Tralee Feale Catchment Assessment 2010 - 2015 (HA 23)

Catchment Science & Management Unit

Environmental Protection Agency

December 2018

Version no. 3

epaCatchments
Healthy • Resilient • Productive
Valued water resources supporting vibrant communities

Preface

This document provides a summary of the characterisation outcomes for the water resources of the Tralee Feale 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/

Table of contents

1 Introduction

This catchment includes the area drained by the River Feale and all streams entering tidal water in Tralee Bay and between Clogher Head and Kilconly Point, Co. Kerry, draining a total area of 1,784km^2. The largest urban centre in the catchment is Tralee. The other main urban centres are Listowel, Abbeyfeale and Ballybunnion. The total population of the catchment is approximately 77,830 with a population density of 44 people per km^2.

The catchment is characterised by an inland upland area underlain by shales and sandstones, with low-lying coastal area underlain by relatively pure karstified limestones with their associated features and mountainous peninsular areas which are underlain by red sandstones.

This catchment comprises the northern side of the Dingle Peninsula, and the catchment of the Feale River which drains the northern part of Kerry and the western edge of County Limerick. The River Feale rises near Rockchapel in the Mullaghareirk Mountains. The river flows northwest where it is joined by the Clydagh and Owveg Rivers. The Feale then flows through Abbeyfeale, where it is joined by the Allaghaun and Oolagh Rivers. The Feale is then joined by the Smearlagh River, which drains the central and eastern parts of the Stack's Mountains. It then flows westward, through Listowel collecting the River Galey and the River Brick before flowing out to sea 3 km south of Ballybunnion.

The coastal parts of the catchment are drained by several small rivers, the largest of which are the Ardfert Oughter and the Lee Rivers which drain the area around Tralee. The peninsular part of the catchment is drained by many small rivers flowing from the central upland spine that runs along the Dingle Peninsula. The largest of these rivers (east to west) are the; Finglas, Owencashla, Stradbally, Glennahoo, Owenmore, Owenafeanna and Reenconnell rivers.

The Tralee Feale catchment comprises 14 subcatchments (Table 1, Figure 1) with 80 river water bodies, 12 lakes, five transitional water bodies, seven coastal and eight groundwater bodies. There are no heavily modified or artificial water bodies in the Tralee Feale Catchment.

Table 1. List of subcatchments in the Tralee Feale catchment

Subcatchment ID	Subcatchment Name
23_1	Galey_SC_020
23_2	Feale_SC_010
23_3	Galey_SC_010
23_4	Feale_SC_030
23_5	Feale_SC_020
23_6	Brick_SC_010
23_7	ARDFERT_OUGHTER_SC_010
23_8	Lee[Tralee]_SC_010
23_9	Owencashla_SC_010
23_10	Owenmore[Kerry]_SC_010
23_11	AnDunRua_SC_010
23_12	GLOURIA_SC_010
23_13	Feale_SC_040
23_14	Brick_SC_020

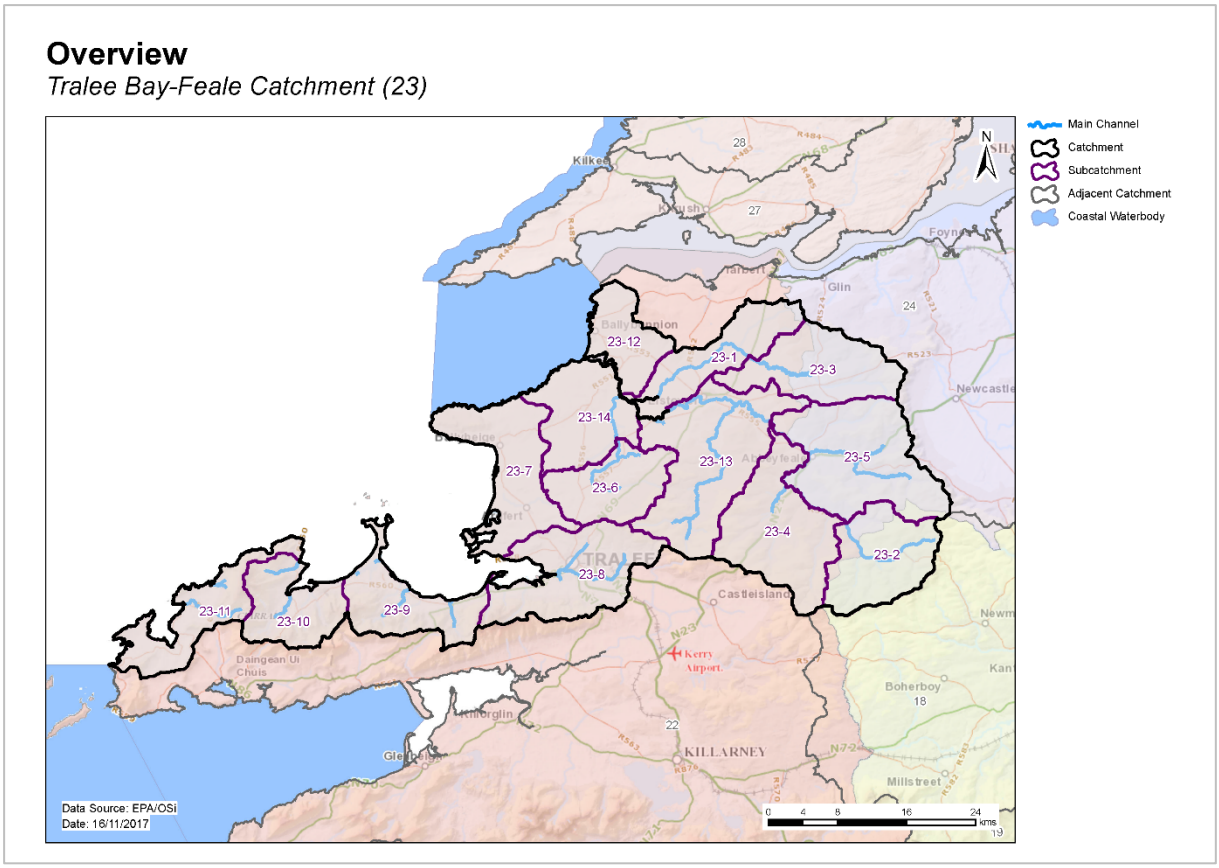


Figure 1. Subcatchments in the Tralee Feale catchment

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 33 (36%) river and lake water bodies at Good or High status, and 20 (22%) at less than Good status in 2015 (Table 2, Figure 2). Thirty-nine (42%) river and lake water bodies are unassigned.
- Four river water bodies and sites have a high ecological status objective. In 2015, one (25%) of these water bodies was at High status, and three were at Good (Figure 3, Appendix 1).
- The numbers of water bodies at each status class in 2007-09 and 2010-15 are shown in Figure 4 (rivers) and Figure 5 (lakes).
- Since 2007-09 when WFD monitoring began, five water bodies have an improved status whereas 15 have deteriorated (Figure 7).
- The variation in nutrient concentrations and loads in the Feale main channel is illustrated in Appendix 2.

2.1.2 Transitional and coastal (TraC)

- There is one TraC water body (8%) at Good status in 2015. There are three at Moderate status, two at Poor status (42%)and six unassigned (50%). (Figure 2, Table 2).

- There is one transitional water body (Outer Tralee Bay IE_SH_040_0000) that has a high ecological status objective. In 2015, this water body was at Good status (Figure 3, Appendix 1).

- The numbers of TraC water bodies at each status class in 2007-09 and 2010-15 are shown in Figure 6.

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	*Not at Risk*	*Review*	*At Risk*
Rivers	80	1	32	13	5	0	29	32	27	21
Lakes	12	0	0	2	0	0	10	6	4	2
TraCs	12	0	1	3	2	0	6	4	4	4

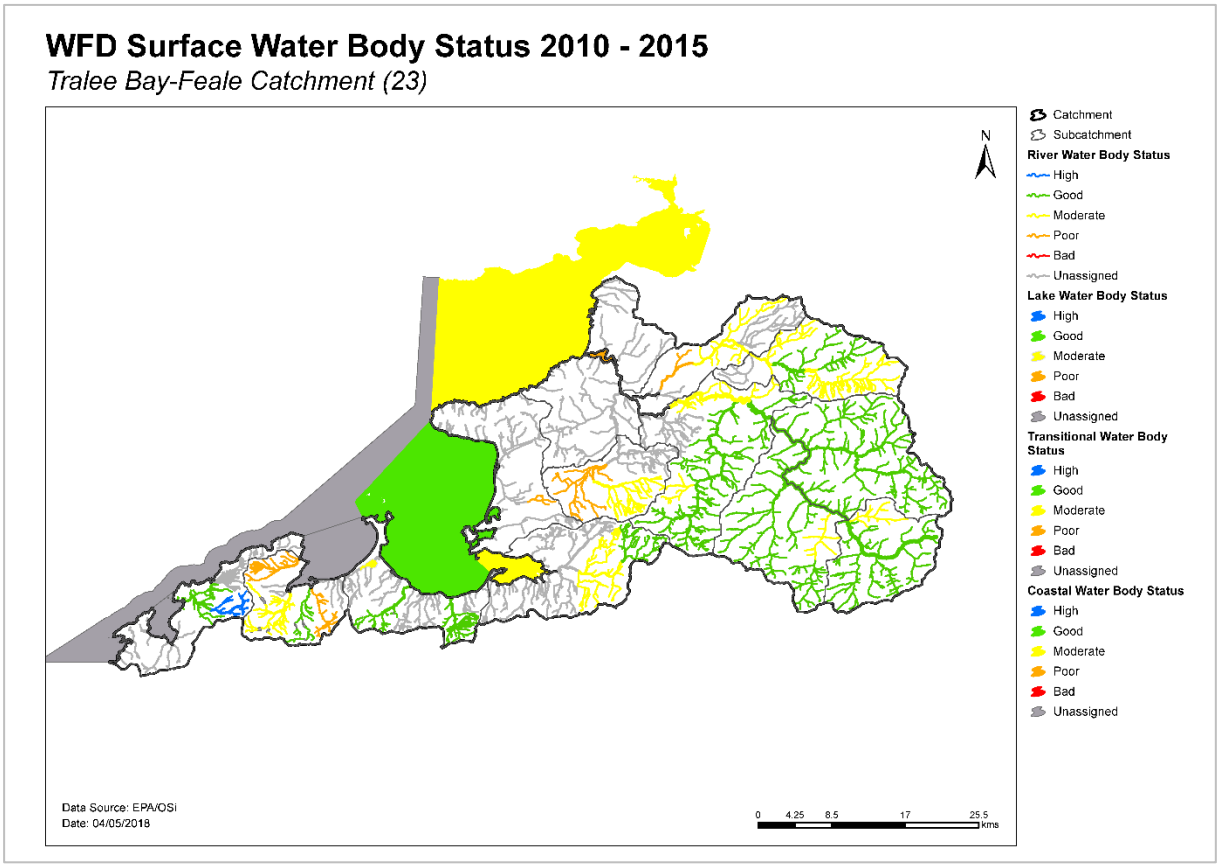


Figure 2. Surface water ecological status

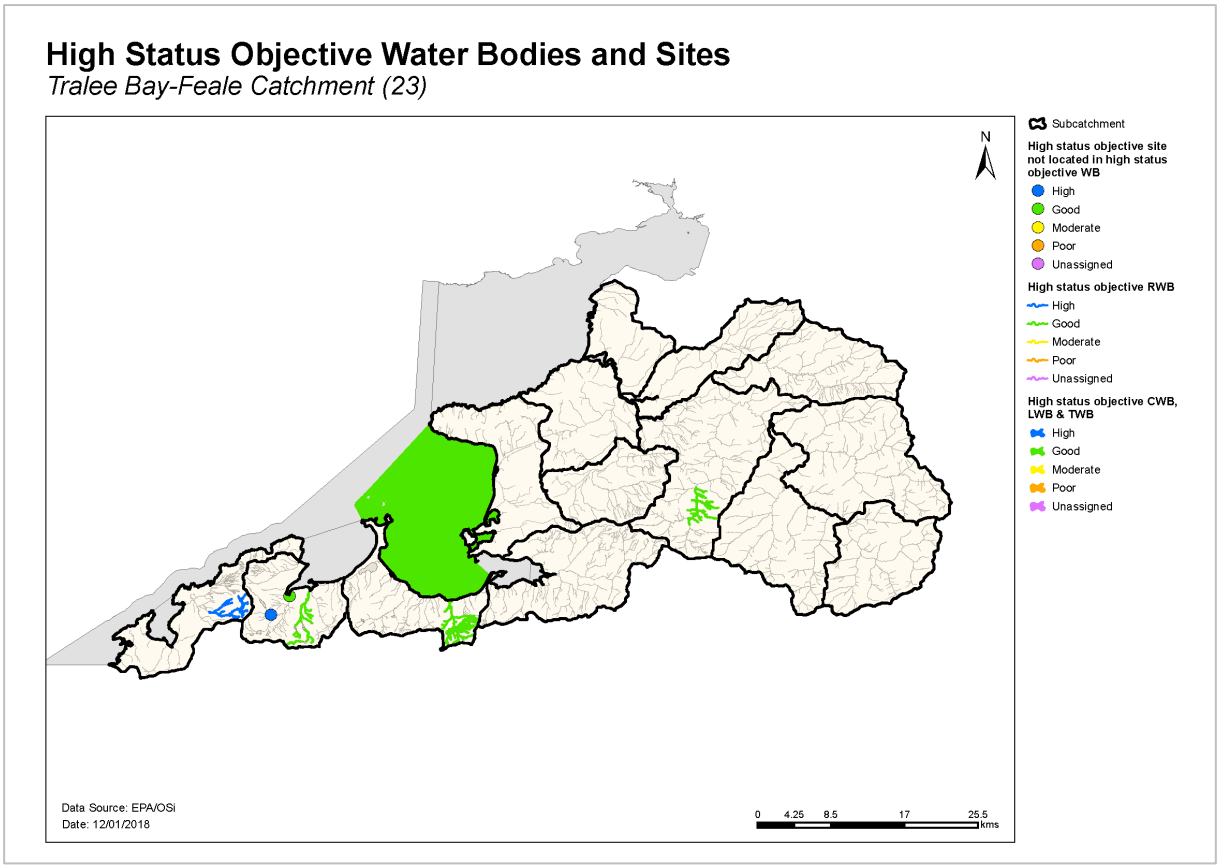


Figure 3. High ecological status objective water bodies and sites

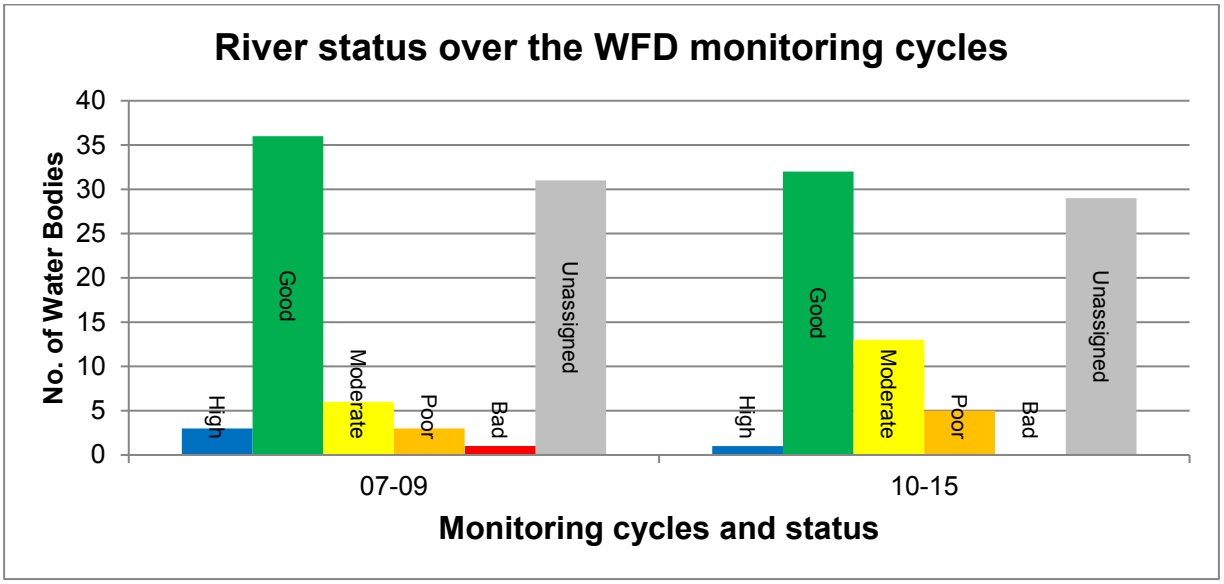


Figure 4. Number of rivers at each status class in 2007-09 and 2010-15

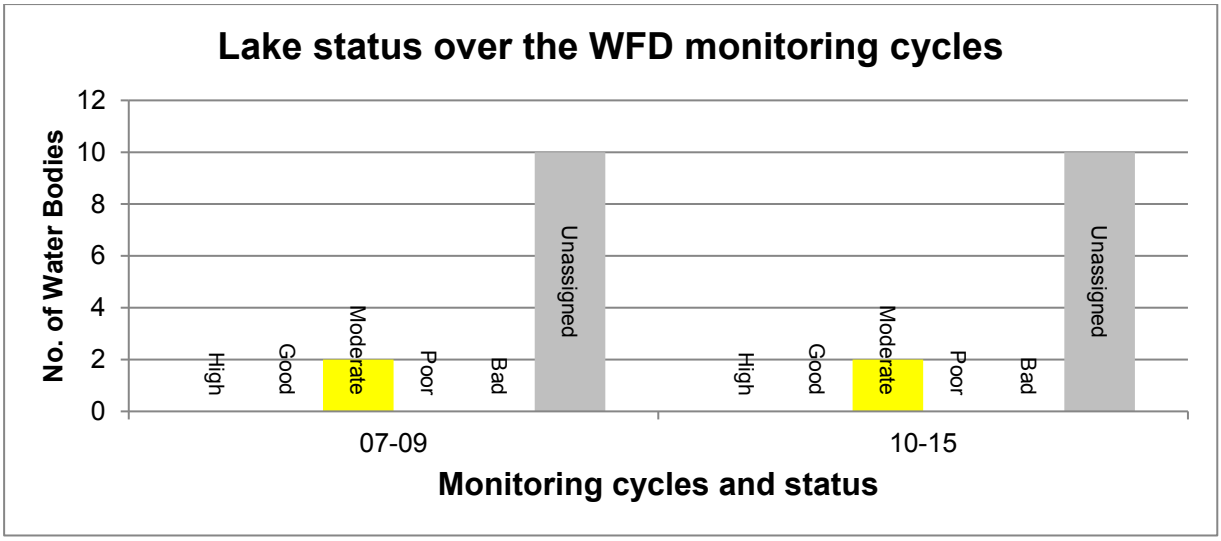


Figure 5. Number of lakes at each status class in 2007-09 and 2010-15

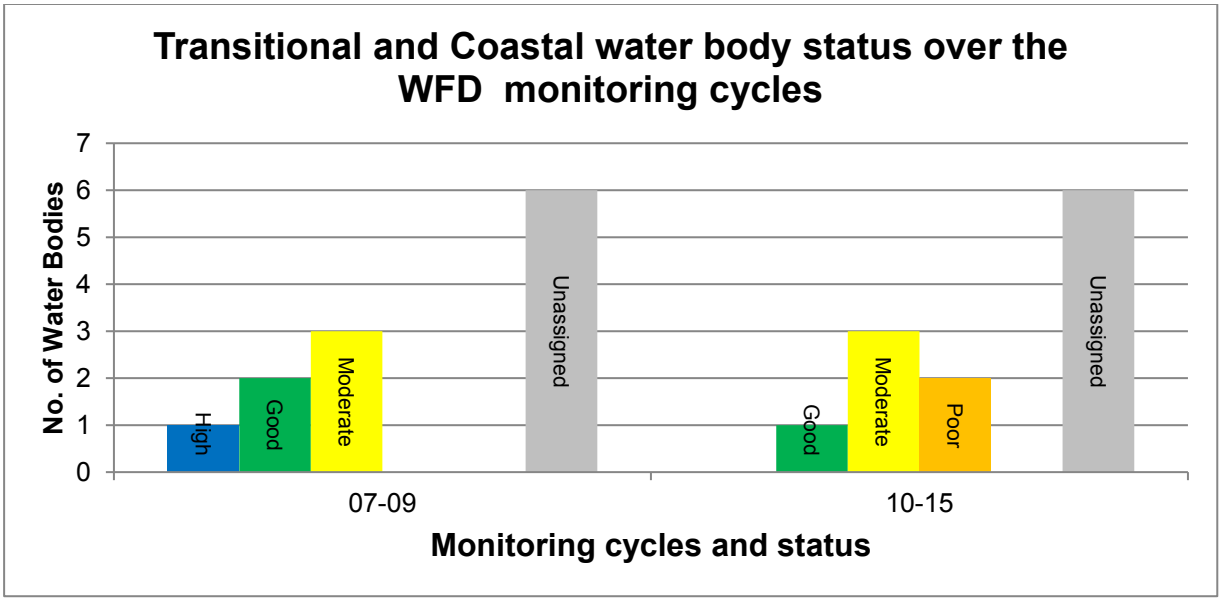


Figure 6. Number of TraCs at each status class in 2007-09 and 2010-15

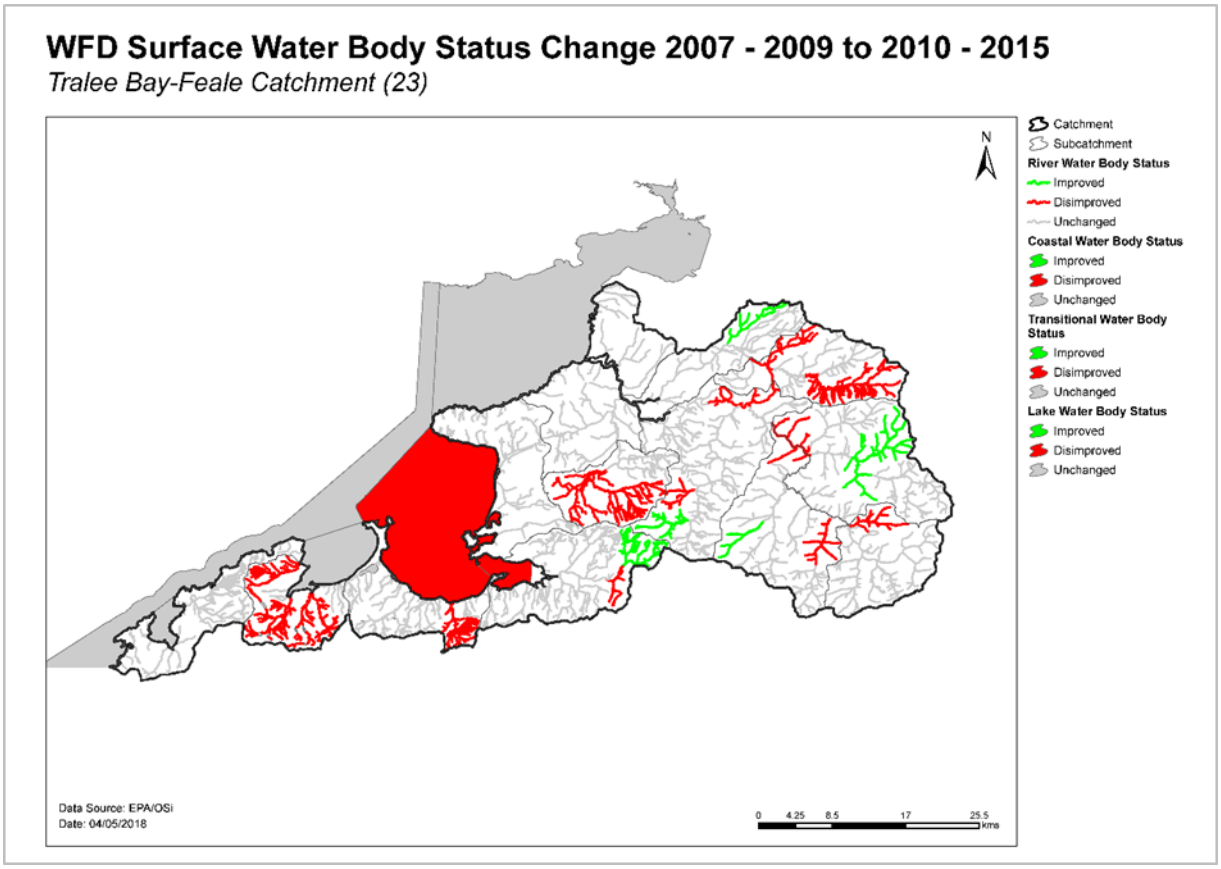


Figure 7 – Surface Water Body Change in Status

2.2 Groundwater status

- There were eight groundwater bodies at Good status in 2015 (Table 3).
- All eight (100%) of the water bodies remained at Good status between 2007-12 and 2010-15.

Table 3. Summary of groundwater body status and risk categories

	Number of water bodies	2010-15 Status	Risk Categories			
		Good	Poor	*Not at Risk*	*Review*	*At Risk*
Groundwater	8	8	0	4	4	0

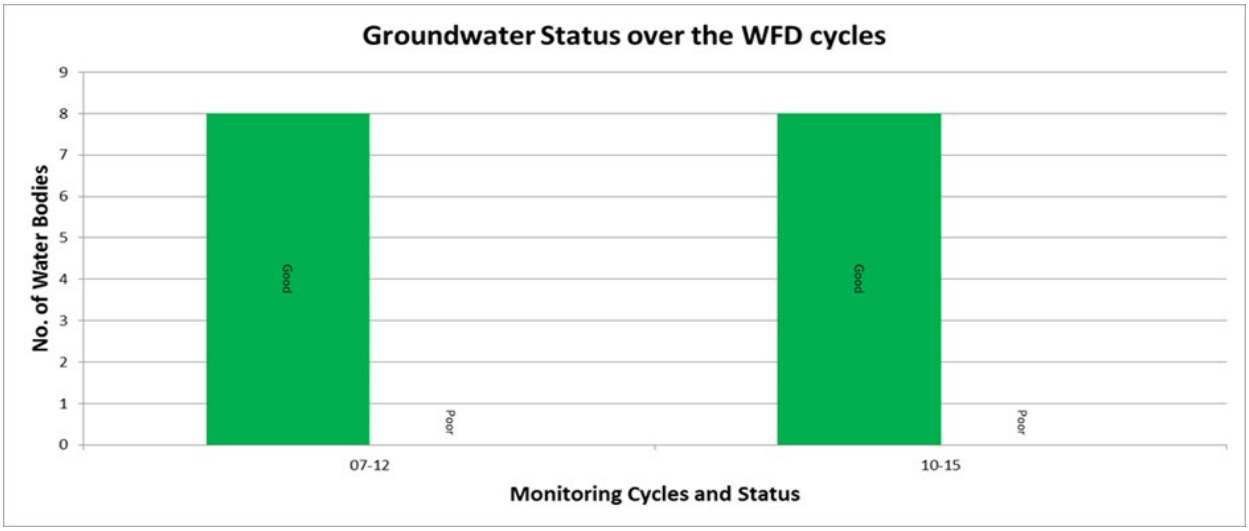
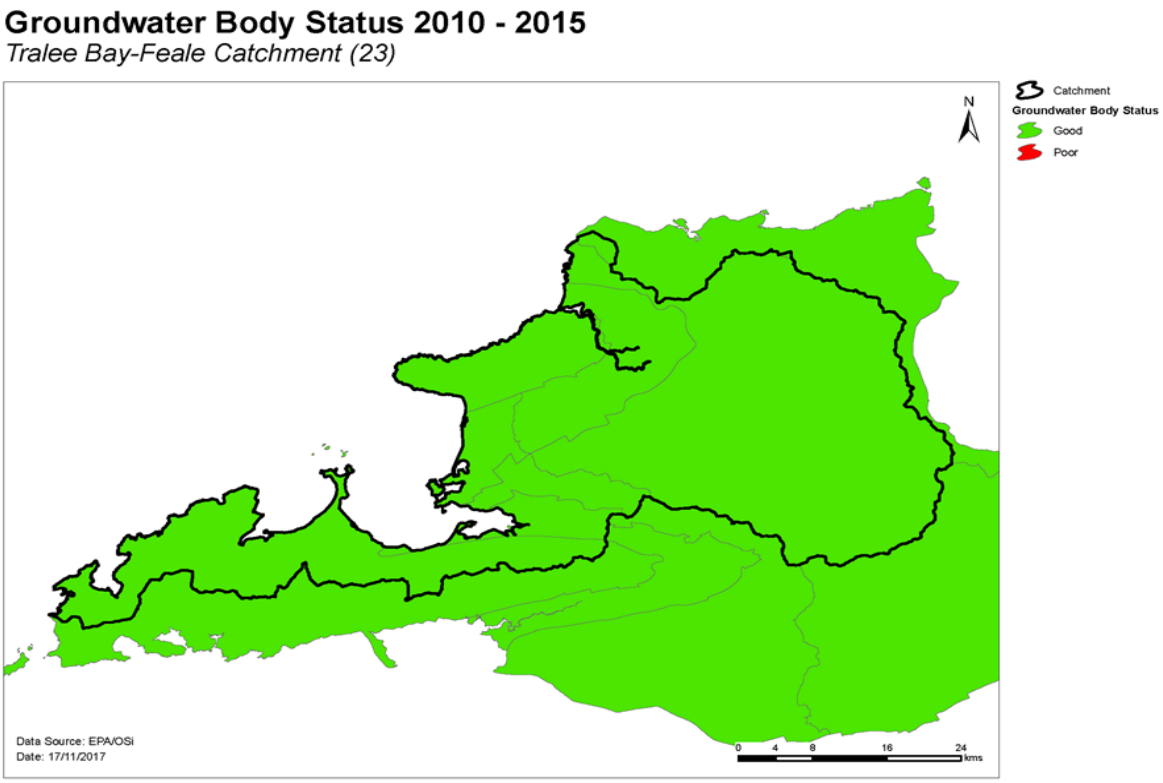


Figure 7a). Number of Groundwater Bodies at each status class in 2007-09 and 2010-15

Figure 7b) – Groundwater body status



2.3 Risk of not meeting surface water environmental objectives

2.3.1 Rivers and lakes

- There are 32 *Not at Risk* river water bodies and six lake water bodies (Figure 8, Table 2) and these require no additional investigative assessment or measures to be applied, other than those measures that are already in place.

- There are 27 river water bodies and four lake water bodies in *Review*. This includes water bodies where more information is required.
- Twenty-one river water bodies 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)

- There are no transitional water bodies and four coastal water bodies *Not at Risk* (Figure 8) and therefore require no additional investigative assessment or measures to be applied, other than those measures that are already in place.
- Two transitional and two coastal water bodies are in *Review*. Further information is required for these water bodies.
- One coastal and three transitional water bodies are *At Risk* (Inner Tralee Bay, Lee K Estuary, Cashen and Upper Feale Estuary) 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 environmental objectives

- Four groundwater bodies are *Not at Risk* (Figure 9, Table 3) and require no additional investigative assessment or measures to be applied, other than those measures that are already in place. These are Abbeyfeale, Brandon Head, Kerry Head and Spa groundwater bodies.
- Four groundwater bodies are in *Review.* Ardfert, Ballybunnion and Tralee groundwater bodies have elevated nitrate concentrations. Ballylongford is hydrologically linked to surface waters that are not meeting water quality objectives where it is considered likely that groundwater is a contributing source of nutrients, however the surface waters that are likely to be impacted are in Hydrometric Area (HA) 24.
- There are no groundwater bodies that are *At Risk.*

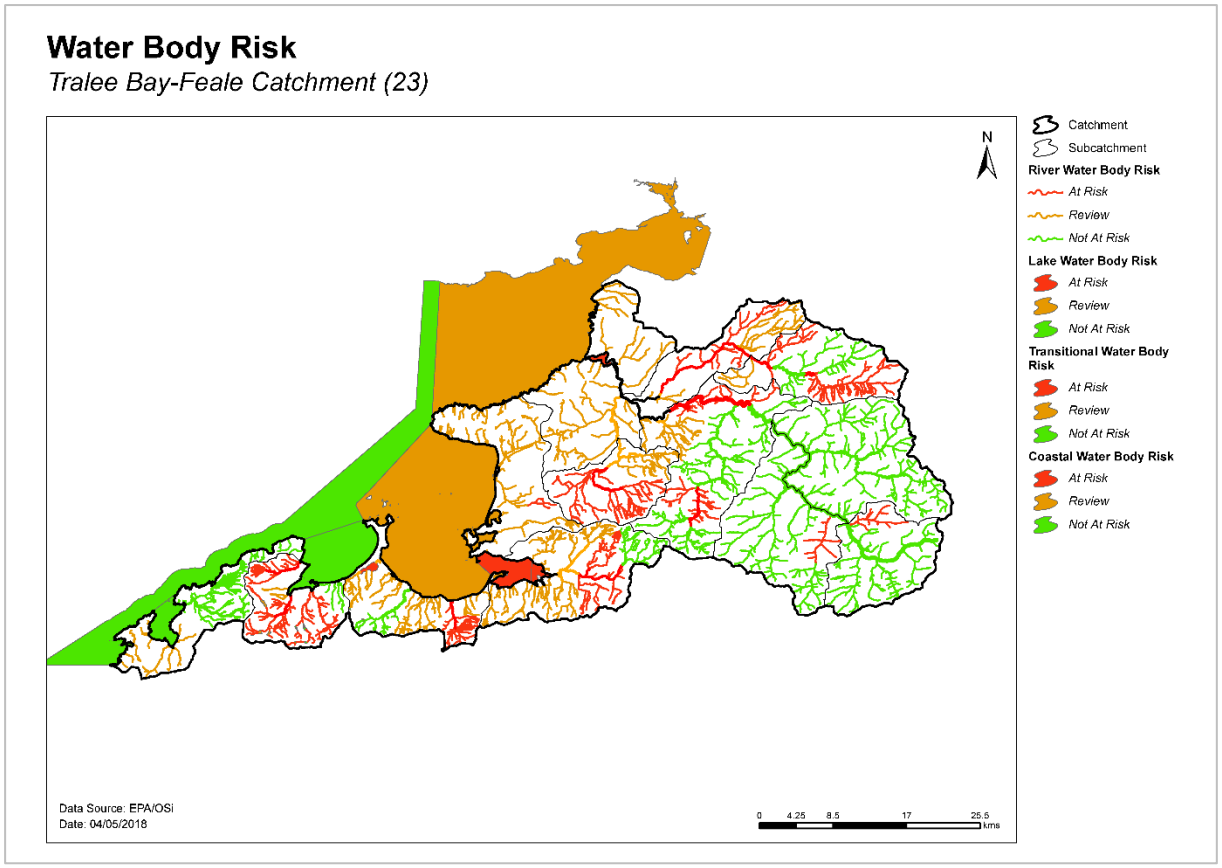


Figure 8. Surface water body risk

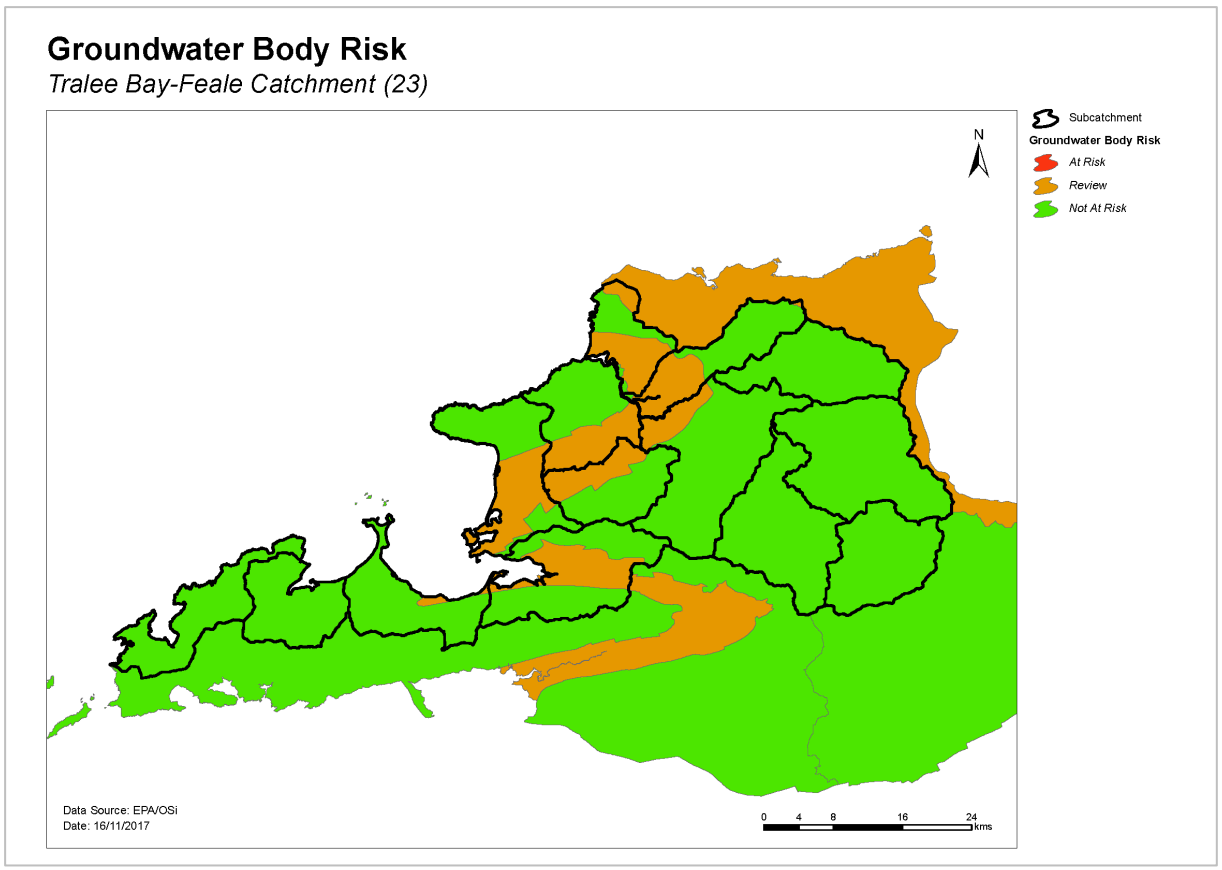


Figure 9. Groundwater body risk

2.5 Protected areas

2.5.1 Drinking water protected areas

- There are 49 abstractions in the Tralee Feale Catchment comprising 34 public supply schemes and three private other schemes (Barnagh/Glendarragh, Templeathea West and Tonavane Slieve) (Appendix 4).
- Thirty-eight of the abstractions are from five groundwater bodies (Abbeyfeale, Brandon Head, Kerry Head, Ardfert and Ballybunnion); and 11 are from ten river water bodies. The list of the public supplies and the associated water bodies is provided in Appendix 4.
- All drinking water sources were compliant with the standards for nitrate in 2015.
- Four of the drinking water sources (Abbeyfeale groundwater body, Smearlagh_030, Feale_050 and Feale_090) were non-compliant with the standards for pesticides in 2015. Abbeyfeale groundwater body, Smearlagh_030 and Feale_090 had exceedances of MCPA and total pesticides, whereas Feale_050 had exceedances of MCPA and Clopyralid. The other drinking water sources in the catchment were compliant with the standards for pesticides.
- There was no data available with respect to compliance for drinking water sources in Annagh (Kerry)_010, Feale_080, Feohanagh_010 surface water bodies, and Ballybunnion groundwater body.

2.5.2 Bathing waters

- There are seven designated bathing waters in the Tralee Feale catchment.
- All seven of the bathing waters 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?	Comment	Objective met?		Comment
Name	Code	Name	Code	Yes	No	
Maharabeg	IESHBWC040_0000_0400	Outer Tralee Bay	IE_SH_040_0000	✓		
Castlegregory	IESHBWC040_0000_0300	Outer Tralee Bay	IE_SH_040_0000	✓		
Fenit	IESHBWC040_0000_0250	Outer Tralee Bay	IE_SH_040_0000	✓		
Banna Strand	IESHBWC040_0000_0200	Outer Tralee Bay	IE_SH_040_0000	✓		
Ballyheigue	IESHBWC040_0000_0100	Outer Tralee Bay	IE_SH_040_0000	✓		
Ballybunnion North	IESHBWC060_0000_0200	Mouth of the Shannon (HAs 23;27)	IE_SH_060_0000	✓		
Ballybunnion South	IESHBWC060_0000_0300	Mouth of the Shannon (HAs 23;27)	IE_SH_060_0000	✓		

2.5.3 Shellfish areas

- There are three designated shellfish areas in the catchment (Inner Bay Maharees, Tralee Bay and West Shannon Ballylongford).
- All three are compliant with the relevant standards with no water quality issues of concern.
- Details on the shellfish areas and their associated water bodies are summarised in Table 5.

Table 5. Designated shellfish areas in the catchment

Shellfish area		Water body intersection		Objective met?	
Name	Code	Name	Code	Yes	No
Inner Bay, Maharees	IEPA2_0009	Outer Tralee Bay	IE_SH_040_0000	✓	
Tralee Bay	IEPA2_0020	Lee K Estuary	IE_SH_050_0100	✓	
		Inner Tralee Bay	IE_SH_050_0000		
		Outer Tralee Bay	IE_SH_040_0000		
West Shannon Ballylongford	IEPA2_0061	Mouth of the Shannon (HAs 23;27)	IE_SH_060_0000	✓	

2.5.4 Nutrient sensitive areas

- There are three designated Nutrient Sensitive Areas (NSAs) (Lee Estuary Upper (Tralee), Feale Estuary Upper and Cashen/Feale Estuary) associated with two waste water treatment plants (Tralee and Listowel).
- Both urban waste water treatment plants were not compliant with the environmental objective for NSAs and are not due to be upgraded to tertiary treatment.
- The list of NSAs, associated agglomerations and intersecting water bodies are provided in Table 6.

Table 6. Nutrient sensitive areas in the catchment

Nutrient Sensitive Area		Agglomeration		Intersecting water bodies		Objective met?		Comment
Name	Code	Name	Code	Name	Code	Yes	No	
Lee Estuary Upper (Tralee)	IETW_SH_2001_0034	Tralee	D0040	Lee K Estuary	IE_SH_050_0100		✓	No Tertiary treatment. No upgrade planned.
Feale Estuary Upper	IETW_SH_2001_0035	Listowel	D0179	Upper Feale Estuary	IE_SH_060_0200		✓	Tertiary treatment not in place. Not due to be included in 2021 upgrade
Cashen / Feale Estuary	IETW_SH_2001_0036			DERRA_WEST_010	IE_SH_23D090580			

2.5.5 Natura 2000 sites

- There are seven 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.
- Nine river 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:
    - Dingle Peninsula SPA
    - Kerry Head SPA
    - Magharee Islands SPA
    - Stack's to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA
    - Tralee Bay 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 designated heavily modified (HMWB) or artificial water bodies in the catchment.

3 Significant issues in *At Risk* water bodies

- Excess phosphate, leading to eutrophication, is the dominant issue in rivers and lakes in Tralee Feale Catchment. Excess ammonia is also of concern; however, it is only for a limited number of water bodies.
- Alteration of hydromorphological (or physical) conditions are is one of the most significant issues in rivers in the Tralee-Feale Catchment. This includes inputs of excess fine sediment and alteration of the morphology of the river channel, which in turn alter habitat conditions. This can occur because of, for example, implementing river and field drainage schemes, forestry activities, animal access, and discharge from quarries.
- Elevated nutrients and BOD, and problems with dissolved oxygen are the issues in the TraC water bodies. Fish status has also deteriorated in some TraC water bodies.
- There are no groundwater bodies that are *At Risk*.

4 Significant pressures

4.1 Water bodies

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

- The significant pressure affecting the greatest number of water bodies is agriculture, followed by hydromorphological pressures, forestry, urban waste water, peat workings, other (unknown), domestic waste water and diffuse urban.

4.1.1 Rivers, lakes, transitional and coastal (TraC)

- Significant pressures have been identified by the initial characterisation process, in 27 *At Risk* water bodies, 12 of which have multiple pressures. The significant pressures will be refined as further characterisation is carried out.
- The most significant pressures affecting Rivers and Lakes are agriculture, Hydromorphology and forestry.
- The significant pressures affecting the majority of TraC water bodies in this catchment are agriculture, urban waste water and diffuse urban run-off.
- The pressures impacting on Lough Gill are unclear at this stage and further characterisation work is required.

4.1.2 Groundwater

- There are no significant pressures affecting groundwater bodies, as none are *At Risk*.

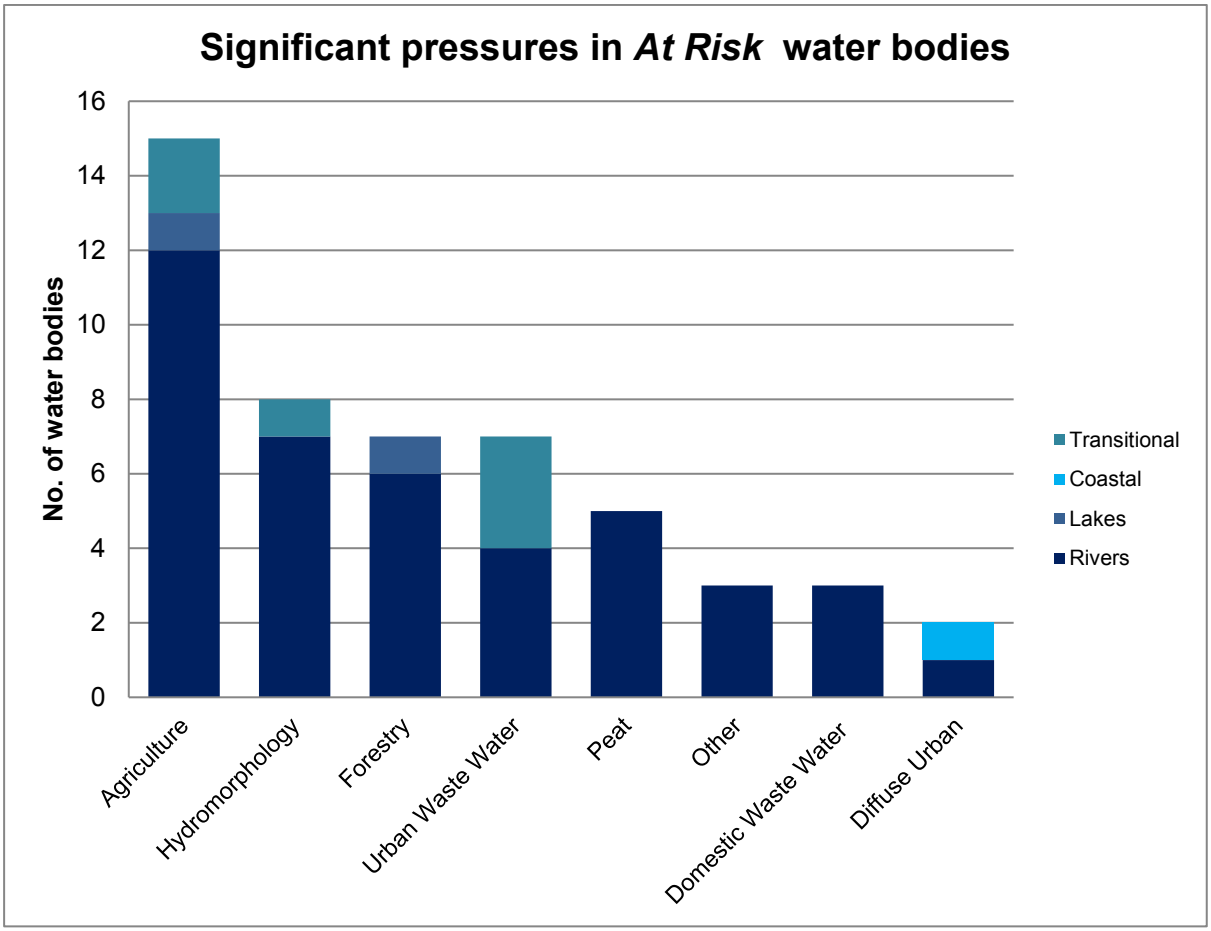


Figure 10. Significant pressures impacting on *At Risk* water bodies

4.2 Pressure type

4.2.1 Agriculture

- Agriculture is a significant pressure in 12 river water bodies, one lake water body and two transitional water bodies across several subcatchments; the water bodies affected are shown in Figure 11. The issues related to agriculture in this catchment are diffuse phosphorus loss to surface waters due mainly in areas of improved pasture and point discharges from impervious surfaces such as yards and farm tracks, resulting in excess nutrients in surface waters. The pollution impact potential map showing areas of relative risk for phosphorus loss from agriculture to surface water is given in Appendix 6.

4.2.2 Hydromorphology

- Two river water bodies within the Galey subcatchments and two within the Owenmore subcatchment are subject to extensive modification due to channelisation. which has led to high levels of siltation. In addition, three river water bodies within Galey (SC23_1) are subject to extensive bank modification due to the presence of embankment schemes, while land drainage is impacting one river water body within the same subcatchment. Barriers are present within two river water bodies within the Galey and Owenmore subcatchments. One transitional water body, Upper Feale Estuary experiences a significant pressure due to the presence of embankments. (Figure 12 and Table 6a).

- See Appendix 3 for information on these water bodies.

Table 6a) – Hydromorphological pressures in the Tralee Feale Catchment.

Pressure	Sub-Catchment	Water body Code
Channelisation	Galey_SC_020	Galey_040
	Galey_SC_020	Galey_050
	Owenmore[Kerry]_SC_010	Ownemore_010
	Owenmore[Kerry]_SC_010	Scorid_010
Bank Modification (Embankment)	Galey_SC_020	Galey_050
	Galey_SC_020	Tarmon Stream_010
Land Drainage	Galey_SC_020	Tarmon Stream_010
	Galey_SC_020	Upper Feale Estuary
	Galey_SC_010	Galey_030
In River Structures	Galey_SC_020	Galey_040
	Owenmore[Kerry]_SC_010	Scorid_010

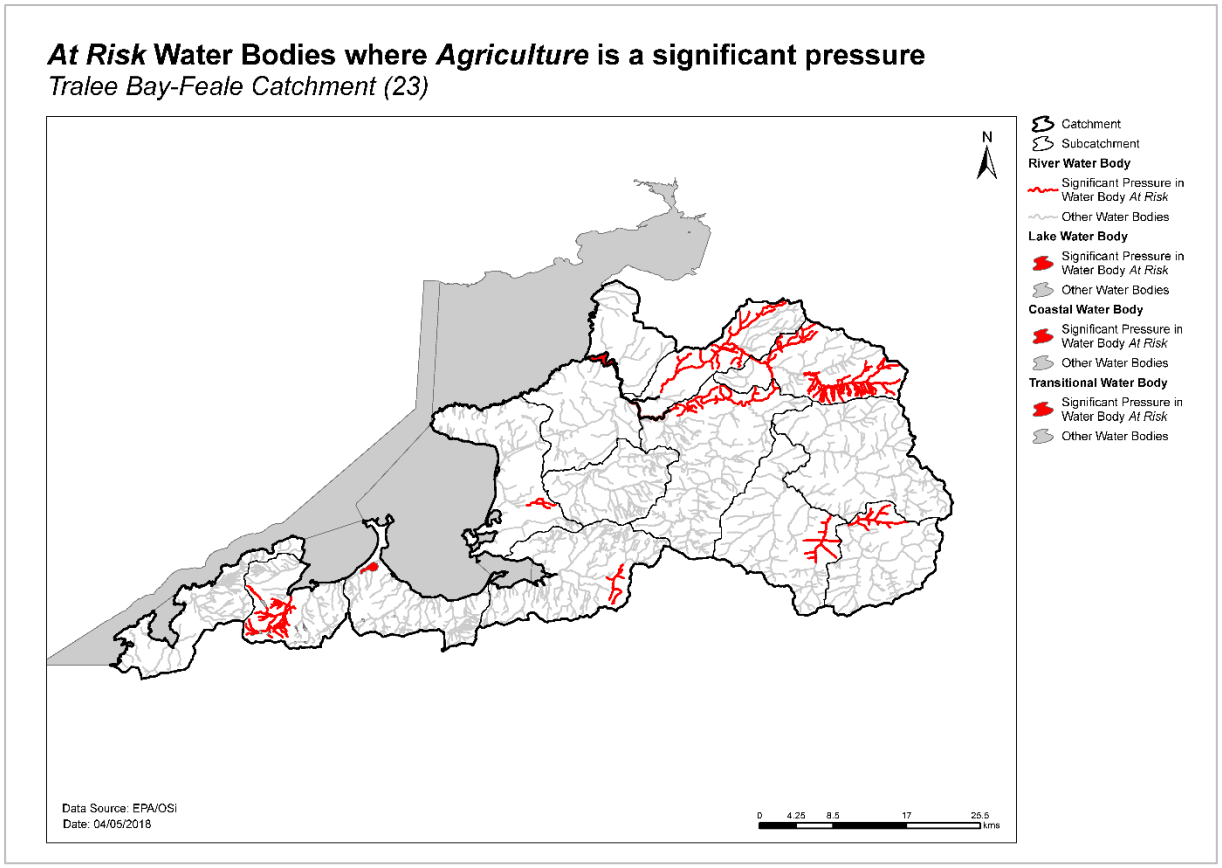


Figure 11. Water bodies that are *At Risk* and are impacted by agricultural activities

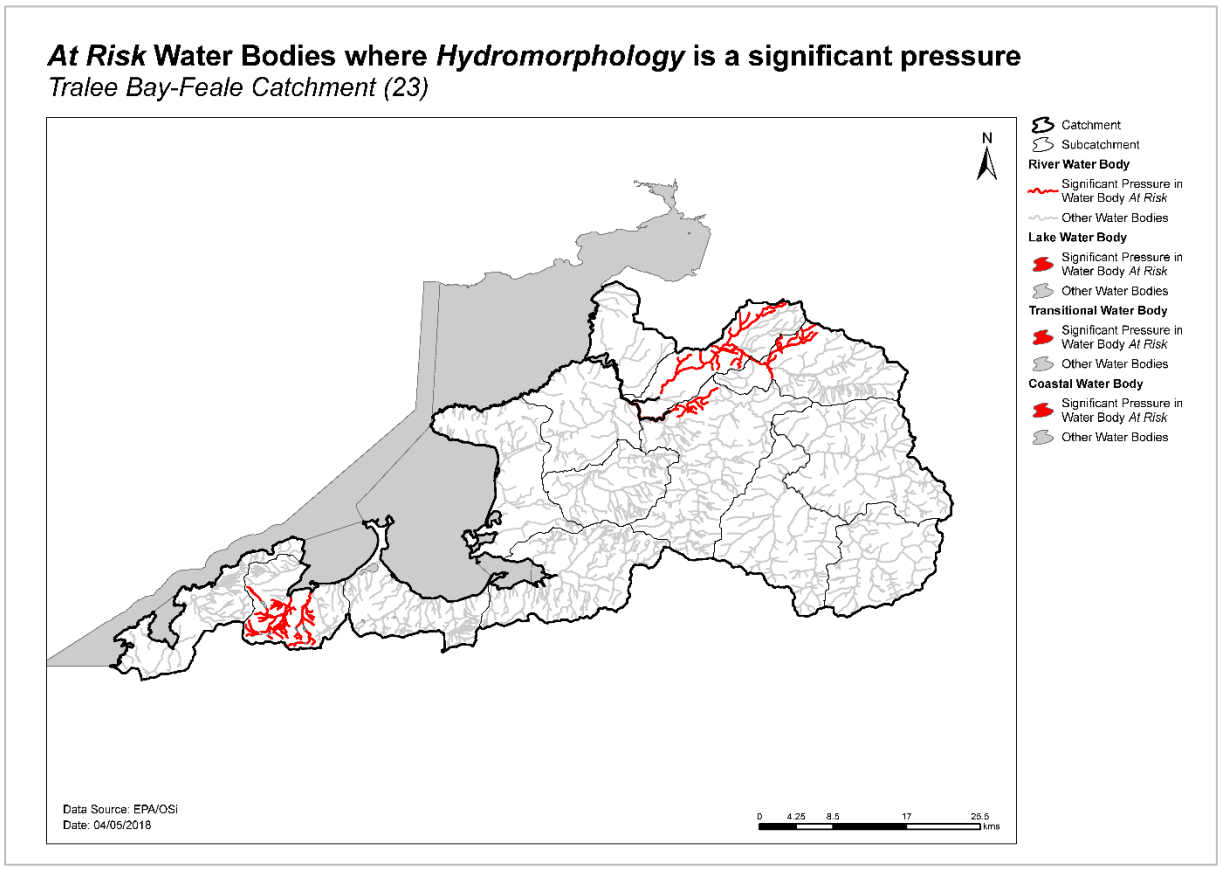


Figure 12. Water bodies that are *At Risk* and are impacted by hydromorphological pressures

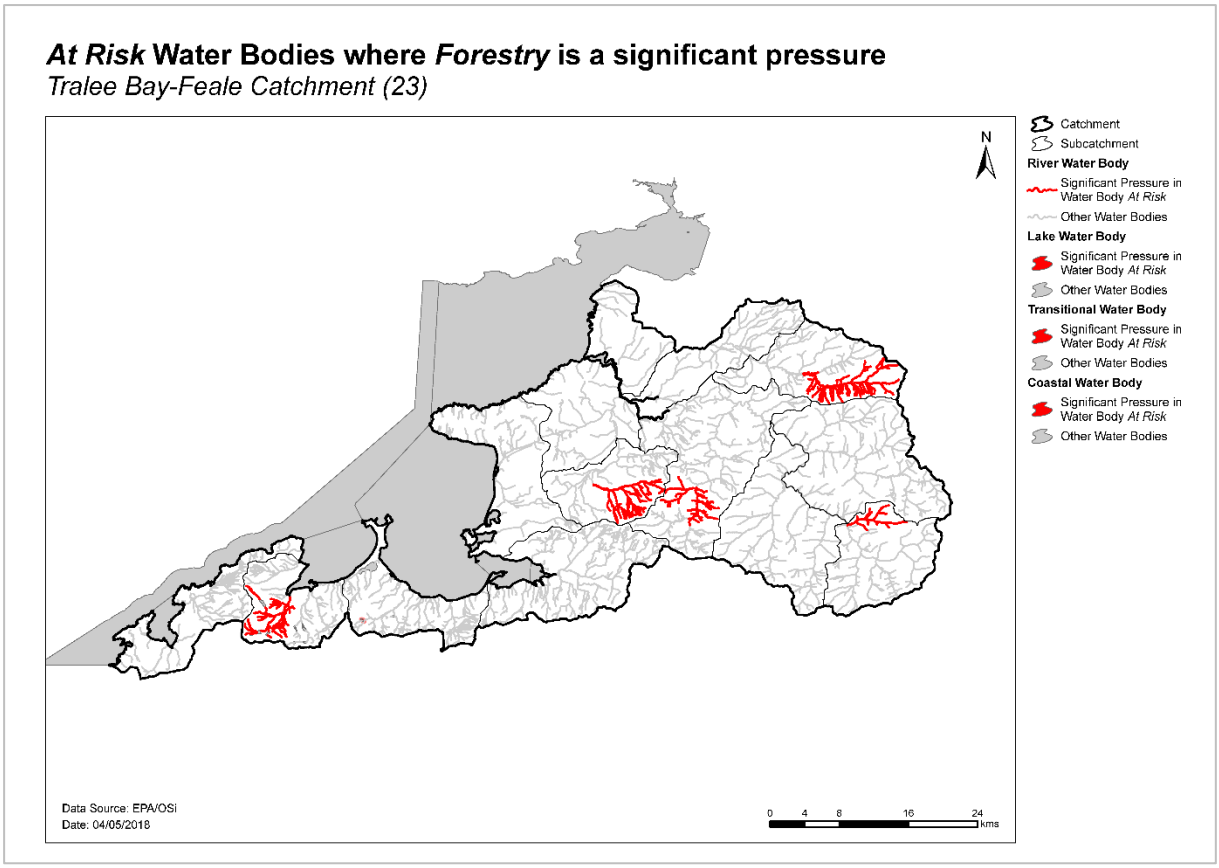


Figure 13. Water bodies that are *At Risk* and are impacted by forestry activities

4.2.3 Forestry

- Forestry has been identified as a significant pressure in six rivers and one lake water body (Figure 13). The forestry activities include clear felling, construction of roads, and fertilisation of young trees, which has resulted in heavy siltation and excess nutrients in surface water bodies.

4.2.4 Urban waste water treatment plants

Urban Waste Water Treatment Plants (WWTPs) and agglomeration networks have been identified as a significant pressure in seven *At Risk* water bodies; details are given in Table 7 and Figure 14. The Tralee agglomeration network, which impacts Lee K Estuary and Lee (Tralee)_030, is scheduled to be upgraded in 2025.

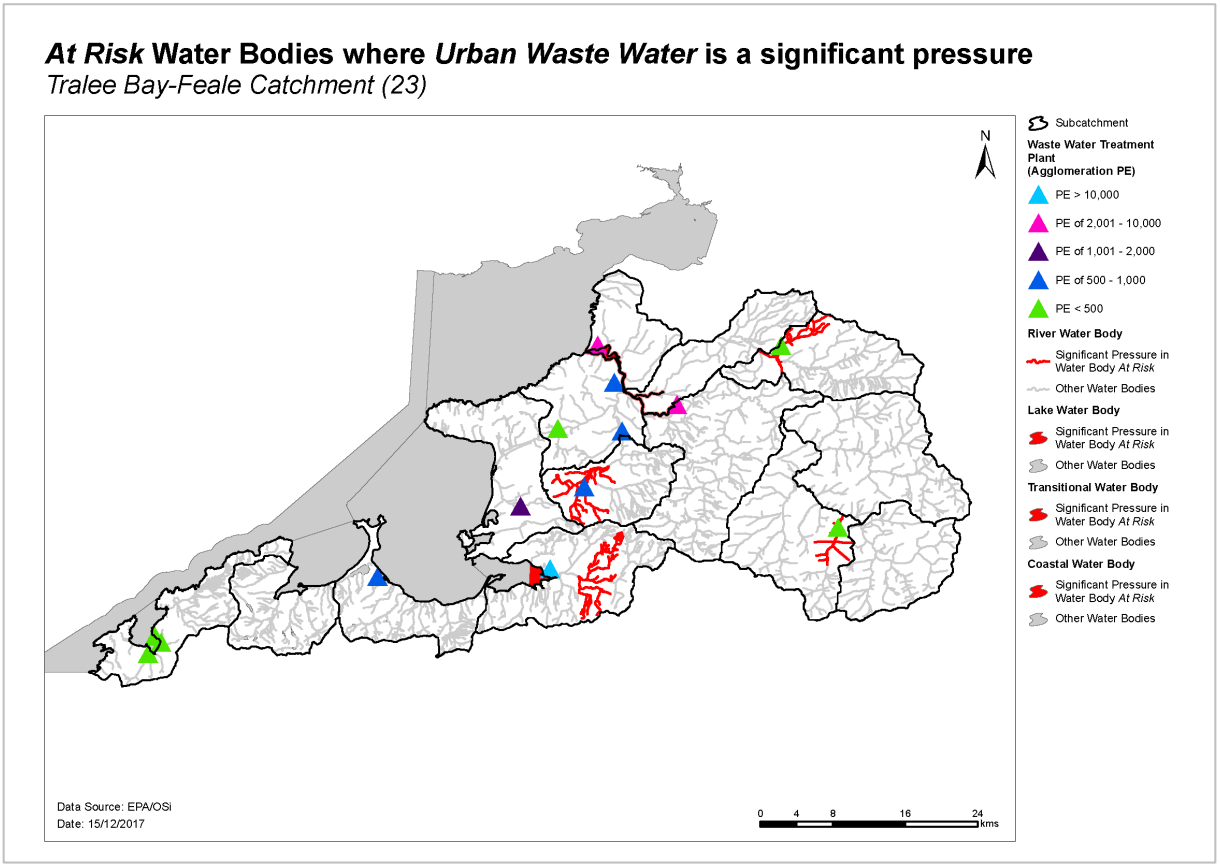


Figure 14. Water bodies that are *At Risk* and are impacted by urban waste water

4.2.5 Extractive industry

- *Peat*

  Peat drainage and working has been identified as a significant pressure in five river water bodies – Galey_050, Tarmon Stream_010, Owenmore (Kerry)_010, Lyracrumpane_010 and Finglas (Tralee Bay) _010. Excess sediment and elevated nutrient concentrations are the significant issues (Figure 15).

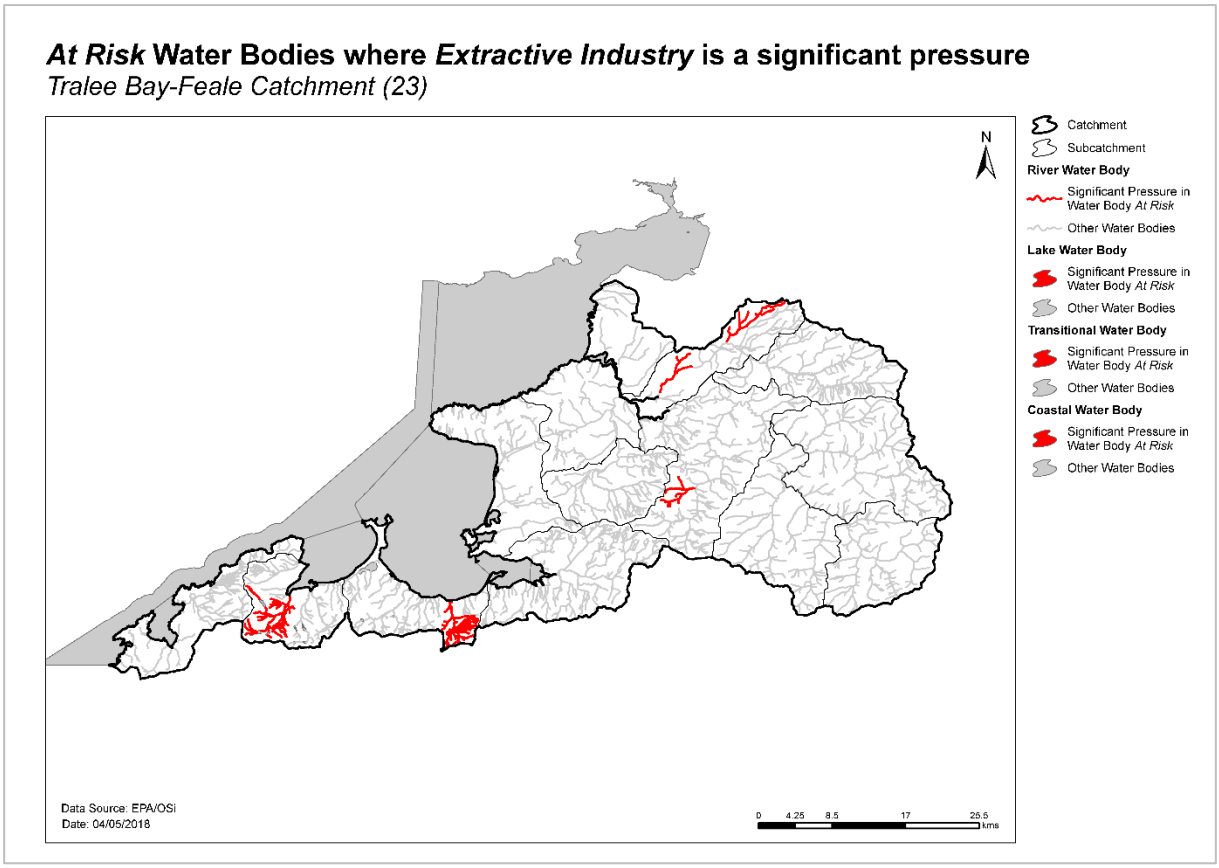


Figure 15. Water bodies that are *At Risk* and are impacted by the Extractive industry

Table 7. Waste Water Treatment Plants and agglomerations identified as Significant Pressures in *At Risk* water bodies and expected completion dates for associated upgrade works, where applicable.

Facility name	Facility Type	Water Body	2010-15 Ecological Status	Expected Completion Date
Moyvane A0026	< 500 p.e.	Galey_030	Moderate	*NA* [1]
Brosna A0078	< 500 p.e.	Clydagh (Feale)_020	Moderate	*NA* [1]
Abbeydorney D0417	500 to 1,000 p.e.	Brick_020	Poor	*NA* [1]
Tralee D0040	> 10,000 p.e.	Lee (Tralee)_030	Moderate	*2025* [2]
Tralee D0040	> 10,000 p.e.	Lee K Estuary	Moderate	*2025* [2]
Listowel D0179	2,001 to 10,000 p.e.	Upper Feale Estuary	Poor	*NA* [3]
Listowel	2,001 to 10,000 p.e.	Cashen Estuary	Poor	*NA* [3]

[1] *Currently not specified in improvement plans.*

[2] *The Tralee agglomeration network, rather than then WWTP, has been identified as a significant pressure impacting Lee (Tralee)_030 and Lee K Estuary. The expected completion date relates to the agglomeration network, rather than the WWTP.*

[3] *The Listowel agglomeration network is scheduled to be upgraded by 2025, however, the WWTP, which is currently not scheduled to be upgraded, has been identified as the significant pressure impacting Upper Feale Estuary and Cashen Estuary.*

D0179				
Ballybunion D0183	2,001 to 10,000 p.e.	Cashen Estuary	Poor	*NA* [1]
Ballyduff D0418	500 to 1,000 p.e.	Cashen Estuary	Poor	*NA* [1]

4.2.6 Domestic waste water

- Domestic waste water has been identified as a significant pressure in three river water bodies – Clydagh (Feale)_020, Tyshe 23_010 and Lee (Tralee)_030. This is due to clusters of unsatisfactory domestic waste water treatment systems near to surface waters, particularly on poorly draining soils. The significant issue is nutrients entering surface waters. Furthermore, some septic tanks are mapped on areas of high susceptibility to phosphate transport via near surface pathways (Figure 16).

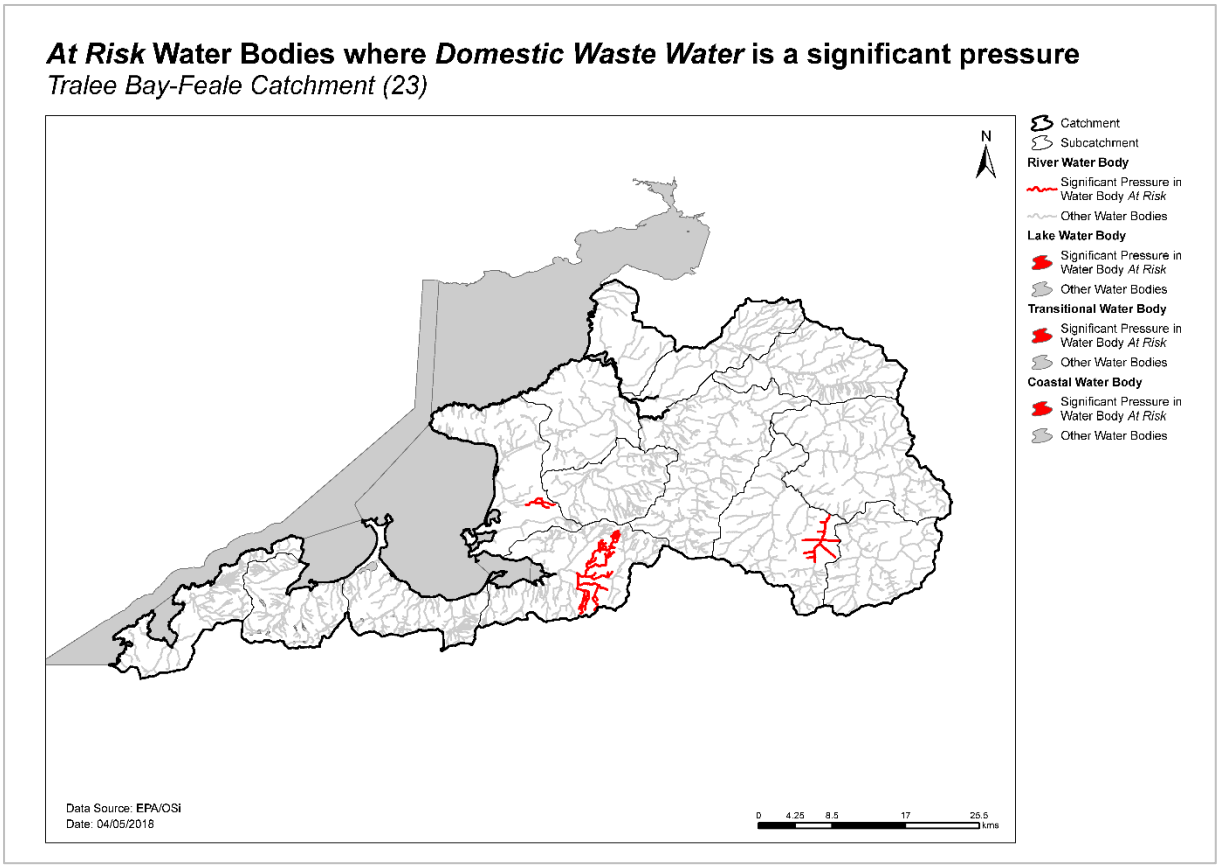


Figure 16. Water bodies that are At Risk and are impacted by domestic waste water

4.2.7 Diffuse urban

- Diffuse urban pressures, caused by misconnections, leaking sewers and runoff from paved and unpaved areas in Listowel, have been identified as a significant pressure in Feale_090 river water body (Figure 17), and are considered to be impacting on the Upper Feale Estuary. Elevated concentrations of phosphates and ammonia are the significant issues.

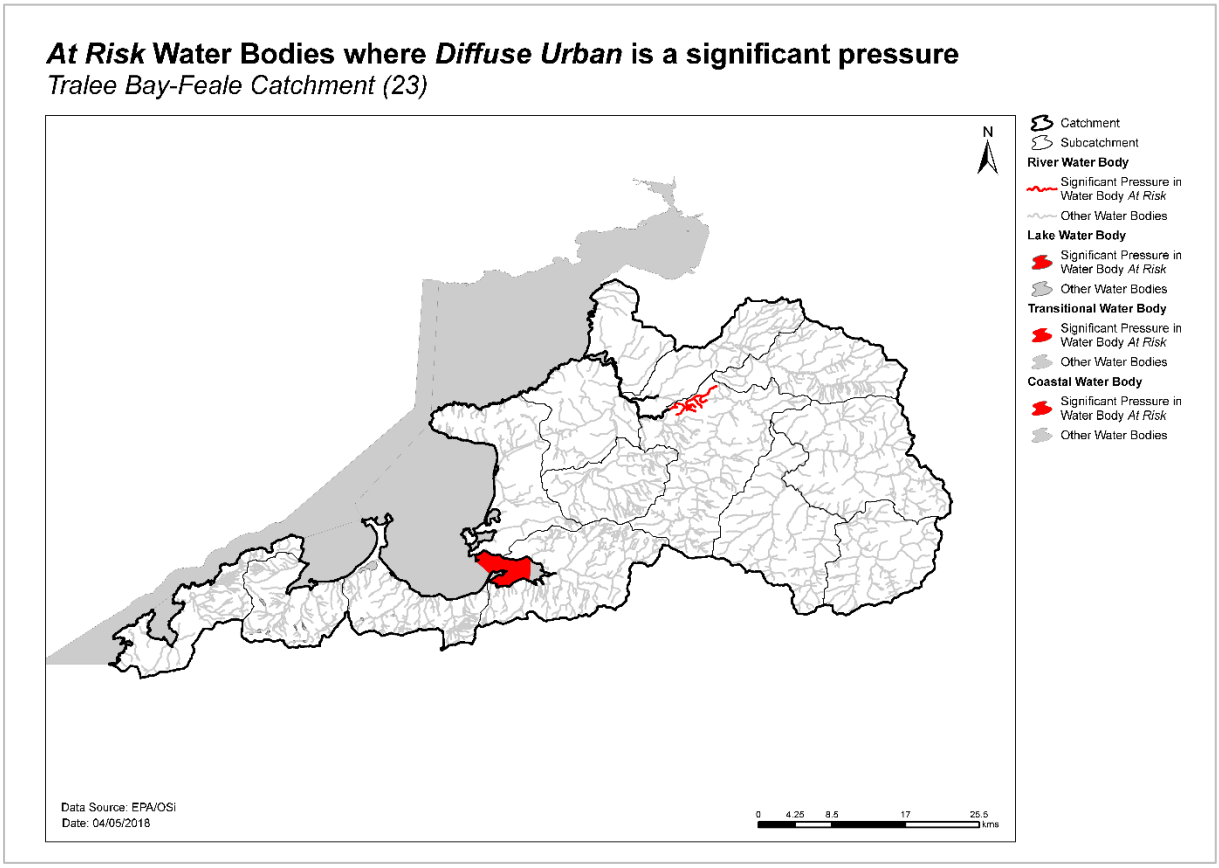


Figure 17. Water bodies that are *At Risk* and are impacted by diffuse urban impacts

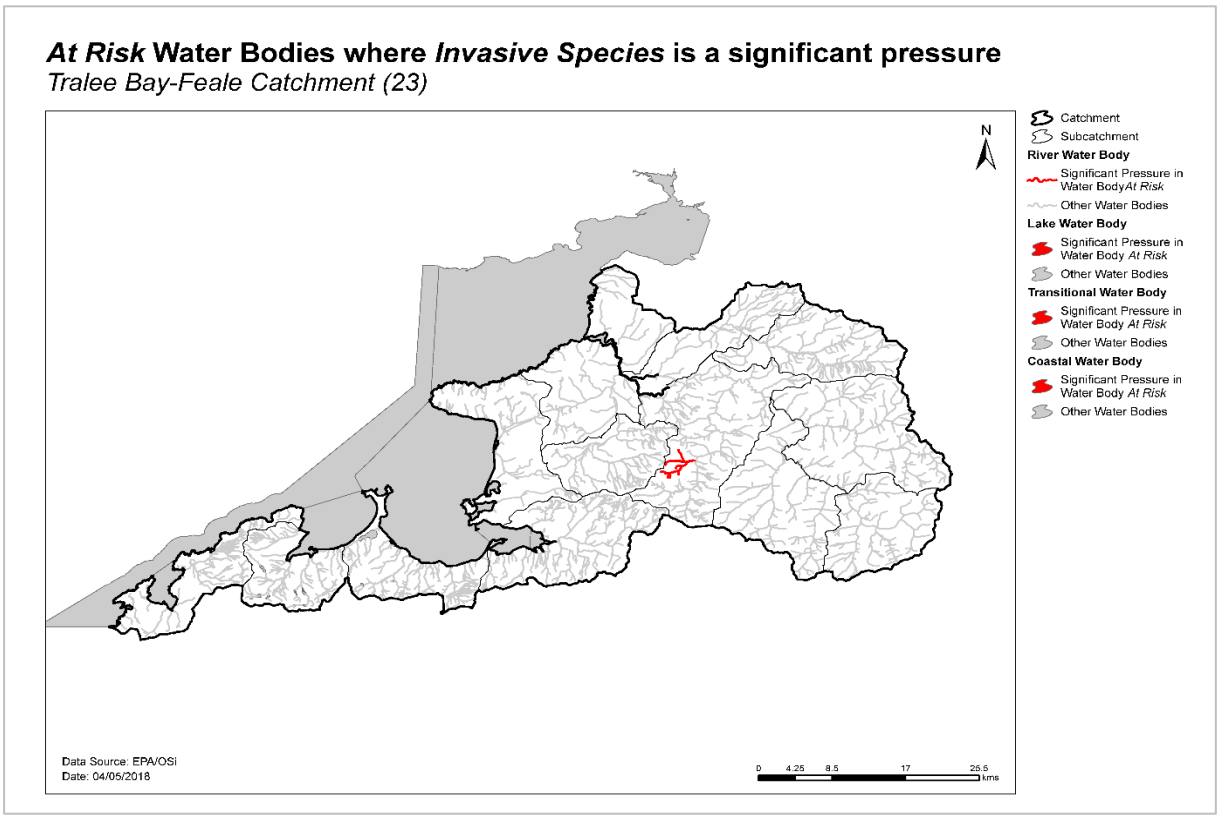


Figure 18. Water bodies that are At Risk and are impacted by Invasive Species

4.2.8 Other significant pressures

- *Invasive Species*
  Japanese knotweed has been identified as a significant pressure for Lyracrumpane_010 river water body, which is contributing to hydromorphological issues (Figure 18).

- *Unknown Anthropogenic*
  Two *At Risk* river water bodies (Glennahoo_010 and Owenafeanna_010) and Lough Gill, have unknown anthropogenic pressures which have caused deterioration in water body status (Figure 19).

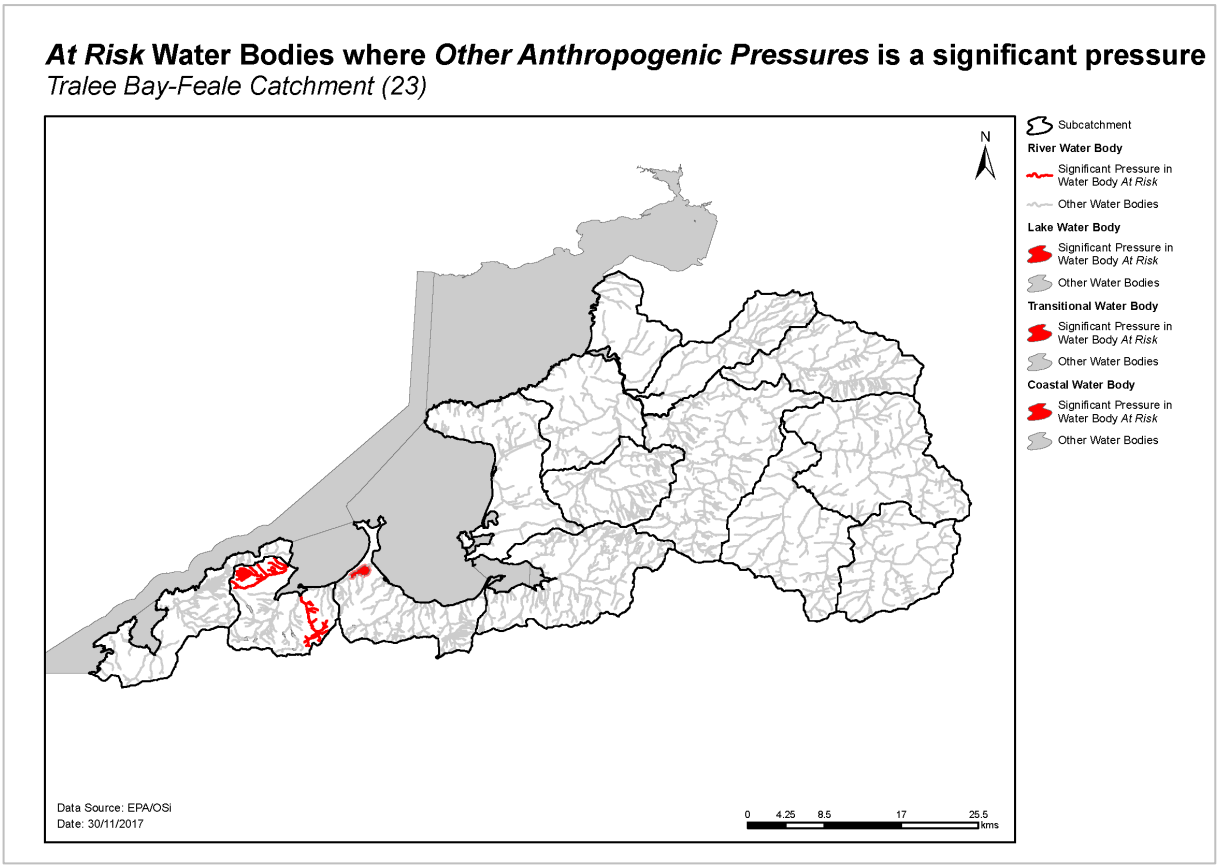


Figure 19. Water bodies that are *At Risk* and are impacted by Other Anthropogenic pressures

5 Load reduction assessment

5.1 River water body load reductions

- The results of the main channel assessment for the Tralee Bay-Feale catchment indicates that orthophosphate, ammonia and TON concentrations are consistently low (Appendix 2).
- For water bodies where phosphorus monitoring data are available, the reduction in P load that would be required to bring the mean concentration back to the EQS of 0.035 mg/l as P, can be estimated using a simple method based on the average 2013 to 2015 concentration

and the average flow, or the estimated 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.

- In the Tralee Feale catchment, water chemistry data are available for 28 of the 80 water bodies monitoring stations. The available data indicate that phosphorus load reduction is required in two river water bodies (Table 8).

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.

- The Upper Feale Estuary will require nutrient reductions, but it is unclear whether it is N or P limited and how much load reduction will be required. The estuary is a nutrient sensitive area downstream of Listowel WWTP. However, the Listowel agglomeration network, rather than the WWTP, is scheduled to be upgraded by 2025. Modelling suggests that the loads to the estuary from urban waste water are approximately the same as agriculture, so as a first step, it is recommended that the improvements from the upgrade should be assessed before further action is taken.
- Cashen estuary is downstream of the Upper Feale and will also need load reductions. Relatively high N loads are delivered to the estuary from the Ballybunion karst groundwater body. Further work is required to determine whether the estuary is N or P limited and the scale of the load reductions required.
- The Lee K Estuary receives a direct discharge from Tralee WWTP, which has recently been upgraded. Further planned specified improvements are in place to upgrade all storm water overflows, which are expected to lead to an improvement in the estuary. Inner Tralee Bay estuary, which is downstream of Lee K Estuary, may also see an improvement as a result of these upgrades. No additional action is recommended in either estuary until the effect of the planned improvements is clear.
- Lough Gill is a small coastal lagoon which is monitored as part of both the transitional and lakes monitoring programmes. It is currently included in a coastal lagoon research programme and will be considered further when the programme is complete.

Table 9. Relative phosphorus load reductions required in monitored water bodies that are *At Risk.*

Water body	P Load Reduction Required
GALEY_050	High
TYSHE 23_010	Low

6 Further characterisation and local catchment assessments

- Further characterisation through local catchment assessment is needed in 23 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.
- Further characterisation through local catchment assessment is needed in 31 of the *Review* water bodies to refine the understanding of the significant pressures at the site/field scale so that specific and targeted measures can be identified.
- Brief details on the 10 IA scenarios are given in Appendix 7.

Table 10. Local Catchment 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	Total
At Risk	11	0	7	0	0	1	16	2	2	39
Review	5	0	24	0	0	2	1	0	0	32
Note water bodies may have multiple categories of Local Catchment Assessments										

7 Catchment summary

- Of the 80 river water bodies, 21 are *At Risk* of not meeting their WFD objectives.
- Two out of the 12 lake water bodies are *At Risk* of not meeting their WFD objectives.
- Four TraC water bodies are *At Risk* of not meeting their water quality objectives.
- Excess phosphorus leading to eutrophication is a major issue for several water bodies. While excess ammonium is also an issue, it is only for a limited number of water bodies.
- Hydromorphological (or physical) conditions (including the input of excessive fine sediment) and poor habitat quality are also an issue for several surface water bodies.
- There are no *At Risk* groundwater bodies.

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 4 areas for action in the Tralee-Feale catchment.

8.1 Process of Selection

Following the publication of the draft river basin management plan in early 2017, the EPA and the Local Authority Waters and Communities Office (LAWCO) jointly led a collaborative regional workshop process to determine where, from a technical and scientific perspective, actions should be prioritised in the second cycle. The prioritisation process was based on the priorities in the draft river basin management plan, the evidence from the characterisation process, and the expertise, data and knowledge of public body staff with responsibilities for water and the different pressure types. The recommended areas for action selected during the workshops were then agreed by the Water and Environmental Regional Committees. Since this selection, the Local Authorities Water and Communities Office (LAWCO) have undertaken public engagement and feedback sessions in each local authority.

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

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

8.2 Outcomes of process

The outcomes for the Tralee Feale catchment are summarised below.

- Four recommended areas for actions (Table 11, Figure 20) were selected.
- These are the Owenmore, Lee (Tralee) and Estuary, Feale and Tyshe.
- These include ten river water bodies – nine *At Risk* and one *Review,* and three *At Risk* transitional and coastal water bodies.
- None of the groundwater bodies, that intersect with surface water bodies in recommended areas for action, are *At Risk* or *Review* due to groundwater contribution of nutrients to surface water bodies.

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

- Forty-four river and lake water bodies – 14 *At Risk* and 30 *Review,* and.
- Five TRaC's – One Coastal *At Risk* and 4 TRaC in *Review.*

Table 11. Recommended Areas for Action in the Tralee Feale Catchment

Recommended area for action	Number of water bodies	SCs	Local authority	Benefit
Owenmore	1	23_10	Kerry	• Failing protected area objectives for Freshwater Pearl Mussels (populations listed in S.I. 296 of 2009). • Inland Fisheries Ireland reported that this is an important salmonid fishery. • Important for tourism. • Active community group. • One deteriorated water body.
Lee (Tralee) & Estuary	4	23_8	Kerry	• Headwaters to the Lee K and Tralee estuaries. • Tralee estuary is an important designated Shellfish area. • Potential project to address urban diffuse pressures and suitable measures. • Important for tourism - the possibility of opening a blueway is being examined. • Tralee Wetlands are an important tourism and environmental amenity. • Building on improvements at Tralee WWTP. • Lee K Estuary is failing to meet protected area objectives for Nutrient Sensitive Areas. • Two deteriorated water bodies.

Feale	6	23_13 23_4	Kerry	• Would bring entire 23_4 subcatchment to Good status. • Potential to work with local community groups that received LEADER Group funding. • One river water body is failing to meet protected area objectives for salmon. • One river water body is failing to meet protected area objectives for drinking water. • One transitional water body is failing to meet protected area objectives for Nutrient Sensitive Areas. • Headwaters to Upper Feale estuary. • Four deteriorated water bodies. • One At Risk High Ecological Status Objective water body.
Tyshe	2	23_7	Kerry	• Discharges into designated bathing waters (Banna strand). • Building on improvements from upgrade to Ardfert WWTP. • Headwaters to *At Risk* High Ecological Status objective coastal water body.

9 Environmental Objectives

9.1 Surface Water

- Assuming resources are available and actions are taken in the recommended areas for action, of the 13 selected water bodies, it is predicted that all 13 designated as *At Risk* or Review will achieve their objective by 2027, see Table 12.

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

Risk Category	No. of Water Bodies	No. of WBs for 2021 Improvement	No. of WBs for 2027 Status Improvement
River			
At Risk	9	0	9
Review	1	0	1
TraC			
At Risk	3	0	3
Review	0	0	0
Total	13	0	13

- Forty-two water bodies have met their 2015 environmental objective. Two of the 42 *Not at Risk* water bodies met their 2015 environmental objectives for ecological status but failed to meet their protected areas objectives.

- As action is not yet planned to be taken in the remaining 15 *At Risk* surface water bodies, a 2027 date is applied to all 15 water bodies. For the remaining 34 *Review* water bodies, the absence of information on these water bodies mean that there is no scientific basis to quantify an environmental objective date and therefore a 2027 date is also set for these water bodies, see Table 13.

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

Risk Category	No. of Water Bodies	No. of WBs for 2021 Improvement	No. of WBs for 2027 Status Improvement
Rivers			
At Risk	12	0	12
Review	26	0	26
Lake			
At Risk	2	0	2
Review	4	0	4
TraC			
At Risk	1	0	1
Review	4	0	4
Total	49	0	49

9.2 Groundwater

All eight groundwater bodies in the catchment are currently at Good status and, therefore, have met their environmental objectives.

10 Acknowledgements

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

- Kerry County Council
- Limerick City and County Council.
- Clare County Council.
- Inland Fisheries Ireland.
- Local Authorities Waters & Communities Office.
- Irish Water.
- RPS Group.
- Ecological Monitoring & Assessment Unit, EPA.
- Hydrometric & Groundwater Section, EPA.
- Informatics Section, EPA.
- Laboratories, EPA.
- Office of Environmental Enforcement, EPA.
- Department of Housing, Planning and Local Government.
- DAFM Agriculture.

- DAFM Forest Service.
- Coillte.
- Teagasc.
- National Federation of Group Water Schemes.
- National Parks and Wildlife Service.
- Waterways Ireland.
- Board Iascaigh Mhara.
- Marine Institute.
- Sea Fisheries Protection Authority.
- Kerry LIFE.

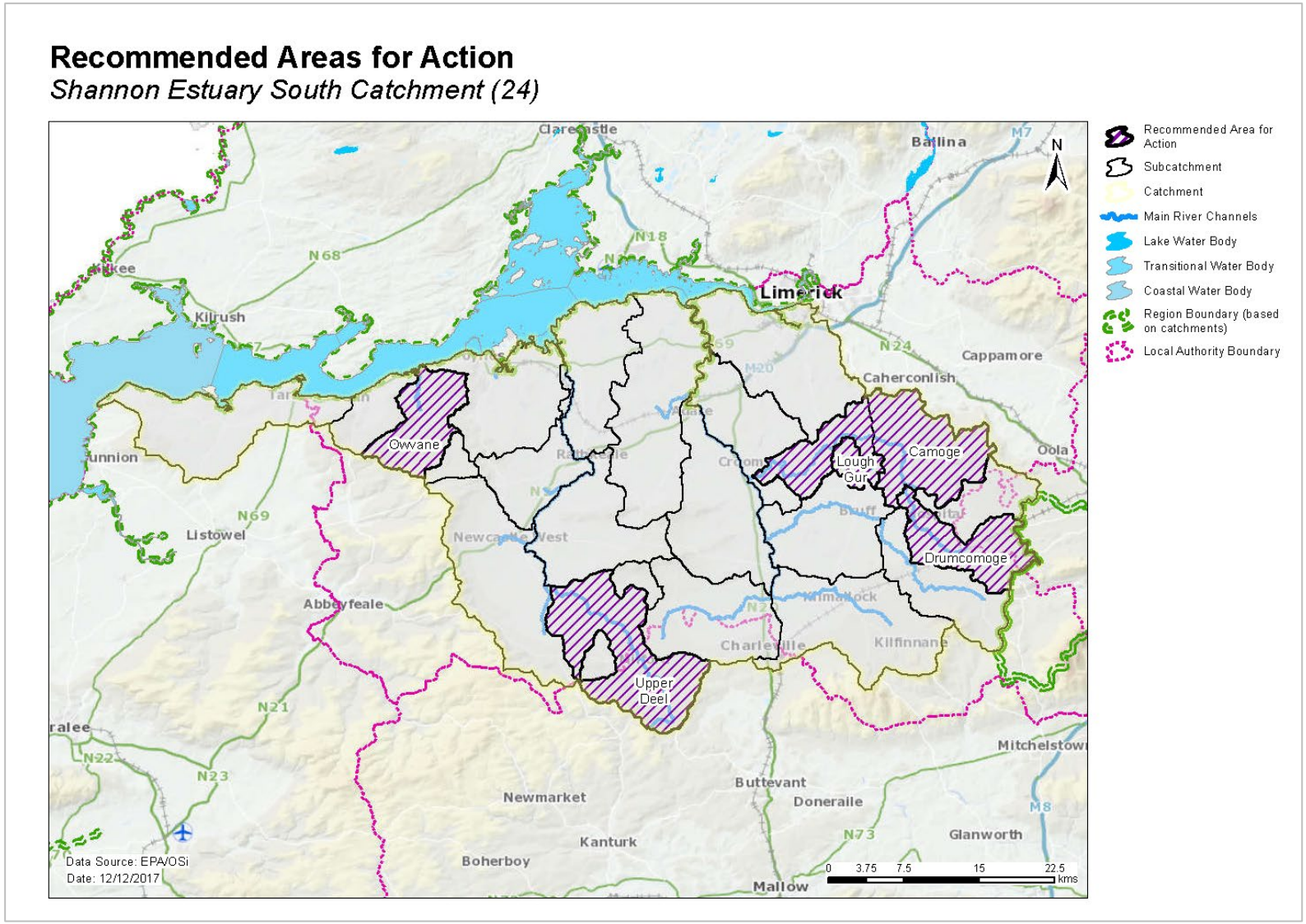


Figure 20. Location of Recommended Areas for Action in the Tralee Feale Catchment

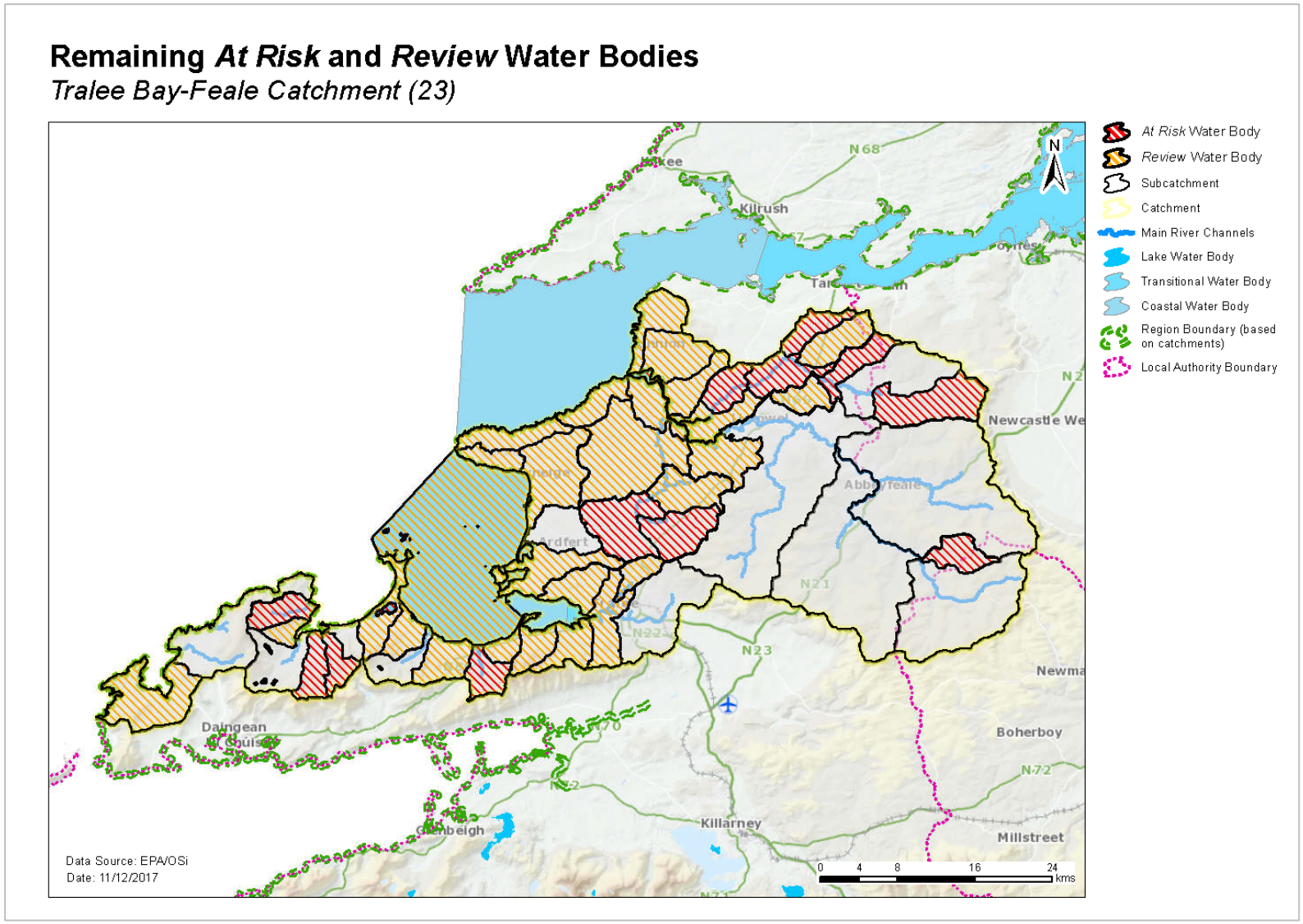


Figure 21. Location of *At Risk* and *Review* water bodies located outside Recommended Areas for Action in the Tralee Feale Catchment

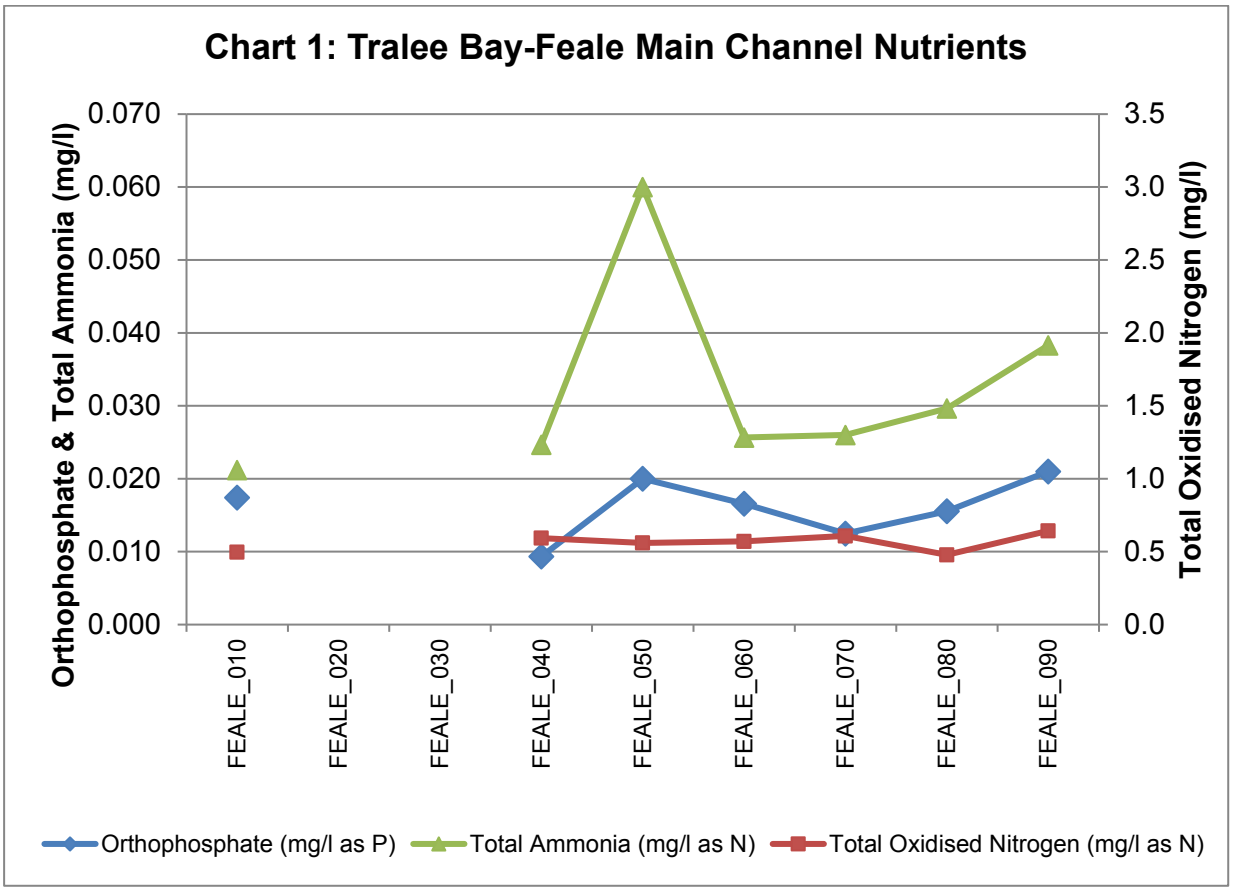
Appendix 1 High ecological status objective water bodies

Water body/ Site	Type	Codes	2015 Status
SCORID_010	River	IE_SH_23S010200	Good
FEOHANAGH_010	River	IE_SH_23F020100	High
SMEARLAGH_020	River	IE_SH_23S020400	Good
FINGLAS (TRALEE BAY) _010	River	IE_SH_23F030400	Good
OUTER TRALEE BAY	Transitional	IE_SH_040_0000	Good

Appendix 2 Catchment scale nutrient concentrations and in-stream loads

The results of the water quality assessment for the Feale River are illustrated in Chart 1 and Chart 2. Orthophosphate concentrations range from 0.009 to 0.020mg/l along the main channel with moderate spikes occurring FEALE_050 and FEALE_090. Stream concentrations are well below the EQS for orthophosphate (0.035mg/) where data is available.

Total oxidised nitrogen (TON) and ammonia concentrations are moderately low throughout the channel, except for FEALE_050, where a moderate ammonia spike (0.060mg/l) occurs. The TON threshold (2.6mg/l) and the EQS for ammonia (0.065mg/l) are not exceeded along the main channel.



In the Feale channel, stream discharge increases from 1.2m^3/s at the headwaters to 24.2 m^3/s at FEALE_090. TON loads increase downstream corresponding to increasing stream flow. Orthophosphate and ammonia loads typically increase downstream corresponding increasing stream flow with localised increases in load reflecting concentration spikes.

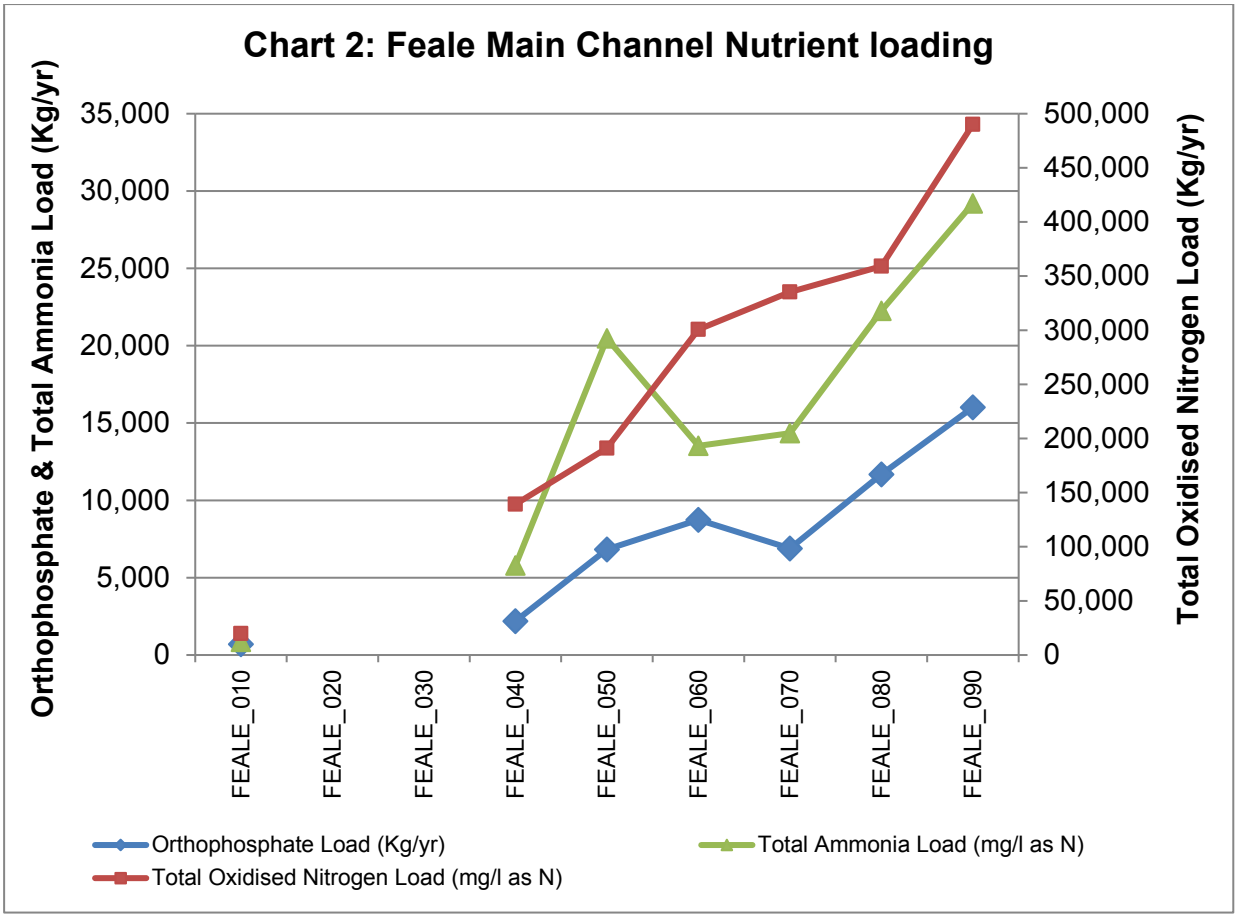


Chart 2: Feale Main Channel Nutrient loading
Orthophosphate & Total Ammonia Load (Kg/yr)
Total Oxidised Nitrogen Load (Kg/yr)
35,000
30,000
25,000
20,000
15,000
10,000
5,000
0
500,000
450,000
400,000
350,000
300,000
250,000
200,000
150,000
100,000
50,000
0
FEALE_010
FEALE_020
FEALE_030
FEALE_040
FEALE_050
FEALE_060
FEALE_070
FEALE_080
FEALE_090
Orthophosphate Load (Kg/yr)
Total Ammonia Load (mg/l as N)
Total Oxidised Nitrogen Load (mg/l as N)

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

Subcatchment code	Water body code	Water Body Name	Water body type	Risk	Eco Status 07-09	Eco Status 10-15	High Ecological Status Objective Water Body Y/N	Significant Pressures	Date to Meet Environmental Objective	Recommended Area for Action Name
23_1	IE_SH_23A150660	Ahalahana_010	River	Review	Unassigned	Unassigned	N	Ag,DWW,Hymo	2027	
23_1	IE_SH_23D090580	Derra_West_010	River	Review	Unassigned	Unassigned	N	Hymo,Peat	2027	
23_10	IE_SH_23_60	Dubh Mullaghveal	Lake	Review	Unassigned	Unassigned	N	Other*	2027	
23_10	IE_SH_23_61	Ui Fhiannachta Or Clogharee	Lake	Review	Unassigned	Unassigned	N	Other*	2027	
23_1	IE_SH_23G010500	Galey_040	River	At Risk	Moderate	Moderate	N	Ag,Hymo	2027	
23_1	IE_SH_23G010700	Galey_050	River	At Risk	Poor	Poor	N	Ag,Hymo,Peat	2027	
23_1	IE_SH_23T030500	Tarmon Stream_010	River	At Risk	Poor	Moderate	N	Ag,Hymo,Peat	2027	
23_10	IE_SH_23_69	Cruite	Lake	Review	Unassigned	Unassigned	N	Other*	2027	
23_10	IE_SH_23_71	Geal	Lake	Review	Unassigned	Unassigned	N	Other*	2027	
23_10	IE_SH_23C300980	Cloghane 23_010	River	Review	Unassigned	Unassigned	N	DWW,For	2027	
23_11	IE_SH_23M460840	Marthain_010	River	Review	Unassigned	Unassigned	N	UWW	2027	
23_12	IE_SH_23G750710	Glouria_010	River	Review	Unassigned	Unassigned	N	Ag,Hymo	2027	
23_10	IE_SH_23G050200	Glennahoo_010	River	At Risk	Good	Poor	N	Other	2027	
23_10	IE_SH_23O030300	Owenmore (Kerry)_010	River	At Risk	Good	Moderate	N	Ag,For,Hymo,Peat	2027	Owenmore
23_10	IE_SH_23O040100	Owenafeanna_010	River	At Risk	Good	Poor	N	Other	2027	
23_10	IE_SH_23S010200	Scorid_010	River	At Risk	High	Good	Y	Hymo	2027	
23_12	IE_SH_23I100800	Island Sack Little_010	River	Review	Unassigned	Unassigned	N	Ag,Hymo	2027	
23_12	IE_SH_23K030850	Kilconly_South_010	River	Review	Unassigned	Unassigned	N	Ag,DU	2027	
23_13	IE_SH_23M440980	Mountcoal 23_010	River	Review	Unassigned	Unassigned	N	Ag,Hymo	2027	

23_14	IE_SH_23B030700	Brick_040	River	Review	Unassigned	Unassigned	N	Ag,Hymo,UWW	2027	
23_14	IE_SH_23K120820	Knoppoge_South_010	River	Review	Unassigned	Unassigned	N	Ag,Hymo,UWW	2027	
23_13	IE_SH_23F010600	Feale_080	River	At Risk	Good	Moderate	N	Ag	2027	Feale
23_13	IE_SH_23F010800	Feale_090	River	At Risk	Moderate	Moderate	N	Ag,DU,Hymo	2027	Feale
23_13	IE_SH_23L020100	Lyracrumpane_010	River	At Risk	Good	Moderate	N	For,Other,Peat	2027	Feale
23_14	IE_SH_23M080580	Meenogahane_010	River	Review	Unassigned	Unassigned	N	Ag	2027	
23_13	IE_SH_23S020400	Smearlagh_020	River	At Risk	Good	Good	Y	For	2027	Feale
23_3	IE_SH_23B600860	Ballaghadigue_010	River	Review	Unassigned	Unassigned	N	Ag	2027	
23_6	IE_SH_23B030500	Brick_030	River	Review	Unassigned	Unassigned	N	Ag,Hymo	2027	
23_7	IE_SH_23A190800	Ardfert_Oughter_010	River	Review	Unassigned	Unassigned	N	Ag	2027	
23_2	IE_SH_23C010300	Caher (Limerick)_010	River	At Risk	Good	Moderate	N	Ag,For	2027	
Subcatchment code	Water body code	Water Body Name	Water body type	Risk	Eco Status 07-09	Eco Status 10-15	High Ecological Status Objective Water Body Y/N	Significant Pressures	Date to Meet Environmental Objective	Recommended Area for Action Name
23_7	IE_SH_23B910900	Ballynoe 23_010	River	Review	Unassigned	Unassigned	N	Ag,Hymo	2027	
23_3	IE_SH_23G010200	GALEY_010	River	At Risk	Good	Moderate	N	Ag,For	2027	
23_3	IE_SH_23G010400	GALEY_030	River	At Risk	Good	Moderate	N	Ag,Hymo,UWW	2027	
23_4	IE_SH_23C030500	CLYDAGH (FEALE)_020	River	At Risk	Good	Moderate	N	Ag,DWW,UWW	2027	Feale
23_6	IE_SH_23B030300	BRICK_010	River	At Risk	Good	Moderate	N	For	2027	
23_6	IE_SH_23B030400	BRICK_020	River	At Risk	Good	Poor	N	UWW	2027	
23_7	IE_SH_23D160380	DOONAMONTANE_010	River	Review	Unassigned	Unassigned	N	Other*	2027	
23_7	IE_SH_23T020500	TYSHE 23_020	River	Review	Unassigned	Unassigned	N	Ag,UWW	2027	Tyshe
23_7	IE_SH_23T120500	TIERSHANAGHAN_010	River	Review	Unassigned	Unassigned	N	Hymo	2027	
23_8	IE_SH_23A060890	ANNAGH 23_010	River	Review	Unassigned	Unassigned	N	Other*	2027	
23_7	IE_SH_23T020400	TYSHE 23_010	River	At Risk	Poor	Poor	N	Ag,DWW	2027	Tyshe

23_8	IE_SH_23B040150	Big River (Tralee)_010	River	Review	Unassigned	Unassigned	N	Hymo,Other*,UWW	2027	
23_8	IE_SH_23D420880	Derryquay River_010	River	Review	Unassigned	Unassigned	N	DWW	2027	
23_8	IE_SH_23L010200	LEE (TRALEE)_040	River	Review	Unassigned	Unassigned	N	DU	2027	
23_8	IE_SH_23P160880	Pinure 23_010	River	Review	Unassigned	Unassigned	N	DWW	2027	
23_8	IE_SH_23L010050	LEE (TRALEE)_020	River	At Risk	Good	Moderate	N	Ag	2027	Lee (Tralee) & Estuary
23_8	IE_SH_23L010100	LEE (TRALEE)_030	River	At Risk	Moderate	Moderate	N	DWW,UWW	2027	Lee (Tralee) & Estuary
23_9	IE_SH_23C190920	CARRIGAHA_010	River	Review	Unassigned	Unassigned	N	Other*	2027	
23_9	IE_SH_23C400610	CLOOSGUIRE_010	River	Review	Unassigned	Unassigned	N	UWW	2027	
23_9	IE_SH_23G160300	GOWLANE_010	River	Review	Unassigned	Unassigned	N	Ag	2027	
23_9	IE_SH_23_72	Gill KY	Lake	At Risk	Moderate	Moderate	N	Ag	2027	
23_9	IE_SH_23_74	Cam KY	Lake	At Risk	Moderate	Moderate	N	For	2027	
23_9	IE_SH_23K130870	KNOCKGLASS_BEG_010	River	Review	Unassigned	Unassigned	N	Other*	2027	
23_9	IE_SH_23F030400	FINGLAS (TRALEE BAY)_010	River	At Risk	High	Good	Y	Peat	2027	
23_1	IE_SH_060_0100	Cashen	Transitional	At Risk	Moderate	Poor	N	Ag,UWW	2027	
23_1	IE_SH_060_0200	Upper Feale Estuary	Transitional	At Risk	Good	Poor	N	Ag,Hymo,UWW	2027	Feale
23_12	IE_SH_060_0000	Mouth of the Shannon (HAs 23;27)	Coastal	Review	Moderate	Moderate	N	Other*	2027	
23_7	IE_SH_040_0000	Outer Tralee Bay	Coastal	Review	High	Good	Y	Other*	2027	
23_7	IE_SH_050_0000	Inner Tralee Bay	Coastal	At Risk	Good	Moderate	N	DU	2027	Lee (Tralee) & Estuary

Subcatchment code	Water body code	Water Body Name	Water body type	Risk	Eco Status 07-09	Eco Status 10-15	High Ecological Status Objective Water Body Y/N	Significant Pressures	Date to Meet Environmental Objective	Recommended Area for Action Name

23_8	IE_SH_050_0100	Lee K Estuary	Transitional	At Risk	Moderate	Moderate	N	UWW	2027	Lee (Tralee) & Estuary
23_8	IE_SH_050_0200	Blennerville Lake East	Transitional	Review	Unassigned	Unassigned	N	Other*	2027	
23_8	IE_SH_050_0300	Blennerville Lake West	Transitional	Review	Unassigned	Unassigned	N	Other*	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

Other*: Details of 'Other' pressures for Review water bodies are available on

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

Appendix 4 Drinking water supplies in the catchment

Scheme Code	Scheme Name	Water Body	Water Body Code	Objective met? Yes /No	Reason why not met
1900PRI3261	Barnagh/Glendarragh	Abbeyfeale	IE_SH_G_001	Yes	N/A
1900PRI3455	Templeathea West	Abbeyfeale	IE_SH_G_001	N/A	No data
1300PRI2009	Tonavane Slieve	ANNAGH (Kerry)_010	IE_SH_23A060890	N/A	No data
1300PUB1037	An Fheothanach PWSS	Brandon Head	IE_SH_G_044	Yes	N/A
1300PUB1044	An Mhuiríoch / Baile Breach PWSS 063D	Brandon Head	IE_SH_G_044	Yes	N/A
1300PUB1012	Brosna/Knocknagoshel PWSS 016F	Abbeyfeale	IE_SH_G_001	No	MCPA, Total Pesticides
0500PUB1604	Rockchapel	Abbeyfeale	IE_SH_G_001	N/A	No data
	Rockchapel	Abbeyfeale	IE_SH_G_001	N/A	No data
	Rockchapel	Abbeyfeale	IE_SH_G_001	N/A	No data
	Rockchapel	Abbeyfeale	IE_SH_G_001	N/A	No data
0500PUB1606	Stagmount	Abbeyfeale	IE_SH_G_001	N/A	No data
1300PUB1001	Ardfert North PWSS 003E	Kerry Head	IE_SH_G_118	Yes	N/A
1300PUB1002	Ardfert South PWSS 004F	Ardfert	IE_SH_G_008	Yes	N/A
	Ardfert South PWSS 004F	Ardfert	IE_SH_G_008	Yes	N/A
1300PUB1006	Foildarrig Well S08	Abbeyfeale	IE_SH_G_001	N/A	No data
	Lisroe Springs S04	Abbeyfeale	IE_SH_G_001	N/A	No data
1300PUB1007	Fenit PWSS 037D	Ardfert	IE_SH_G_008	Yes	N/A
	Fenit PWSS 037D	Ardfert	IE_SH_G_008	Yes	N/A
	Fenit PWSS 037D	Ardfert	IE_SH_G_008	Yes	N/A
	Fenit PWSS 037D	Ardfert	IE_SH_G_008	Yes	N/A
1300PUB1031	Baile Uí Bhaoithín PWSS 011D	Brandon Head	IE_SH_G_044	Yes	N/A
	Baile an Fheirtaraigh PWSS 011D	Brandon Head	IE_SH_G_044	Yes	N/A
	Baile an Fheirtaraigh PWSS 011D	Brandon Head	IE_SH_G_044	Yes	N/A
	Baile an Fheirtaraigh PWSS 011D	Brandon Head	IE_SH_G_044	Yes	N/A
1300PUB1099	Glenderry PWSS 076E	Kerry Head	IE_SH_G_118	Yes	N/A
1300PUB1111	An Gráig Cloichear PWSS 043D	Brandon Head	IE_SH_G_044	Yes	N/A
1300PUB1112	Cill Maoilchéadair PWSS 047D	Brandon Head	IE_SH_G_044	Yes	N/A
1300PUB1114	Ballyreehan Springs S05	Ballybunnion	IE_SH_G_027	N/A	No data

Scheme Code	Scheme Name	Water Body	Water Body Code	Objective met? Yes /No	Reason why not met
1300PUB1093	Baile an Lochaigh PWSS 007D	Brandon Head	IE_SH_G_044	N/A	No data
1300PUB1122	Tir Abhainn PWSS 072D	Brandon Head	IE_SH_G_044	N/A	No data
1300PUB1123	Teeravane East / Tír Abháin Thoir	Brandon Head	IE_SH_G_044	Yes	N/A
1300PUB1008	Tobernacree WTP (Tobernacree Chlorination House T12)	Abbeyfeale	IE_SH_G_001	N/A	No data
1300PUB1097	Galey WTP (Gale Bridge Chlorination House T03)	Ballybunnion	IE_SH_G_027	N/A	No data
1300PUB1009	Lyreacrompane RWSS 057E	SMEARLAGH_030	IE_SH_23S020500	No	MCPA, Total Pesticides
1900PUB1001	Abbeyfeale PUB DWS	FEALE_050	IE_SH_23F010310	No	MCPA, Clopyralid
1300PUB1022	Aughacasla PWSS 005D	OWENCASHLA_010	IE_SH_23O020300	Yes	N/A
1300PUB1024	Camp PWSS 020D	FINGLAS (TRALEE BAY) _010	IE_SH_23F030400	Yes	N/A
1300PUB1026	Castlegregory PWSS 024D	GOWLANE_010	IE_SH_23G160300	Yes	N/A
1300PUB1113	Feale River S99	FEALE_080	IE_SH_23F010600	N/A	No data
1300PUB1092	Feohanagh River S51	FEOHANAGH_010	IE_SH_23F020100	N/A	No data
1300PUB1095	Cappagh River S52	BRICK_010	IE_SH_23B030300	Yes	N/A
1300PUB1200	Dromin: Scartleigh(H) 600E	FEALE_090	IE_SH_23F010800	N/A	No data
1300PUB1201	Listowel WTP	FEALE_090	IE_SH_23F010800	No	MCPA, Total Pesticides

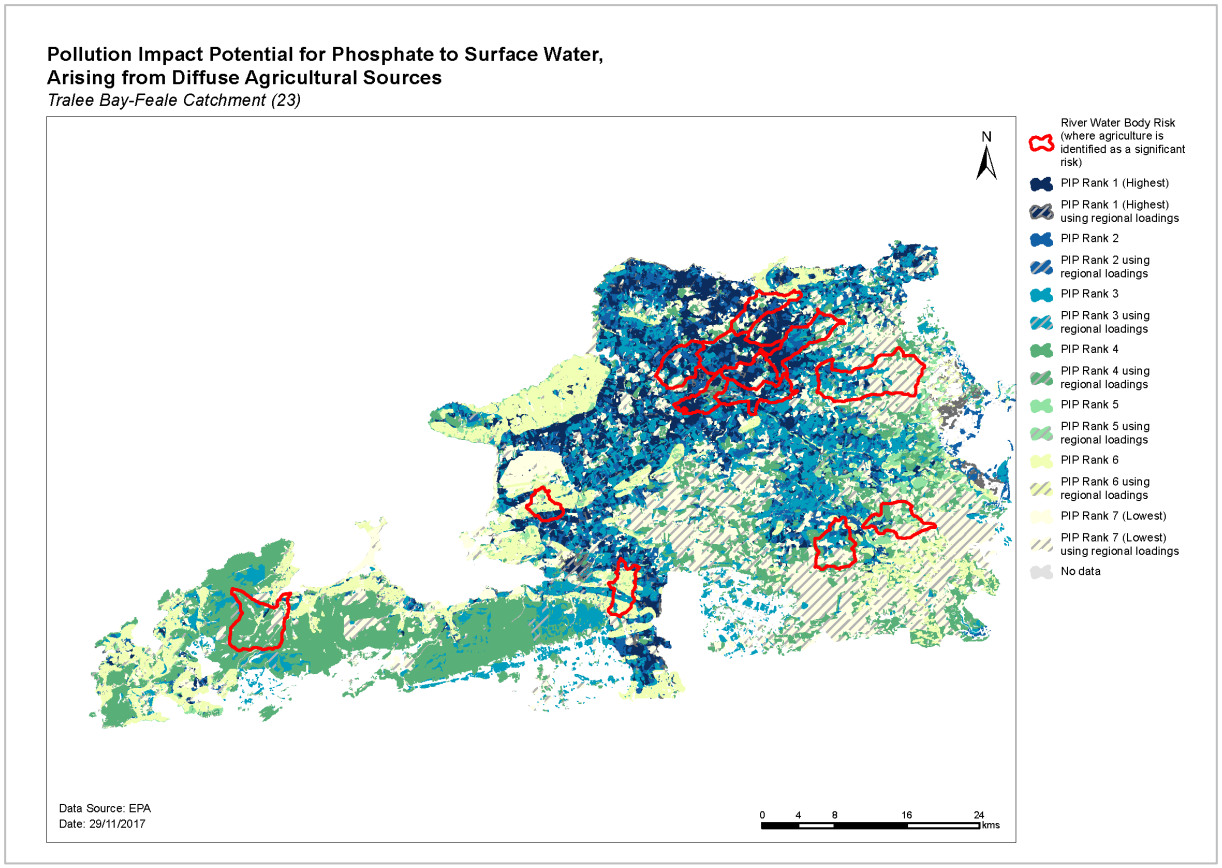
Appendix 5 Prioritisation of water bodies with Natura 2000 site qualifying interests

SAC Name	Relevant Qualifying interests	Target status	Water body type	Water bodies	Status (risk)	Prioritise?	Code	Survey data?
Akeragh, Banna and Barrow Harbour SAC 000332	2190	Good GW level	Groundwater	Ardfert	Good (R)	No	IE_SH_G_008	Yes
Ballyseedy Wood SAC 002112	none							
Lower River Shannon SAC 002165	1106	Good	River	Feale_010	Good (NAR)	No	IE_SH_23F010020	Yes
			River	Feale_020	Good (NAR)	No	IE_SH_23F010040	Yes
			River	Feale_030	Good (NAR)	No	IE_SH_23F010120	Yes
			River	Feale_040	Good (NAR)	No	IE_SH_23F010200	Yes
			River	Feale_050	Good (NAR)	No	IE_SH_23F010310	Yes
			River	Feale_060	Good (NAR)	No	IE_SH_23F010500	Yes
			River	Feale_070	Good (NAR)	No	IE_SH_23F010550	Yes
			River	Feale_080	Moderate (AT RISK)	Yes	IE_SH_23F0105600	Yes
			River	Feale_090	Moderate (AT RISK)	Yes	IE_SH_23F0105800	Yes
Moanveanlagh Bog SAC 002351	none							
Mount Brandon SAC 000375	Potential 3110	At least Good	Lake	Cruite	Unassigned (R)	Yes	IE_SH_23_69	Yes
			Lake	Dubh Mullaghveal	Unassigned (R)	Yes	IE_SH_23_60	Yes
			Lake	Chom Callain	Unassigned (NAR)	No	IE_SH_23_73	Yes
			Lake	Duin KY	Unassigned (NAR)	No	IE_SH_23_67	Yes
			Lake	Iarthair	Unassigned (NAR)	No	IE_SH_23_65	Yes
			Lake	Dubh Slievenalecka	Unassigned (NAR)	No	IE_SH_23_75	Yes
			Lake	na Choimin	Unassigned (NAR)	No	IE_SH_23_62	Yes

			Lake	Cam KY	Moderate (AT RISK)	Yes	IE_SH_23_74	Yes
	Potential 3110/3130	At least Good	Lake	Geal	Unassigned (R)	Yes	IE_SH_23_71	Yes
				Ui Fhiannachta or Clogharee	Unassigned (R)	Yes	IE_SH_23_61	Yes
SAC Name	**Relevant Qualifying interests**	**Target status**	**Water body type**	**Water bodies**	**Status (risk)**	**Prioritise?**	**Code**	**Survey data?**
Mount Brandon SAC 000375	1029 (19 catchments of S.I. 296 2009)	Good	River	Owenmore (Kerry)_010	Moderate (AT RISK)	Yes	IE_SH_23O030300	Yes
Slieve Mish Mountains SAC 002185	none							
Tralee Bay and Magharees Peninsula, West to Cloghane SAC 002070	1150	Good	Transitional	Lough Gill	Poor (AT RISK)	Yes	IE_SH_040_0100	Yes
	2190	Good GW level	Groundwater	Brandon Head	Good (NAR)	No	IE_SH_G_044	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