

# Errif-Clew Bay Catchment Assessment 2010-2015 (HA 32)



Catchment Science & Management Unit

Environmental Protection Agency

December 2018

Version no. 3

## Preface

This document provides a summary of the characterisation outcomes for the water resources of the Errif-Clew 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://www.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/>

## Table of contents

1	Introduction.....	1
2	Water body status and risk of not meeting environmental objectives .....	3
2.1	Surface water ecological status .....	3
2.1.1	Rivers and lakes .....	3
2.1.2	Transitional and Coastal (TraC) .....	3
2.2	Groundwater status.....	7
2.3	Risk of not meeting surface water environmental objectives .....	9
2.3.1	Rivers and lakes .....	9
2.3.2	Transitional and Coastal (TraC) .....	9
2.4	Risk of not meeting groundwater environmental objectives.....	10
2.5	Protected areas.....	10
2.5.1	Drinking water abstractions.....	10
2.5.2	Bathing waters .....	11
2.5.3	Shellfish areas.....	12
2.5.4	Nutrient Sensitive Areas.....	12
2.5.5	Natura 2000 Sites.....	12
2.6	Heavily modified water bodies.....	13
3	Significant Issues in At Risk Water Bodies .....	13
4	Significant pressures.....	13
4.1	Water bodies.....	13
4.1.1	Rivers, lakes, transitional and coastal (TraC) .....	13
4.1.2	Groundwater.....	14
4.2	Pressure type.....	14
4.2.1	Forestry.....	14
4.2.2	Agriculture.....	14
4.2.3	Hydromorphology .....	16
4.2.4	Domestic waste water .....	16
4.2.5	Extractive industry.....	16
4.2.6	Urban waste water treatment plants .....	16
4.2.7	Other .....	19
	Aquaculture .....	19
4.2.8	Diffuse urban .....	20
5	Load reduction assessment.....	21
5.1	River water body load reductions.....	21
5.2	TraC load reductions.....	21

6	Further Characterisation and local catchment assessments Assessments .....	22
7	Catchment summary .....	22
8	Areas for Action .....	22
8.1	Process of Selection .....	23
8.2	Outcomes of process.....	23
9	Environmental Objectives .....	25
9.1	Surface Water.....	25
9.2	Groundwater .....	26
10	Acknowledgements .....	27

## 1 Introduction

This catchment includes the area drained by the River Errif and all streams entering tidal water between Slyne Head, County Galway and Corraun Point, Co. Mayo, draining a total area of 1,504km<sup>2</sup>. The largest urban centre in the catchment is Westport. The other main urban centres are Clifden, Newport and Louisburgh. The total population of the catchment is approximately 23,747 with a population density of 16 people per km<sup>2</sup>. The catchment includes many mountainous areas, all of which are underlain by assorted metamorphic rocks. Conversely, the drumlinised lowland area east of Clew Bay is underlain by pure karstified limestone.

Looking at this catchment from north to south, the area to the west of the Nephin Beg Mountains is drained by the Creggan and Bellagarvaun Rivers, which flow to sea via Blacksod Bay. The peninsula between Achill and Mallaranny is drained by several small rivers flowing to Blacksod and Clew Bays. East of Mallaranny, the southern flanks of the Nephin Beg Mountains are drained by the Bunnahowna, Owengarve, Rockfleet Rivers, all which flow into the northern side of Clew Bay. The bulk of the south-central part of the Nephin Bogs are drained by the Glennamong and Srahmore Rivers which flow into the northern end of Lough Feeagh and then south into the tidal Furnace Lough before flowing out to sea via Newport and then Clew Bay.

The Newport River System includes the Crumpaun and Glendorragha Rivers, which flow south into Beltra Lough, and the Glenisland River. Downstream of Beltra Lough the Newport River is joined by the Glaishwy, Ballyteige and Skerdagh Rivers before continuing west, through Newport, and into the sea at Newport Bay.

The drumlins which form the islands in Clew Bay continue on land to the east of the bay and this area is drained by a series of rivers and streams flowing west. The largest of these rivers are the Owennabrockagh, Moyour and Carrowbeg Rivers, the last of which flows through Westport.

The southern side of Croagh Patrick is drained by the Owenbeg River, which enters the sea at Westport Bay.

The Bunowen River drains much of the area between the Sheefrys and Louisburgh before flowing into Clew Bay. The Carrownisky River flows into the sea north of Roanagh Lough. The western and southern slopes of Mayo's highest mountain, Mweelrea, are drained by a series of small rivers flowing into the mouth of Killary Harbour.

The Bundorragha River, which is probably the most intact freshwater pearl mussel catchment in the country, flows from Doo Lough and then is joined by the Glenummera River from the east, the Bundorragha flows south past Delphi and into Killary Harbour.

The Errif River rises near Croagh Patrick, and flows in a southerly direction being joined by the Darrycraft River from the northeast. The Errif flows over the picturesque Aasleagh Falls, after which it flows into the sea at the head of Killary Harbour.

Entering Connemara, the northern end of the Maumturk Mountains is drained by small coastal rivers that flow into Killary including the Letterbrickaun and Bunowen Rivers. The Owenduff Bridge Stream flows into Lough Fee and out into the Culfin River which flows out to sea north of Benchoona.

The Kylemore River rises in the northern valleys of the Twelve Bens, flowing northeast before turning west and into Kylemore Lough. At the western end of the Lough the river, now called

the Dawros River continues westward, joined by the Polladirk River before entering the sea at the northern end of Ballynakill Harbour.

The area to the south and west is drained by smaller rivers including the Keelkyle, Traheen, Cloonederowen, Laghtanabba and Streamstown Rivers. The Owenglin River flows off the western slopes of the Twelve Bens, continuing west through Clifden and into the sea via Clifden Bay. To the south of this the remaining part of the catchment is characterised by a flat landscape with a very high density of small lakes and is drained by the Bunnahowna and Boolagare Rivers.

The Errif-Clew Bay catchment comprises 13 subcatchments (Table 1, Figure1), with 80 river water bodies, 80 lakes, 11 transitional, 10 coastal water bodies and 10 groundwater bodies.

Table 1. List of subcatchments in the Errif-Clew Bay catchment

Subcatchment ID	Subcatchment Name
32_1	Bunowen[Louisburgh]_SC_010
32_2	Owengarve_SC_010
32_3	Srahmore_SC_010
32_4	Bellagarvaun_SC_010
32_5	Newport[Mayo]_SC_010
32_6	Carrowtootagh_SC_010
32_7	Owenwee[Mayo]_SC_010
32_8	Carrownisky_SC_010
32_9	Bundorragha_SC_010
32_10	Erriff_SC_010
32_11	OwenduffBridgeStream_SC_010
32_12	Bunnahowna_SC_010
32_13	Dawros_SC_010

## Overview

### Erriff-Clew Bay Catchment (32)

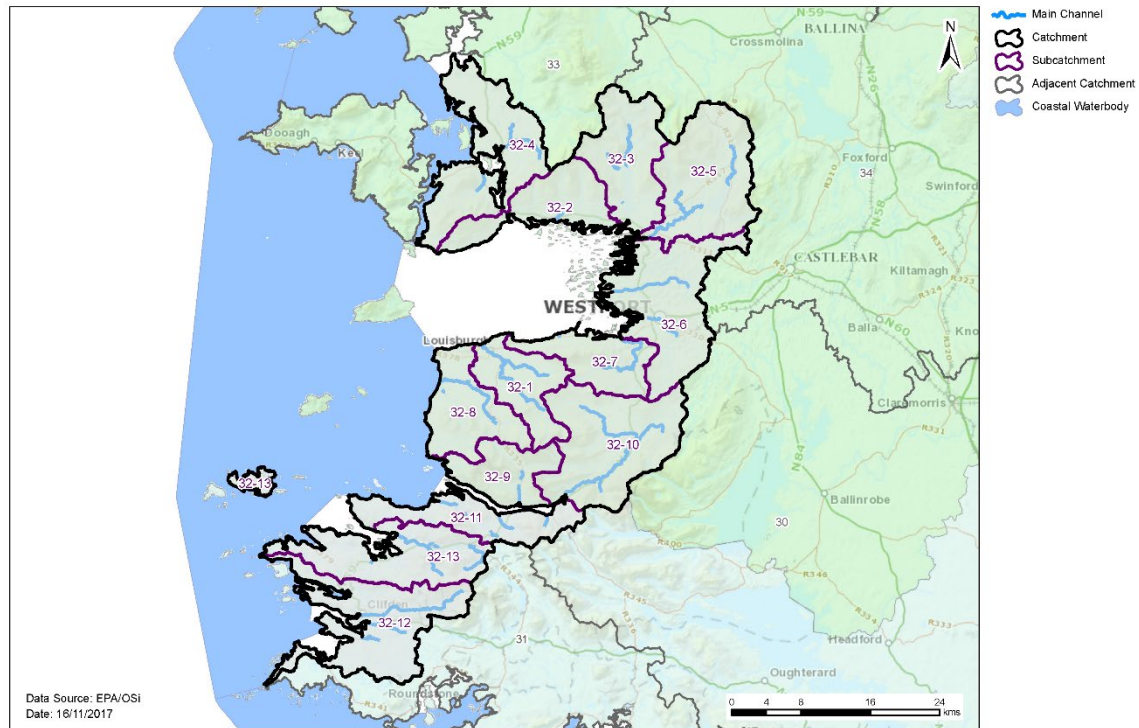


Figure 1. Subcatchments in the Erriff-Clew Bay catchment

## 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 56 (35%) river and lake water bodies at Good or High status, and 12 (8%) at less than Good status in 2015 (Table 2, Figure 2). Ninety-two (58%) river and lake water bodies are unassigned.
- ◆ Twenty river water bodies and sites and five lakes have a high status environmental objective. In 2015, 17 of these water bodies were at High status, six were at Good, and two were unassigned (Figure 3, Appendix1).
- ◆ The number of water bodies at each status class in 2007-09 and 2010-15 are shown in Figures 4 (rivers) and 5 (lakes).
- ◆ Nine water bodies have improved and 11 have deteriorated since 2007-09 (Figure 7).
- ◆ The variation in nutrient concentrations and loads in the Erriff River main channel is illustrated in Appendix 2.

#### 2.1.2 Transitional and Coastal (TraC)

- ◆ Of the 21 TraC water bodies, nine were at Good or High status in 2015 (Table 2). Twelve TraC water bodies are unassigned.

- ◆ Six of the TraC water bodies have a high status environmental objective. In 2015, five of these water bodies were at High status and one was at Good (Figure 3, Appendix1).
- ◆ The number of TraC water bodies in each status class in 2007-09 and 2010-15 is shown in Figure 6.
- ◆ Note the coastal water bodies Aran Islands, Galway Bay, Connemara (HAs 29;31) and Western Atlantic Seaboard (HAs 32;33;34) are shared with other catchments.

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	80	16	26	7	3	0	28	41	23	16
Lakes	80	4	10	1	0	1	64	61	17	2
TraC	21	5	4	0	0	0	12	16	5	0

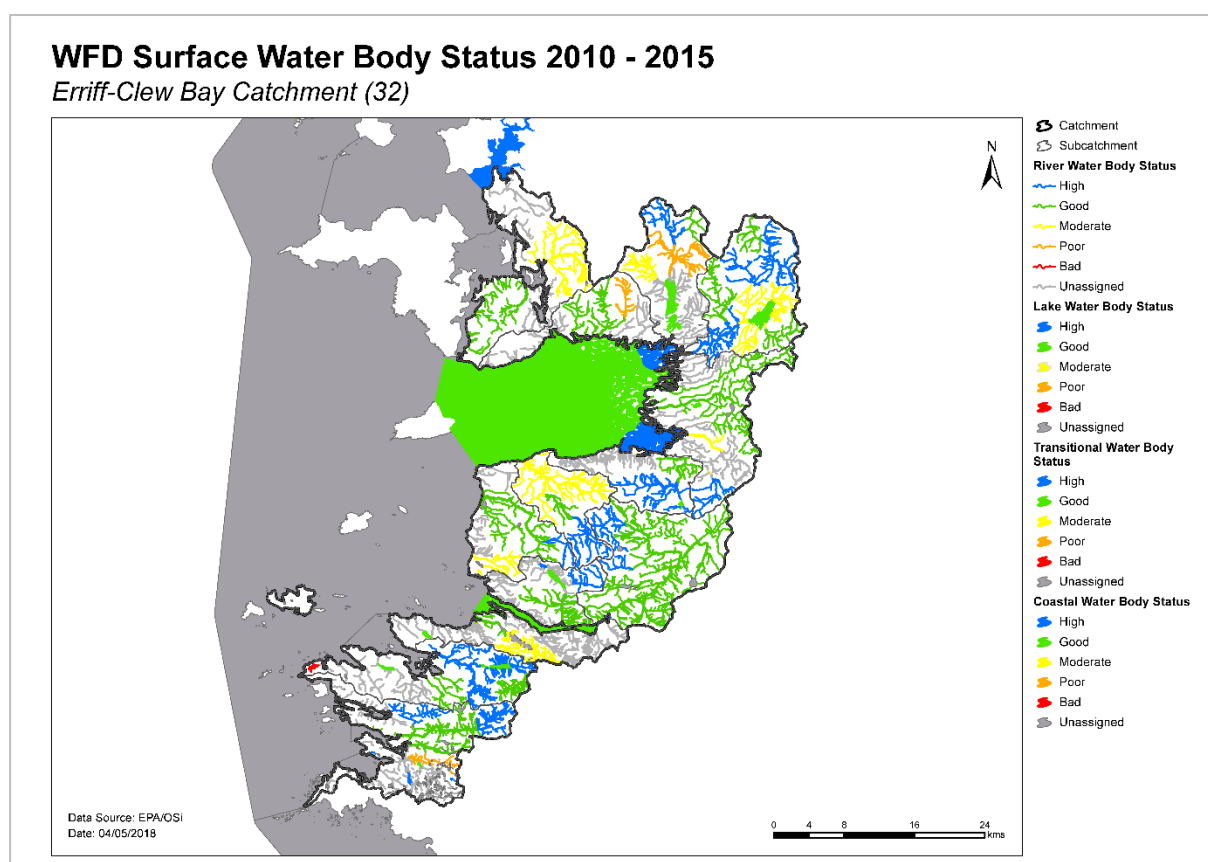


Figure 2. Surface water ecological status



## High Status Objective Water Bodies and Sites

Erriff-Clew Bay Catchment (32)

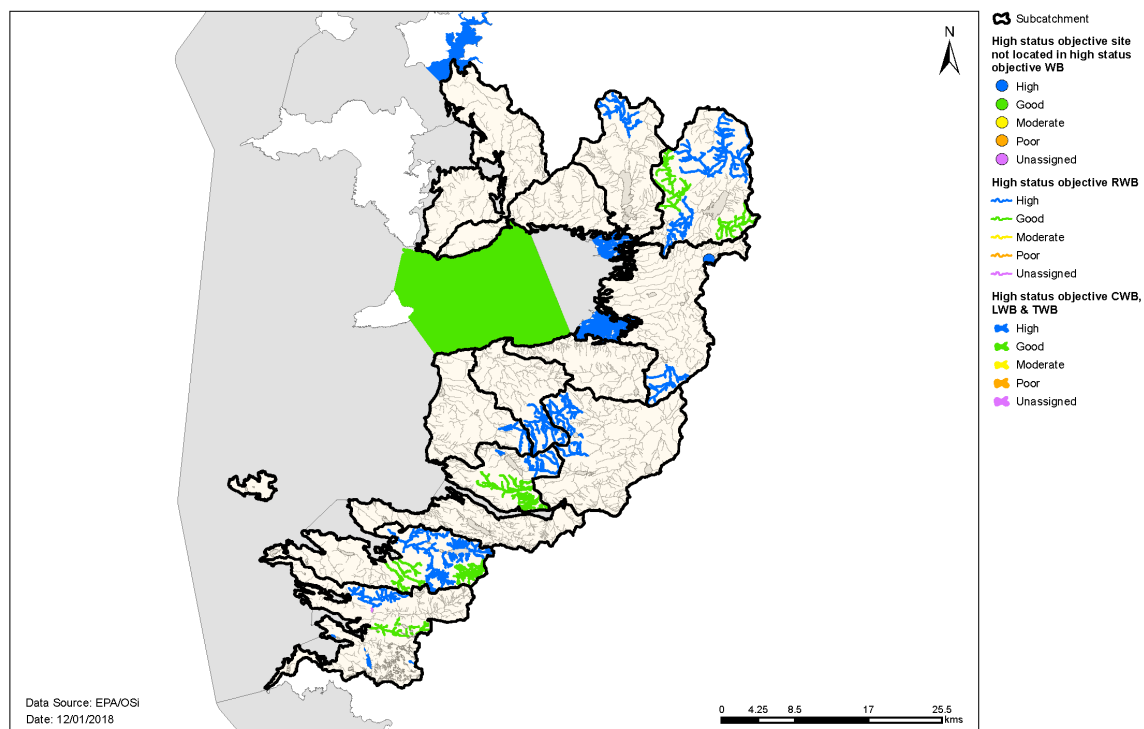


Figure 3. High ecological status objective water bodies and sites

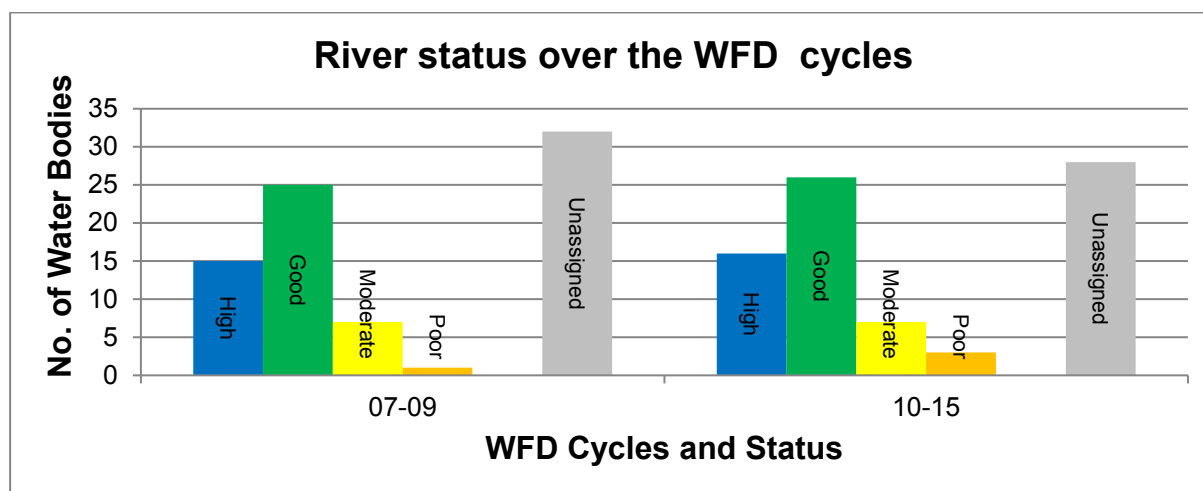


Figure 4. Number of rivers at each status class in 2007-09 and 2010-15

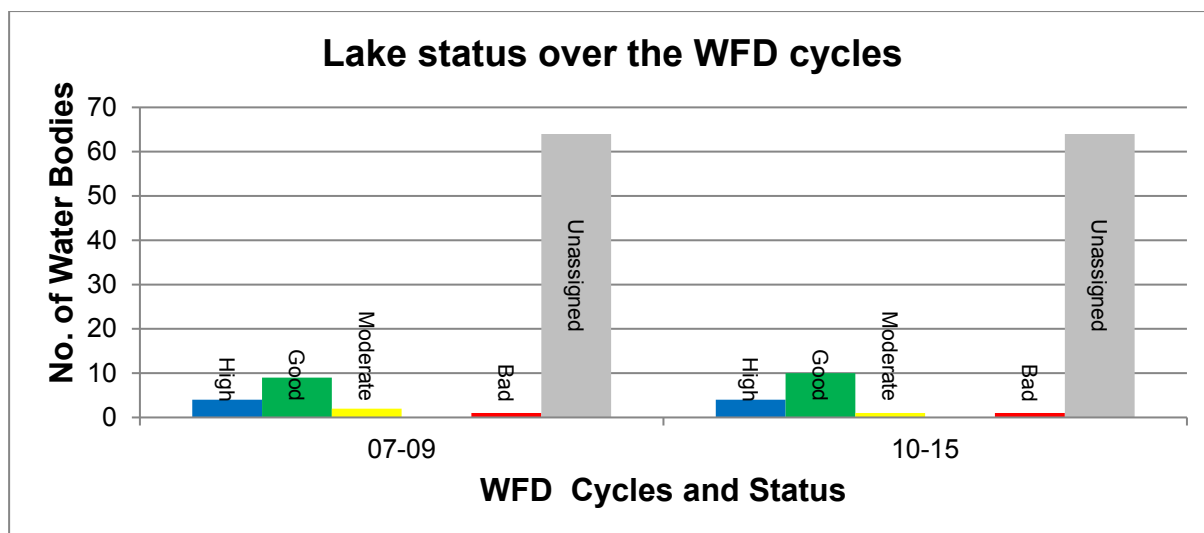


Figure 5. Number of lakes at each status class in 2007-09 and 2010-15<sup>1</sup>.

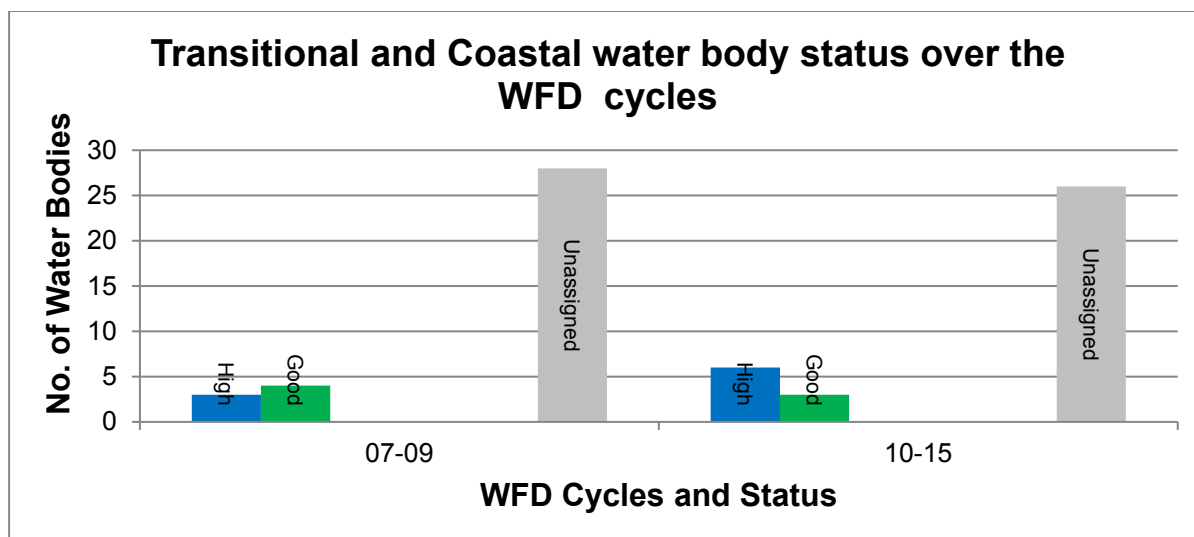


Figure 6. Number of transitional and coastal water bodies at each status class in 2007-09\* and 2010-15<sup>2</sup>

<sup>1</sup> Unassigned lakes remained constant at n=64 for all monitoring periods and have been removed from the chart due to scale.

<sup>2</sup> \*Not all elements were included in this assessment so changes between periods may not reflect ecological change.

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

Erriff-Clew Bay Catchment (32)

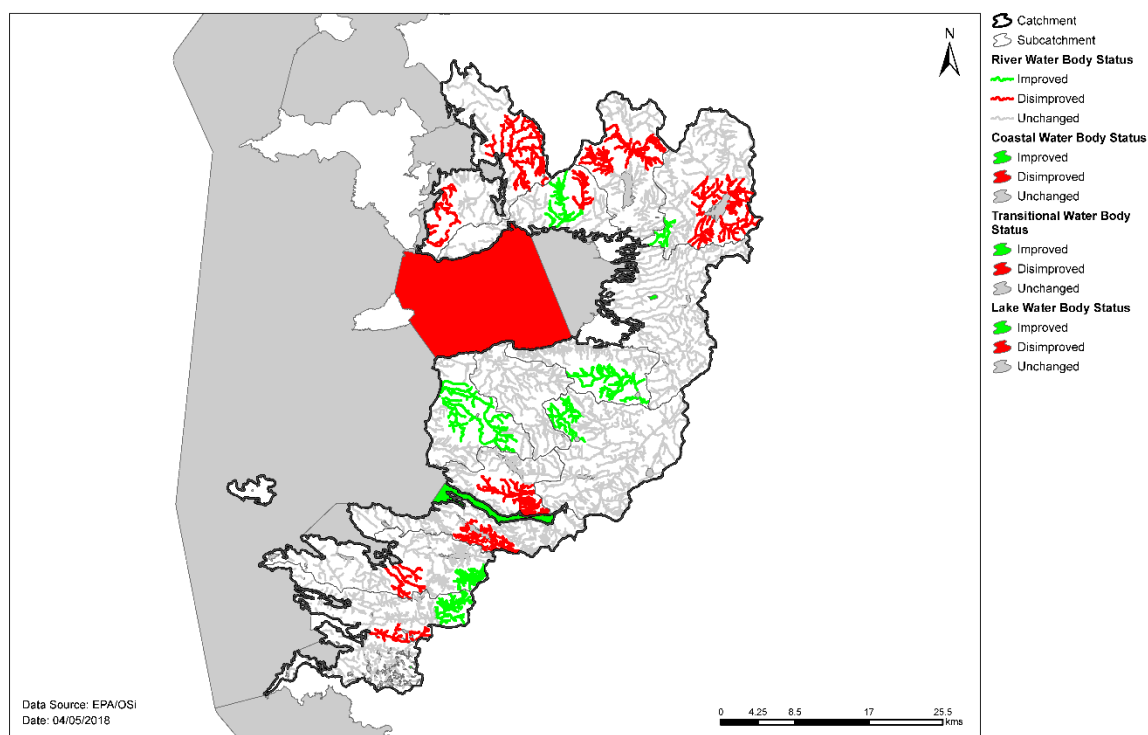


Figure 7. Surface water body status changes from 2007-09 to 2010-15.

## 2.2 Groundwater status

- ◆ There were 10 groundwater bodies at Good status and one at Poor status in 2015 (Table 3, Figure 8).
- ◆ The net change in numbers of ground water bodies at each status class in 2007-12 and 2010-15 are shown in Figure 9.

Table 3. Summary of groundwater body status and risk categories

	Number of water bodies	2010-15 Status		Risk Categories		
		Good	Poor	<i>Not at Risk</i>	<i>Review</i>	<i>At Risk</i>
Groundwater	10	9	1	6	3	1

## Groundwater Body Status 2010 - 2015

Erriff-Clew Bay Catchment (32)

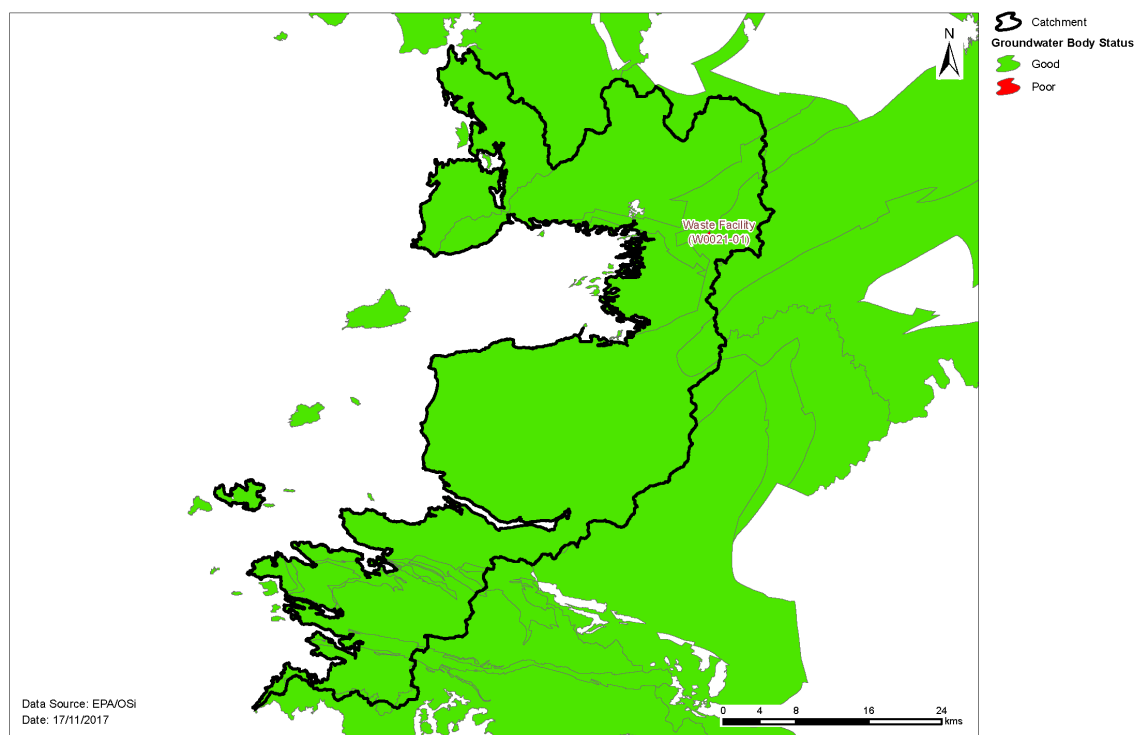


Figure 8. Groundwater body status in 2015

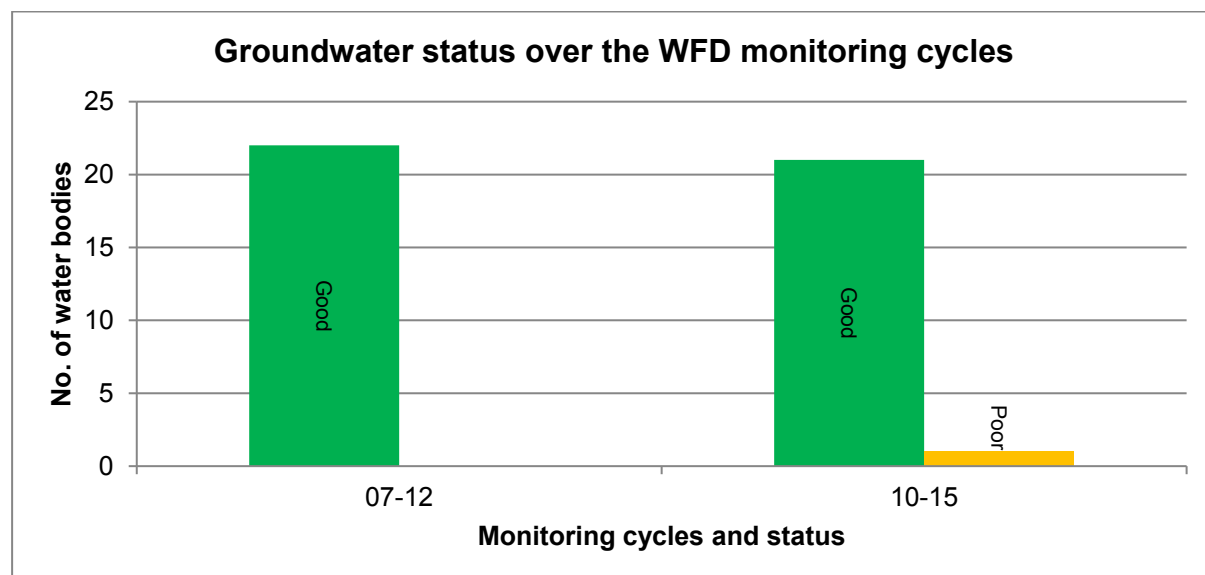


Figure 9. Net change in number of groundwater bodies at each status class in 2007-12 and 2010-15

## 2.3 Risk of not meeting surface water environmental objectives

### 2.3.1 Rivers and lakes

- ◆ There are 41 river and 61 lake water bodies *Not at Risk* (Figure 10, Table 2) which require no additional investigative assessment or measures to be applied, other than those measures that are already in place.
- ◆ There are 23 river and 17 lake water bodies in *Review*. This includes 27 water bodies where more information is required and 13 water bodies where measures have recently been implemented and improvements have not yet been realised.
- ◆ Sixteen river and two 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 10, Table 2) and require no additional investigative assessment or measures to be applied, other than those measures that are already in place.
- ◆ There are five TraC water bodies in *Review* where more information is required.

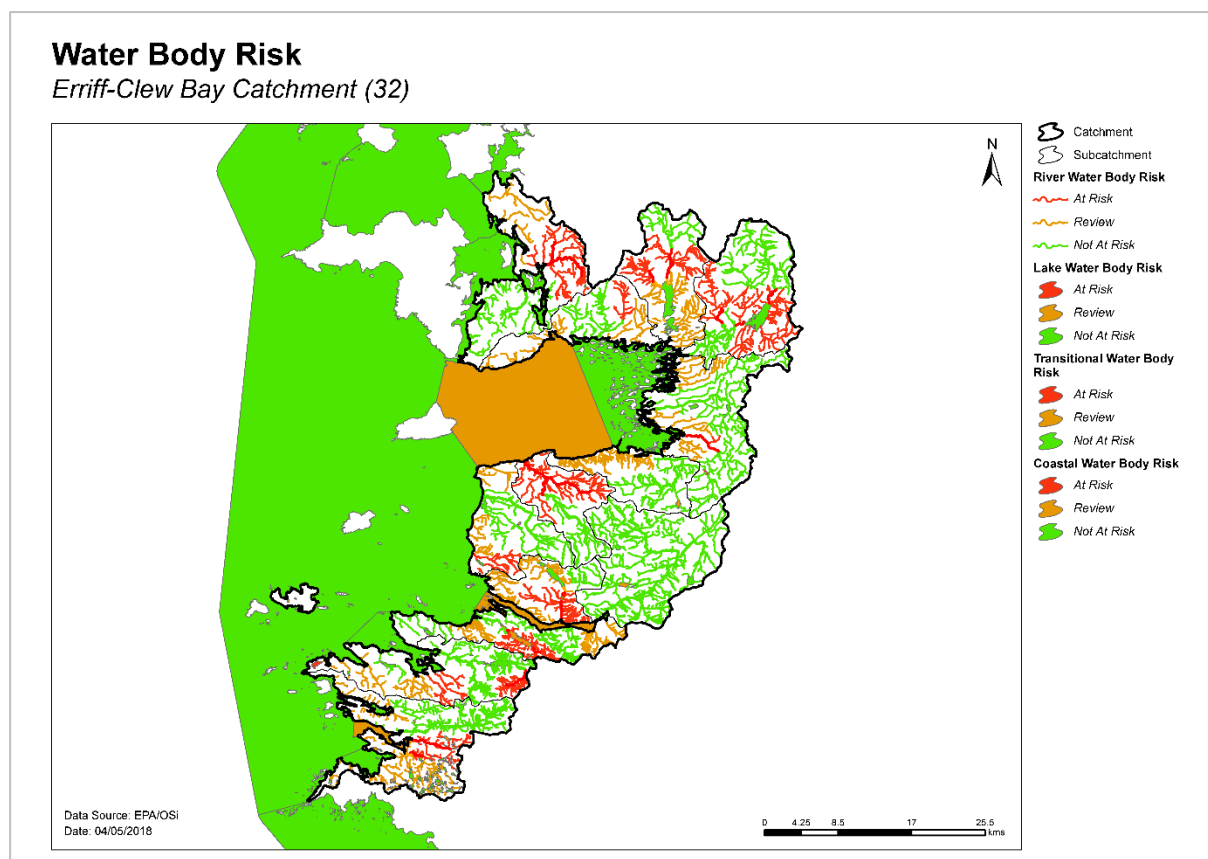


Figure 10. Surface water body risk

## 2.4 Risk of not meeting groundwater environmental objectives

- ◆ Six groundwater bodies are *Not at Risk* (Figure 11, Table 3) and require no additional investigative assessment or measures to be applied, other than those measures that are already in place.
- ◆ There are three groundwater bodies in *Review* (Figure 11). Spiddal, Clifden Castlebar and Belmullet are hydrologically linked to surface waters that are not meeting water quality objectives where it is considered likely that groundwater is a contributing source of phosphorus.
- ◆ One groundwater body is *At Risk*, Waste Facility (W0021-01) (IE\_WE\_G\_0082) due to ammonia issues.

## 2.5 Protected areas

### 2.5.1 Drinking water abstractions

- ◆ There are 24 abstractions in the Errif-Clew Bay Catchment comprising nine private group water schemes, 10 public water supplies and five private supplies (Appendix 4).
- ◆ Three of the abstractions are from three groundwater bodies (Aghagower, Malranny and Newport), six are from five lakes (Ballynakill, Nambrakkeagh, Fawna, Tully and Courthor). The remaining abstractions are from river water bodies.
- ◆ All sources were compliant with the standard for nitrate in 2015.
- ◆ Four sources were non-compliant with the standard for pesticides in 2015 (Louisburg, Newport and Westport WSSs; Tullycross Public Supply), which are abstracted from Bunowen (Louisburg)\_030, Newport (Mayo)\_030, Owenwee (Mayo)\_010 and Tully lake, respectively. The key issue in all four sources was MCPA. In addition, Westport WSS was also non-compliant for Clopyralid and Newport WSS was also non-compliant for 2,4-D. All other sources were compliant.

## Groundwater Body Risk

Erriff-Clew Bay Catchment (32)

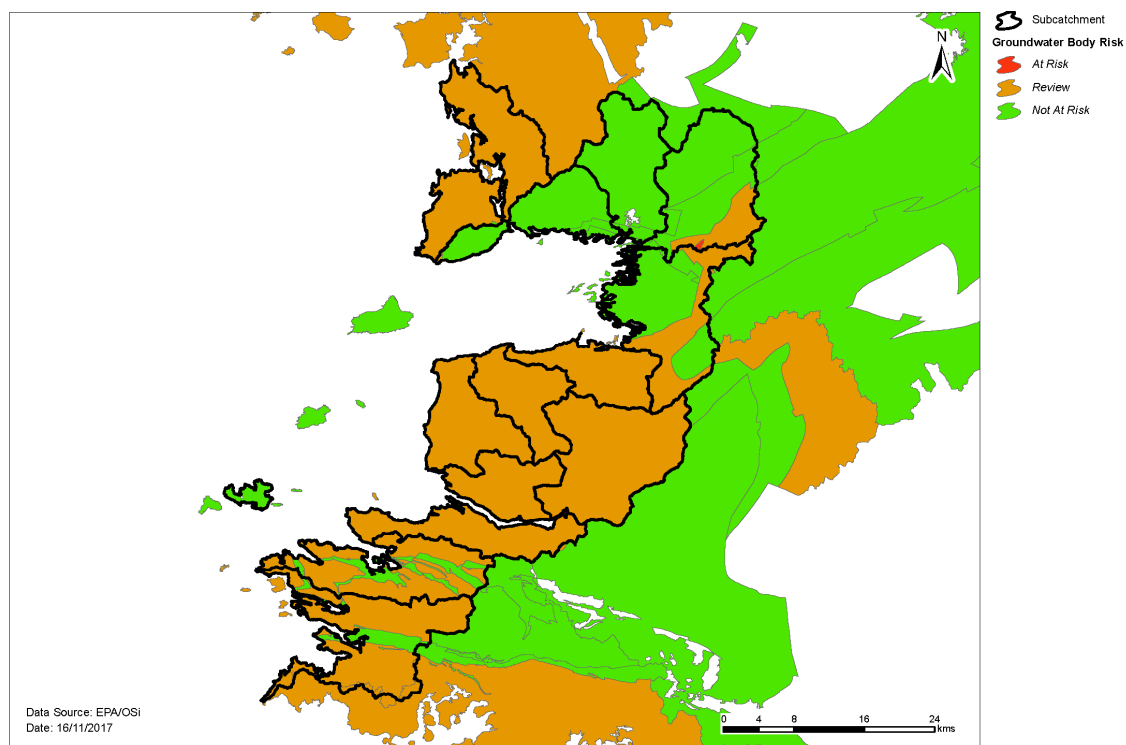


Figure 11. Groundwater body risk

### 2.5.2 Bathing waters

- ◆ There are seven designated marine bathing waters in the Erriff-Clew Bay catchment. All seven are in satisfactory condition.
- ◆ The list of the bathing waters and the associated water bodies is provided in Table 4.

Table 4. Designated bathing waters in the catchment

Bathing Water		Water Body Intersection		Objective met?	
Name	Code	Name	Code	Yes	No
Clare Island, Louisburgh	IEWEBWC340_0000_0100	Clew Bay	IE_WE_340_0000	✓	
Clifden Beach	IEWEBWT270_0100_0100	Clifden Bay	IE_WE_270_0100	✓	
Carrowniskey, Louisburgh	IEWEBWC250_0000_0350	Western Atlantic Seaboard (HAs 32;33;34)	IE_WE_250_0000	✓	
Carrowmore Beach, Louisburgh	IEWEBWC340_0000_0400	Clew Bay	IE_WE_340_0000	✓	
Old Head Beach, Louisburgh	IEWEBWC340_0000_0300	Clew Bay	IE_WE_340_0000	✓	
Bertra Beach, Murrisk	IEWEBWC350_0000_0100	Inner Clew Bay	IE_WE_350_0000	✓	
Mulranny Beach	IEWEBWC340_0000_0200	Clew Bay	IE_WE_340_0000	✓	

### 2.5.3 Shellfish areas

- ◆ There are six designated shellfish areas in the catchment. Three of the six are compliant with the relevant standards and there no water quality issues of concern (Table 5).
- ◆ Killary Harbour, Clifden Bay/Ardbear Bay and Mannin Bay failed to meet their environmental objectives in 2015; the percentage compliances with E. coli 230 MPN 100g<sup>-1</sup> were less than 75% for all three shellfish areas.
- ◆ The list of shellfish areas and the associated water bodies is provided in Table 5.

Table 5. Designated shellfish areas in the catchment

Shellfish Area		Water Body Intersection		Objective met?		Comment
Name	Code	Name	Code	Yes	No	
Clew Bay (East of Old Head)	IEPA2_0006	Newport Bay	IE_WE_350_0200	✓		
		Westport Bay	IE_WE_350_0100			
		Inner Clew Bay	IE_WE_350_0000			
		Clew Bay	IE_WE_340_0000			
Killary Harbour	IEPA2_0011	Erriff Estuary	IE_WE_310_0100		✓	The 2012 Pollution Reduction Programme lists Leenaun certificate of authorisation (A0531) and septic tank systems as the primary pressures and agriculture as the secondary pressure. During WFD characterisation in 2017, the pressures listed above were confirmed to still be significant pressures on the Shellfish Areas.
		Killary Harbour	IE_WE_310_0000			
Clifden Bay/Ardbear Bay	IEPA2_0026	Clifden Bay	IE_WE_270_0100		✓	The 2012 Pollution Reduction Programme lists Clifden waste water treatment plant (D0198) and septic tanks systems as the primary pressures, and agriculture as the secondary pressure. During WFD characterisation in 2017, a storm water overflow associated with Clifden waste water treatment plan and septic tank systems were identified as the significant pressures.
		Western Atlantic Seaboard	IE_WE_250_0000			
Streamstown	IEPA2_0027	Western Atlantic Seaboard	IE_WE_250_0000	✓		
Ballinakill	IEPA2_0028	Ballynakill Bay	IE_WE_300_0000	✓		
Mannin Bay	IEPA2_0025	Mannin Bay	IE_WE_260_0000		✓	The 2012 Pollution Reduction Programme did not identify any significant pressures During WFD characterisation in 2017, agriculture and septic tank systems were identified as potential significant pressures.

### 2.5.4 Nutrient Sensitive Areas

- ◆ There are no nutrient sensitive areas in this catchment.

### 2.5.5 Natura 2000 Sites

- ◆ There are 24 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 water bodies (4 rivers, 11 lakes, 2 TraC 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 are five Special Protected Areas (SPAs) in the catchment:
  - Blacksod Bay/Broadhaven SPA
  - Connemara Bog Complex SPA
  - Cross Lough (Killadoon) SPA
  - Illaunnanoon SPA
  - Owenduff/Nephrin Complex 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.

## 2.6 Heavily modified water bodies

- ◆ There are no heavily modified water bodies (HMWBs) in the catchment.
- ◆ There are no artificially modified water bodies (AWBs) in the catchment.

## 3 Significant Issues in *At Risk* Water Bodies

- ◆ Excess phosphorus leading to eutrophication is the dominant issue in the rivers and lakes. Excess ammonium, and poor habitat quality including the impact of high levels of fine sediment, are also a concern in a limited number of water bodies.
- ◆ Of the 10 groundwater bodies one is *At Risk* (Waste facility (W0021-01) (IE\_WE\_G\_0082)). The issue of concern is elevated ammonia from a waste 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 12 shows a breakdown of the number of *At Risk* water bodies in each significant pressure category.
- ◆ The significant pressure affecting the greatest number of water bodies is forestry, followed by agriculture, hydromorphological pressures, domestic waste water, mines and quarries, peat, urban waste water, aquaculture and diffuse urban.

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

- ◆ Significant pressures have been identified through the initial characterisation process in 16 river water bodies, nine of which have multiple pressures, and in two lakes (agricultural pressure only). The significant pressures will be refined as further characterisation is carried out.
- ◆ There are no *At Risk* TraC water bodies in the catchment.

#### 4.1.2 Groundwater

- ◆ The significant pressure affecting the Waste Facility (WOO21-021 (IE\_WE\_G\_0082)) groundwater body is a waste facility. The key parameter of concern is ammonia.

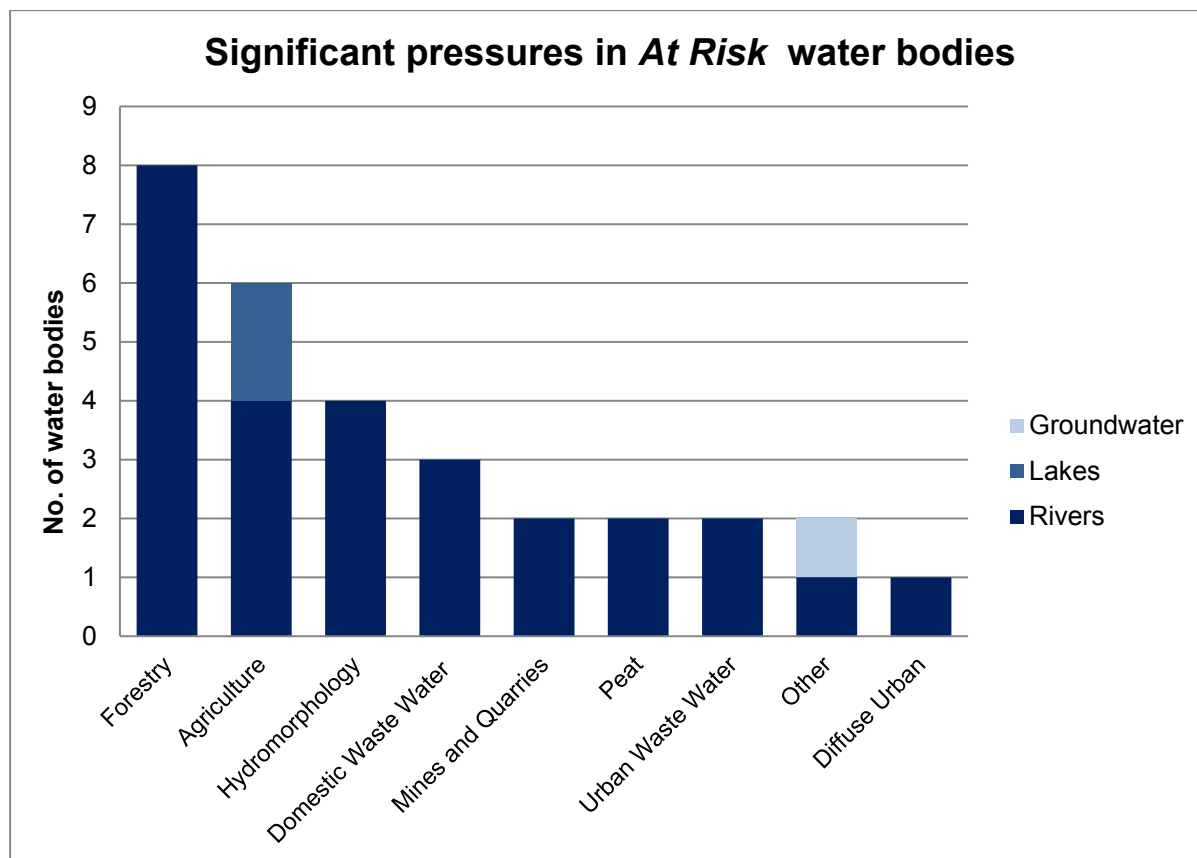


Figure 12. Significant pressures impacting on *At Risk* water bodies

## 4.2 Pressure type

### 4.2.1 Forestry

- ◆ Forestry has been identified as a significant pressure in eight river water bodies. 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 public access. Water bodies that are *At Risk* and impacted by forestry are shown in Figure 13 and listed in Appendix 3.

### 4.2.2 Agriculture

- ◆ Agriculture is a significant pressure in four river and two lake water bodies (Figure 14, Appendix 3). The issues related to farming in this catchment are diffuse phosphorus loss to surface waters in areas of poorly draining soils and in some cases, intensive agriculture. Excess nutrients in surface waters have led to algal blooms in one lake. Sedimentation is also a pressure in some rivers. There was also a large slurry spill in Knappaghbeg Lake (circa 2000) during which slurry entered the lake resulting in a fish kill. The lake is still in recovery. The pollution impact potential map showing areas of relative risk for phosphorus loss from agriculture to surface water is given in Appendix 6.

**At Risk Water Bodies where *Forestry* is a significant pressure**  
Erriff-Clew Bay Catchment (32)

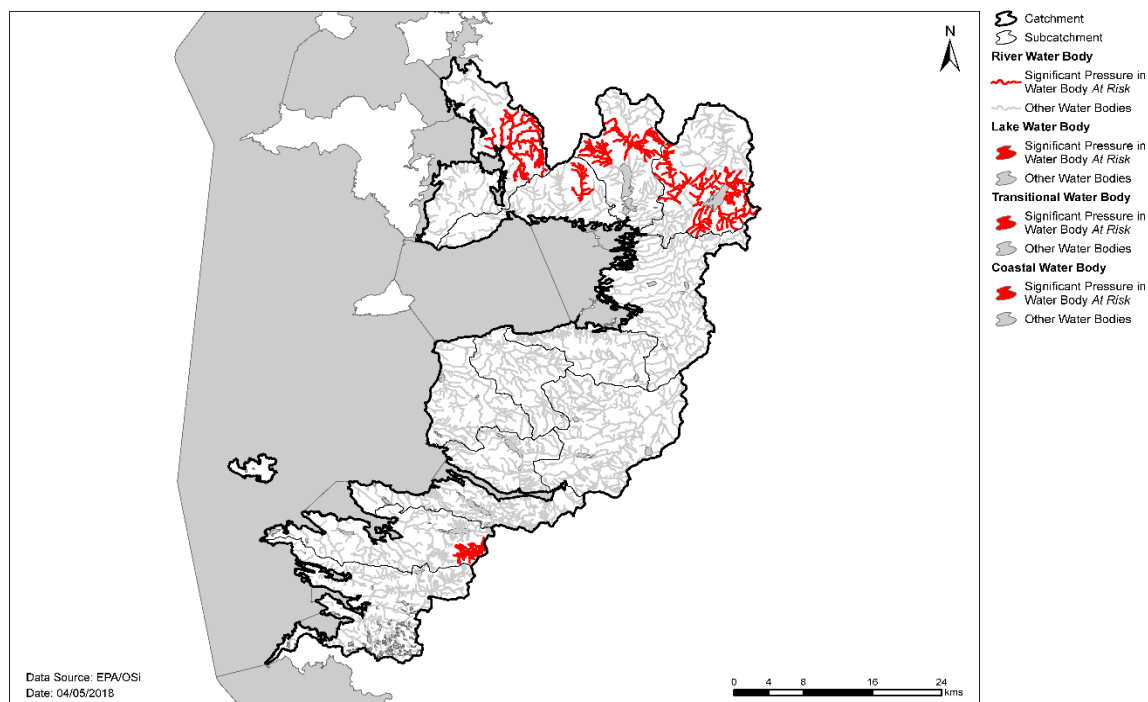


Figure 13. Water bodies that are *At Risk* and are impacted by forestry activities

**At Risk Water Bodies where *Agriculture* is a significant pressure**  
Erriff-Clew Bay Catchment (32)

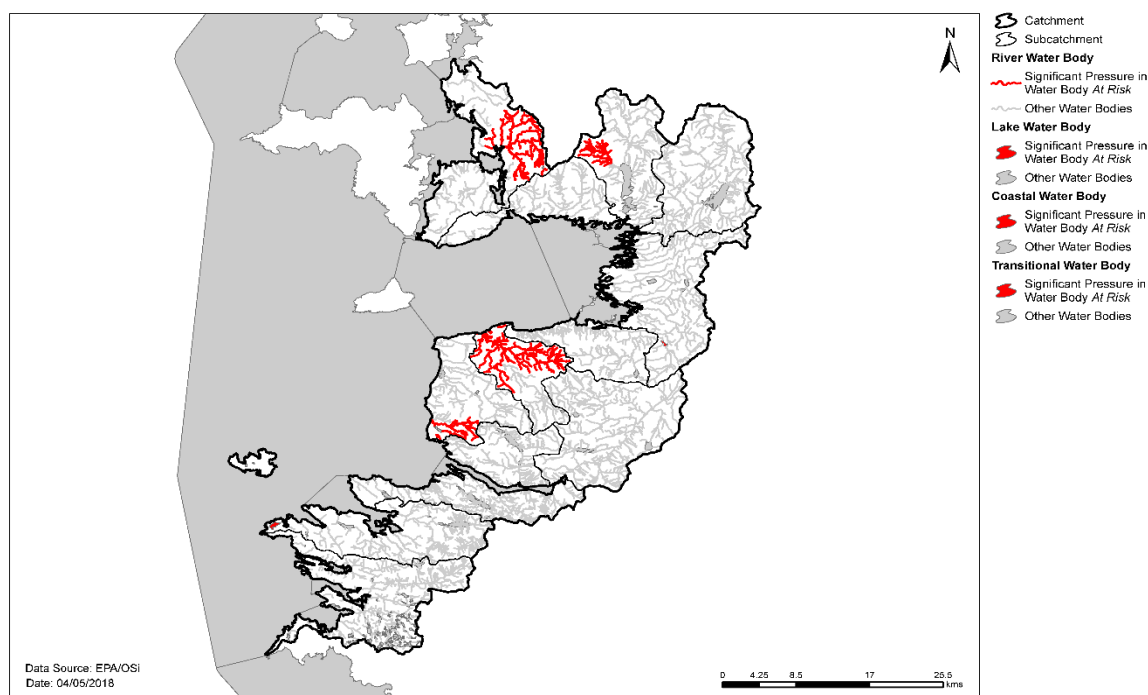


Figure 14. Water bodies that are *At Risk* and are impacted by agricultural activities

#### 4.2.3 Hydromorphology

- ◆ The topography and high rainfall within a river water body of the Dawros (32\_13) subcatchment, and overgrazing within river water bodies of the Owengarve (32\_2), Owenduff Bridge Stream (32\_11) and Dawros (32\_13) subcatchments have contributed to excessive levels of siltation. In-channel vegetation maintenance and degradation of the riparian zone have occurred within river water bodies of both Bundorragha (32\_9) and Dawros (32\_13). Water bodies that are *At Risk* and impacted by hydromorphological pressures are shown in Figure 15 and listed in Appendix 3.

#### 4.2.4 Domestic waste water

- ◆ Domestic waste water has been identified as a significant pressure in three river water bodies – Derryhorraun\_010, Bunowen (Louisburgh)\_030 and Traheen\_010. Galway County Council has noted that although there is low density of septic tank systems, generally the pressure arises through inadequate treatment on poorly draining soils and subsoils. The significant impacts are mainly nutrient loss to surface waters. Upstream of one monitoring station (RS32T010100), it has been reported that there are septic tank systems located on areas of high susceptibility to phosphate transport via near surface pathways (Figure 16, Appendix 3).

#### 4.2.5 Extractive industry

- ◆ *Quarries*

Quarries have been identified as a significant pressure in two river water bodies, Newport (Mayo)\_010 and Carrowbeg (Westport)\_030 (Figure 17, Appendix 3). The significant issue in Newport (Mayo)\_010 relates to sediment loss, whilst in the Carrowbeg (Westport)\_030 there is residual cement stored up against the bank which has impacted the riparian zone.

- ◆ *Peat*

Peat drainage and extraction has been identified as a significant pressure in two river water bodies – Bunowen (Louisburgh)\_030 and Derryhorraun\_010 (Figure 17, Appendix 3). Elevated nutrient concentrations and habitat modification due to influx of sediment are the significant issues. Sediment influx due to harvesting is known to be a significant pressure (Sweeney's Bog upstream of catchment) which has resulted in high fish mortality during spawning. This is a problem particularly in areas that are susceptible to flooding.

#### 4.2.6 Urban waste water treatment plants

- ◆ Urban Waste Water Treatment Plants (WWTPs) and agglomeration networks have been identified as a significant pressure in two *At Risk* water bodies; Bunowen (Louisburgh)\_030 and Carrowbeg (Westport)\_030, details are given in Table 6 Figure 18. Louisburgh WWTP, which impacts Bunowen (Louisburgh)\_030 and the Westport agglomeration network, which impacts Carrowbeg (Westport)\_030, are not currently specified in improvement plans.

Table 6. Waste Water Treatment Plants and agglomerations identified as significant pressures in *At Risk* water bodies and expected completion dates of capital works, where applicable.

Facility name	Facility Type	Water Body	2010-15 Ecological Status	Expected Completion Date
---------------	---------------	------------	---------------------------	--------------------------

Louisburg D0220	500 to 1,000 p.e.	Bunowen (Louisburgh)_030	Moderate	NA <sup>3</sup>
Westport D0055	> 10,000 p.e.	<i>Carrowbeg</i> (Westport)_030 <sup>4</sup>	Moderate	NA <sup>3</sup>

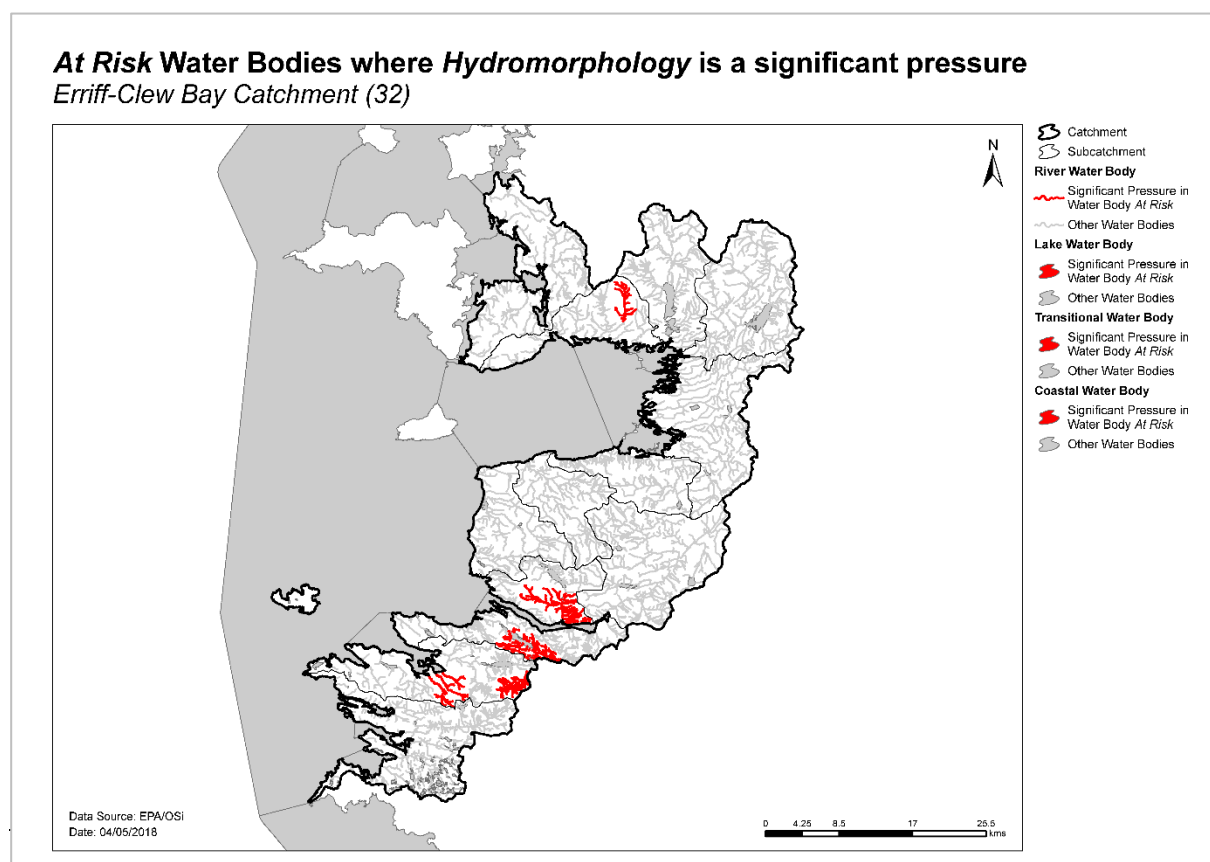
- ♦ Urban Waste Water Treatment Plants (WWTPs) have been identified as a significant pressure in two Shellfish Areas that failed to meet their environmental objectives; Clifden Bay/Ardbear Bay and Killary Harbour, details are given in Table 7. Clifden WWTP, which impacts Clifden Bay/Ardbear Bay, was upgraded in 2015, while Leenaun WWTP, which impacts Killary Harbour, is currently not specified in improvement plans.

Table 7. Waste Water Treatment Plants identified as significant pressures in Shellfish Areas and expected completion dates of capital works, where applicable.

Facility name	Facility Type	Shellfish Area	Expected Completion Date
Clifden D0198	2,001 to 10,00 p.e.	Clifden Bay/Ardbear Bay	Complete
Leenaun A0531	> 500 p.e.	Killary Harbour	NA <sup>3</sup>

<sup>3</sup> Currently not specified in improvement plans.

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



<sup>3</sup> Currently not specified in improvement plans.

<sup>4</sup> The agglomeration network, rather than the WWTP, has been identified as a significant pressure impacting Carrowbeg (Westport)\_030.

**At Risk Water Bodies where Domestic Waste Water is a significant pressure**  
**Erriff-Clew Bay Catchment (32)**

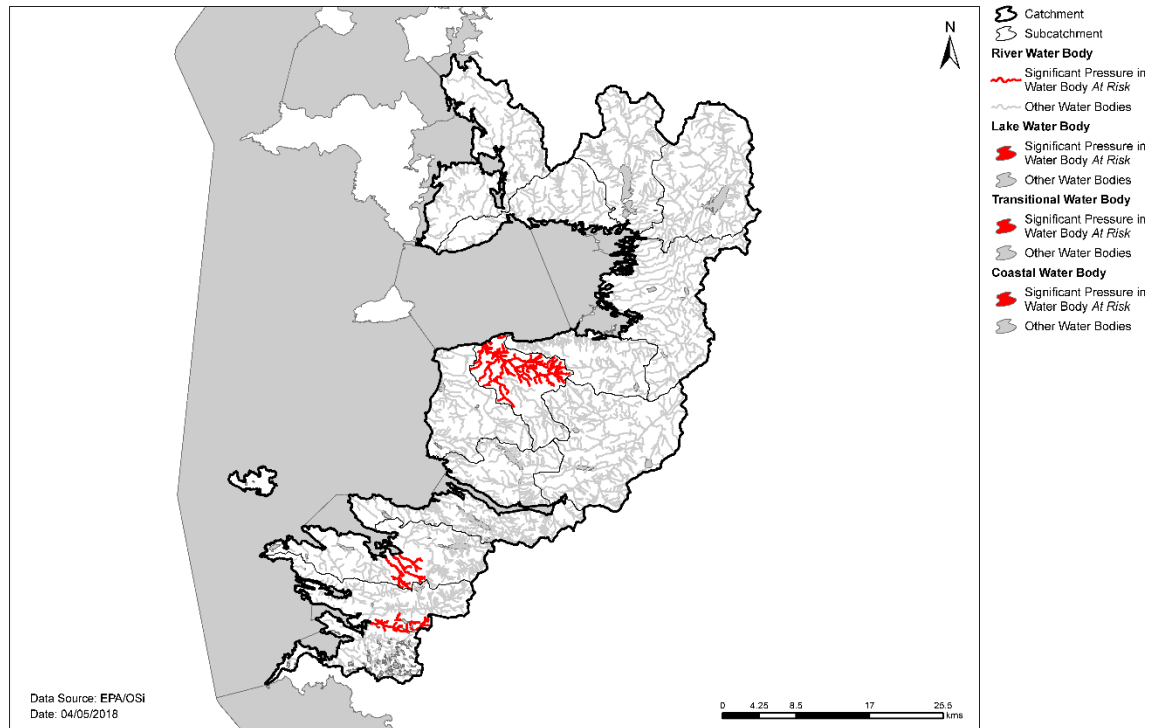


Figure 16. Water bodies that are *At Risk* and are impacted by domestic waste water

**At Risk Water Bodies where Extractive Industry is a significant pressure**  
**Erriff-Clew Bay Catchment (32)**

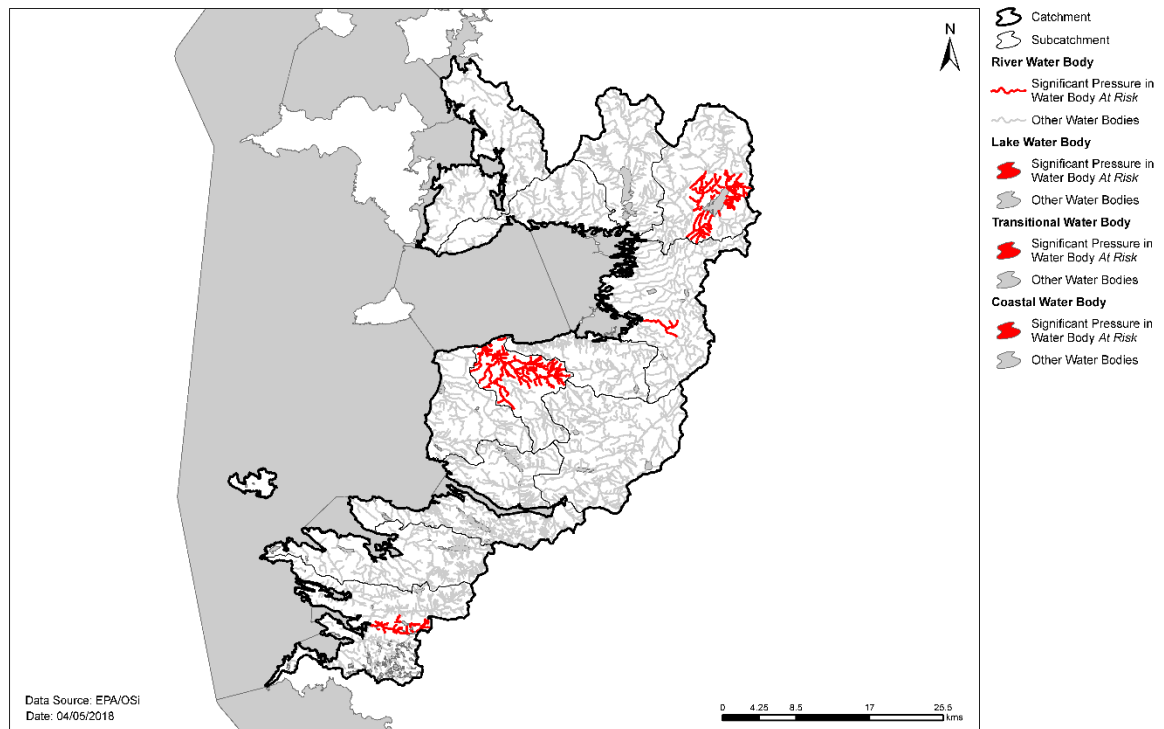


Figure 17. Water bodies that are *At Risk* and are impacted by pressures from extractive industries

**At Risk Water Bodies where Urban Waste Water is a significant pressure**  
*Erriff-Clew Bay Catchment (32)*

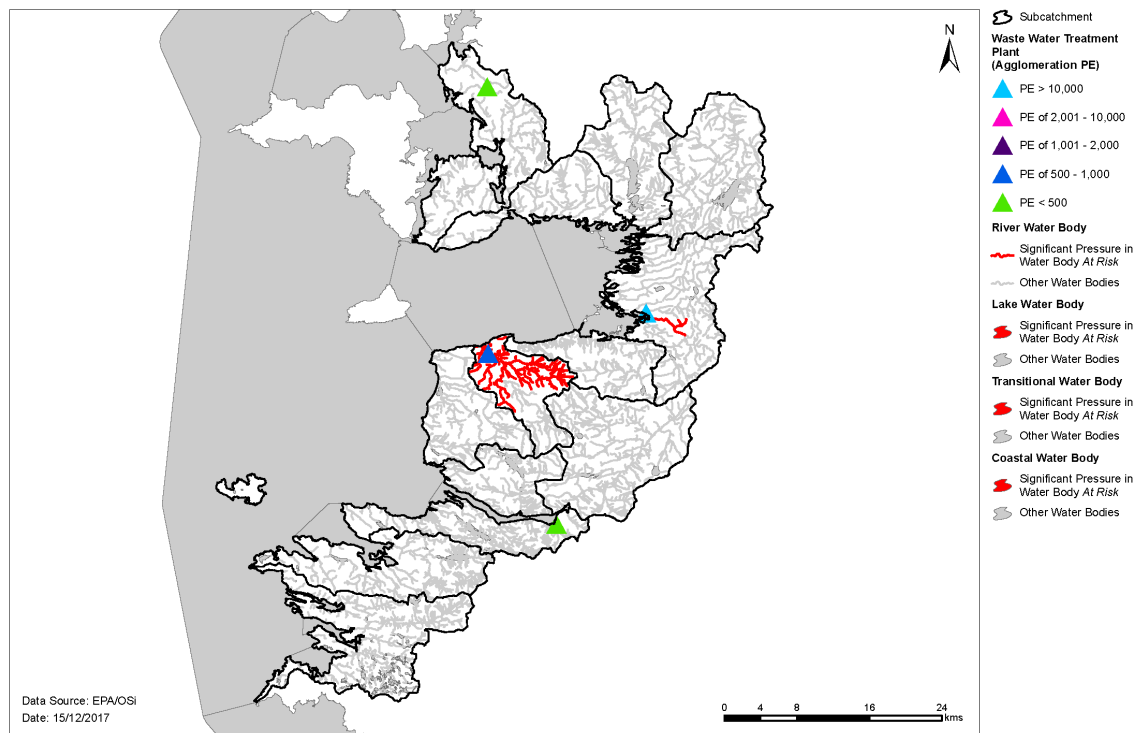


Figure 18. Water bodies that are *At Risk* and are impacted by urban waste water

#### 4.2.7 Other

##### *Aquaculture*

- ◆ Aquaculture has been identified as a significant pressure in one water body – Ballinaboy\_020 (Beagcauneen) (Figure 19). The issue relates to a fish farm on the river and the significant issues are a combination of nutrient (ammonia) and impact from organic pollution.



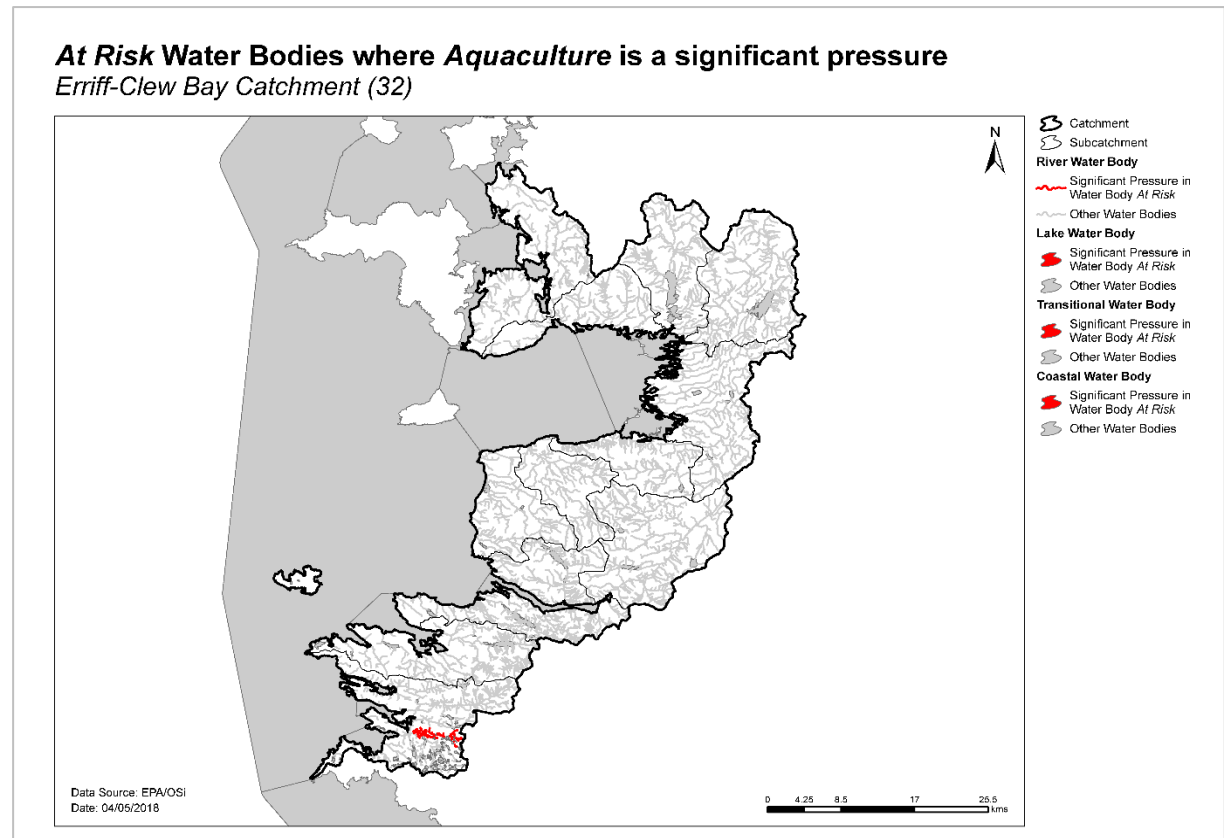


Figure 19. Water bodies that are *At Risk* and are impacted by aquaculture

#### 4.2.8 Diffuse urban

- ◆ Diffuse urban pressures, caused by misconnections, leaking sewers and runoff from paved and unpaved areas in Westport has been identified as a significant pressure in one water body, Carrowbeg (Westport)\_030 (Figure 20, Appendix 3).



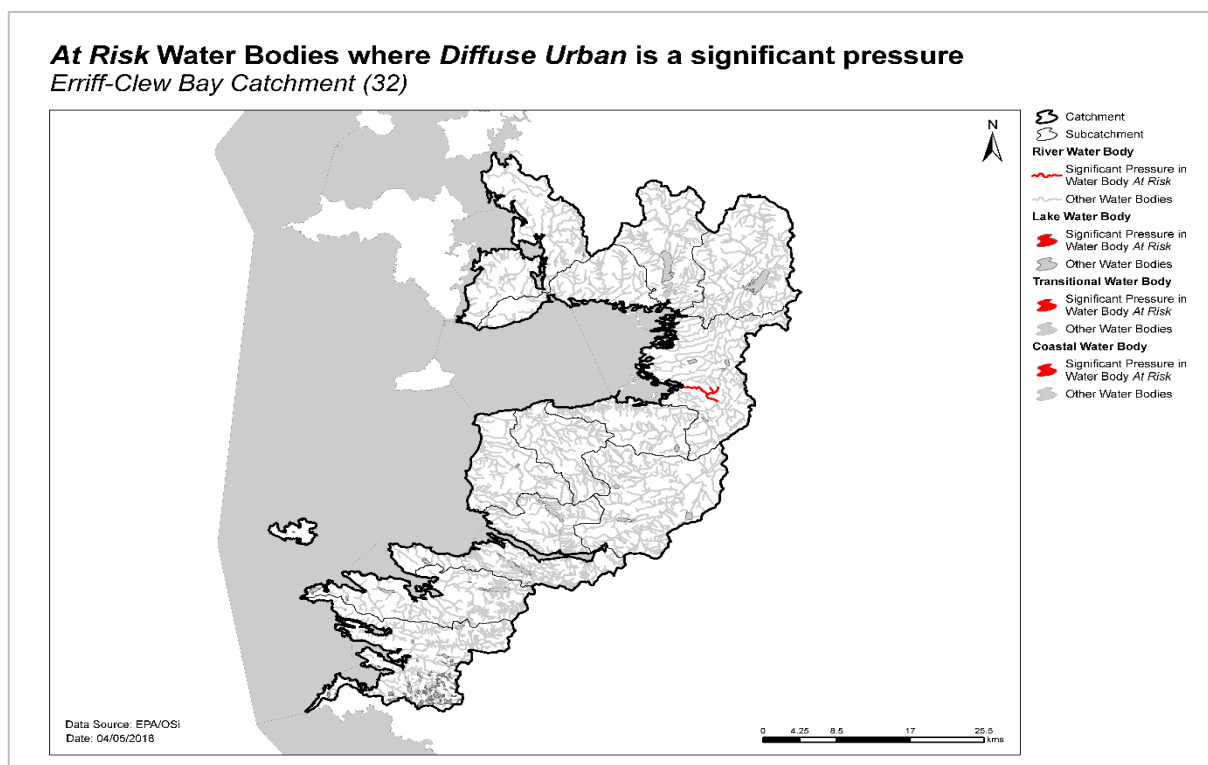


Figure 20 – Water bodies that have been affected by diffuse urban

## 5 Load reduction assessment

### 5.1 River water body load reductions

- ◆ There is no baseline water chemistry data for 56 of the 75 river water bodies in the catchment. For the remaining water bodies orthophosphate concentrations are low, ranging from below detection limits to 0.008mg/l (Appendix 2). Therefore, no phosphate load reductions are required in these water bodies.

### 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 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.

- ◆ None of the TraC water bodies in the Errif-Clew Bay catchment are N limited.

## 6 Further Characterisation and local catchment assessments Assessments

- ◆ Further characterisation through local catchment assessments is needed in 18 of the *At Risk* river and lake water bodies to refine the understanding of the significant pressures at the site/field scale so that specific and targeted measures can be identified (Table 7).
- ◆ Further characterisation through local catchment assessments is needed in 40 *Review* river and lake water bodies to refine the understanding of the significant pressures at the site/field scale so that specific and targeted measures can be identified (Table 7).
- ◆ Brief definitions on the 10 IA assessment scenarios are given in Appendix 7.

Table 8. Investigative assessment allocation for *At Risk* and *Review* river and lake water bodies

Risk	IA 1	IA 2	IA 3	IA 4	IA 5	IA 6	IA 7	IA 8	IA 9	IA 10	Total
<i>At Risk</i>	8	0	0	0	4	1	3	7	1	0	24
<i>Review</i>	16	0	24	0	0	0	0	2	1	0	43
Note water bodies may have multiple categories of Local Catchment Assessments											

## 7 Catchment summary

- ◆ Of the 80 river water bodies, 16 are *At Risk* of not meeting their WFD objectives.
- ◆ Two out of 80 lake water bodies are *At Risk* of not meeting their WFD objectives.
- ◆ There are no *At Risk* TraC water bodies in the catchment.
- ◆ There is one *At Risk* groundwater body (Waste Facility (W0021-01) (IE\_WE\_G\_0082)) in the catchment where a waste facility is causing elevated ammonia in groundwater.
- ◆ Excess nutrient loss, mainly phosphate, leading to eutrophication is the dominant issue in the rivers and lakes. The significant pressures relating to excess nutrients are primarily forestry activities, agricultural (diffuse and point), but also waste water (urban and domestic). Excess ammonia is also noted as an issue in a limited number of water bodies, relating primarily to peat and aquaculture.
- ◆ Hydromorphological (or physical) conditions (including the input of high levels of fine sediment) and poor habitat quality are issues for a number of surface water bodies. This is due to a variety of reasons.

## 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 five areas for action in the Errif-Clew Bay 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 Errif-Clew Bay catchment are summarised below.

- ◆ Five recommended areas for actions (Table 8, Figure 21) were selected.
- ◆ These are the Dawros, Bundorragh, Nephin Beg/Owengarve, Louisburgh Bunowen and Newport.
- ◆ These include 12 *At Risk* and 11 *Review* river water bodies.
- ◆ Two groundwater bodies, which are in *Review* due to groundwater contribution of nutrients to surface water bodies, intersect with five of the recommended areas for action, see Table 9. Actions taken to improve surface water will need to take account of the groundwater contribution to surface water.

A remaining 40 *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 22. These include:

- ◆ Thirty-five river and lake water bodies – six *At Risk* and 29 *Review*; and
- ◆ five transitional and coastal water bodies – all in *Review*.

Table 9. Recommended Areas for Action in the Errif-Clew Bay Catchment

Recommended area for action	Number of water bodies	SCs	Local authority	Reason for Selection
Dawros	5	32_13	Galway	<ul style="list-style-type: none"> <li>• Includes top 8 Freshwater Pearl Mussel water body.</li> <li>• Includes headwaters to top 8 Freshwater Pearl Mussel water body</li> <li>• Building on improvements made with respect to forestry activities and septic tanks systems. Two At Risk High Ecological Status objective water bodies.</li> <li>• One deteriorated water body.</li> <li>• One protected area objective not met: 3110 (Oligotrophic lake).</li> </ul>
Bundorragh	4	32_9	Mayo	<ul style="list-style-type: none"> <li>• Possible quick win – just deteriorated.</li> <li>• One deteriorated water body.</li> <li>• One At Risk High Ecological Status objective water body.</li> <li>• One Review High Ecological Status objective water body.</li> <li>• Two water bodies failing to meet protected area objectives for Freshwater Pearl Mussel.</li> <li>• Headwaters to Killary Harbour shellfish area.</li> </ul>
Nephin Beg/Owengarve	10	32_4, 32_2, 32_3	Mayo	<ul style="list-style-type: none"> <li>• Building on proposed EIP application and strong community groups.</li> <li>• Building on improving forestry practices being implemented by the Forest Service and Coillte.</li> <li>• Four deteriorated water bodies.</li> </ul>
Louisburgh Bunowen	1	32_1	Mayo	<ul style="list-style-type: none"> <li>• Building on improvements at Louisburgh WWTP.</li> <li>• Discharges into designated bathing water (Carrowmore Beach, Louisburgh)</li> <li>• One water body is failing to meet protected area objectives for drinking water.</li> </ul>
Newport	3	32_5	Mayo	<ul style="list-style-type: none"> <li>• Building on existing work: Local Authority has been active in the catchment already, with respect to agricultural pressures.</li> <li>• Two deteriorated water bodies.</li> <li>• Two At Risk High Ecological Status objective water bodies.</li> <li>• One protected area objective not met: salmon and Freshwater Pearl Mussel (19 of 27 catchments of S.I. 296 2009).</li> <li>• Headwaters to Freshwater Pearl Mussel habitat.</li> </ul>

Table 10. 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_WE_G_0017	Clifden Castlebar	Review	IE_WE_32B010100	BUNDORRAGHA_010	Bundorragh
			IE_WE_32B010200	BUNDORRAGHA_020	
			IE_WE_32L120720	LACKAKEELY_010	
			IE_WE_32C150990	CLOONEDEROWEN_010	Dawros
			IE_WE_32C370900	CLOON 32_010	
			IE_WE_32C370900	CLOON 32_010	
			IE_WE_32C370900	CLOON 32_010	
			IE_WE_32D010020	DAWROS_010	
			IE_WE_32D010020	DAWROS_010	
			IE_WE_32T010100	TRAHEEN_010	
			IE_WE_32_436	Aughrusbeg	
			IE_WE_32G070300	GLENISLAND_010	Newport
			IE_WE_32N010020	NEWPORT (MAYO)_010	
			IE_WE_32B030150	BUNOWEN (LOUISBURGH)_030	Louisburgh Bunowen
IE_WE_G_0057	Belmullet	Review	IE_WE_32T460890	TALLAGH_32_010	Nephin Beg/ Owengarve
			IE_WE_33B040300	BELLAGARVAUN_010	
			IE_WE_33C610950	CREGGAN_33_010	

## 9 Environmental Objectives

### 9.1 Surface Water

- ◆ Assuming resources are available and actions are taken in the recommended areas for action, of the 12 *At Risk* river water bodies, it is predicted that six (50%) will improve by 2021 and six (50%) will achieve their objective by 2027. For the 11 *Review* river water bodies, the absence of information means that there is no scientific basis to quantify an environmental objective date, and therefore a 2027 date is set for these water bodies, see Table 10.

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
<i>At Risk</i>	12	6	6
<i>Review</i>	11	0	11
<i>Not at Risk</i>	0	0	0

<i>Total</i>	23	6	17
--------------	----	---	----

- ◆ One hundred and eighteen water bodies have met their 2015 environmental objective but seven of these water bodies have failed to meet their protected area objective for bathing waters (1), shellfish areas (3) and drinking water (3).
- ◆ As action is not yet planned to be taken in the remaining six *At Risk* surface water bodies, a 2027 date is applied to all six water bodies.
- ◆ For the 34 *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 11.

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
<b>Rivers</b>			
<i>At Risk</i>	4	0	4
<i>Review</i>	12	0	12
<b>Lakes</b>			
<i>At Risk</i>	2	0	2
<i>Review</i>	17	0	17
<b>TraC's</b>			
<i>At Risk</i>	0	0	0
<i>Review</i>	5	0	5
<b>Total</b>	40	0	40

## 9.2 Groundwater

Nine of the ten groundwater bodies are currently Good status and, therefore, have met their environmental objectives. The one groundwater body, Waste Facility (W0021-01), in the Errif-Clew bay catchment that is less than Good status has an environmental objective date of 2027.

## 10 Acknowledgements

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

- Mayo County Council
- Galway 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.
- DAFM Agriculture.
- DAFM Forest Service.
- Coillte.
- Teagasc.
- Geological Survey Ireland.
- National Parks and Wildlife Service.
- Marine Institute.

## Recommended Areas for Action

### Erriff-Clew Bay Catchment (32)

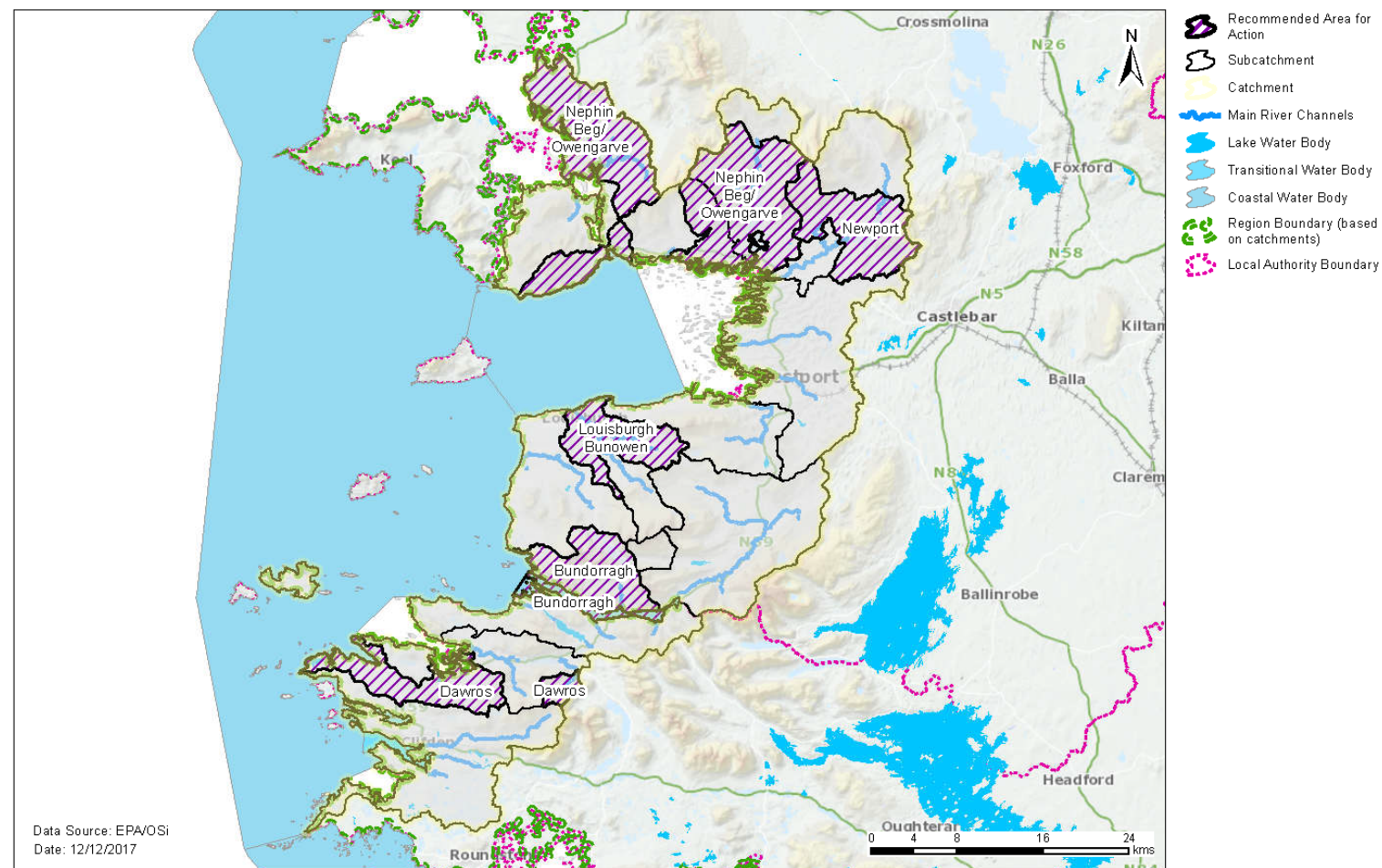


Figure 21. Location of Recommended Areas for Action in the Erriff-Clew Bay Catchment



## Remaining *At Risk* and *Review* Water Bodies

### Erriff-Clew Bay Catchment (32)

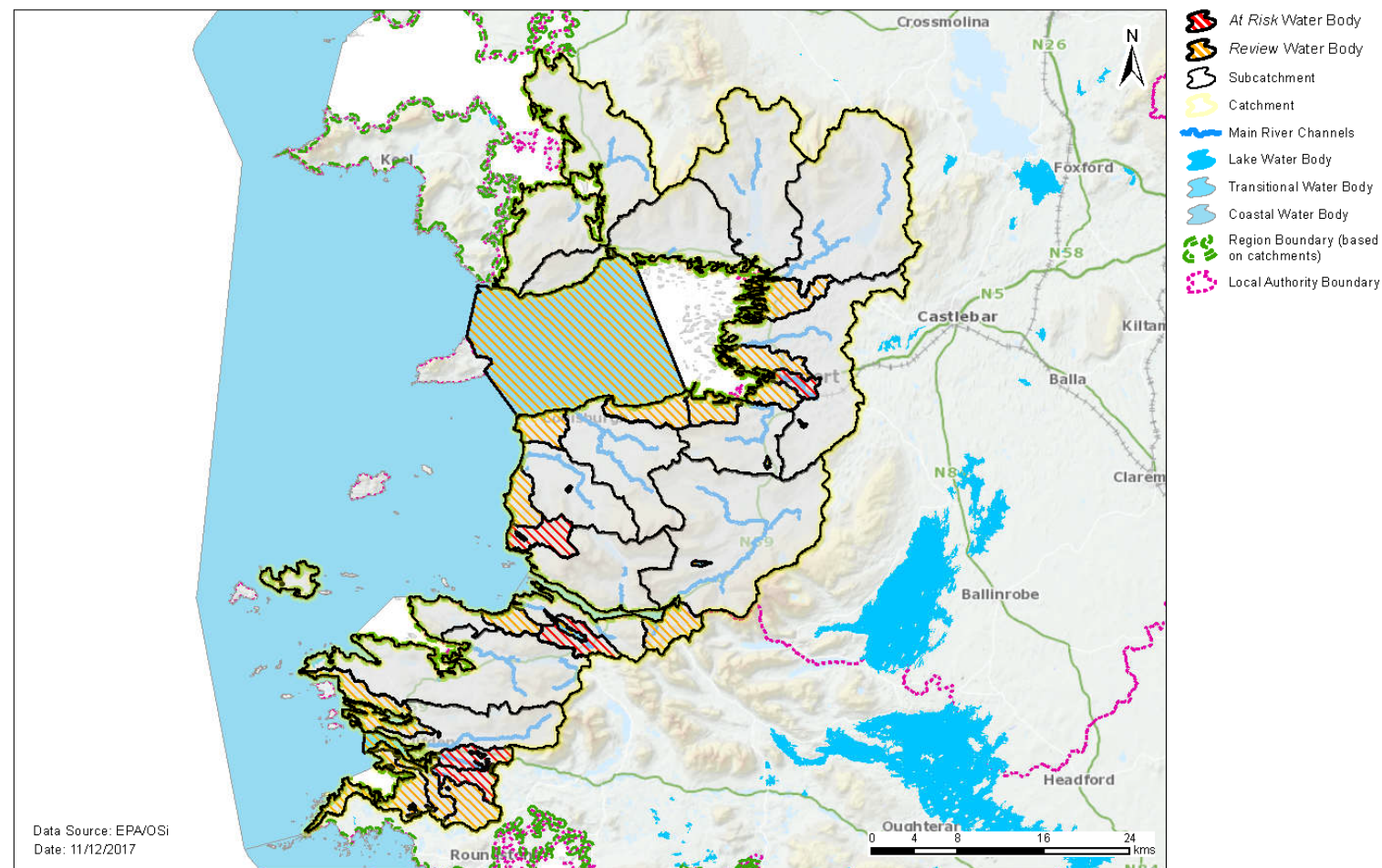


Figure 22. Location of *At Risk* and *Review* water bodies located outside Recommended Areas for Action in the Erriff-Clew Bay Catchment

## Appendix 1 High ecological status objective water bodies

Water body/Site	Type	Codes	2015 Status
Bunowen (Louisburgh)_010	River	IE_WE_32B030050	High
Erriff_010	River	IE_WE_32E010030	High
Glanlaur_010	River	IE_WE_32G020200	High
Enask	Lake	IE_WE_32_333	High
Nambrackmore Cushatrower	Lake	IE_WE_32_500	High
Fadda	Lake	IE_WE_32_501	High
Derryehorraun_010	River	IE_WE_32D040200	Good
Streamstown (Clifden)	River	IE_WE_32S040200	High
Dawros_010	River	IE_WE_32D010020	Good
Dawros_020	River	IE_WE_32D010080	High
Dawros_030	River	IE_WE_32D010100	High
Dawros_040	River	IE_WE_32D010200	High
Traheen_010	River	IE_WE_32T010100	Good
Altaconey_010	River	IE_WE_32A020300	High
Crumpaun_020	River	IE_WE_32C030150	High
Glenisland_010	River	IE_WE_32G070300	Good
Newport (Mayo)_020	River	IE_WE_32N010050	High
Skerdagh_010	River	IE_WE_32S010300	Good
Carrowbeg (Westport)_010	River	IE_WE_32C050050	High
Carrownisky_010	River	IE_WE_32C010020	High
Glencullin	Lake	IE_WE_32_487	High
Bundorragha_020	River	IE_WE_32B010200	Good
Glenummera_010	River	IE_WE_32G050070	High
Nambrackkeagh Clifden	Lake	IE_WE_32_422	Unassigned
Bundorragha_010	River	IE_WE_32B010100	Unassigned
Erriff Estuary	Transitional	IE_WE_310_0100	High
Loch an tSaile (Lough Athola), Mannin Bay	Transitional	IE_WE_260_0100	High
Newport Bay	Transitional	IE_WE_350_0200	High
Tullaghan Bay	Transitional	IE_WE_390_0100	High
Westport Bay	Transitional	IE_WE_350_0100	High
Clew Bay	Coastal	IE_WE_340_0000	Good

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

The main channel in the Errif-Clew Bay catchment is the Errif River. The estimated Q30 flow ranges from 0.9m<sup>3</sup>/s at ERRIF\_010 to 10.3m<sup>3</sup>/s at ERRIF\_040.

Average orthophosphate and TON concentrations are below detection limits at all points along the main channel. Stream ammonia concentrations are below detection limits at ERRIF\_010, ERRIF\_020 and ERRIF\_040. ERRIF\_030 has a concentration of 0.013mg/l which falls well below the EQS threshold for ammonia (0.065mg/l).

### 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
32_1	IE_WE_32B030150	Bunowen (Louisburgh)_030	River	At Risk	Moderate	Moderate	N	Ag,DWW,Peat,UWW	2027	Louisburgh Bunowen
32_1	IE_WE_340_0000	Clew Bay	Coastal	Review	High	Good	Y		2027	
32_2	IE_WE_32M110390	Murrevagh_010	River	Review	Unassigned	Unassigned	N		2027	Nephin Beg/ Owengarve
32_2	IE_WE_32R160730	Rockfleet_010	River	Review	Unassigned	Unassigned	N		2027	Nephin Beg/ Owengarve
32_2	IE_WE_32O020100	Owengarve (Mayo)_010	River	At Risk	Moderate	Poor	N	For,Hymo	2027	Nephin Beg/ Owengarve
32_3	IE_WE_32_432	Ard	Lake	Review	Unassigned	Unassigned	N		2027	Nephin Beg/ Owengarve
32_3	IE_WE_32D200860	Derryhillagh 32_010	River	Review	Unassigned	Unassigned	N		2027	Nephin Beg/ Owengarve
32_3	IE_WE_32G030100	Glennamong 32_010	River	At Risk	Good	Moderate	N	Ag,For	2027	Nephin Beg/ Owengarve
32_3	IE_WE_32S020100	Srahmore_010	River	At Risk	Good	Poor	N	For	2027	Nephin Beg/ Owengarve
32_4	IE_WE_32T460890	Tallagh_32_010	River	Review	Unassigned	Unassigned	N		2027	Nephin Beg/ Owengarve
32_4	IE_WE_33C610950	Creggan_33_010	River	Review	Unassigned	Unassigned	N		2027	Nephin Beg/ Owengarve
32_4	IE_WE_33B040300	Bellagarvaun_010	River	At Risk	Good	Moderate	N	Ag,For	2027	Nephin Beg/ Owengarve
32_5	IE_WE_32G070300	Glenisland_010	River	At Risk	High	Good	Y	For	2021	Newport
32_5	IE_WE_32N010020	Newport (Mayo)_010	River	At Risk	Good	Moderate	N	For,M+Q	2021	Newport
32_5	IE_WE_32S010300	Skerdagh_010	River	At Risk	Good	Good	Y	For	2021	Newport
32_6	IE_WE_32_483	Knappaghbeg	Lake	At Risk	Moderate	Moderate	N	Ag	2027	
32_6	IE_WE_32C160630	Cloghan 32_01	River	Review	Unassigned	Unassigned	N		2027	
32_6	IE_WE_32C050300	Carrowbeg (Westport)_030	River	At Risk	Moderate	Moderate	N	DU,M+Q,UWW	2027	
32_6	IE_WE_32C380790	Cloonkeen 32_010	River	Review	Unassigned	Unassigned	N		2027	
32_6	IE_WE_32R050700	Rosclave_010	River	Review	Unassigned	Unassigned	N		2027	
32_7	IE_WE_32C490920	Carrowkeeran_010	River	Review	Unassigned	Unassigned	N		2027	
32_7	IE_WE_32_406	Moher	Lake	Review	Good	Good	N		2027	
32_7	IE_WE_32L480810	Leckanvy_32_010	River	Review	Unassigned	Unassigned	N		2027	
32_8	IE_WE_32_472	Nahaltora	Lake	Review	Unassigned	Unassigned	N		2027	
32_8	IE_WE_32A120170	Aghany_010	River	Review	Unassigned	Unassigned	N		2027	
32_8	IE_WE_32K150330	Killadoon 32_010	River	Review	Unassigned	Unassigned	N		2027	
32_8	IE_WE_32O070100	Owennadornaun_010	River	At Risk	Moderate	Moderate	N	Ag	2027	
32_9	IE_WE_32L120720	Lackakeely_010	River	Review	Unassigned	Unassigned	N		2027	Bundorragh
32_9	IE_WE_32B010200	Bundorragha_020	River	At Risk	High	Good	Y	Hymo	2021	Bundorragh

32_9	IE_WE_32B010100	Bundorragha_010	River	Review	Unassigned	Unassigned	Y		2027	Bundorragh
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
32_10	IE_WE_32_441	Tawnyard	Lake	Review	Unassigned	Unassigned	N		2027	
32_10	IE_WE_310_0000	Killary Harbour	Coastal	Review	Moderate	Good	N		2027	Bundorragh
32_11	IE_WE_32_482	Muck GY	Lake	Review	Unassigned	Unassigned	N		2027	
32_11	IE_WE_32_498	Fee	Lake	Review	Unassigned	Unassigned	N		2027	
32_11	IE_WE_32C040040	Culfin 32_010	River	At Risk	Good	Moderate	N	Hymo	2027	
32_11	IE_WE_32L080780	Letterbrickaun_010	River	Review	Unassigned	Unassigned	N		2027	
32_11	IE_WE_32M080920	Mullaghglass_010	River	Review	Unassigned	Unassigned	N		2027	
32_12	IE_WE_31_180	Nambrackeagh Ballyconneely	Lake	Review	Unassigned	Unassigned	N		2027	
32_12	IE_WE_31_206	Nacorrossaunbeg	Lake	Review	Unassigned	Unassigned	N		2027	
32_12	IE_WE_32_359	Ballybawn	Lake	Review	Unassigned	Unassigned	N		2027	
32_12	IE_WE_32_415	Island GY	Lake	Review	Unassigned	Unassigned	N		2027	
32_12	IE_WE_32_465	Loughaunarow	Lake	Review	Unassigned	Unassigned	N		2027	
32_12	IE_WE_32_469	Nacorruasaun	Lake	Review	Unassigned	Unassigned	N		2027	
32_12	IE_WE_32_477	Croaghat	Lake	Review	Unassigned	Unassigned	N		2027	
32_12	IE_WE_32_481	Shannalecka	Lake	Review	Unassigned	Unassigned	N		2027	
32_12	IE_WE_32_497	Derrylea	Lake	Review	Unassigned	Unassigned	N		2027	
32_12	IE_WE_32_507	Fadda West	Lake	Review	Unassigned	Unassigned	N		2027	
32_12	IE_WE_32B070990	Ballinaboy_030	River	Review	Unassigned	Unassigned	N		2027	
32_12	IE_WE_32B070300	Ballinaboy_020	River	At Risk	Poor	Poor	N	Other	2027	
32_12	IE_WE_32B090960	Ballinaboy_010	River	Review	Unassigned	Unassigned	N		2027	
32_12	IE_WE_32B240990	Boolagare_010	River	Review	Unassigned	Unassigned	N		2027	
32_12	IE_WE_32G260730	Grallagh 32_010	River	Review	Unassigned	Unassigned	N		2027	
32_12	IE_WE_32D040200	Derryehorraun_010	River	At Risk	High	Good	Y	DWW,Peat	2027	
32_12	IE_WE_32L160920	Letternooosh_010	River	Review	Unassigned	Unassigned	N		2027	
32_12	IE_WE_32_422	Nambrackeagh Clifden	Lake	Review	High	Unassigned	Y		2027	
32_12	IE_WE_260_0100	Loch An Tsaile (Lough Athola), Mannin Bay	Transitional	Review	Good	High	Y		2027	
32_12	IE_WE_270_0100	Clifden Bay	Transitional	Review	Unassigned	Unassigned	N		2027	
32_13	IE_WE_32_436	Aughrusbeg	Lake	At Risk	Bad	Bad	N	Ag	2027	Dawros
32_13	IE_WE_32C150990	Cloonederowen_010	River	Review	Unassigned	Unassigned	N		2027	Dawros
32_13	IE_WE_32C370900	Cloon 32_010	River	Review	Unassigned	Unassigned	N		2027	Dawros

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
32_13	IE_WE_32D010020	Dawros_010	River	At Risk	Moderate	Good	Y	For,Hymo	2021	Dawros
32_13	IE_WE_32T010100	Traheen_010	River	At Risk	High	Good	Y	DWW,Hymo	2021	Dawros
32_13	IE_WE_280_0100	Lough Bó Finne, Inishbofin	Transitional	Review	Unassigned	Unassigned	N		2027	

**Ag:** Agriculture

**DWW:** Domestic Waste Water

**For:** Forestry

**Hymo:** Hydromorphology

**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.

**M+Q:** Mines and Quarries

**Peat:** Peat Drainage and Extraction

**DU:** Diffuse Urban

**UWW:** Urban Waste Water

**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	Objectives met?	Reason why not met?
1200PRI0120	Ballinakill, Moyard	Ballynakill Lake (LWB)	IE_WE_32_479	Yes	N/A
1200PRI0238	Cloonluane (Renvyle)	Nambrakkeagh (LWB)	IE_WE_32_422	Yes	N/A
1200PRI0411	Lettergesh/Mullaghgloos	Mullaghglass_010 (RWB)	IE_WE_32M080920	Yes	N/A
1200PUB1011	Cleggan Claddaghduff	Courhoor (LWB)	IE_WE_32_499	Yes	N/A
1200PUB1012	Clifden	Tully Lake (LWB)	IE_WE_32_474	Yes	N/A
1200PUB1024	Inishboffin	Fawna (LWB)	IE_WE_32_526	Yes	N/A
1200PUB1035	Leenane	Letterbrickaun_010 (RWB)	IE_WE_32L080780	Yes	N/A
1200PUB1036	Letterfrack	Traheen_010 (RWB)	IE_WE_32T010100	Yes	N/A
1200PUB1048	Tullycross	Tully (LWB)	IE_WE_32_474	No	MCPA
2200PRI2006	Ballycroy GWS	Bellagarvaun_010 (RWB)	IE_WE_33B040300	Yes	N/A
2200PRI2021	Burrishoole GWS	Derryhillagh 32_010 (RWB)	IE_WE_32D200860	Yes	N/A
2200PRI2043	Cushin GWS	Aghagower (GWB)	IE_WE_G_0021	Yes	N/A
2200PRI2051	Fahy/Kilmaclasser GWS	Moyour_010 (RWB)	IE_WE_32M010700	Yes	N/A
2200PRI2057	Glenhest GWS	Malranny (GWB)	IE_WE_G_0027	Yes	N/A
2200PRI2074	Killeen GWS	Bundorragha_010 (RWB)	IE_WE_32B010100	Yes	N/A
2200PRI2075	Kilmeena GWS	Moyour_010 (RWB)	IE_WE_32M010700	Yes	N/A
2200PRI2079	Laughta GWS	Bunowen (Louisburg)_010 (RWB)	IE_WE_32B030050	Yes	N/A
2200PRI2127	Drummin	Errif_010 (RWB)	IE_WE_32E010030	Yes	N/A
2200PRI2141	Rosmoney	Newport (GWB)	IE_WE_G_0023	Yes	N/A
2200PRI2542	Clew Bay GWS	Skerdagh_010 (RWB)	IE_WE_32S010300	Yes	N/A
2200PUB1020	Louisburgh WSS	Bunowen (Louisburg)_030 (RWB)	IE_WE_32B030150	No	MCPA
2200PUB1021	Mulranny WSS	Bunnahowna_010 (RWB)	IE_WE_32B020100	Yes	N/A
2200PUB1022	Newport WSS	Newport (Mayo)_030 (RWB)	IE_WE_32N010190	No	MCPA 2, 4-D
2200PUB1025	Westport WSS	Owenwee (Mayo)_010 (RWB)	IE_WE_32O060200	No	MCPA Clopyralid

## 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 Mweelrea/Sheeffry/Erriff Complex SAC and The Twelve Bens/Garraun Complex SAC).

SAC Name	Relevant Qualifying interests	Target status	Water body type	Water bodies	Status (risk)	Prioritise?	Code	Survey data?
Aughrusbeg Machair And Lake SAC 001228	3110	At least Good	Lake	Aughrusbeg	Bad (AT RISK)	Yes	IE_WE_32_436	No
Barnahallia Lough SAC 002118	3130	At least Good	Lake	Barnahallia	Unassigned (NAR)	No	IE_WE_32_269	No
	1833	At least Good	Lake	Barnahallia	Unassigned (NAR)	No	IE_WE_32_269	No
Bellacragher Saltmarsh SAC 002005	none							
Brackloon Woods SAC 000471	none							
Clew Bay Complex SAC 001482	1150	Good	Transitional	Inner Clew Bay	Good (NAR)	No	IE_WE_350_0000	Yes
		Good	Transitional	Furnace Lough	Good (NAR)	No	IE_WE_350_0300	Yes
	21A0	Good GW level	Ground water	Malranny GWB	Good (NAR)	No	IE_WE_G_0027	Yes
Connemara Bog Complex SAC 002034	1150	Good	Transitional	Clifden Bay	Unassigned (R)	Yes	IE_WE_270_0100	Yes
	3110	At least Good	Lake	Fadda	High (NAR-HES obj)	No	IE_WE_32_501	Yes
	3110 (Potential 3130)	At least Good	Lake	Nasodery West	Unassigned (NAR)	No	IE_WE_32_508	Yes
			Lake	Scannive	Unassigned (NAR)	No	IE_WE_32_491	Yes
			Lake	Naweelaun	Unassigned (NAR)	No	IE_WE_32_448	Yes
			Lake	Conga	Unassigned (NAR)	No	IE_WE_32_496	Yes
			Lake	Emlaghmore	Unassigned (NAR)	No	IE_WE_32_449	Yes
	3130	At least Good	Lake	Maumeen	Unassigned (NAR)	No	IE_WE_32_189	Yes
			Lake	Derrywaking	Unassigned (NAR)	No	IE_WE_32_346	Yes
	3160	High/Good?	Lake	Enask	High (NAR - HES obj)	No	IE_WE_32_333	Yes
	Potential 3110	At least Good	Lake	Nambrackkeagh Ballyconneely	Unassigned (R)	Yes	IE_WE_31_180	Yes
			Lake	Nacorrossaunbeg	Unassigned (R)	Yes	IE_WE_31_206	Yes



			Lake	Nacorrussaun	Unassigned (R)	Yes	IE_WE_32_469	Yes
			Lake	Ballybawn	Unassigned (R)	Yes	IE_WE_32_359	Yes
SAC Name	Relevant Qualifying interests	Target status	Water body type	Water bodies	Status (risk)	Prioritise?	Code	Survey data?
Connemara Bog Complex SAC 002034	Potential 3110	At least Good						
			Lake	Boologare	Unassigned (NAR)	No	IE_WE_32_356	Yes
			Lake	Awaddy	Unassigned (NAR)	No	IE_WE_32_368	Yes
			Lake	Agh	Unassigned (NAR)	No	IE_WE_32_390	Yes
			Lake	Ballyagroun	Unassigned (NAR)	No	IE_WE_32_347	Yes
			Lake	Allinour	Unassigned (NAR)	No	IE_WE_32_388	Yes
			Lake	Sruffaunavougheen	Unassigned (NAR)	No	IE_WE_32_505	Yes
			Lake	Ballywalter	Unassigned (NAR)	No	IE_WE_32_442	Yes
			Lake	Shaungagh	Unassigned (NAR)	No	IE_WE_32_351	Yes
			Lake	White GY	Unassigned (NAR)	No	IE_WE_32_502	Yes
			Lake	Nagraiguebeg	Unassigned (NAR)	No	IE_WE_32_410	Yes
			Lake	Nasoodery East	Unassigned (NAR)	No	IE_WE_32_475	Yes
			Lake	Shannalecka	Unassigned (R)	Yes	IE_WE_32_481	Yes
			Lake	Beaghcauneen	Good (NAR)	No	IE_WE_32_402	Yes
			Lake	Cloonagat	Unassigned (NAR)	No	IE_WE_32_454	Yes
			Lake	Munga	Unassigned (NAR)	No	IE_WE_32_401	Yes
			Lake	Croaghat	Unassigned (R)	Yes	IE_WE_32_477	Yes
			Lake	Fadda West	Unassigned (R)	Yes	IE_WE_32_507	Yes
			Lake	Island GY	Unassigned (R)	Yes	IE_WE_32_415	Yes
			Lake	Loughaunarow	Unassigned (R)	Yes	IE_WE_32_465	Yes
	Potential 3110/Potential 3130	At least Good						
			Lake	Nasoodery	Unassigned (NAR)	No	IE_WE_32_405	Yes
			Lake	Kerryhill	Unassigned (NAR)	No	IE_WE_32_342	Yes
			Lake	Doola More	Unassigned (NAR)	No	IE_WE_32_315	Yes
			Lake	Tullalumman More	Unassigned (NAR)	No	IE_WE_32_437	Yes
			Lake	Cam Cushatower	Unassigned (NAR)	No	IE_WE_32_377	Yes
			Lake	Derrylea	Unassigned (R)	Yes	IE_WE_32_497	Yes
			Lake	Derrycunlaghbeg	Unassigned (NAR)	No	IE_WE_32_459	Yes
			Lake	Derrycunlagh More	Unassigned (NAR)	No	IE_WE_32_467	Yes
			Lake	Nambrackderg More	Unassigned (NAR)	No	IE_WE_32_504	Yes

			Lake	Avougheen	Unassigned (NAR)	No	IE_WE_32_420	Yes
			Lake	Nambrackmore Cushatrower	High (NAR-HES obj)	No	IE_WE_32_500	Yes
SAC Name	Relevant Qualifying interests	Target status	Water body type	Water bodies	Status (risk)	Prioritise?	Code	Survey data?
Connemara Bog Complex SAC 002034	7230	Good GW level	Ground water	Clifden Castlebar GWB	Good (R)	No	IE_WE_G_0017	No
			Ground water	Clifden Marbles GWB	Good (NAR)	No	IE_WE_G_0013	No
	1833	At least Good	Lake	Derrywaking	Unassigned (NAR)	No	IE_WE_32_346	Yes
Corraun Plateau SAC 000485	none							
Cross Lough (Killadoon) SAC 000484	none							
Inishbofin And Inishshark SAC 000278	1150	Good	Transitional	Lough Bó Finne, Inishbofin	Unassigned (R)	Yes	IE_WE_280_0100	Yes
	Potential 3110	At least Good	Lake	Fawna	Unassigned (NAR)	No	IE_WE_32_526	Yes
Kingstown Bay SAC 002265	none							
Lough Cahasy, Lough Baun And Roonah Lough SAC 001529	1150	Good	Transitional	Roonagh Lough	Unassigned (NAR)	No	IE_WE_330_0100	Yes
Lough Gall Bog SAC 000522	none							
Mweelrea/Sheeffry/Erriff Complex SAC 001932	1150	Good	Transitional	Corragaun Lough	Unassigned (NAR)	No	IE_WE_320_0100	No
	21AO	Good GW level	Ground water	Clifden Castlebar GWB	Good (R)	No	IE_WE_G_0017	No
	3110/3160	At least Good	Lake	Nahaltora	Unassigned (R)	No	IE_WE_32_472	No
			Lake	Tawnyard	Unassigned (R)	No	IE_WE_32_441	No
			Lake	Numerous NOT AT RISK lakes	Good/High (NAR)	No		No
	3130	At least Good	Lake	Nahaltora	Unassigned (R)	No	IE_WE_32_472	No
			Lake	Tawnyard	Unassigned (R)	No	IE_WE_32_441	No
			Lake	Numerous NOT AT RISK	Good/High (NAR)	No		No

			lakes				
7220	Good GW level	Ground water	Clifden Castlebar GWB	Good (R)	No	IE_WE_G_0017	No
7230	Good GW level	Ground water	Clifden Castlebar GWB	Good (R)	No	IE_WE_G_0017	No

SAC Name	Relevant Qualifying interests	Target status	Water body type	Water bodies	Status (risk)	Prioritise?	Code	Survey data?
Mweelrea/Sheeffry/Erriff Complex SAC 001932	1029 (8 priority catchments)	High	River	Bundorragha_010	Unassigned (R) (HES obj)	Yes	IE_WE_32B010100	Yes
			River	Bundorragha_020	Good (AT RISK-HES obj)	Yes	IE_WE_32B010200	Yes
			River	Glenummera_010	High (NAR-HES obj)	No	IE_WE_32G050070	Yes
	1106	Good	River	Erriff_010	High (NAR-HES obj)	No	IE_WE_32E010030	No
			River	Erriff_020	Good (NAR)	No	IE_WE_32E010100	No
			River	Erriff_030	Good (NAR)	No	IE_WE_32E010200	No
			River	Erriff_040	Good (NAR)	No	IE_WE_32E010300	No
	1833	At least Good	Lake	Doo Lough	Good (NAR)	No	IE_WE_32_490	No
			River	Bundorragha_010	Unassigned (R) (HES obj)	Yes	IE_WE_32B010100	No
			River	Bundorragha_020	Good (AT RISK-HES obj)	No	IE_WE_32B010200	No
	Artic char (not listed)	Good	Lake	Doo Lough	Good (NAR)	No	IE_WE_32_490	No
Newport River SAC 002144	1029 (19 of 27 catchments of S.I. 296 2009)	Good	River	Crumpaun_010	Good (NAR)	No	IE_WE_32C030050	Yes
			River	Crumpaun_020	High (NAR-HES obj)	No	IE_WE_32C030150	Yes
			River	Newport (Mayo)_010	Moderate (AT RISK)	Yes	IE_WE_32N010020	Yes
			River	Newport (Mayo)_020	High (NAR-HES obj)	No	IE_WE_32N010050	Yes
			River	Newport (Mayo)_030	High (NAR)	No	IE_WE_32N010190	Yes
			River	Glenisland_010	Good (AT RISK-HES obj)	No	IE_WE_32G070300	Yes
			River	Skerdagh_010	Good (AT RISK-HES obj)	No	IE_WE_32S010300	Yes
	1106	Good	River	Newport (Mayo)_010	Moderate (AT RISK)	Yes	IE_WE_32N010020	Yes
			River	Newport (Mayo)_020	High (NAR-HES obj)	No	IE_WE_32N010050	Yes
			River	Newport (Mayo)_030	High (NAR)	No	IE_WE_32N010190	Yes
Oldhead Wood SAC 000532	none							
Omey Island Machair SAC	21AO	Good GW	Ground	Clifden Castlebar GWB	Good (R)	No	IE_WE_G_0017	No

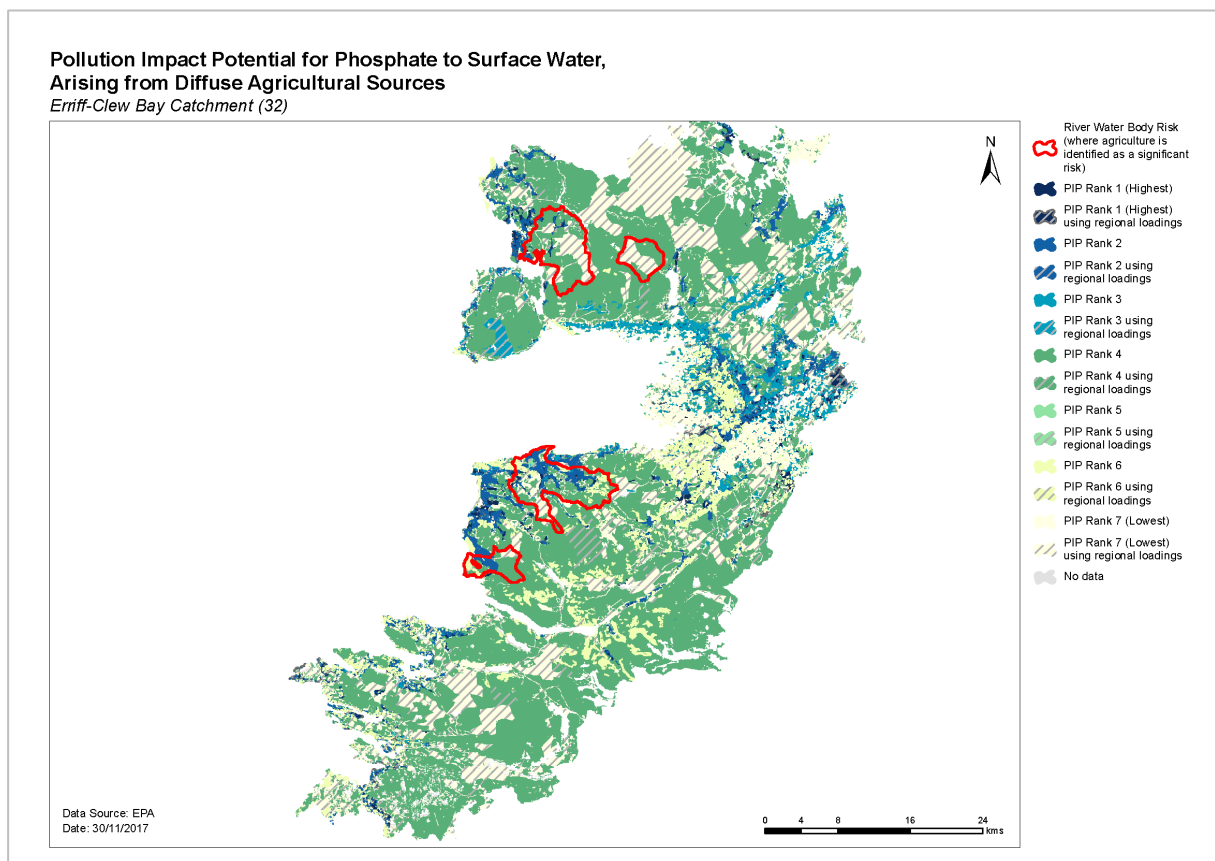
001309		level	water					
--------	--	-------	-------	--	--	--	--	--

SAC Name	Relevant Qualifying interests	Target status	Water body type	Water bodies	Status (risk)	Prioritise?	Code	Survey data?
Owenduff/Nephin Complex SAC 000534	3110/3160	At least Good	Lake	Anaffrin	Unassigned (NAR)	No	IE_WE_33_1790	No
			Lake	Feeagh	Good (NAR)	No	IE_WE_32_510	No
Rusheenduff Lough SAC 001311	3130	At least Good	Lake	Rusheenduff	Unassigned (NAR)	No	IE_WE_32_434	No
	1833	At least Good	Lake	Rusheenduff	Unassigned (NAR)	No	IE_WE_32_434	No
Slyne Head Islands SAC 000328	none							
Slyne Head Peninsula SAC 002074	1150	Good	Transitional	Loch an tSaile (Lough Athola), Mannin Bay	High (R)	No	IE_WE_260_0100	Yes
	21AO	Good GW level	Ground water	Clifden Castlebar GWB	Good (R)	No	IE_WE_G_0017	Yes
	Potential 3110	At least Good	Lake	Usk	Unassigned (NAR)	No	IE_WE_32_486	Yes
The Twelve Bens/Garraun Complex SAC 002031	3110	At least Good	Lake	Muck GY	Unassigned (R)	No	IE_WE_32_482	No
			Lake	Fee	Unassigned (R)	No	IE_WE_32_498	No
			Lake	Numerous NOT AT RISK lakes	Good/High (NAR)	No		No
	3130	At least Good	Lake	Muck GY	Unassigned (R)	No	IE_WE_32_482	No
			Lake	Fee	Unassigned (R)	No	IE_WE_32_498	No
			Lake	Numerous NOT AT RISK lakes	Good/High (NAR)	No		No
	1029 (8 priority catchments)	High	River	Dawros_010	Good (AT RISK-HES obj)	Yes	IE_WE_32D010020	Yes
			River	Dawros_020	High (NAR-HES obj)	No	IE_WE_32D010080	Yes
			River	Dawros_030	High (NAR-HES obj)	No	IE_WE_32D010100	Yes
			River	Dawros_040	High (NAR-HES obj)	No	IE_WE_32D010200	Yes
	1106	Good	River	Owenglin_010	High (NAR)	No	IE_WE_32O030100	No
			River	Owenglin_020	Good (NAR)	No	IE_WE_32O030200	No
			River	Owenglin_030	Good (NAR)	No	IE_WE_32O030300	No
	1833	At least	Lake	Muck GY	Unassigned (R)	No	IE_WE_32_482	No

		Good						
			Lake	Fee	Unassigned (R)	No	IE_WE_32_498	No
<b>SAC Name</b>	<b>Relevant Qualifying interests</b>	<b>Target status</b>	<b>Water body type</b>	<b>Water bodies</b>	<b>Status (risk)</b>	<b>Prioritise?</b>	<b>Code</b>	<b>Survey data?</b>
			Lake	Numerous NOT AT RISK lakes	Good/High (NAR)	No		No
	Artic char	Good	Lake	Kylemore	Good (NAR)	No	IE_WE_32_509b	No
			Lake	Muck GY	Unassigned (R)	No	IE_WE_32_482	No
			Lake	Fee	Unassigned (R)	No	IE_WE_32_498	No
Tully Lough SAC 002130	3130	At least Good	Lake	Tully	Good (NAR)	No	IE_WE_32_474	No
	1833	At least Good	Lake	Tully	Good (NAR)	No	IE_WE_32_474	No
Tully Mountain SAC 000330	none							
West Connacht Coast SAC 002998	none							

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

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 phosphate to surface water. The risk of phosphate losses are 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