in 30 surface water bodies, twenty-two river, seven lake and one coastal water bodies. Nine of these water bodies have multiple pressures. The significant pressures will be refined as further characterisation is carried out.
- The significant pressure affecting the greatest number of water bodies is agriculture, followed by domestic waste water, other, hydromorphological pressures, mines and quarries, forestry, urban waste water, diffuse urban and peat.
- The significant pressure affecting the Mulroy Bay Broadwater is aquaculture in the coastal water body.

4.1.2 Groundwater

- There are no groundwater bodies *At Risk.*

4.2 Pressure Types

4.2.1 Agriculture

- Agriculture is a significant pressure in seven river water bodies and two lake water bodies; the water bodies affected by farming are shown in Figure 11. The issues related to farming in this catchment are phosphorus loss to surface waters 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 crossings. There is also an issue with sheep dip causing reduction in ecological quality. 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 Domestic waste water

- Domestic waste water has been identified as a significant pressure in five river water bodies and two lake water bodies across the catchment and are shown in shown in Figure 12.

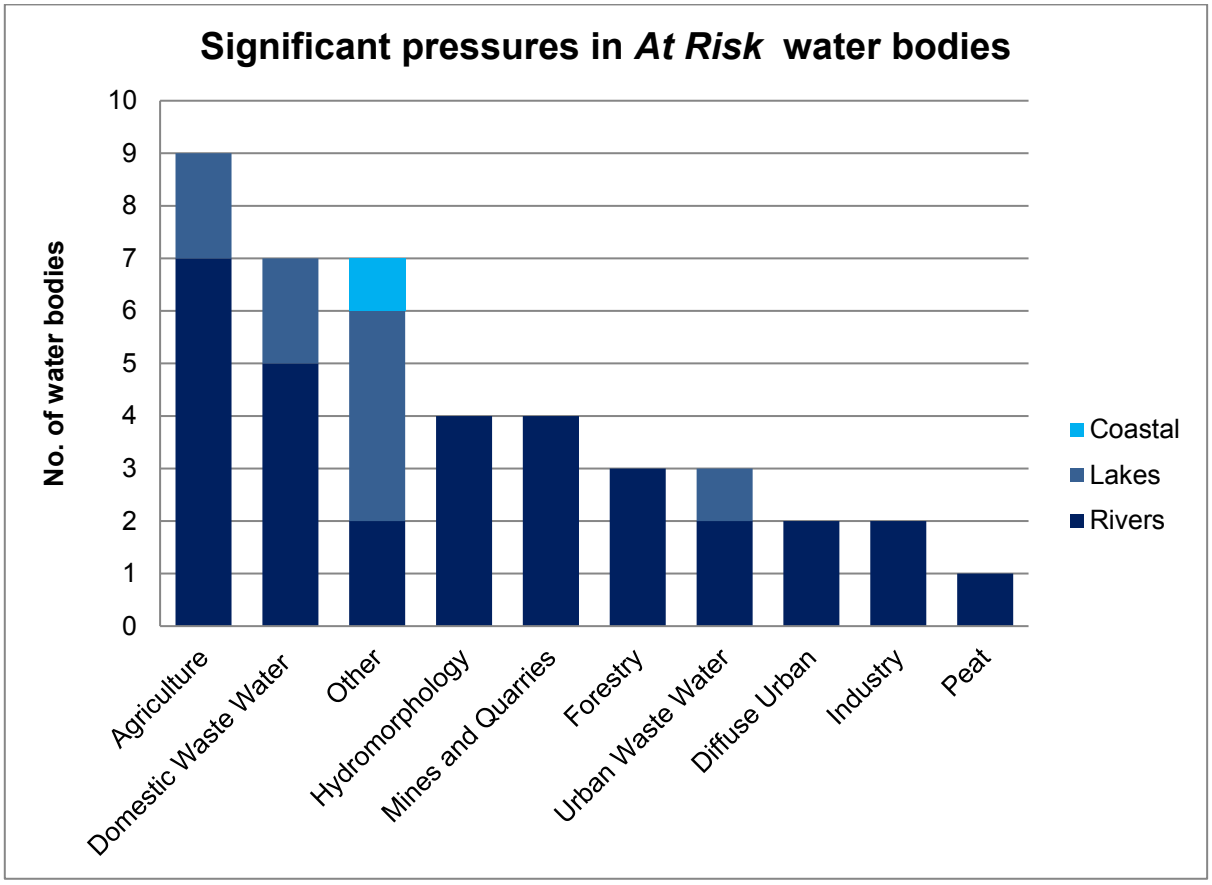


Figure 10. Significant pressures impacting on *At Risk* water bodies.

4.2.3 Other significant pressures

Unknown Anthropogenic

- Two *At Risk* lake water bodies and one river water body have unknown pressures. Figure 13.

Aquaculture

- There is one *At Risk* coastal water body Mulroy Bay Broadwater, being impacted by aquaculture activities (Figure 14).

Abstractions and Water Treatment

- Two *At Risk* lake water bodies Keel Crotty and Veagh, are impacted by abstractions for a public drinking water supplies. Donegal Co. Co. identified that the abstraction from Keel Crotty was the largest in the county (Figure 15).
- One *At Risk* river Keel Lough Stream_010, is impacted from discharges from the water treatment plant (Figure 16).

4.2.4 Hydromorphology

- Four *At Risk* river water bodies within the Burnside (SC38_3) and Lackagh (SC38_5) subcatchments are subject to extensive channel modification in the former and bank protection in the latter. Bank erosion contributing to excessive levels of siltation, was highlighted within a river water body of the Owentocker (SC38_4) subcatchment (Figure 17). This might have been linked to animal access and local topography.

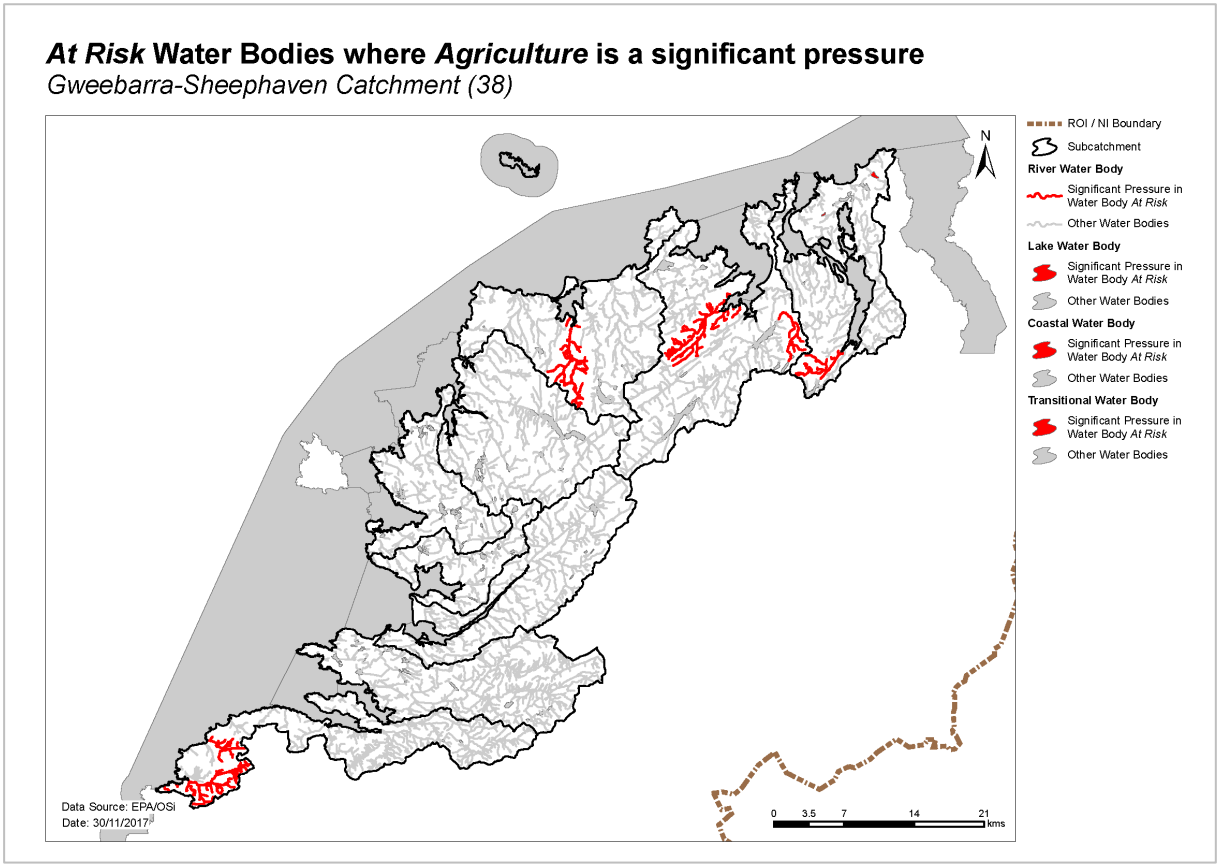


Figure 11. Water bodies that are *At Risk* and are impacted by agricultural activities.

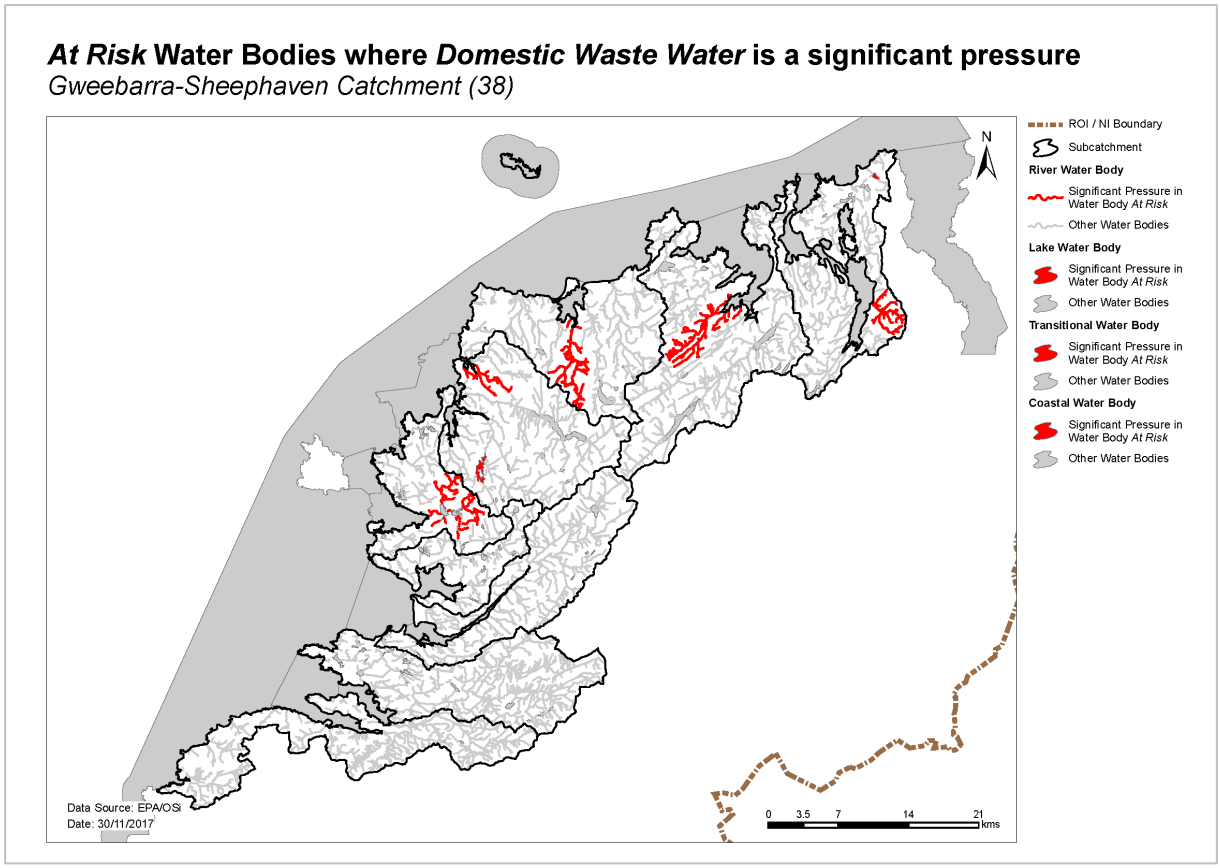


Figure 12. Water bodies that are At *Risk* and are impacted by domestic waste water.

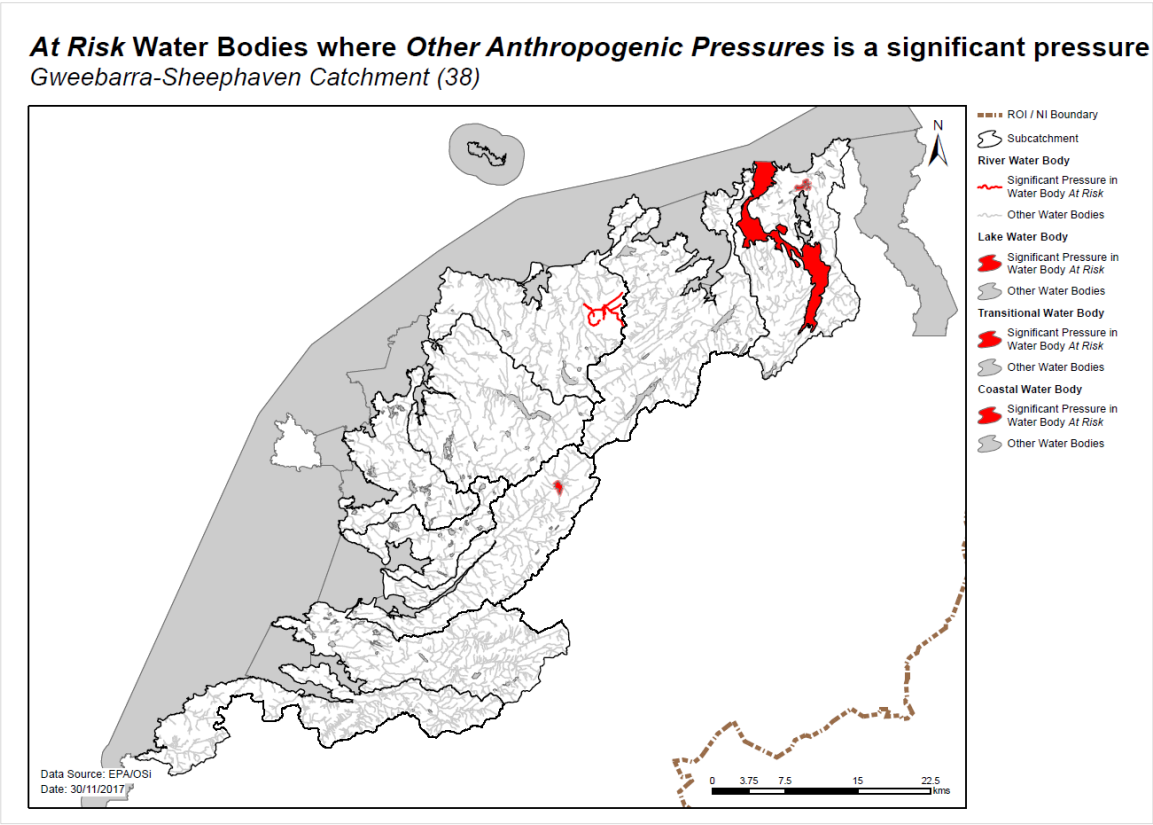


Figure 13. Water bodies that are *At Risk* and are impacted by other anthropogenic pressures.

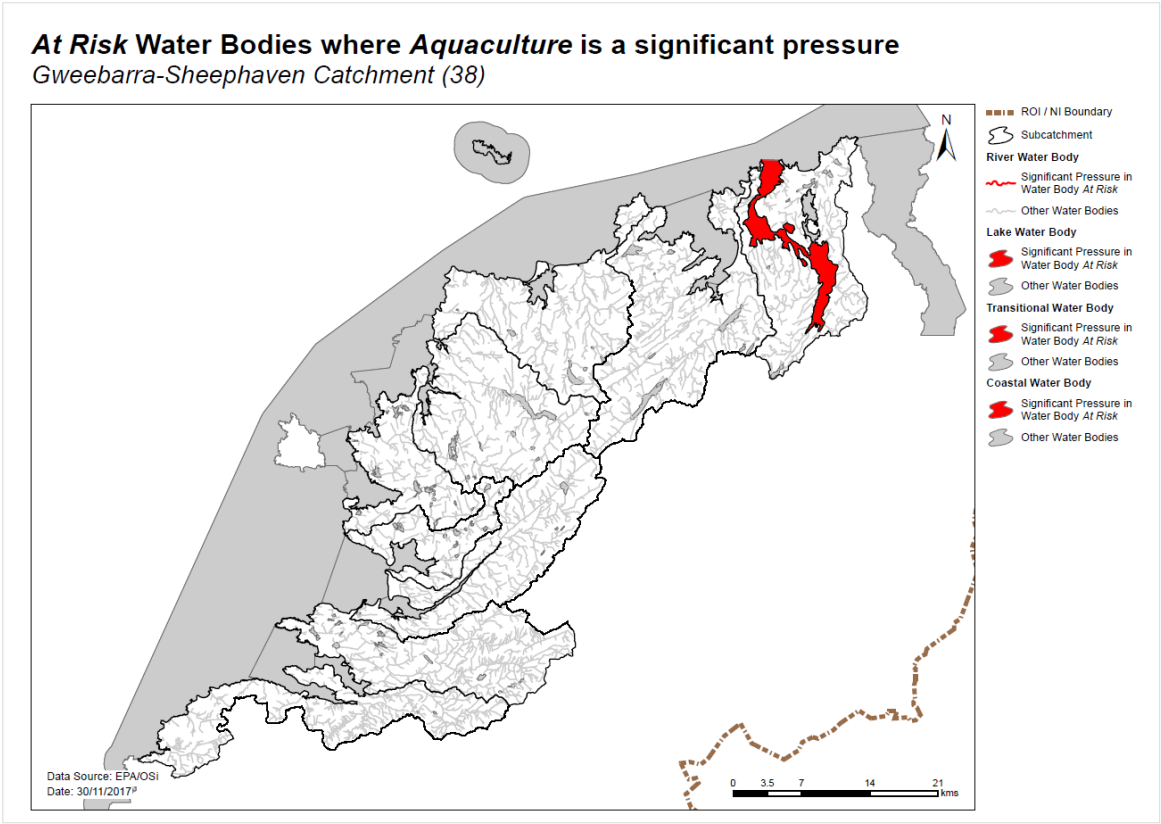


Figure 14. Water bodies that are *At Risk* and are impacted by aquaculture.

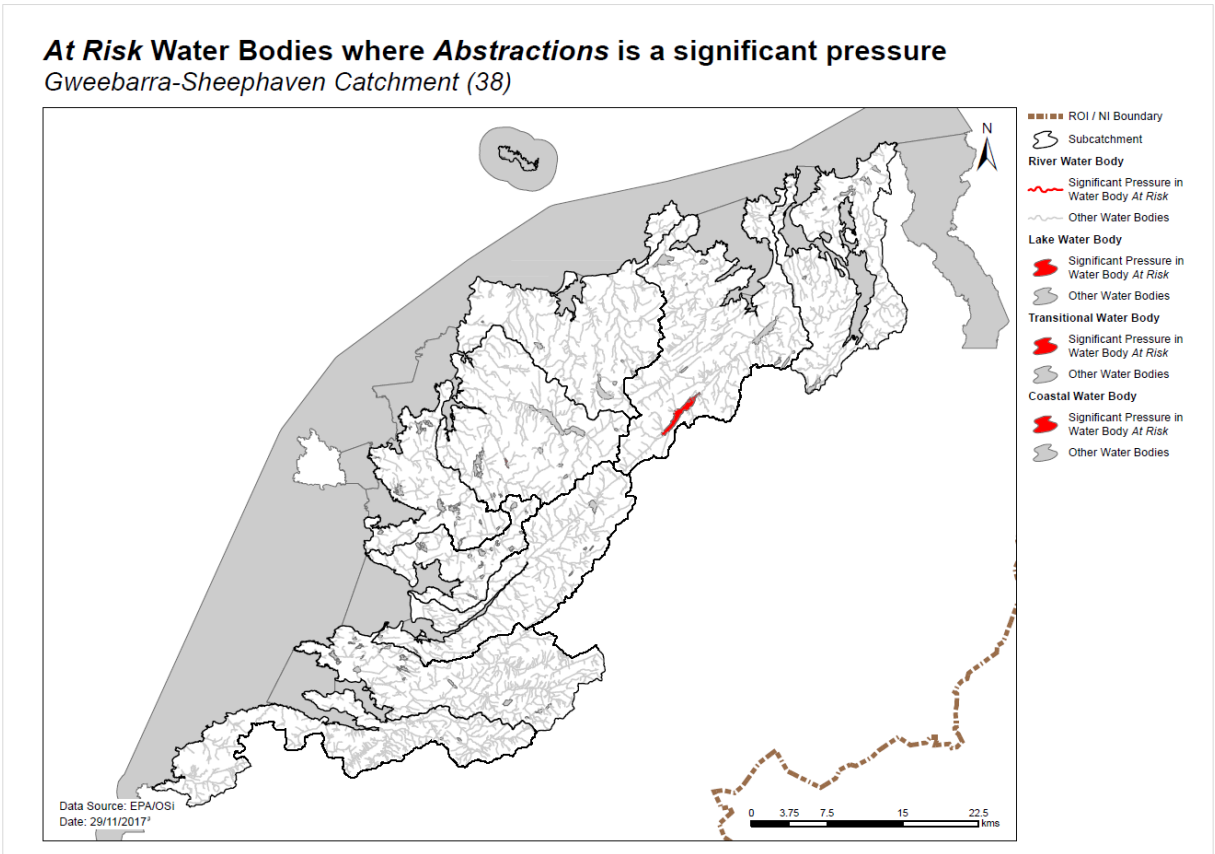


Figure 15. Water bodies that are *At Risk* and are impacted by abstraction.

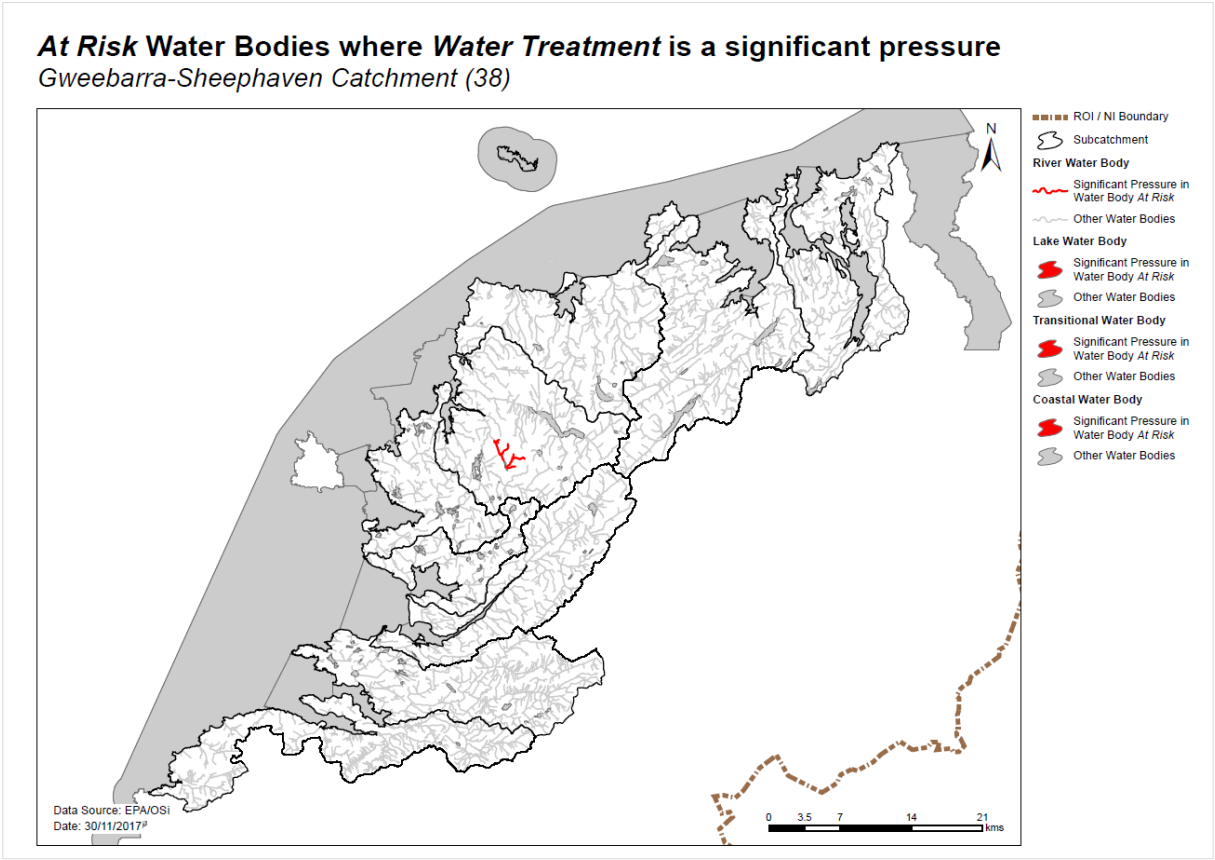


Figure 16. Water bodies that are *At Risk* and are impacted by water treatment.

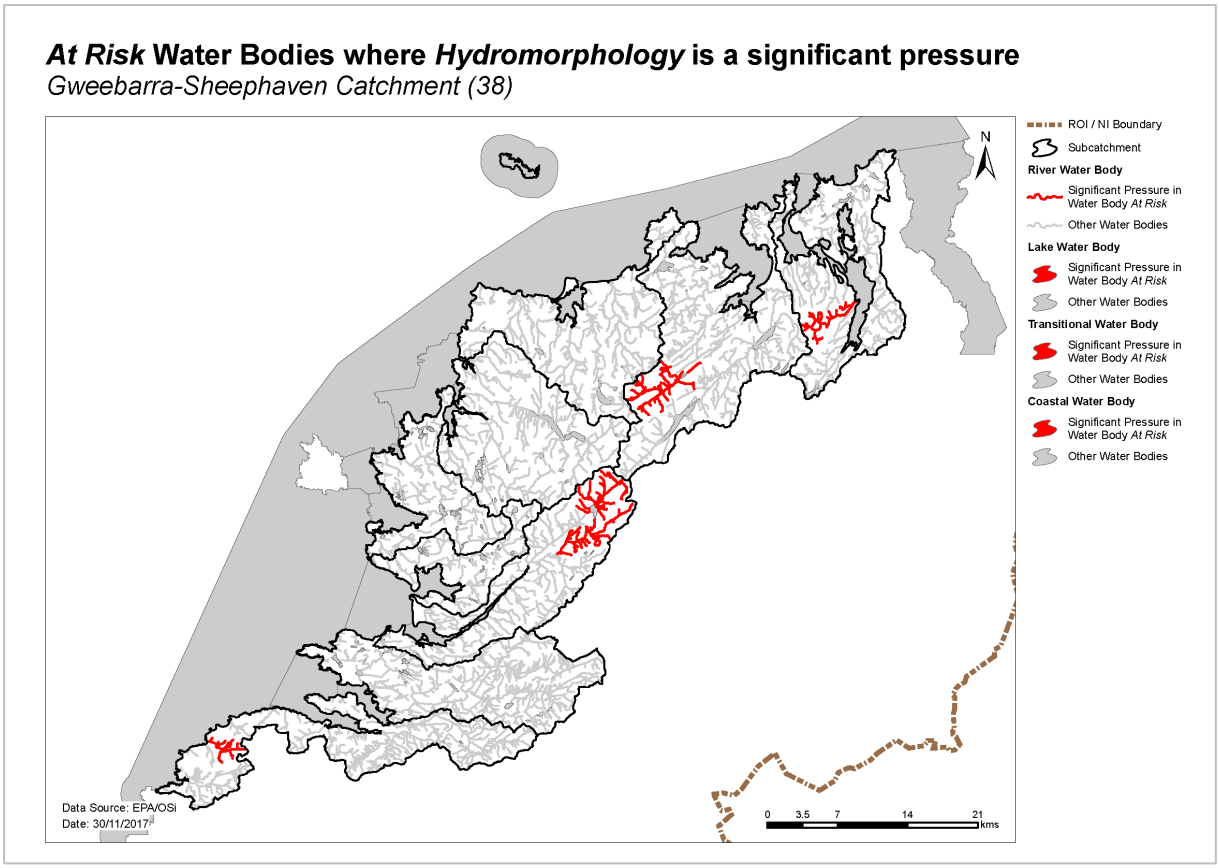


Figure 17. Water bodies that are *At Risk* and are impacted by Hydromorphology.

4.2.5 Extractive Industry

Mines and Quarries

- Mines and Quarries have been identified as significant issues in four river water bodies in the catchment Owenwee (Loughros)_010, Carrownamaddy_010, Catheen_010 and Corveen_010 with sediment, morphological, hydrological, acidification and nutrient impacts.

Peat

- Peat drainage and extraction has been identified as a significant pressure in one water body in the catchment (Corveen_010) with peat cutting resulting in elevated sediment and nutrient loads. Figure 18

4.2.6 Forestry

- Forestry has been identified as a significant pressure (Figure 19) in three water bodies, Bunlin_010, Owentocker_010 and Clady (Donegal)_010. The types of problems encountered include for example: losses of sediment and/or nutrients during afforestation, tree felling and abstraction; losses of sediment from access roads and during road construction; losses of nutrients during aerial fertilisation and impacts from access.

4.2.7 Urban Waste Water Treatment Plants

- Urban Waste Water Treatment Plants (WWTPs) have been identified as a significant pressure in three *At Risk* water bodies, Anure Lake, Catheen_010 and Faymore_010; details are given in Table 6 and Figure 20. The three WWTPs that are impacting these water bodies, Loughanure, Meenanillar and Creeslough, are currently not specified in improvement plans.

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	10-15 Ecological Status	Expected Completion Date
Loughanure Housing Scheme A0475	< 500 p.e.	Anure Lake	*Good* [1]	*NA* [2]
Meenanillar Housing Scheme A0459	< 500 p.e.	Catheen_010	Poor	*NA* [2]
Creeslough D0534	500 to 1,000 p.e.	Faymore_010	Poor	*NA* [2]

4.2.8 Diffuse urban

- Diffuse urban pressures, caused by misconnections, leaking sewers and runoff from paved and unpaved areas, has been identified as the significant pressure in two river water bodies Dungloe_020 and Catheen _010 with nutrient, organic and chemical impacts (Figure 21).

4.2.9 Industry

- Industrial discharges have been identified as a significant pressure in two river water bodies, Bracky_010 and Tullaghobegly_010 (Figure 22). Nutrient and organic impacts are the main issues of concern regarding these point source discharges.

[1] *Anure Lake has a High Status environmental objective.*
[2] *Currently not specified in improvement plans.*

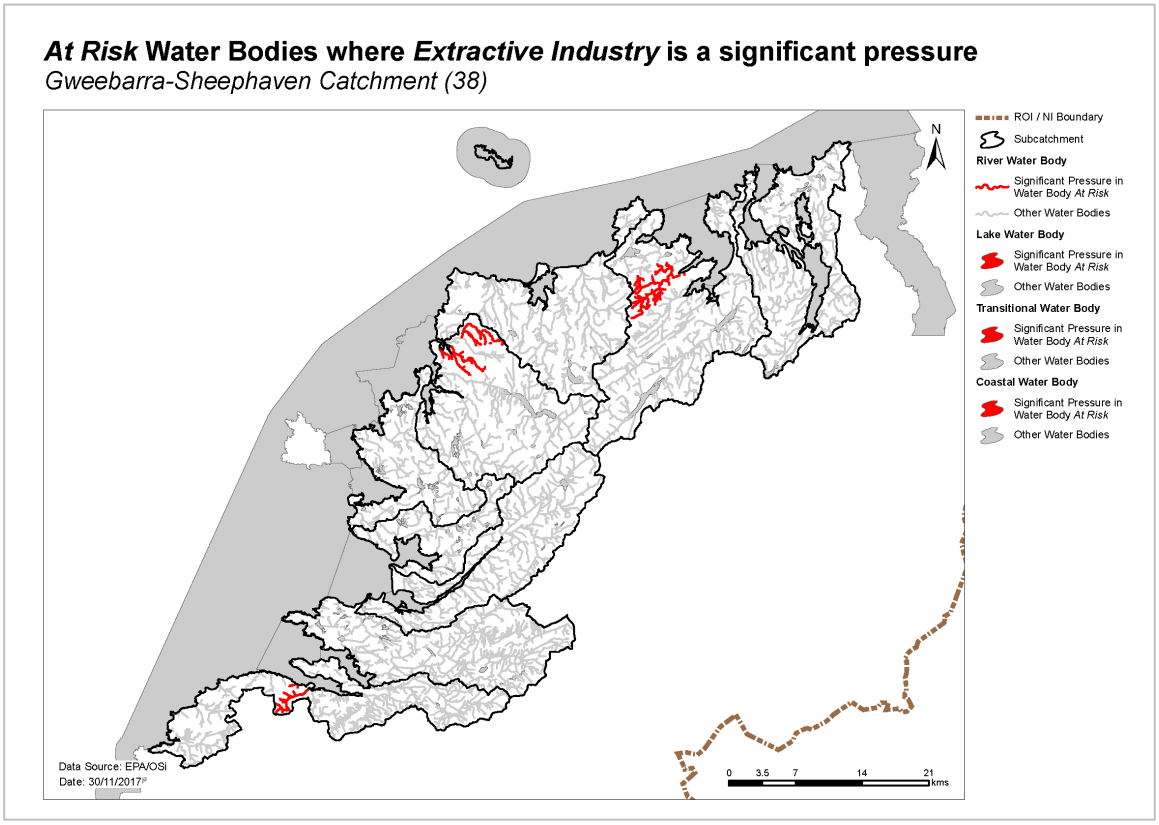


Figure 18. Water bodies that are *At Risk* and are impacted by Extractive industry.

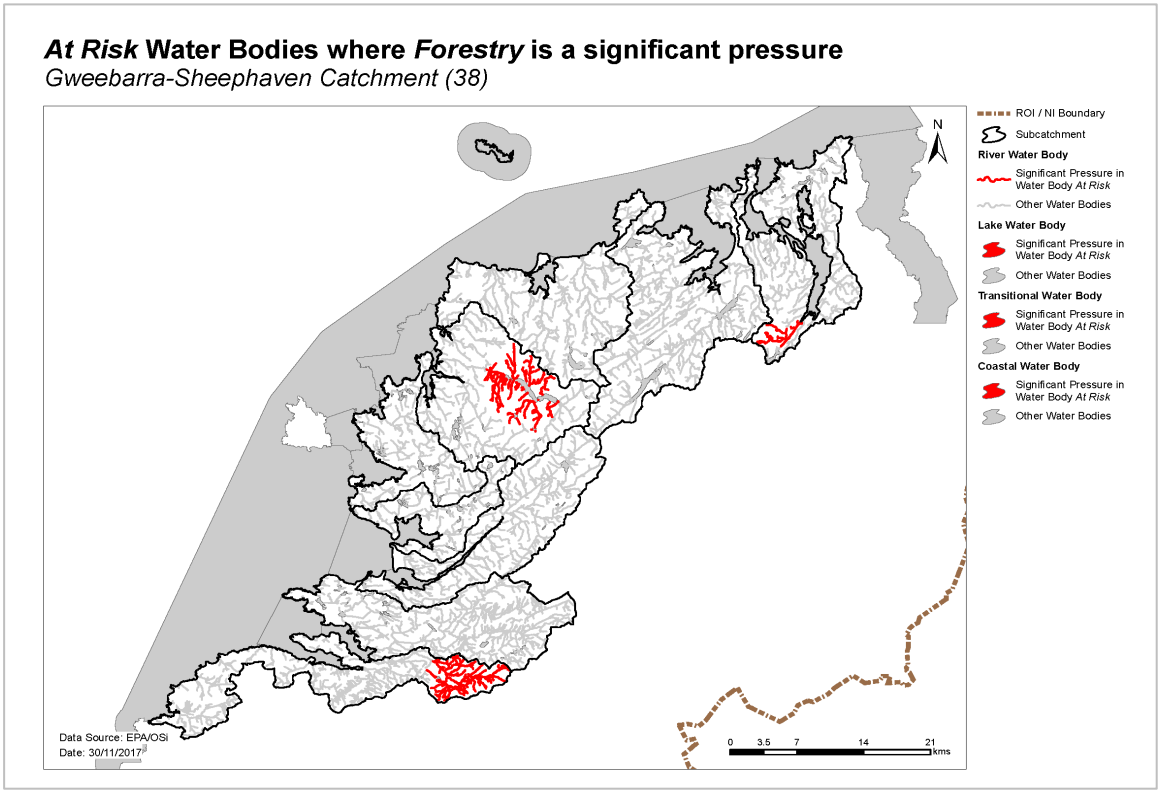


Figure 19. Water bodies that are *At Risk* and are impacted by Forestry.

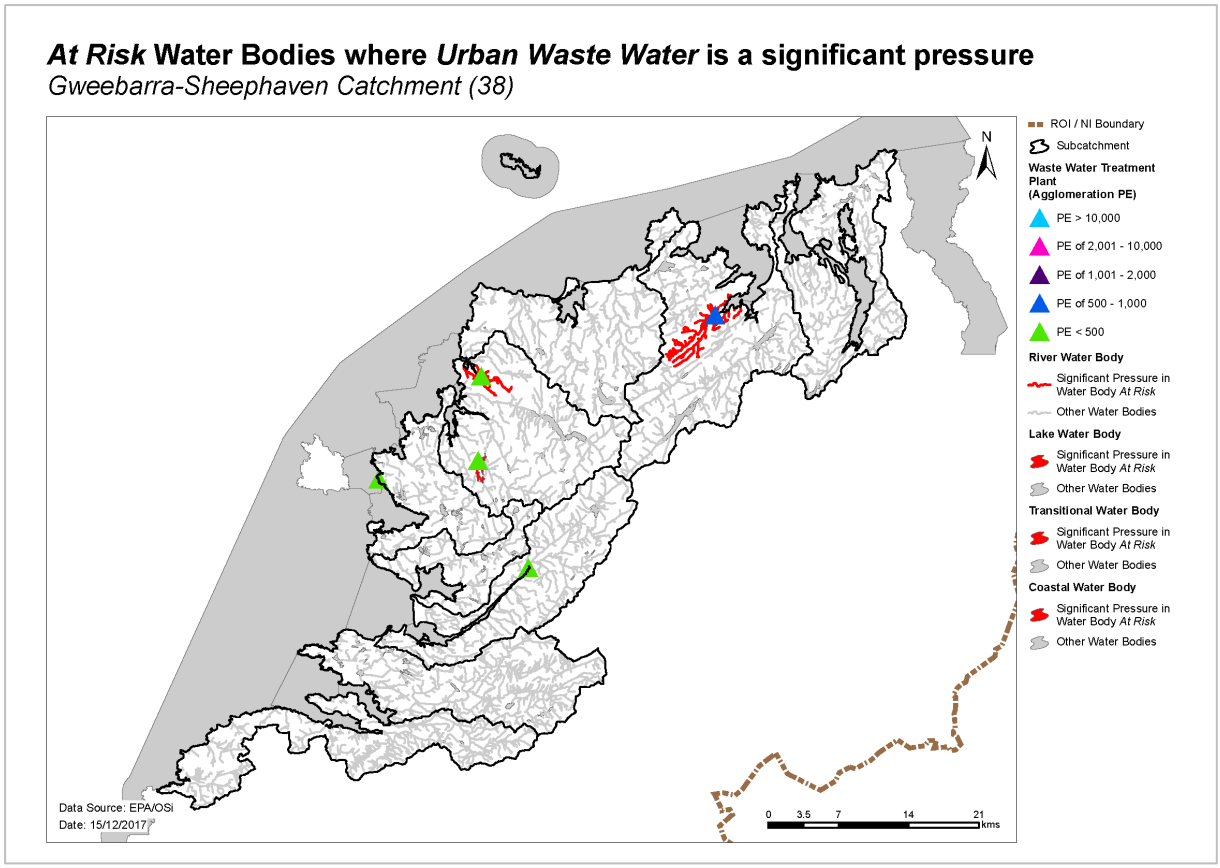


Figure 20. Water bodies that are *At Risk* and are impacted by Urban waste water

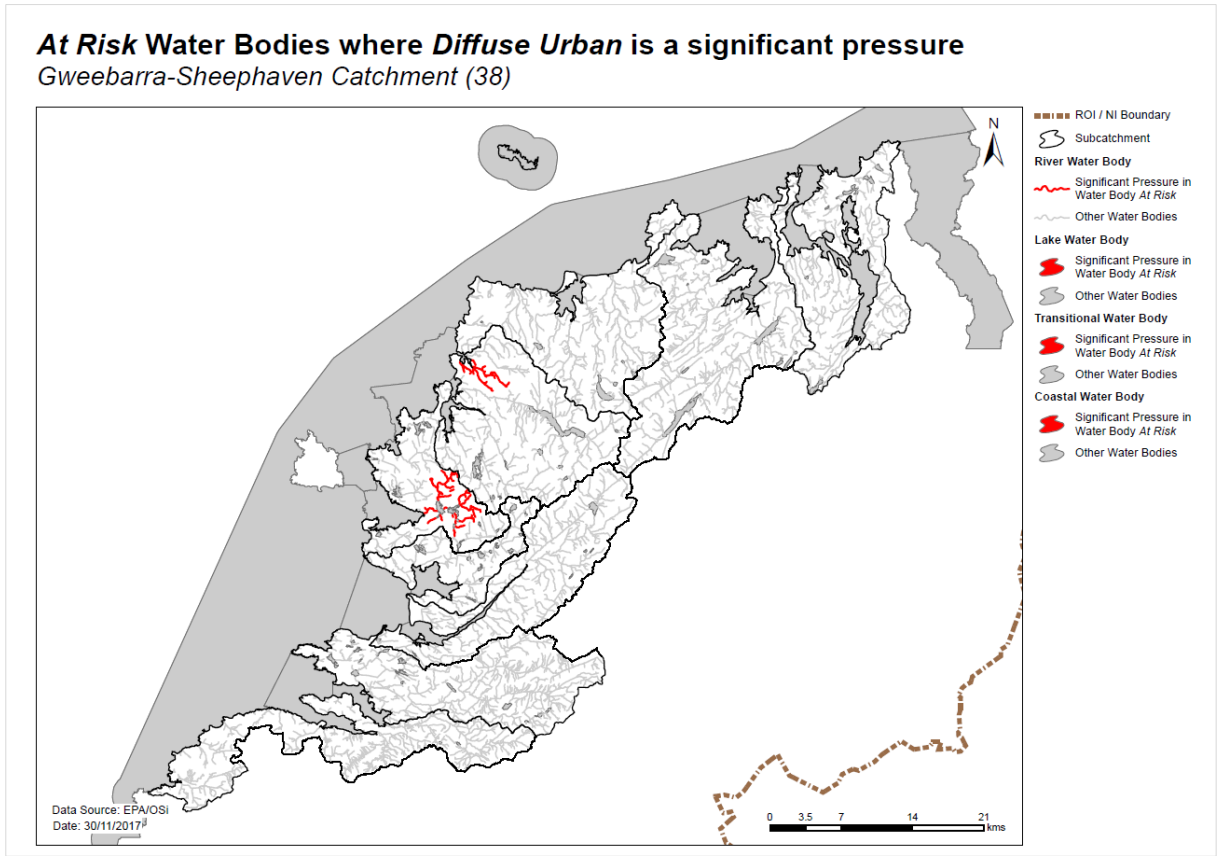


Figure 21. Water bodies that are *At Risk* and are impacted by diffuse urban

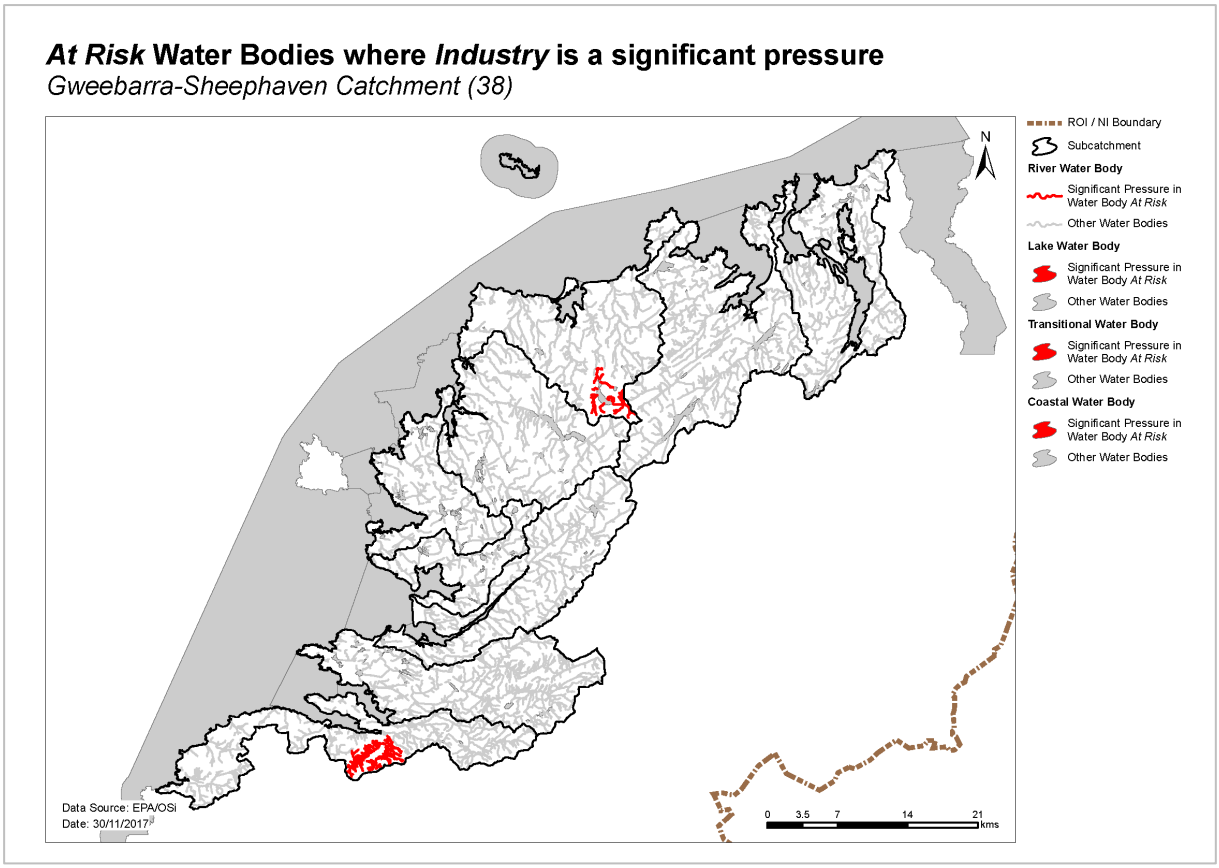


Figure 22. Water bodies that are *At Risk* and are impacted by Industry

5 Load reduction assessment

5.1 River water body load reductions

- 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 30th 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.
- Water chemistry data are very limited in this catchment; only eight of the 88 river water bodies have chemistry data. Of these, only one, the Tullaghobegly_010 requires a P load reduction of medium (estimated) scale.

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 Ospar 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 in 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. No TraC load reductions have been identified for the Gweebarra-Sheephaven Catchment.

6 Further characterisation and local catchment assessments

- Further characterisation through local catchment assessments is needed in 29 of the *At Risk* 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 33 *At Review* water bodies in 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 IA scenarios are given in Appendix 7.

Table 8. Local Catchment Assessment Allocation for *At Risk* and *Review* River and Lake Water Bodies in the Catchment.

Risk	IA 1	IA 3	IA 4	IA 5	1A6	IA 7	IA 8	IA 9	Total
At Risk	17	1	1	10	2	2	3	2	39
Review	23	13	0	0	0	0	0	0	36
Note water bodies may have multiple categories of Local Catchment Assessments									

7 Catchment summary

- Of the 88 river water bodies in the catchment, 22 are *At Risk* of not meeting their WFD objective.
- Seven out of the 83 lake water bodies are *At Risk* of not meeting their WFD objective.
- Seven of the *At Risk* surface water bodies are High Ecological Status (HES) objective water bodies that are not meeting their HES objectives.
- One of the 24 transitional and coastal water bodies, Mulroy Bay Broadwater, is *At Risk* due to Moderate ecological status. The significant pressure is aquaculture in the coastal water body.
- A combination of nutrient and organic loads are the significant issues in the river and lake water bodies. The associated significant pressures include: agriculture mainly in areas where the soils are susceptible to nutrient transfer via surface pathway; domestic waste water treatment systems and urban waste water treatment plants.
- Apart from nutrient related impacts on the surface water bodies, hydromorphological pressures from issues such as channelisation, land drainage, clearfelling, peat drainage and extraction, bank erosion and embankments, and chemical issues from agriculture (sheep dip and pesticides) diffuse urban and water treatment discharges were observed.
- There are no groundwater bodies *At Risk* in the catchment.

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 is one area for action in the Gweebarra-Sheephaven 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.

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, areas for action will 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 Outcomes of process

The outcomes for the Gweebarra-Sheephaven catchment are summarised below.

- There is one recommended area for action (Table 9, Figure 23) selected.
- It is the Glen Lackagh.
- This includes seven *At Risk* and two *Review* river water bodies.
- One groundwater body, that is in *Review* due to groundwater contribution of nutrients to surface water bodies, intersects with two of the recommended areas for action, see Table 10. Actions taken to improve surface water will need to take account of the groundwater contribution to surface water.

A remaining sixty-one *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 24. These include:

- fifty-three river and lake water bodies, 22 *At Risk* and 31 *Review,* and
- eight transitional and coastal water bodies, one *At Risk* and seven *Review.*

Table 9. Recommended Areas for Action in the Gweebarra-Sheephaven Catchment

Recommended area for action	Number of water bodies	SCs	Local authority	Reason for Selection
Glen Lackagh	1	38_5	Donegal	• One deteriorated River Water Body • Single Pressure. • Build on Improvement to Good noted at one of the monitoring locations so only small stretch driving status. • Support FPM (not top 8)

Table10. Groundwater bodies intersecting with surface water bodies in recommended areas for action

Groundwater body			Intersecting surface water bodies		Recommended Areas for Action
Code	Name	Risk	Code	Name	
IE_NW_G_049	Northwest Donegal	Review	IE_NW_38G040900	GLEN (LACKAGH)_010	Glen Lackagh
			IE_NW_38B020100	BRACKY_010	Donegal SW & Murlins
			IE_NW_38D820870	DRUMAGH 38_010	
			IE_NW_38M030250	MURLIN_010	
			IE_NW_38M030400	MURLIN_020	
			IE_NW_38N040540	NEWTOWNBURKE_010	
			IE_NW_38O060050	OWENTOCKER_010	
			IE_NW_38O080050	OWENWEE (LOUGHROS)_010	
			IE_NW_38P010100	PORT STREAM_010	

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 seven *At Risk* river water bodies, it is predicted that two (28%) will improve by 2021 and five (72%) will achieve their objective by 2027.
- For the two *Review* surface water bodies, the absence of information on this water body means that there is no scientific basis to quantify an environmental objective date, and therefore a 2027 date is set for this water body, see Table 11.

Table 11. Environmental objective dates for water bodies in the Areas for Action

Risk Category	No. of Water Bodies	No. of WBs for 2021 Improvement	No. of WBs for 2027 Status Improvement
Rivers			
At Risk	7	2	5
Review	2	0	2
Total	9	2	7

- One hundred and twenty-five surface water bodies have met their 2015 environmental objective. One of the 125 water bodies met its environmental objective for ecological status but failed to meet its protected area objectives.

- As action is not yet planned to be taken in the remaining 23 *At Risk* surface water bodies, a 2027 date is applied to all.
- For the 38 *At 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 applied, see Table 12.

Table 12. Environmental objectives dates in the *At Risk* and *Review* surface water bodies not included in Areas for Action

Risk Category	No. of Water Bodies	No. of WBs for 2021 Improvement	No. of WBs for 2027 Status Improvement
Rivers			
At Risk	15	0	15
Review	25	0	25
Lakes			
At Risk	7	0	7
Review	6	0	6
TraCs			
At Risk	1	0	1
Review	7	0	7
Total	61	0	61

9.2 Groundwater

The one groundwater body in the catchment is Good status and, therefore, has met its environmental objectives.

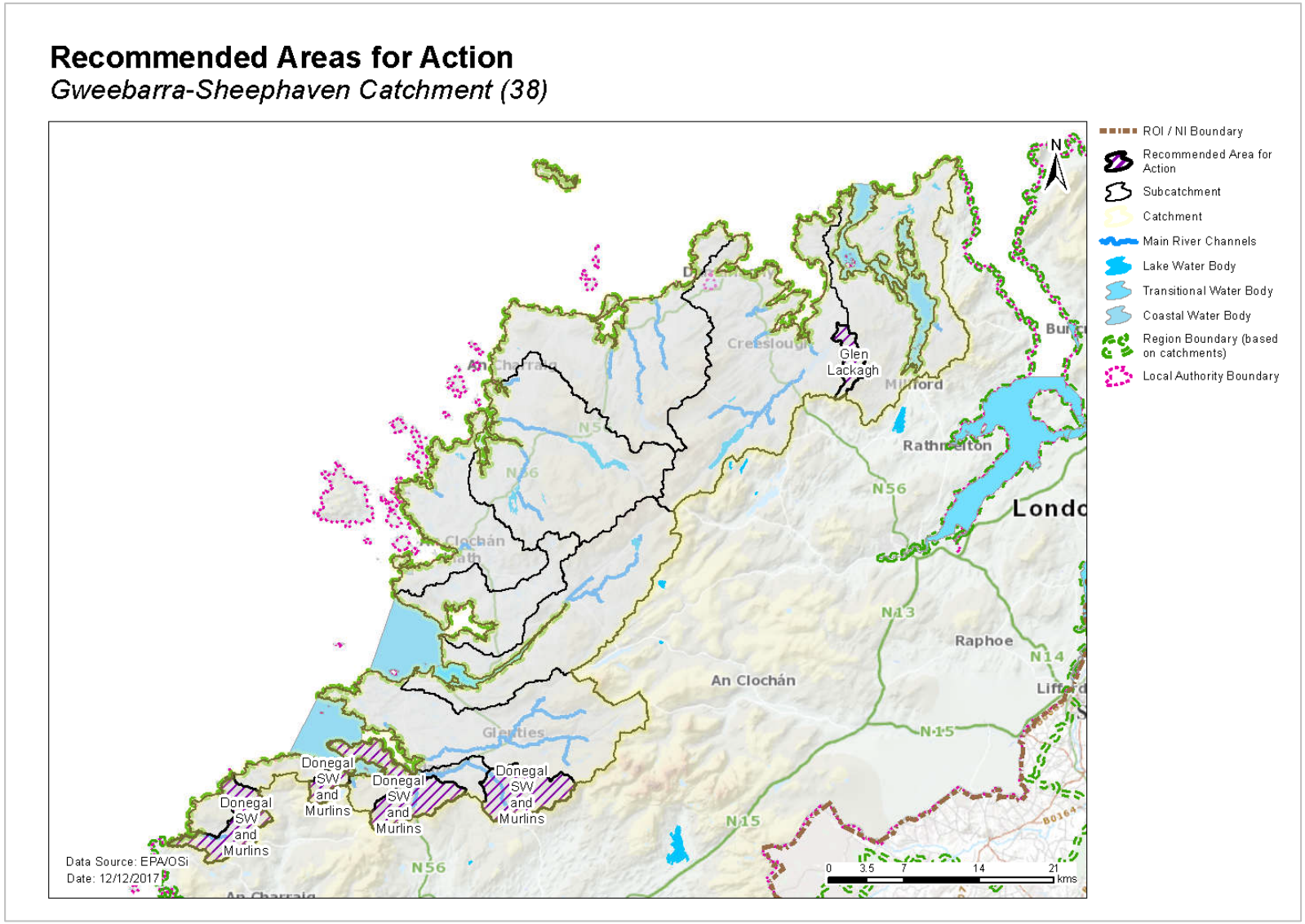


Figure 23. Location of Recommended Areas for Action in the Gweebarra-Sheephaven Catchment

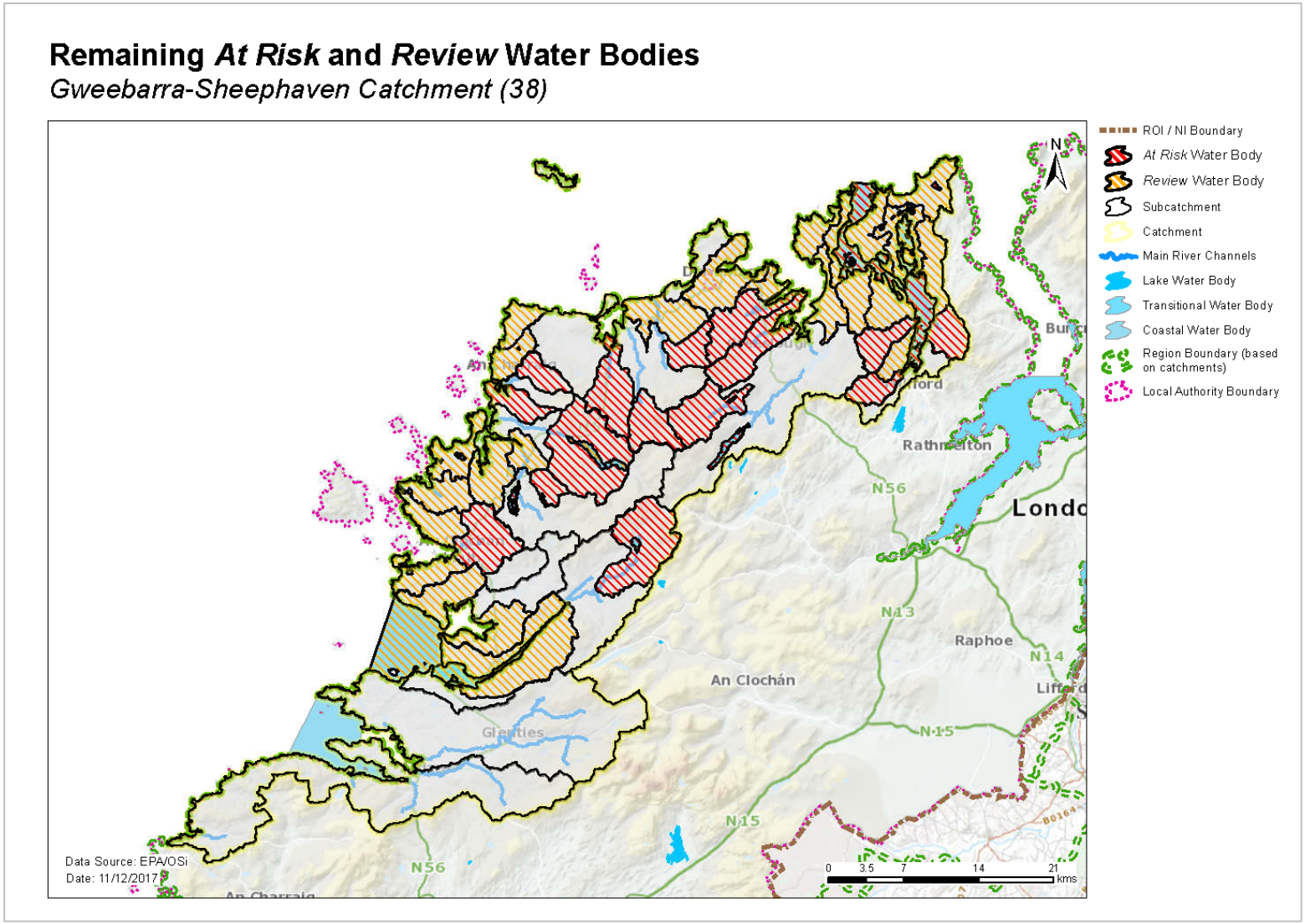


Figure 24. Location of *At Risk* and *Review* water bodies located outside Recommended Areas for Action in the Gweebarra-Sheephaven Catchment

10 Acknowledgements

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

- Donegal 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.
- Northern Ireland Environment Agency.
- DAFM Agriculture.
- DAFM Forest Service.
- Coillte.
- Teagasc.
- Health Service Executive.
- National Parks and Wildlife Service.
- Loughs Agency.
- National Federation of Group Water Schemes.
- Office of Public Works.

Appendix 1 High ecological status objective water bodies

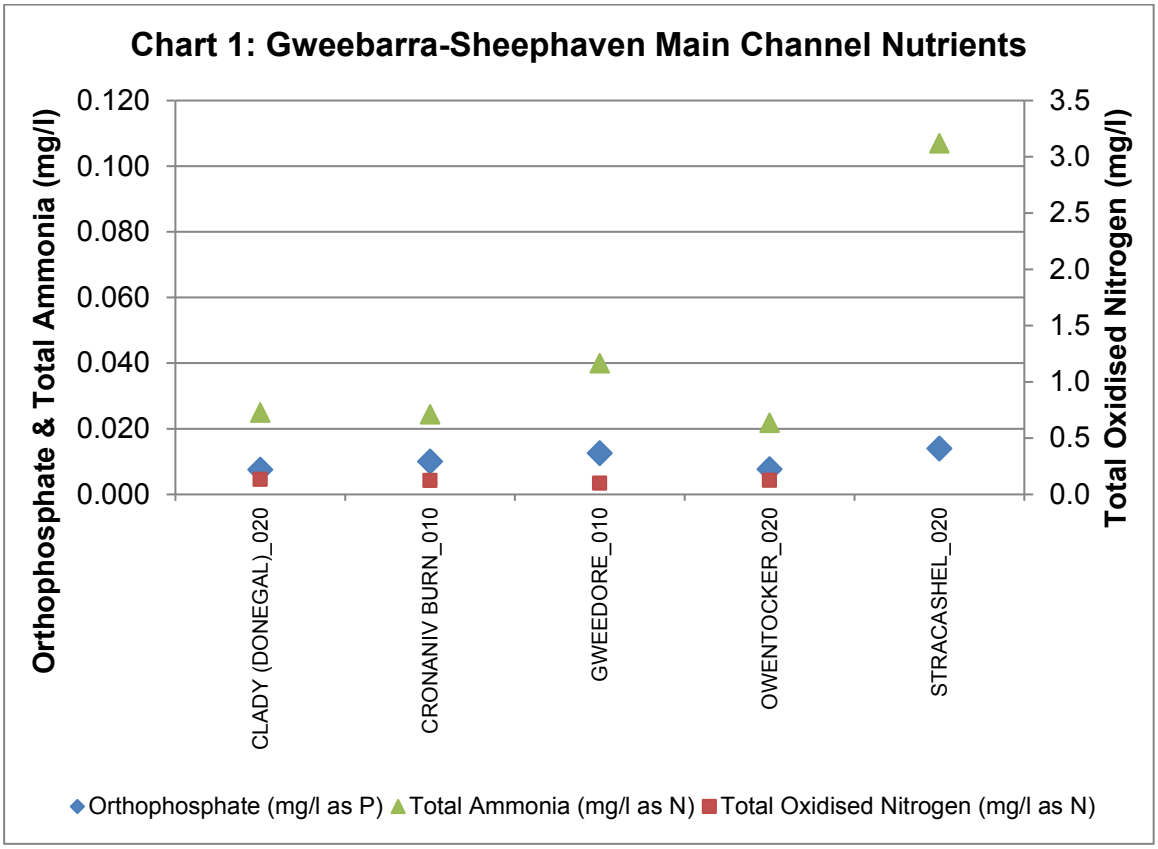
Water body/ Site	Type	Codes	2015 Status
OWENWEE (DOOCHARRY)_010	River	IE_NW_38O070250	High
OWENCARROW_020	River	IE_NW_38O030300	High
OWENWEE (GLEN LOUGH) _010	River	IE_NW_38O130100	High
OWENVEAGH_010	River	IE_NW_38O140080	High
LOUGH AGHER STREAM_010	River	IE_NW_38L020200	Good
CRONANIV BURN_010	River	IE_NW_38C060100	High
DEVLIN (DONEGAL)_010	River	IE_NW_38D010080	High
Dunglow	Lake	IE_NW_38_692	High
Barra	Lake	IE_NW_38_84	Good
Greenan	Lake	IE_NW_38_635	High
Veagh	Lake	IE_NW_38_693	Good
Anure	Lake	IE_NW_38_83	Good
Agannive Brockagh	Lake	IE_NW_38_665	Unassigned
Gweebarra Estuary	Transitional	IE_NW_120_0100	Good
North-western Atlantic Seaboard (HAs 37;38)	Coastal	IE_NW_100_0000	High
Gweebarra Bay	Coastal	IE_NW_120_0000	Good
Lough Swilly	Coastal	IE_NW_220_0000	High

Appendix 2 Catchment Scale Nutrient concentrations and in-stream loads

The results of the in-stream water quality assessment for the Gweebarra-Sheephaven catchment main channels are illustrated in Chart 1. The five rivers which have water chemistry data in the catchment are the Clady (Donegal), the Cronanivburn, the Gweedore, the Owentocker and the Stracashel.

Along each of the five rivers, orthophosphate concentrations are well below the EQS (0.035mg/l) at all water bodies where data is available, ranging from 0.008 to 0.014mg/l.

Total Oxidised Nitrogen (TON) concentrations are uniformly low, only marginally exceeding the limits of detection. Except for a moderate spike at GWEEDORE_010 (0.040mg/), and a large spike at STRACASHEL_020 (0.107mg/l), ammonia concentrations are moderately low. The EQS drinking water threshold for TON (2.6mg/l) is not exceeded at any of the main channel water bodies where data is available. The EQS for ammonia (0.065mg/l) is exceeded at STRACASHEL_020.



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
38_1	IE_NW_38_81	Mullaghderg East	Lake	Review	Unassigned	Unassigned	N		2027	
38_1	IE_NW_38C250960	An_Céideadh_010	River	Review	Unassigned	Unassigned	N		2027	
38_1	IE_NW_38G180970	Glais_Bheagã⍰ln_010	River	Review	Unassigned	Unassigned	N		2027	
38_1	IE_NW_38M190990	Mullaghderg_010	River	Review	Unassigned	Unassigned	N		2027	
38_1	IE_NW_38D020250	Dungloe_020	River	At Risk	Moderate	Moderate	N	DU,DWW	2027	
38_1	IE_NW_38S230860	Saltpans 38_010	River	Review	Unassigned	Unassigned	N		2027	
38_1	IE_NW_140_0100	Maghery Lough	Transitional	Review	Unassigned	Unassigned	N		2027	
38_1	IE_NW_150_0100	Sally's Lough	Coastal	Review	Unassigned	Unassigned	N		2027	
38_2	IE_NW_38M290990	Mulnamin_Beg_010	River	Review	Unassigned	Unassigned	N		2027	
38_2	IE_NW_38M430800	Meenagowan_010	River	Review	Unassigned	Unassigned	N		2027	
38_2	IE_NW_38_84	Barra	Lake	At Risk	Good	Good	Y	Other	2027	
38_2	IE_NW_38G020200	Gweebarra_010	River	At Risk	Moderate	Moderate	N	Hymo	2027	
38_2	IE_NW_120_0000	Gweebarra Bay	Coastal	Review	High	Good	Y		2027	
38_2	IE_NW_120_0100	Gweebarra Estuary	Transitional	Review	High	Good	Y		2027	
38_3	IE_NW_38_194	Fallaneas	Lake	Review	Unassigned	Unassigned	N		2027	
38_3	IE_NW_38B170800	Ballincrick_And_Ballynabrocky_010	River	Review	Unassigned	Unassigned	N		2027	
38_3	IE_NW_38B310830	Ballyhoorisky_010	River	Review	Unassigned	Unassigned	N		2027	
38_3	IE_NW_38_668	Naglea	Lake	At Risk	Unassigned	Moderate	N	Ag	2027	
38_3	IE_NW_38_670	Kindrum	Lake	At Risk	Moderate	Moderate	N	Other	2027	
38_3	IE_NW_38_678	Shannagh	Lake	At Risk	Good	Moderate	N	Ag,DWW	2027	
38_3	IE_NW_38B030500	Big Burn_010	River	At Risk	Good	Moderate	N	Hymo	2027	
38_3	IE_NW_38B040100	Bunlin_010	River	At Risk	Good	Moderate	N	Ag,For	2027	
38_3	IE_NW_38B050400	Burnside_010	River	At Risk	Good	Poor	N	DWW	2027	
38_3	IE_NW_38C130960	Carrickart_010	River	Review	Unassigned	Unassigned	N		2027	
38_3	IE_NW_38L160510	Laddan_010	River	Review	Unassigned	Unassigned	N		2027	
38_3	IE_NW_38M420690	Míobhaigh_010	River	Review	Unassigned	Unassigned	N		2027	
38_3	IE_NW_38R020990	Rathgory 38_010	River	Review	Unassigned	Unassigned	N		2027	
38_3	IE_NW_38T050840	Tulach_010	River	Review	Unassigned	Unassigned	N		2027	
38_3	IE_NW_38W020970	Woodquarter_010	River	Review	Unassigned	Unassigned	N		2027	
38_3	IE_NW_200_0000	Mulroy Bay Broadwater	Coastal	At Risk	Moderate	Moderate	N	Other	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
38_3	IE_NW_200_0200	Carrick Beg Lough (South)	Transitional	Review	Unassigned	Unassigned	N		2027	
38_3	IE_NW_210_0000	Mulroy Bay Northwater	Coastal	Review	Unassigned	Unassigned	N		2027	
38_4	IE_NW_38D820870	Drumagh 38_010	River	Review	Unassigned	Unassigned	N		2027	Donegal SW & Murlins
38_4	IE_NW_38B020100	Bracky_010	River	At Risk	Poor	Poor	N	Ind	2021	Donegal SW & Murlins
38_4	IE_NW_38N040540	Newtownburke_010	River	Review	Unassigned	Unassigned	N		2027	Donegal SW & Murlins
38_4	IE_NW_38M030250	Murlin_010	River	At Risk	Unassigned	Poor	N	Ag	2027	Donegal SW & Murlins
38_4	IE_NW_38M030400	Murlin_020	River	At Risk	Poor	Poor	N	Ag	2027	Donegal SW & Murlins
38_4	IE_NW_38O060050	Owentocker_010	River	At Risk	Good	Poor	N	For	2027	Donegal SW & Murlins
38_4	IE_NW_38O080050	Owenwee (Loughros)_010	River	At Risk	Good	Moderate	N	M+Q	2021	Donegal SW & Murlins
38_4	IE_NW_38P010100	Port Stream_010	River	At Risk	Moderate	Poor	N	Ag,Hymo	2027	Donegal SW & Murlins
38_5	IE_NW_38D240730	Doire_Chasáin_010	River	Review	Unassigned	Unassigned	N		2027	
38_5	IE_NW_38D500770	Dunfanaghy_010	River	Review	Unassigned	Unassigned	N		2027	
38_5	IE_NW_38R050930	Rockhill 38_010	River	Review	Unassigned	Unassigned	N		2027	
38_5	IE_NW_38_693	Veagh	Lake	At Risk	High	Good	Y	Other	2027	
38_5	IE_NW_38C010300	Calabber_010	River	At Risk	Good	Moderate	N	Hymo	2027	
38_5	IE_NW_38C020300	Carrownamaddy_010	River	At Risk	Good	Moderate	N	M+Q	2027	
38_5	IE_NW_38R090870	Rosepenna_010	River	Review	Unassigned	Unassigned	N		2027	
38_5	IE_NW_38F010200	Faymore_010	River	At Risk	Moderate	Poor	N	Ag,DWW,UWW	2027	
38_5	IE_NW_38G040900	Glen (Lackagh)_010	River	At Risk	Good	Poor	N	Ag	2027	Glen Lackagh
38_5	IE_NW_38_665	Agannive Brockagh	Lake	Review	High	Unassigned	Y		2027	
38_6	IE_NW_38_278	Veigha	Lake	Review	Unassigned	Unassigned	N		2027	
38_6	IE_NW_38B280640	Bun_Na_Leaca_010	River	Review	Unassigned	Unassigned	N		2027	
38_6	IE_NW_38C180660	AN_Cheathrú_Cheanainn_010	River	Review	Unassigned	Unassigned	N		2027	
38_6	IE_NW_38C540200	Cnoc_Fola_010	River	Review	Unassigned	Unassigned	N		2027	
38_6	IE_NW_38G010200	Glenna_010	River	At Risk	Good	Moderate	N	Ag,DWW	2027	
38_6	IE_NW_38L020200	Lough Agher Stream_010	River	At Risk	High	Good	Y	Other	2027	
38_6	IE_NW_38T010100	Tullaghobegly_010	River	At Risk	Moderate	Poor	N	Ind	2027	
38_7	IE_NW_38_26	Nacung Upper	Lake	Review	Unassigned	Unassigned	N		2027	
38_7	IE_NW_38_576	Keel Crotty	Lake	At Risk	Moderate	Moderate	N	Other	2027	
38_7	IE_NW_38_683	Dunlewy	Lake	Review	Unassigned	Unassigned	N		2027	
38_7	IE_NW_38L150630	Loughanure 38_010	River	Review	Unassigned	Unassigned	N		2027	
38_7	IE_NW_38_83	Anure	Lake	At Risk	High	Good	Y	DWW,UWW	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
38_7	IE_NW_38C030200	Catheen_010	River	At Risk	Unassigned	Poor	N	DU,DWW,M+Q,UWW	2027	
38_7	IE_NW_38C040150	Clady (Donegal)_010	River	At Risk	Moderate	Moderate	N	For	2027	
38_7	IE_NW_38C050200	Corveen_010	River	At Risk	Moderate	Moderate	N	M+Q,Peat	2027	
38_7	IE_NW_38G030300	Gweedore_020	River	Review	Moderate	Good	N		2027	
38_7	IE_NW_38K010200	Keel Lough Stream_010	River	At Risk	Poor	Poor	N	Other	2027	
38_7	IE_NW_160_0300	Moorlagh	Transitional	Review	Unassigned	Unassigned	N		2027	
38_8	IE_NW_38M100990	Mín_Doire_Eidhinn_010	River	Review	Unassigned	Unassigned	N		2027	
38_8	IE_NW_38M180780	Mín_An_Chairn_010	River	Review	Unassigned	Unassigned	N		2027	

Ag: Agriculture

DWW: Domestic Waste Water

For: Forestry

Hymo: Hydromorphology

Ind: Industry

M+Q: Mines and Quarries

Peat: Peat Drainage and Extraction

DU: Diffuse Urban

UWW: Urban Waste Water

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
0600PRI3057	Glenveagh No.2	Owencarrow River	IE_NW_38O030150
0600PRI3126	Glenveagh No.1	Lough Veagh	IE_NW_38_693
0600PUB1044	Carrigart-Downings	Lough Nameeltoge	IE_NW_38_29
0600PUB1059	Gortahork-Falcarragh	Lough Lagha	IE_NW_38_566
0600PUB1060	Rosses Regional Pub	Lough Keel	IE_NW_38_576
0600PUB1070	Glenties-Ardara	Lough Anna	IE_NW_38_52
0600PUB1075	Cresslough	Muckish Stream (Lough Agher Stream)	IE_NW_38L020200
0600PUB1110	Letterkenny Goldrum	Lough Greenan	IE_NW_38_635
	Letterkenny Goldrum	Lough Salt	IE_NW_38_649
	Letterkenny Goldrum	Lough Keel	IE_NW_38_75

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. Arctic char (Salvelinus alpinus) has been added to Cloghernagore Bog And Glenveagh National Park SAC, Kindrum Lough SAC and Sessiagh Lough SAC). River water bodies that are designated as Freshwater Pearl Mussel rivers (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?
Cloghernagore Bog And Glenveagh National Park SAC 002047	3110	At least Good	Lake	Glen DL	Good (NAR)	No	IE_NW_38_22	No
			Lake	Agannive Brockagh	Unassigned (R - HES obj)	No	IE_NW_38_665	No
			Lake	Veagh	Good (AT RISK - HES obj)	No	IE_NW_38_693	No
			Lake	Aluirg	Unassigned (NAR)	No	IE_NW_38_33	No
			Lake	Moilt	Unassigned (NAR)	No	IE_NW_38_526	No
			Lake	Feeane	Unassigned (NAR)	No	IE_NW_38_530	No
			Lake	Altan	Unassigned (NAR)	No	IE_NW_38_19	No
			Lake	Croan	Unassigned (NAR)	No	IE_NW_38_661	No
			Lake	Glentornan	Unassigned (NAR)	No	IE_NW_38_546	No
			Lake	Atirrive	Unassigned (NAR)	No	IE_NW_38_18	No
			Lake	Agannive Slieve Snaght	Unassigned (NAR)	No	IE_NW_38_565	No
			Lake	Barra	Good (AT RISK - HES obj)	No	IE_NW_38_84	No
			Lake	Fadda DL	Unassigned (NAR)	No	IE_NW_38_474	No
			Lake	Nanuroge	Unassigned (NAR)	No	IE_NW_38_563	No
			Lake	Fad Gubbin Hill	Unassigned (NAR)	No	IE_NW_38_597	No
			Lake	Lack More	Unassigned (NAR)	No	IE_NW_38_612	No
			Lake	Croangar	Unassigned (NAR)	No	IE_NW_38_66	No
			Lake	Anillar	Unassigned (NAR)	No	IE_NW_38_594	No
			Lake	Nacuskry	Unassigned (NAR)	No	IE_NW_38_43	No
			Lake	Nasnanida	Good (NAR)	No	IE_NW_38_67	No
			Lake	Annilanowennamarve	Unassigned (NAR)	No	IE_NW_38_77	No
			Lake	Adreen	Unassigned (NAR)	No	IE_NW_38_652	No
			Lake	Anoon	Unassigned (NAR)	No	IE_NW_38_561	No
			Lake	Fad Dunglow	Unassigned (NAR)	No	IE_NW_38_543	No
			Lake	Namuck	Unassigned (NAR)	No	IE_NW_38_606	No
			Lake	Cushkeeragh	Unassigned (NAR)	No	IE_NW_38_571	No
			Lake	Craghy	Unassigned (NAR)	No	IE_NW_38_82	No

SAC Name	Relevant Qualifying interests	Target status	Water body type	Water bodies	Status (risk)	Prioritise?	Code	Survey data?
	1106	Good	River	Owencarrow_010	Good (NAR)	No	IE_NW_38O030150	No
			River	Owencarrow_020	High (NAR - HES obj)	No	IE_NW_38O030300	No
			River	Owenwee (Glen Lough)_010	High (NAR - HES obj)	No	IE_NW_38O130100	No
	1029 (19 of 27 catchments of S.I. 296 2009)	Good	River	Owencarrow_010	Good (NAR)	No	IE_NW_38O030150	Yes
			River	Owencarrow_020	High (NAR - HES obj)	No	IE_NW_38O030300	Yes
			River	Calabber_010	Moderate (AT RISK)	Yes	IE_NW_38C010300	Yes
			River	Owenveagh_010	High (NAR - HES obj)	No	IE_NW_38O140080	Yes
			River	Cronaniv Burn_010	High (NAR - HES obj)	No	IE_NW_38C060100	Yes
			River	Devlin (Donegal)_010	High (NAR - HES obj)	No	IE_NW_38D010080	Yes
			River	Clady (Donegal)_010	Moderate (AT RISK)	Yes	IE_NW_38C040150	Yes
	Artic char (not listed)	Good	Lake	Veagh	Good (AT RISK - HES obj)	No	IE_NW_38_693	No
Gannivegil Bog SAC 000142	3110	At least Good	Lake	Gannevegil	Unassigned (NAR)	No	IE_NW_38_11	No
			Lake	Nabrackmore	Unassigned (NAR)	No	IE_NW_38_603	No
			Lake	Meenlecknalore	Unassigned (NAR)	No	IE_NW_38_62	No
			Lake	Namurrig	Unassigned (NAR)	No	IE_NW_38_5	No
			Lake	Nanuarragh	Unassigned (NAR)	No	IE_NW_38_8	No
			Lake	Acloghbolie	Unassigned (NAR)	No	IE_NW_38_63	No
			Lake	Machugh	Unassigned (NAR)	No	IE_NW_38_54	No
Gweedore Bay And Islands SAC 001141	1150	Good	Transitional	Loch Chionn Caslach (Kincas Lough)	Unassigned (NAR)	No	IE_NW_160_0100	Yes
			Transitional	Moorlagh	Unassigned (R)	Yes	IE_NW_160_0300	Yes
	1833	At least Good	Lake	Mullaghaderg East	Unassigned (R)	Yes	IE_NW_38_81	Yes
			Lake	Mullaghaderg West	Unassigned (NAR)	No	IE_NW_38_85	Yes
	21AO	Good GW level	Groundwater	Northwest Donegal	Good (NAR)	No	IE_NW_G_049	Yes
	2190	Good GW level	Groundwater	Northwest Donegal	Good (NAR)	No	IE_NW_G_049	Yes

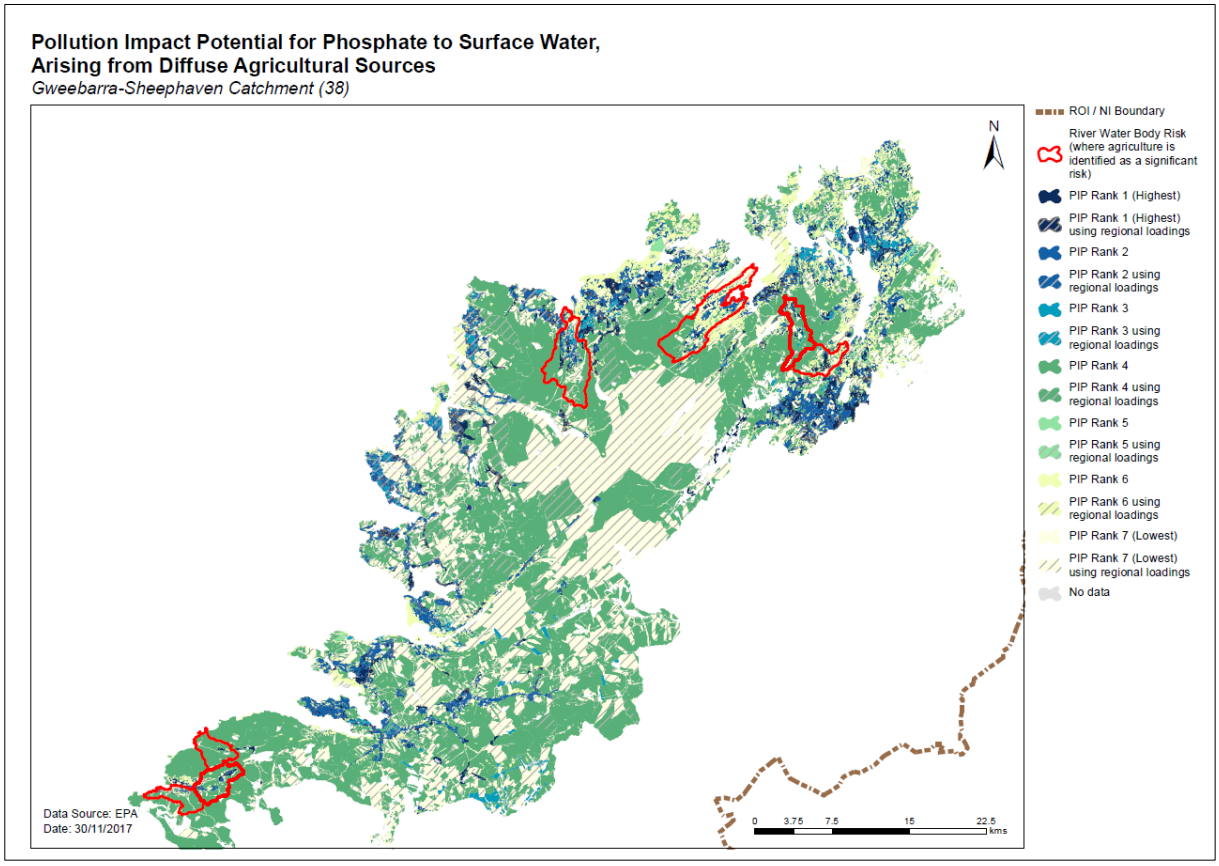
SAC Name	Relevant Qualifying interests	Target status	Water body type	Water bodies	Status (risk)	Prioritise?	Code	Survey data?
Rutland Island And Sound SAC 002283	2190	Good GW level	Groundwater	Northwest Donegal	Good (NAR)	No	IE_NW_G_049	No
Termon Strand SAC 001195	1150	At least Good	Transitional	Mahery Lough	Unassigned (R)	Yes	IE_NW_140_0100	Yes
West Of Ardara/Maas Road SAC 000197	1029 (19 of 27 catchments of S.I. 296 2009)	Good	River	Stracashel_010	Good (NAR)	No	IE_NW_38S010045	Yes
			River	Stracashel_020	Good (NAR)	No	IE_NW_38S010200	Yes
			River	Owenea_020	Good (NAR)	No	IE_NW_38O040100	Yes
			River	Owenea_030	Good (NAR)	No	IE_NW_38O040450	Yes
			River	Owenea_040	Unassigned (NAR)	No	IE_NW_38O040500	Yes
	1106	Good	River	Stracashel_010	Good (NAR)	No	IE_NW_38S010045	No
			River	Stracashel_020	Good (NAR)	No	IE_NW_38S010200	No
			River	Owenea_020	Good (NAR)	No	IE_NW_38O040100	No
			River	Owenea_030	Good (NAR)	No	IE_NW_38O040450	No
			River	Owenea_040	Unassigned (NAR)	No	IE_NW_38O040500	No
	Potential 3110	At least Good	Lake	Ponud	Unassigned (NAR)	No	IE_NW_38_50	Yes
			Lake	Doon	Unassigned (NAR)	No	IE_NW_38_64	Yes
			Lake	Summy	Unassigned (NAR)	No	IE_NW_38_517	Yes
			Lake	Namanlagh	Unassigned (NAR)	No	IE_NW_38_604	Yes
			Lake	Derryduff	Unassigned (NAR)	No	IE_NW_38_73	Yes
			Lake	Aderry	Unassigned (NAR)	No	IE_NW_38_604	Yes
			Lake	Warvanneil	Unassigned (NAR)	No	IE_NW_38_539	Yes
			Lake	Ananima	Unassigned (NAR)	No	IE_NW_38_671	Yes
	Potential 3110/Potential 3130	At least Good	Lake	Birroge	Unassigned (NAR)	No	IE_NW_38_57	Yes
			Lake	Fad Portnoo	Unassigned (NAR)	No	IE_NW_38_621	Yes
	1833	At least Good	Lake	Clooney	Unassigned (NAR)	No	IE_NW_38_542	Yes
			Lake	Kiltooris	Good (NAR)	No	IE_NW_38_47	Yes
			Lake	Skeskinmore	Unassigned (NAR)	No	IE_NW_38_545	Yes
	2190	Good GW level	Groundwater	Northwest Donegal	Good (NAR)	No	IE_NW_G_049	Yes
	21A0	Good GW level	Groundwater	Northwest Donegal	Good (NAR)	No	IE_NW_G_049	Yes
	7230	Good GW level	Groundwater	Northwest Donegal	Good (NAR)	No	IE_NW_G_049	Yes
Coolvoy Bog SAC 001107	none							

SAC Name	Relevant Qualifying interests	Target status	Water body type	Water bodies	Status (risk)	Prioritise?	Code	Survey data?
Kindrum Lough SAC 001151	3110	At least Good	Lake	Kindrum	Moderate (AT RISK)	Yes	IE_NW_38_670	No
	1833	At least Good	Lake	Kindrum	Moderate (AT RISK)	Yes	IE_NW_38_670	No
	Artic char (not listed)	Good	Lake	Kindrum	Moderate (AT RISK)	Yes	IE_NW_38_670	No
Tranarossan And Melmore Lough SAC 000194	3140	At least Good	Lake	Melmore	Unassigned (NAR)	No	IE_NW_38_199	Yes
	21A0	Good GW level	Groundwater	Northwest Donegal	Good (NAR)	No	IE_NW_G_049	Yes
Ballyhoorisky Point To Fanad Head SAC 001975	Potential 3130	At least Good	Lake	Shannagh	Moderate (AT RISK)	Yes	IE_NW_38_678	Yes
			Lake	Kinny	Good (NAR)	No	IE_NW_38_59	No
	1833	At least Good	Lake	Shannagh	Moderate (AT RISK)	Yes	IE_NW_38_678	Yes
Lough Nagreany Dunes SAC 000164	none							
Mulroy Bay SAC 002159	none							
Sheephaven SAC 001190	21A0	Good GW level	Groundwater	Northwest Donegal	Good (NAR)	No	IE_NW_G_049	No
Lough Nillan Bog (Carrickatlieve) SAC 000165	Potential 3110	At least Good	Lake	Magrath Beg	Unassigned (NAR)	No	IE_NW_38_651	Yes
			Lake	Magrath More	Unassigned (NAR)	No	IE_NW_38_56	Yes
			Lake	Nadeal	Unassigned (NAR)	No	IE_NW_38_515	Yes
			Lake	Anna	Unassigned (NAR)	No	IE_NW_38_52	Yes
			Lake	Nillan	Unassigned (NAR)	No	IE_NW_38_24	Yes
			Lake	Owenea	Unassigned (NAR)	No	IE_NW_38_476	Yes
Slieve Tooey/Tormore Island/Loughros Beg Bay SAC 000190	none							

SAC Name	Relevant Qualifying interests	Target status	Water body type	Water bodies	Status (risk)	Prioritise?	Code	Survey data?
Horn Head And Rinclevan SAC 000147	2190	Good GW level	Groundwater	Northwest Donegal	Good (NAR)	No	IE_NW_G_049	Yes
	21AO	Good GW level	Groundwater	Northwest Donegal	Good (NAR)	No	IE_NW_G_049	Yes
Sessiagh Lough SAC 000185	3110	At least Good	Lake	An tSeisigh	Good (NAR)	No	IE_NW_38_61	No
	1833	At least Good	Lake	An tSeisigh	Good (NAR)	No	IE_NW_38_61	No
	Artic char (not listed)	Good	Lake	An tSeisigh	Good (NAR)	No	IE_NW_38_61	No
Muckish Mountain SAC 001179	none							
Ballyness Bay SAC 001090	2190	Good GW level	Groundwater	Northwest Donegal	Good (NAR)	No	IE_NW_G_049	Yes
Fawnboy Bog/Lough Nacung SAC 000140	1029 (19 of 27 catchments of S.I. 296 2009)	Good	River	Clady (Donegal)_010	Moderate (AT RISK)	Yes	IE_NW_38C040150	Yes
			River	Clady (Donegal)_020	Good (NAR)	No	IE_NW_38C040300	Yes
Meenaguse Scragh SAC 001880	none							
Aran Island (Donegal) Cliffs SAC 000111	none							
Freshwater pearl mussels (outside SACs)	1029 (19 of 27 catchments of S.I. 296 2009)	Good	River	Cronaniv Burn_010	High (NAR - HES obj)	No	IE_NW_38C060100	Yes
			River	Devlin (Donegal)_010	High (NAR - HES obj)	No	IE_NW_38D010080	Yes
			River	Shallogan_010	Good (NAR)	No	IE_NW_38S030300	Yes
			River	Owenea_010	Good (NAR)	No	IE_NW_38O040040	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