3rd Cycle Lower Shannon (Lough Derg) Catchment Report (HA 25C)

Catchment Science & Management Unit

Environmental Protection Agency

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Preface

This document provides a summary of the water quality assessment outcomes for the Lower Shannon (Lough Derg) Catchment, which have been compiled and assessed by the EPA, with the assistance of the Local Authority Waters Programme (LAWPRO), local authorities and RPS consultants to inform the draft 3rd Cycle River Basin Management Plan. The information presented includes status and risk categories of all waterbodies, details on protected areas, significant issues, significant pressures, source load apportionment modelling and load reduction assessments for nutrients where applicable, an overview of the 2nd Cycle Areas for Action and a list of proposed 3rd Cycle Areas for Action. These characterisation assessments are largely based on information available to the end of 2018, including the WFD Status Assessment for 2013-2018. Protected Area assessments are based on water quality information up to 2018 for Natura 2000 and Salmonid Waters; 2019 for Drinking Water; and 2020 for Nutrient Sensitive Areas and Bathing Waters.

The purpose of this draft report is to provide an overview of the situation in the catchment, draw comparison between Cycle 2 and Cycle 3, and help support the draft River Basin Management Plan 2022-2027 consultation process. Once the consultation process is completed the report will be finalised to reflect any changes and comments made as a result of the consultation process.

Water Framework Directive – key dates and terminology	
Cycle 2 – EPA Characterisation and Assessment	Characterisation and assessment to inform the Cycle 2 RBMP was largely based on 2010-2015 WFD monitoring data.
Cycle 2 Catchment Assessments	Catchment Assessments based on the Cycle 2 characterisation and assessment were published in September 2018.
2nd Cycle River Basin Management Plan (RBMP) 2018-2021	This plan was for WFD Cycle 2 which runs from 2016-2021. This RBMP was published late, with this plan covering 2018-2021.
2nd Cycle Areas for Action	These 189 Areas for Action were selected under the RBMP 2018-2021
Cycle 3 -EPA Characterisation and Assessment	Cycle 3 runs from 2022-2027. Assessments to inform the Cycle 3 RBMP is largely based on 2013-2018 WFD monitoring data. This is the latest WFD monitoring assessment period for which all data are available.
Cycle 3 Catchment Assessments	Catchment Assessments based on the Cycle 3 characterisation and assessment were published in August 2021.
3rd Cycle River Basin Management Plan 2022-2027	This draft RBMP is for WFD Cycle 3 which runs from 2022-2027. Public consultation on this plan by the DHLGH and LAWPRO is taking place in late 2021 and early 2022.
3rd Cycle Recommended Areas for Action – Protection/ Restoration/Projects	These recommended Areas for Action have been identified in the draft RBMP 2022-2027 and feedback can be given in the public consultation on this plan. They fall into 3 categories – Areas for Protection, Areas for Restoration and Catchment Projects.

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1 Introduction

This report aims to provide an overview of the water quality status, risk, key issues and significant pressures for all waterbodies in the catchment based on the Characterisation Assessment undertaken for the 3rd Cycle River Basin Management Plan. In addition, a comparative overview of the water quality in the Lower Shannon (Lough Derg) catchment between Cycle 2 and Cycle 3 characterisation is

provided along with a summary of the progress made in the 2nd Cycle Areas for Action. The recommended list for the 3rd Cycle Areas for Action is also provided.

To provide context, the Lower Shannon (Lough Derg) catchment covers an area of 1,820km² and comprises Lough Derg and its catchment (Figure 1). The catchment is characterised by flat limestone plains, a small proportion of which are karstified to the east of Lough Derg, and the uplands of the Devil's Bit Hills in the southeast, the Slieve Aughty Mountains in the west and the Slieve Bearnagh and Arra Mountains in the south, between which the Shannon escapes to the south from Lough Derg. All of these upland areas are underlain by old red sandstone with metamorphic and volcanic rocks in the higher summit areas. This catchment can be divided into two regions, the area draining into the western and eastern sides of Lough Derg.

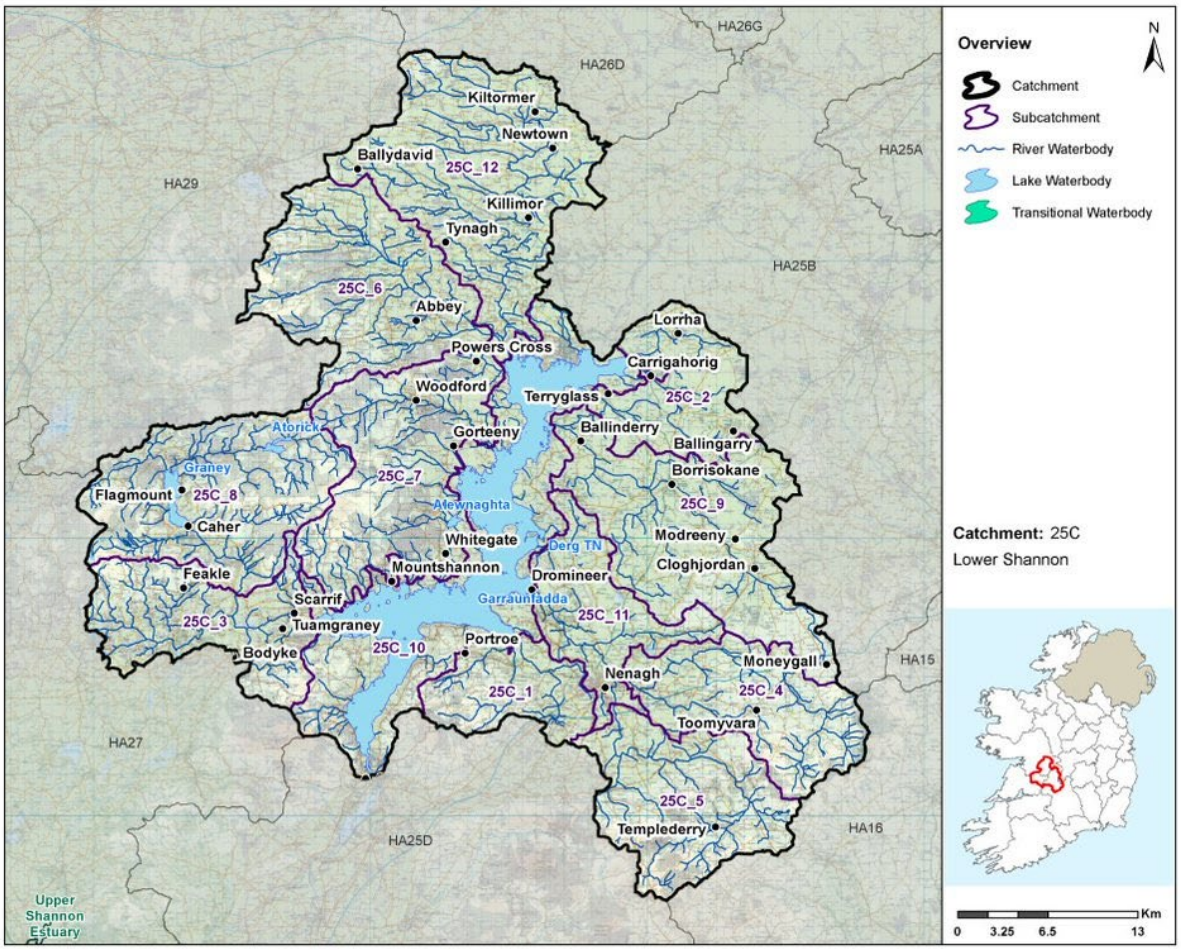


Figure 1: Overview of subcatchments in the Lower Shannon (Lough Derg) catchment

The Lower Shannon (Lough Derg) catchment is divided into 12 subcatchments (Figure 1) with 79 river waterbodies, five lake waterbodies and 19 groundwater bodies (Figure 2).

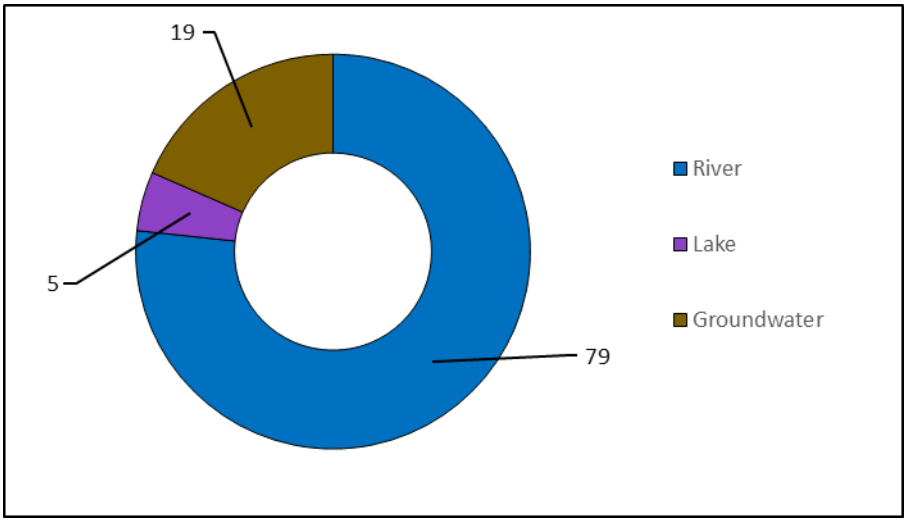


Figure 2: Waterbody types and numbers in the Lower Shannon (Lough Derg) Catchment.

2 Waterbody Overview

2.1 Waterbody Status

- This assessment to inform the 3rd Cycle RBMP is largely based on WFD monitoring data for the period 2013-2018, which is the latest WFD monitoring assessment period for which all data are available.

- For this assessment to inform Cycle 3, there are three waterbodies achieving High Status, 46 achieving Good Status, 28 achieving Moderate Status, 13 achieving Poor Status and there is one Bad Status waterbody. There are 12 unassigned waterbodies in the catchment. All waterbodies must achieve at least Good Ecological status.

- There are 10 river waterbodies that must achieve High Ecological Status (HES) in this catchment. These waterbodies are listed in Appendix 1. Of the 10 HES Environmental Objective waterbodies, two waterbodies are achieving High Status while eight waterbodies are at Good Status.

- There have been reductions of three waterbodies (all river waterbodies) achieving High Status and three waterbodies (all river waterbodies) achieving Good Status between Cycle 2 and Cycle 3. There have been increases in three waterbodies (two river waterbodies and one lake waterbody) achieving Moderate Status and three waterbodies achieving Poor Status (Figure 3 & Table 1).

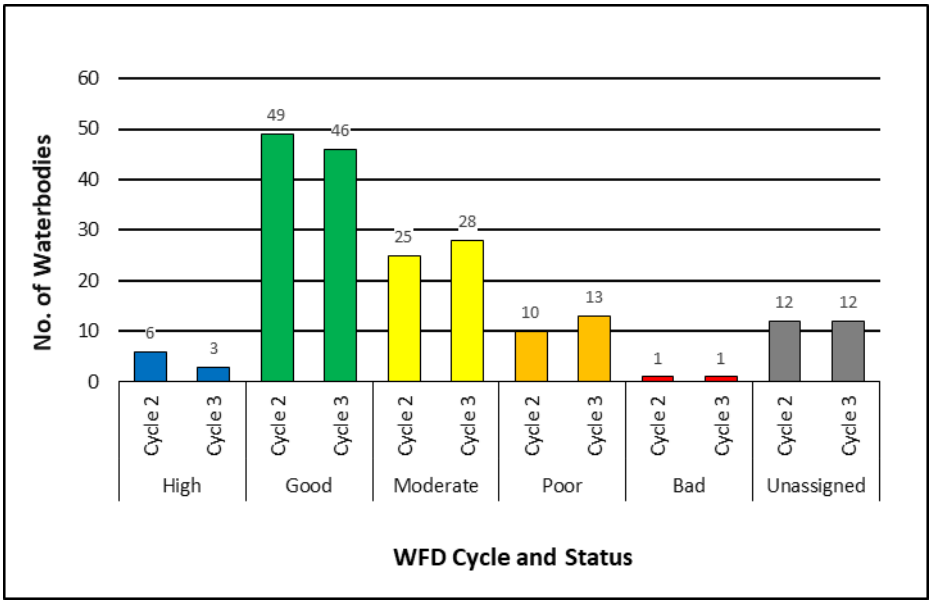


Figure 3: Waterbody Status Breakdown (All waterbodies)

Table 1: Waterbody Status Breakdown Table (All Waterbodies)

2013-2018 Status	River		Lake		Transitional		Coastal		Groundwater		Total	
	Cycle 2	Cycle 3	Cycle 2	Cycle 3	Cycle 2	Cycle 3	Cycle 2	Cycle 3	Cycle 2	Cycle 3	**Cycle 2**	**Cycle 3**
High	6	3	0	0	0	0	0	0	0	0	**6**	**3**
Good	32	29	0	0	0	0	0	0	17	17	**49**	**46**
Moderate	24	26	1	2	0	0	0	0	0	0	**25**	**28**
Poor	7	11	1	0	0	0	0	0	2	2	**10**	**13**
Bad	0	0	1	1	0	0	0	0	0	0	**1**	**1**
Un-assigned	10	10	2	2	0	0	0	0	0	0	**12**	**12**
Total	79	79	5	5	0	0	0	0	19	19	**103**	**103**

- Figure 4 illustrates the change in status between Cycle 2 (assessment based largely on 2010-2015 WFD Monitoring data) and Cycle 3 (assessment largely based on 2013-2018 WFD monitoring data.

- Over this period, six (7%) waterbodies have improved in status, 66 (73%) waterbodies have remained unchanged and 19 (21%) waterbodies have declined in status.[1]

- There is an overall decline in the status of 13 waterbodies across the catchment since the Cycle 2 assessment.

[1] Unassigned waterbodies have not been considered in this status class change assessment and therefore are not represented in Figure 4. Percentage displayed in the Figure 4 are in relation to the total number of waterbodies with status assigned in both cycles, as opposed to total number of all waterbodies.

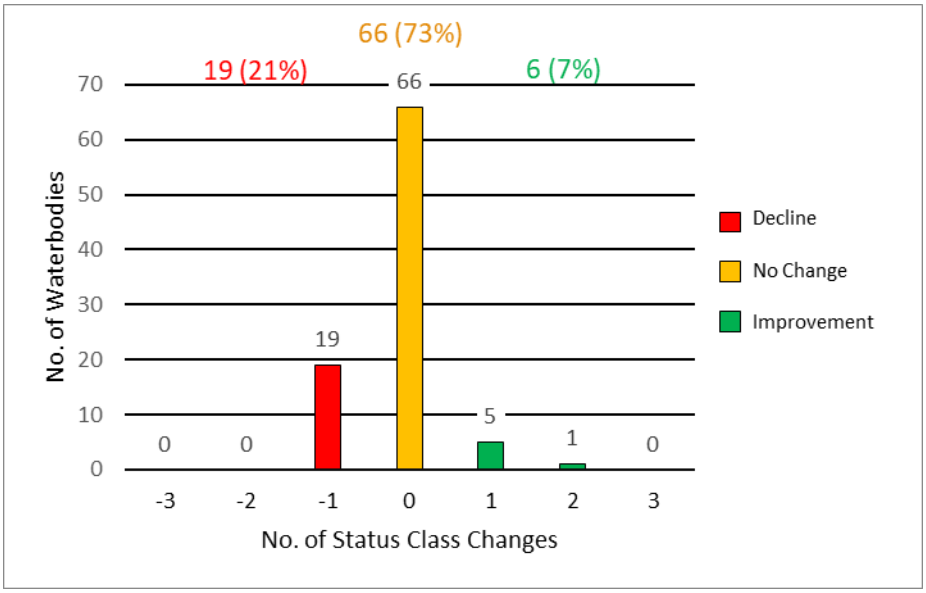


Figure 4: Status Class Changes between Cycle 2 and Cycle 3

2.2 Protected Areas

2.2.1 Drinking Water

- There are two surface waterbodies in the catchment identified as Drinking Water Protected Areas (DWPA) based on water abstraction data on the abstraction register and from other sources in 2018. All groundwater bodies nationally are identified as DWPA. DWPA layers can be viewed at https://gis.epa.ie/EPAMaps/Water - see *Protected Areas - Drinking Water*.

- One groundwater body in the catchment did not meet the DWPA objective in 2019:
  - Templemore (IE_SE_G_131) groundwater body is the source for Templetuohy public supply (2800PUB1013) which had nitrate exceedance.

- For more detailed information please see the EPA reports on drinking water quality in 2019 for Public Supplies[2] and Private Supplies[3].

2.2.2 Bathing Waters

- There are three lake bathing waters (Bathing Place at Portumna, Mountshannon / Lough Derg & Ballycuggeran) in the catchment identified under the Bathing Water Regulations 2008.

- All Bathing waters had an Excellent classification for 2020.

- For more detailed information please see the EPA report on bathing water quality in 2020[4].

2.2.3 Shellfish Areas

- There are no designated shellfish areas in the catchment.

[2] https://www.epa.ie/publications/compliance--enforcement/drinking-water/annual-drinking-water-reports/drinking-water-quality-in-public-supplies-2019.php

[3] https://www.epa.ie/publications/compliance--enforcement/drinking-water/annual-drinking-water-reports/focus-on-private-water-supplies-2019.php

[4] https://www.epa.ie/publications/monitoring--assessment/freshwater--marine/bathing-water-quality-in-ireland-2020-.php

The locations of Protected Areas associated with Public Health (Drinking Water, Bathing Water and Shellfish Areas, where applicable) are illustrated in Figure 5 below.

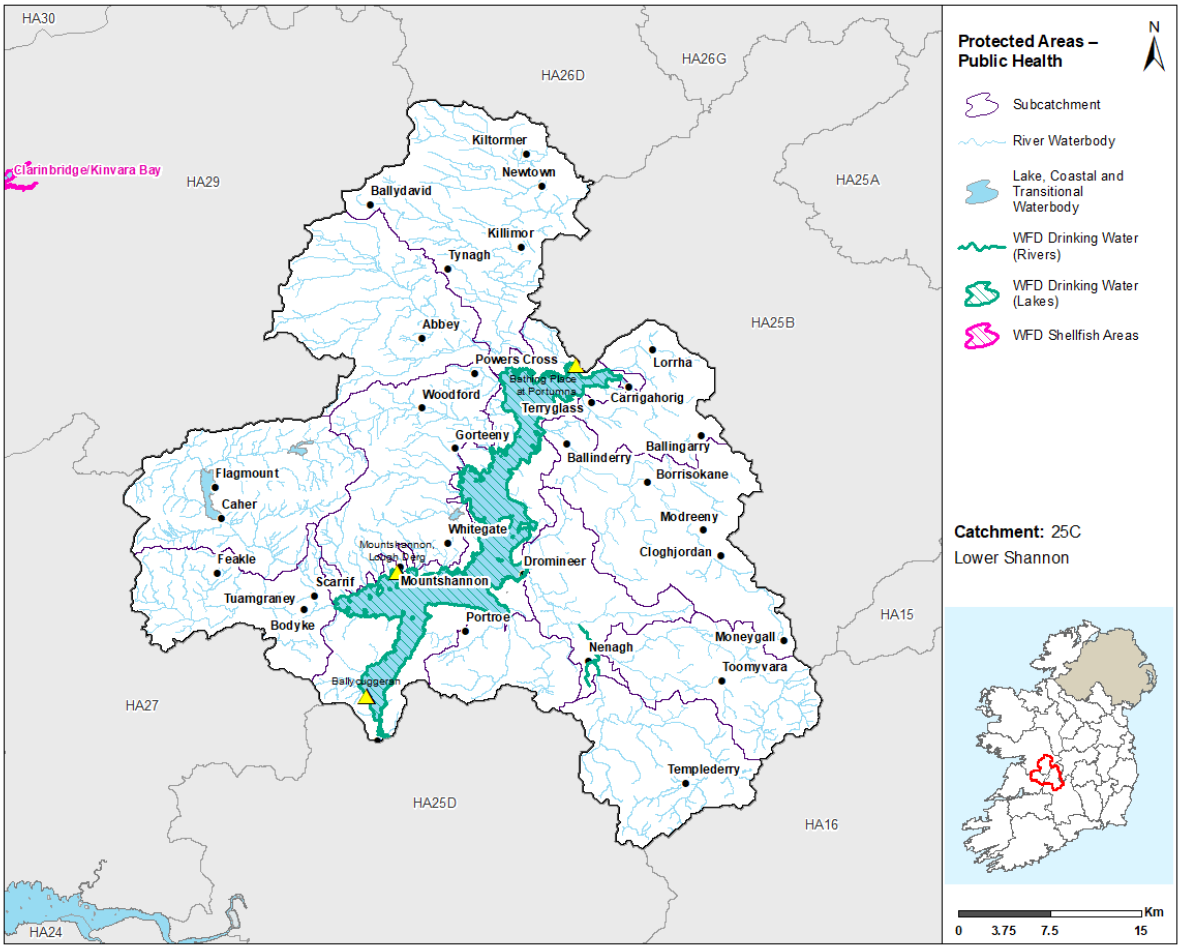


Figure 5: Protected Areas – Public Health

2.2.4 Natura 2000 Sites

- Many of the habitats and species listed for protection in the Birds and Habitats Directives are water dependent. The Special Protection Areas (SPAs) and Special Areas of Conservation (SACs) with water dependent habitats or species in this catchment are presented in Figure 6, along with waterbodies designated as salmonid waters (S.I. No. 293 of 1988) and waterbodies with Fresh Water Pearl Mussel habitat, where identified.

- There are 19 SACs in this catchment, 15 of which have water dependent habitats or species. The waterbodies within these SACs were assessed for associated water dependent habitats and species and if they met the supporting requirements for habitats and species using their 2013-2018 WFD status. For the purposes of the assessment, it was assumed that Good ecological status is adequate to meet the supporting conditions of all habitats and species with the exception of the Freshwater Pearl Mussel, which has additional requirements for supporting conditions set out in the Freshwater Pearl Mussel Regulations (S.I. No 296 of 2009) for macroinvertebrates, filamentous algae, phytobenthos, macrophytes and siltation.

- Specific water supporting conditions have not been identified for the dependent bird species in the SPAs and so waterbodies associated with SPAs are not included in this assessment.

Results of the overall assessment for this catchment are outlined in Table 2 below, information at a waterbody level can be viewed at Catchments.ie.[5]

Table 2: Natura 2000 Network Assessment Summary

Water Body Type	Total No.	Meeting the Requirements	Did not meet the Requirements	Unknown*
Rivers	1	0	0	1
Lakes	1	0	1	0

**As the waterbody status was unassigned.*

- There are no river waterbodies with FWPM habitats in the catchment.

- There are three groundwater bodies delineated and assessed as Groundwater Dependent Terrestrial Ecosystems for this catchment. Two associated groundwater bodies (GWDTE-Coy Turlough (SAC002117) & GWDTE-Rahasane Turlough (SAC000322)) are at Good Status and one (GWDTE-Caherglassaun Turlough (SAC000238)) is at Poor Status (2013-2018).

- Water dependent SACs/ SPAs in the catchment are illustrated in Figure 6.

[5] https://www.catchments.ie/download/catchments-assessments-protected-areas-supporting-documents/

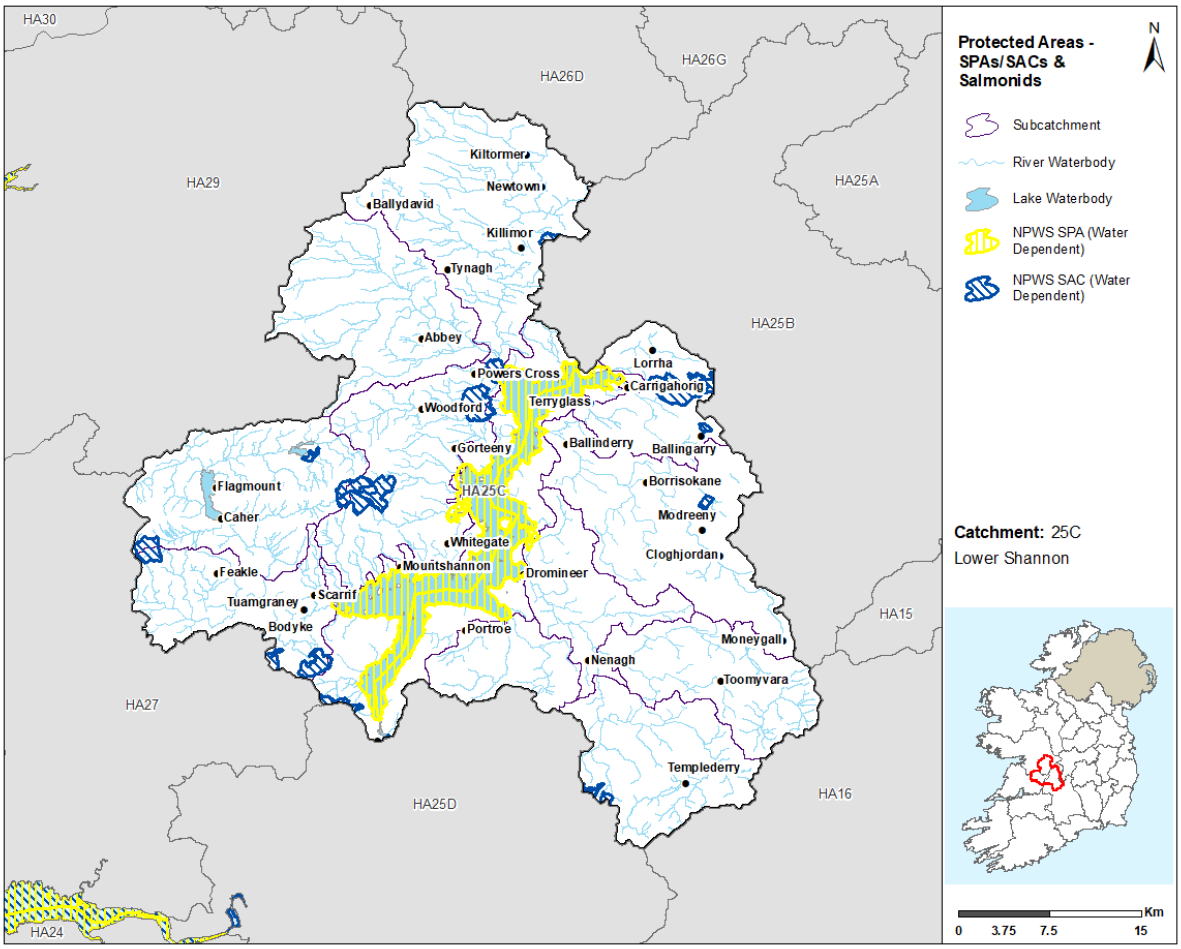


Figure 6: Water Dependent SPAs / SACs

2.2.5 Nutrient Sensitive Areas

- The EPA carried out a review of Nutrient Sensitive Areas (NSAs) downstream of large urban waste water discharges in 2020. Once the regulations are in place, and nutrient sensitive areas have been identified, additional nutrient removal must be applied (if not already applied) to waste water treatment plants discharging to the sensitive area. If this treatment was in place the objective was deemed to have been met.

- There are two NSAs in the catchment and these are downstream of Nenagh urban wastewater agglomeration. The list of NSAs, associated agglomerations and intersecting water bodies are provided in Table 3.

- NSA objectives are being met in both of the NSAs in the catchment.

Table 3: Nutrient sensitive areas in the catchment

Nutrient Sensitive Area	Agglomeration		Water body		Objective met?		Comment
	Name	Code	Name	Code	Yes	No	
Nenagh River (060 & 070)	Nenagh	D0027-01	Nenagh_060 Nenagh_070	IE_SH_25N010700 IE_SH_25N010800	✓	☐	Tertiary Treatment in place
Lough Derg	Nenagh	D0027-01	Derg TN	IE_SH_25_191a	✓	☐	Tertiary Treatment in place

2.3 Heavily Modified Waterbodies

- Based on the 1st and 2nd RBMPs there are currently no designated heavily modified water bodies (HMWB) in the catchment. There will be a consultation period on HMWBs for the 3rd Cycle RBMP and this will be completed for inclusion in the 3rd Cycle Final RBMP.

2.4 Artificial Waterbodies

- There are no Artificial Waterbodies (AWBs) present in the Lower Shannon (Lough Derg) Catchment.

3 Waterbody Risk

3.1 Overview of Risk

- A waterbody that is *At Risk* means that either the waterbody is currently not achieving its Water Framework Directive (WFD) environmental objective of Good or High Ecological Status or that there is an upward trend in nutrients or ammonia and if this trend continues the waterbody Status will decline by the end of Cycle 3 and will fail to meet its environmental objective.

- A waterbody can be considered as *Review* for the following three reasons:
    - The waterbody does not have status assigned to it yet, it is referred to as an unassigned waterbody, and therefore there is not enough evidence to determine if it is *At Risk* or *Not At Risk*.
    - The waterbody has shown some slight evidence or improvement, but more evidence is needed before it can be considered as *Not At Risk.*
    - Measures are planned or have already been implemented for the waterbody and no further measures should be applied until there is enough time to assess if these measures are working.

- A waterbody is *Not At Risk* when it is achieving its environmental objective of either High or Good Status and that there is no evidence indicating that there is a trend towards status decline.

- In total, there are 103 waterbodies in the Lower Shannon Catchment and 50 (49%) are currently *At Risk*, 19 (18%) in *Review* and 34 (33%) are *Not At Risk*.

3.2 Surface Waters

- For the 79 rivers waterbodies, 25 (32%) are *Not At Risk*, 10 (13%) are in *Review* and 44 (56%) are *At Risk*.

- For the five lake waterbodies, two (40%) are in *Review* and three (60%) are *At Risk.* Alewnaghta, Graney and Derg TN are the lake waterbodies *At Risk.*

- The largest proportion of *At Risk* waterbodies are found in river waterbodies, accounting for 44 (88%) of 50 *At Risk* waterbodies. Figure 7 gives an overview of the breakdown of risk across waterbody types for both Cycle 2 and Cycle 3.

- Overall, there is an increase in 10 *At Risk* waterbodies and a decrease in four *Review* waterbodies and six *Not At Risk* waterbodies between Cycle 2 and Cycle 3.

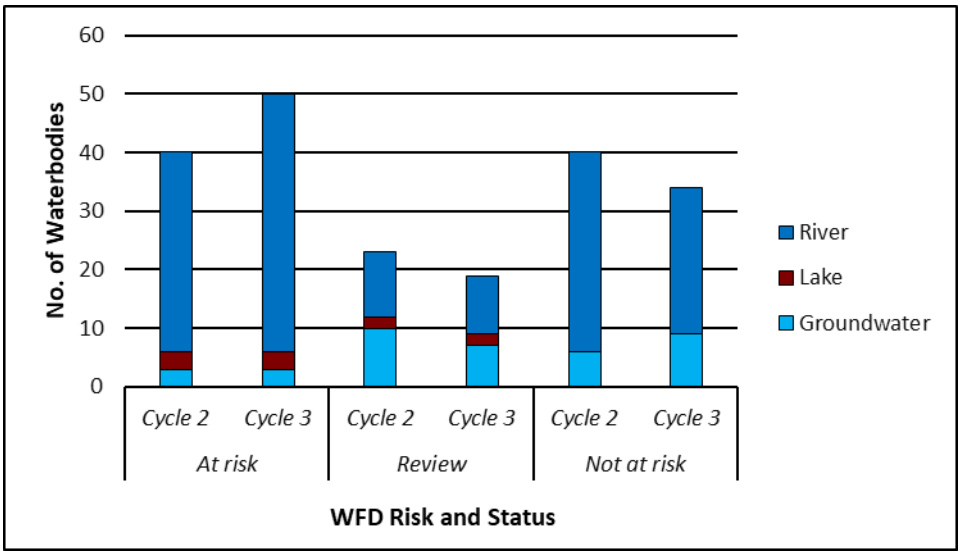


Figure 7: Number of waterbodies in each risk category

- The location of the *At Risk, Review and Not At Risk* surface waterbodies for Cycle 3 are shown in Figure 8 while the surface waterbodies that have experienced a change in risk between Cycle 2 and Cycle 3 are shown in Figure 9.

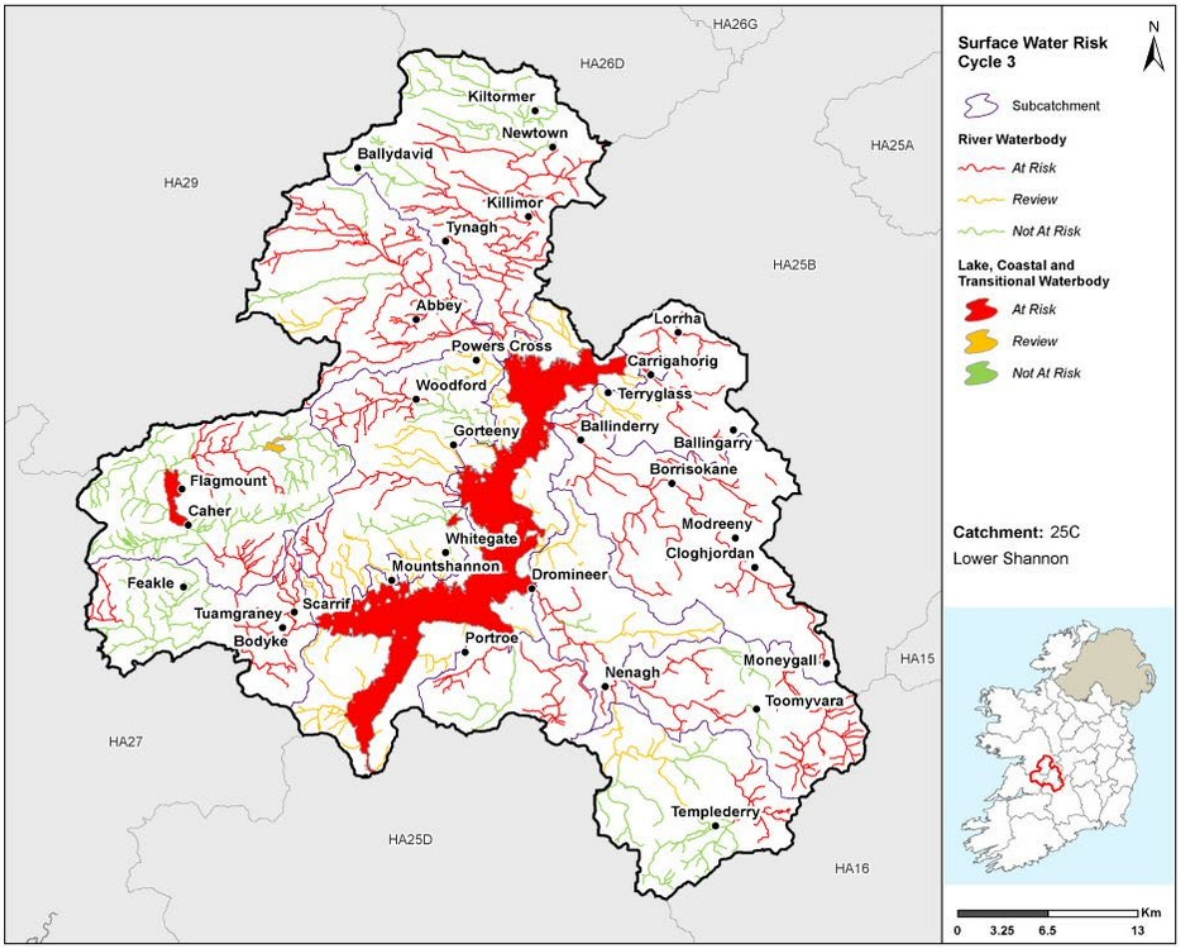


Figure 8: Surface Water Risk Cycle 3

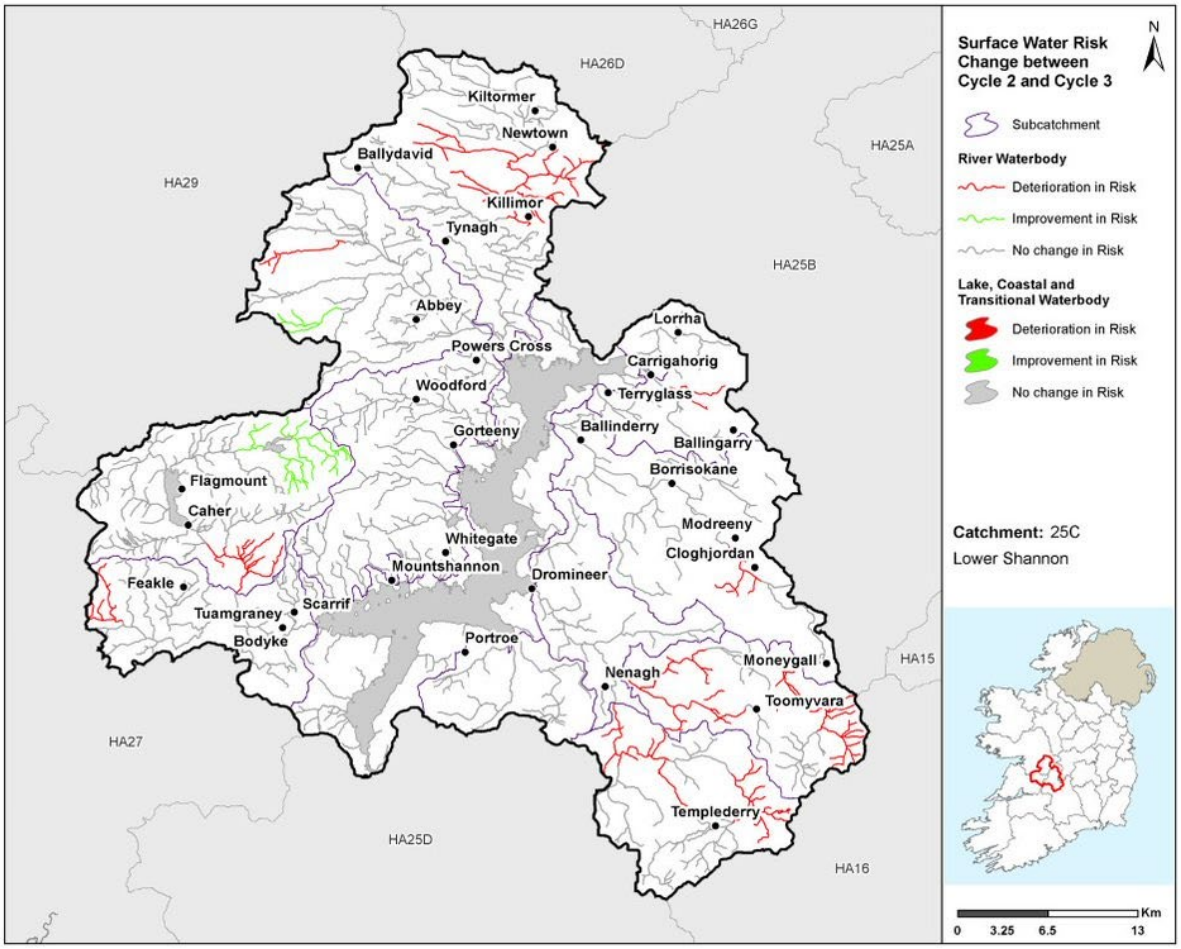


Figure 9: Surface Water Risk Change between Cycle 2 and Cycle 3

3.3 Groundwater

- For the 19 groundwater bodies, three (16%) are *At Risk* (Historic Mine (Tynagh), GWDTE-Caherglassaun Turlough (SAC000238) and GWDTE-Rahasane Turlough (SAC000322)), seven (37%) are in *Review* and nine (47%) are *Not At Risk*.

- In Cycle 2 there were three groundwater bodies (Historic Mine (Tynagh), GWDTE-Caherglassaun Turlough (SAC000238) and GWDTE-Rahasane Turlough (SAC000322)) *At Risk* in this catchment, 10 in *Review* and six *Not At Risk*.

- The location of the *At Risk, Review and Not At Risk* groundwater bodies for Cycle 3 are shown in Figure 10.

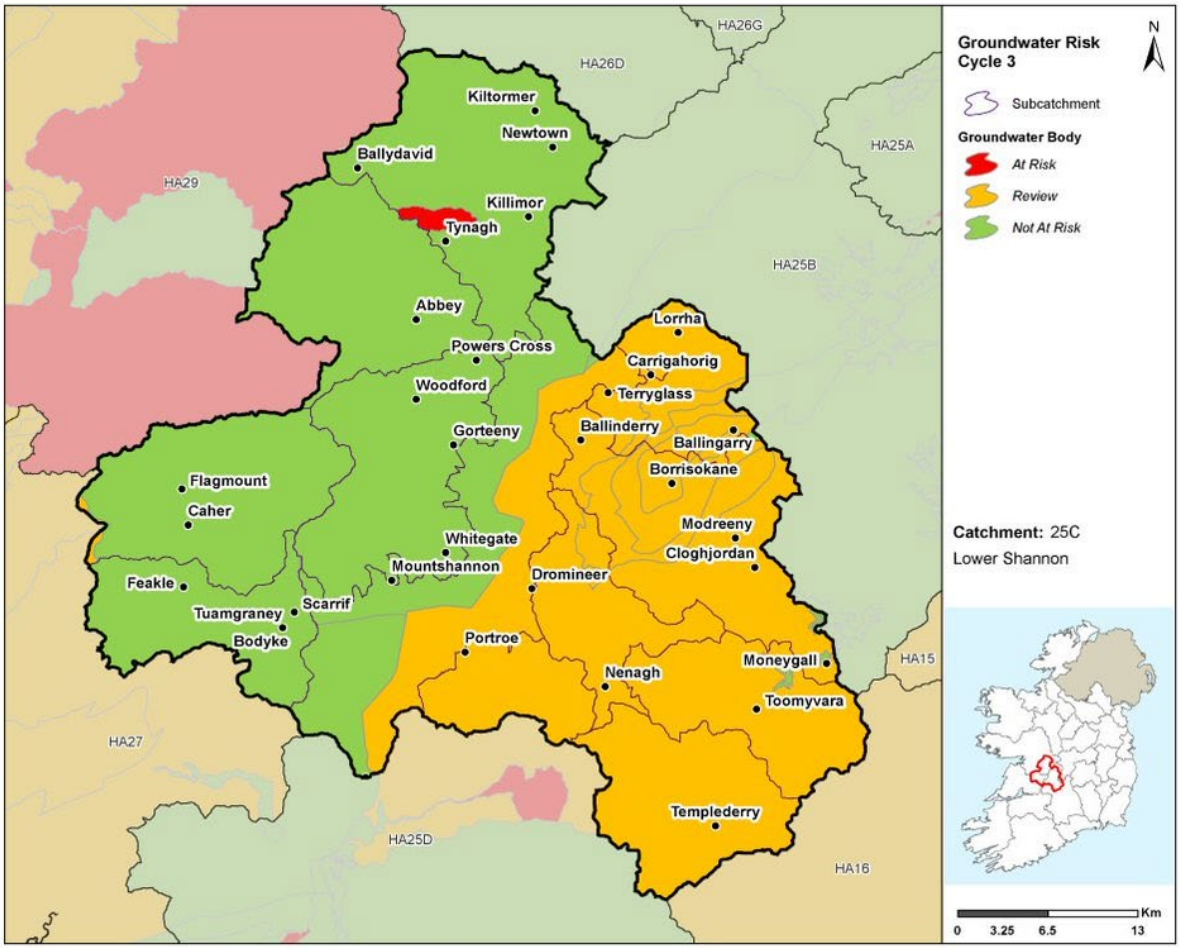


Figure 10: Cycle 3 Groundwater Body Risk

3.4 Heavily Modified Waterbodies

- There are no designated heavily modified water bodies (HMWB) in the catchment. There may be changes to HMWB designation once the Cycle 3 HMWB assessment has been completed and consulted on for the 3rd Cycle Final RBMP.

3.5 Artificial Waterbodies

- There are no Artificial Waterbodies (AWBs) present in the Lower Shannon (Lough Derg) Catchment.

4 Significant Issues in *At Risk* Waterbodies

4.1 All Waterbodies

- Excess nutrients and morphological impacts remain the most prevalent issues in the Lower Shannon (Lough Derg) catchment (Figure 11) impacting 42 and 25 waterbodies respectively in Cycle 3. Sediment is impacting 16 waterbodies, organics, hydrological and chemical are impacting

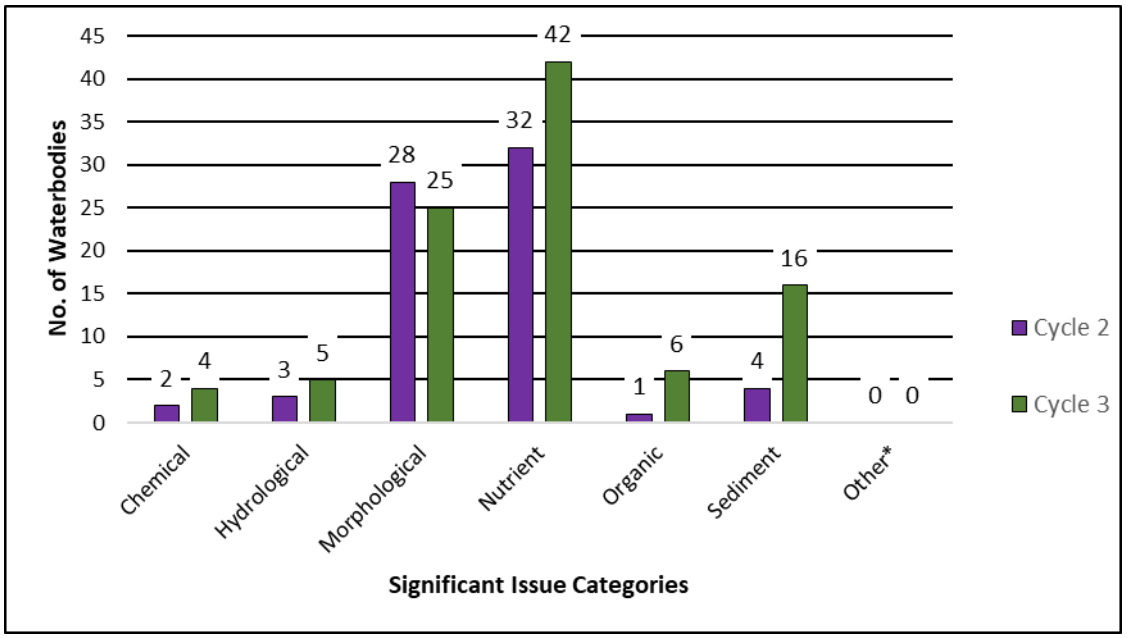
eight, five and four waterbodies, respectively. Diminution of quality of associated surface waters for chemical reasons has been identified as the issue in two groundwater bodies which falls under the 'other' category in Figure 11.

- For river waterbodies, the main significant issues are nutrient pollution (37), morphological impacts (24), sediment pollution (13), organic pollution (8), hydrological impacts (4) and chemical issues (3).
- For lake waterbodies, the main significant issues are nutrient pollution (3), sediment (3), morphological impacts (1) and hydrological impacts (1).
- For the *At Risk* groundwater bodies (Historic Mine (Tynagh), GWDTE-Caherglassaun Turlough (SAC000238) and GWDTE-Rahasane Turlough (SAC000322)) the significant issues are nutrient pollution (2) and chemical (1). Diminution of quality of associated surface waters for chemical reasons has also been identified as the issue in two groundwater bodies (GWDTE-Rahasane Turlough (SAC000322) & Historic Mine (Tynagh)).

- Between Cycle 2 and Cycle 3 the number of waterbodies with nutrients issues have increased by 10 from 32 to 42 and the number of waterbodies impacted by sediment issues has increased by 12 from four to 16.

- The number of waterbodies impacted by organic has increased from one in Cycle 2 to eight in Cycle 3, while both hydrological and chemical have both increased by two waterbodies in the same period.

- The numbers of waterbodies with morphological issues have reduced from 28 in Cycle 2 to 25 in Cycle 3.



*Other - Acidification, saline intrusion, elevated temperature, litter, microbiological pollution and unknown impacts have all been grouped into the "Other" issues category for the purpose of this report

Figure 11: Significant Issues across all *At Risk* WBs between Cycle 2 and Cycle 3

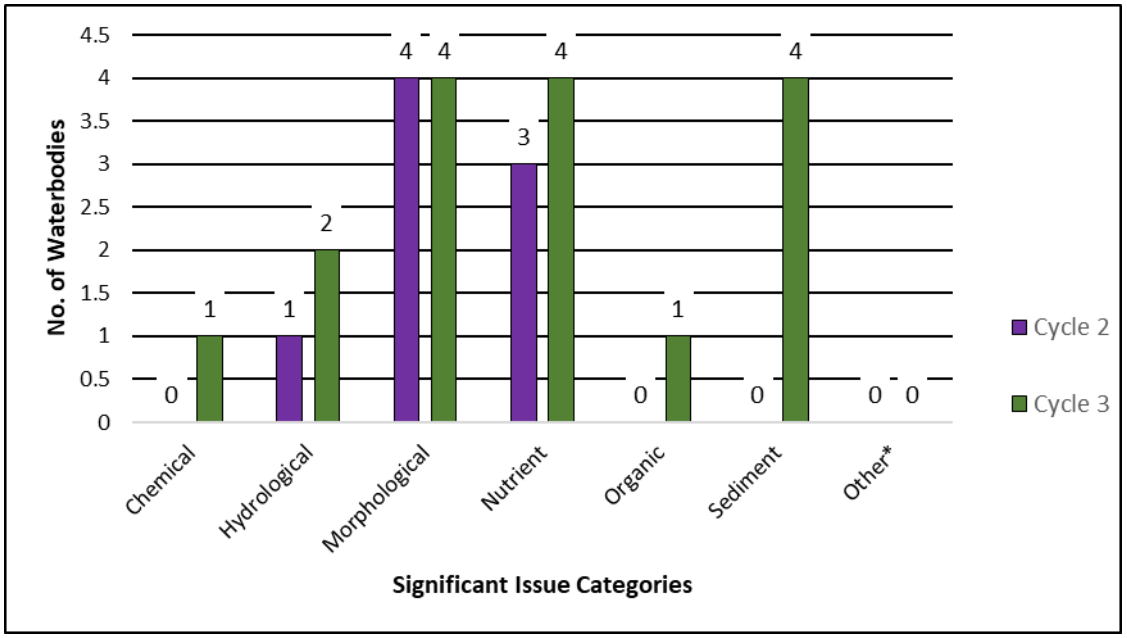
4.2 High Status Objective Waterbodies

- In Cycle 3 for High Status Objective waterbodies morphological issues, nutrient and sediment are impacting four of the eight High Status Objective waterbodies currently *At Risk* (Figure 12).

Hydrological issues are impacting two waterbodies, while chemical and organic are both impacting one waterbody each.

- All High Status Objective waterbodies are river waterbodies within the Lower Shannon Catchment.

- Between Cycle 2 and Cycle 3 the number of waterbodies with sediment, nutrient issues, hydrological, chemical and organic have all increased. Sediment increased by four from no waterbodies in the previous cycle, while the other four categories increased by one waterbody each.



*Other - Acidification, saline intrusion, elevated temperature, litter, microbiological pollution and unknown impacts have all been grouped into the "Other" issues category for the purpose of this report

Figure 12: Significant Issues in *At Risk* High Status Objective Waterbodies

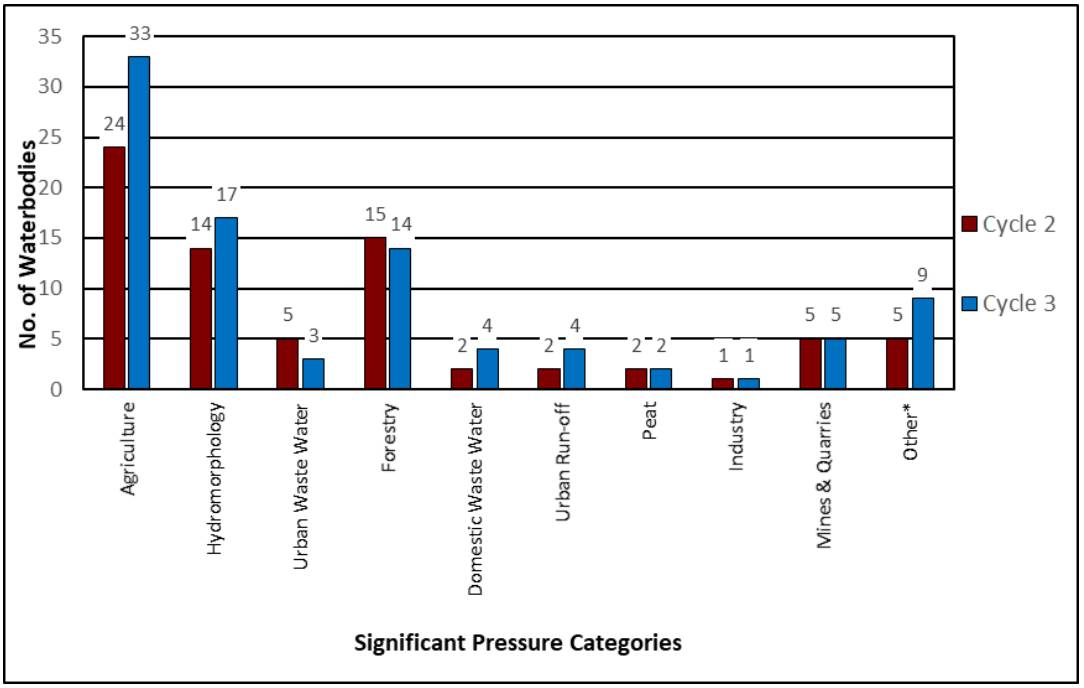
5 Significant pressures in *At Risk* Waterbodies

5.1 All Waterbodies

- Where waterbodies have been classed as *At Risk*, significant pressures have been identified.
- Figure 13 shows a breakdown of the number of *At Risk* waterbodies in each significant pressure category.
- The significant pressure affecting the greatest number of waterbodies is agriculture, followed by hydromorphology, forestry, other[6], mines and quarries, domestic waste water, urban run-off, urban waste water, peat and industry.

[6] Abstractions, aquaculture, atmospheric, anthropogenic pressures, historically polluted sites, waste, water treatment and invasive species have all been grouped into the "Other" pressure category for the purpose of this report

- When comparing Cycle 2 and Cycle 3 the biggest change is an increase of nine waterbodies where agriculture is a significant pressure from 24 waterbodies in Cycle 2 to 33 waterbodies in Cycle 3.



*Other – abstractions, aquaculture, atmospheric, anthropogenic pressures, historically polluted sites, waste, water treatment and invasive species have all been grouped into the "Other" pressure category for the purpose of this report

Figure 13: Significant Pressure (All *At Risk* Waterbodies)

5.1.1 Pressure Type

5.1.1.1 Agriculture

- Agriculture has been identified as a significant pressure in 33 waterbodies (29 river waterbodies, three lake waterbodies and one groundwater body).

- The waterbodies within the catchment are primarily being impacted by diffuse phosphorus and nitrogen loss to surface waters, with 28 waterbodies impacted by pasture pressures (dairy and pig farming intensive subcatchments identified), three waterbodies by farmyard pressures and five by general agricultural activities. Although nutrient enrichment is the dominant pressure throughout the catchment, there are further pressures to a lesser extent from organic, chemical and sediment. Some unsatisfactory wintering farming practices were identified and ongoing until 2015, while chemical pollution linked to pesticide and herbicides were also noted.

- The issues related to farming for the lake waterbodies in this catchment are diffuse phosphorus loss to surface waters from, for example, direct discharges; or runoff from yards, roadways or other compacted surfaces, or runoff from poorly draining soils. Sediment can also be a problem from land drainage works, bank erosion from animal access or stream crossings.

5.1.1.2 Hydromorphology

- 16 river waterbodies and one lake waterbody (Derg TN) within the Lower Shannon (Derg) catchment are subject to extensive modification. Three waterbodies (Derg TN, Cappagh (Galway)_010 and Lisduff (Kilcrow)_020) have barriers to fish migration while eight have pressures as a result of land drainage issues and nine waterbodies are channelised.

5.1.1.3 Forestry

- Forestry has been identified as a significant pressure in 13 river waterbodies and one lake waterbody Graney. The significant issues are a combination of general forestry practices which have resulted in heavy siltation and excess nutrients in surface waterbodies.

5.1.1.4 Other

- *Invasive Species*
  Three of the lake waterbodies (Derg TN, Alewnaghta and Graney) have zebra mussels present, which have been identified as a significant pressure. In addition, Lough Derg has Asian clams and up to 14 other alien species according to IFI and the Lough Derg Science Group. One river waterbody, Lorrha Stream_020 recorded a crayfish plague in September 2017.

- *Unknown Anthropogenic*
  The significant pressure in three *At Risk* river waterbodies (Kilcrow_070, Ollatrim_030 and Ollatrim_050) is currently unknown. Fish population is the main driver of status and IFI have confirmed a deterioration through their survey work. One groundwater body, GWDTE-Caherglassaun Turlough (SAC000238), is also currently impacted by unknown anthropogenic pressures.

- *Historically Polluted Sites*
  One groundwater body (Historic Mine (Tynagh)) is impacted by chemical pollution from a historic zinc mine.

5.1.1.5 Mines and Quarries

- The historic Tynagh Mine is a significant pressure on one river waterbody (Lisduff (Kilcrow)_020). Evidence of toxicity was noted at stations RS25B140100 and RS25L070050 during the biological sampling.

- Quarries are a significant pressure in four river waterbodies (Ollatrim_010, Ballyfinboy_010, Ballyfinboy_060 and Ardcrony Stream_010). Further characterisation is required to more precisely establish the full effects of these activities.

5.1.1.6 Domestic Waste Water

- Domestic waste water has been identified as a significant pressure in three river waterbodies (Ballyfinboy_030, Cloghaun_010 and Cappagh (Galway)_020) and one groundwater body (GWDTE-Rahasane Turlough (SAC000322)). The significant issue is excess nutrients entering surface waters. Several septic tank systems and communal system discharges are mapped on areas of high susceptibility to phosphate transport via near surface pathways. Total oxidised nitrogen levels are at moderate indicative quality.

5.1.1.7 Urban Run-off

Diffuse urban pressures from Cloghjordan, Borrisokane and Scarriff urban areas, caused by misconnections, leaking sewers and runoff from paved and unpaved areas, have been identified as significant in three river waterbodies (Graney (Shannon)_050, Ballyfinboy_030 and Ballyfinboy_040). Nutrient and organic pollution are the significant issues.

5.1.1.8 Urban Waste Water

- Urban Waste Water Treatment agglomerations have been identified as a significant pressure in three *At Risk* river waterbodies a reduction from five waterbodies impacted in Cycle 2. None of the

three agglomerations identified as significant pressures are scheduled for upgrades under Irish Water's Capital Investment Programme (2020-2024).

Table 4: Urban Waste Water Treatment Agglomerations identified as significant pressures in *At Risk* waterbodies in Cycle 3

Facility name	Facility Type	Waterbody	2013-18 Ecological Status	Irish Water's Expected CIP Completion Date[7]
Cloughjordan D0475	Agglomeration PE 500 to 1,000	Ballyfinboy_030	Moderate	N/A
Woodford A0111	Agglomeration PE < 500	Woodford (Galway)_020	Moderate	N/A
Borrisokane D0326	Agglomeration PE of 1,001 to 2,000	Ballyfinboy_050	Moderate	N/A

- Urban waste water impacted five waterbodies in Cycle 2, three waterbodies are impacted in Cycle 3. The following agglomerations were listed as pressures in Cycle 2 but have been removed from the list of significant pressures in Cycle 3.
    - Portroe (A0182)
    - Ballina (D0189)
    - Moneygal (A0169)
    - Ballingarry (A0183)

- Cloughjordan (D0475) has been added as a significant pressure in Cycle 3.

5.1.1.9 Peat

Peat drainage and working has been identified as a significant pressure in two river waterbodies (Lorrha Stream_020 and Ballinlough Stream_010). Elevated nutrient concentrations and increased sedimentation are the significant issues.

5.1.1.10 Industry

An industrial facility licenced by the EPA, (Arrabawn Co-operative Society Limited - P0791) has been identified as a significant pressure impacting Nenagh_060. Elevated orthophosphate and ammonia are the significant issues related to this point source discharge.

Figure 14 – Figure 17 illustrates the locations of waterbodies for the four most common pressures in order of prevalence (agriculture, hydromorphology, forestry and other) within the catchment in Cycle 3.

[7] Based on Irish Water's Capital Investment Programme (2020-2024) as of February 2021 and may be subject to change.

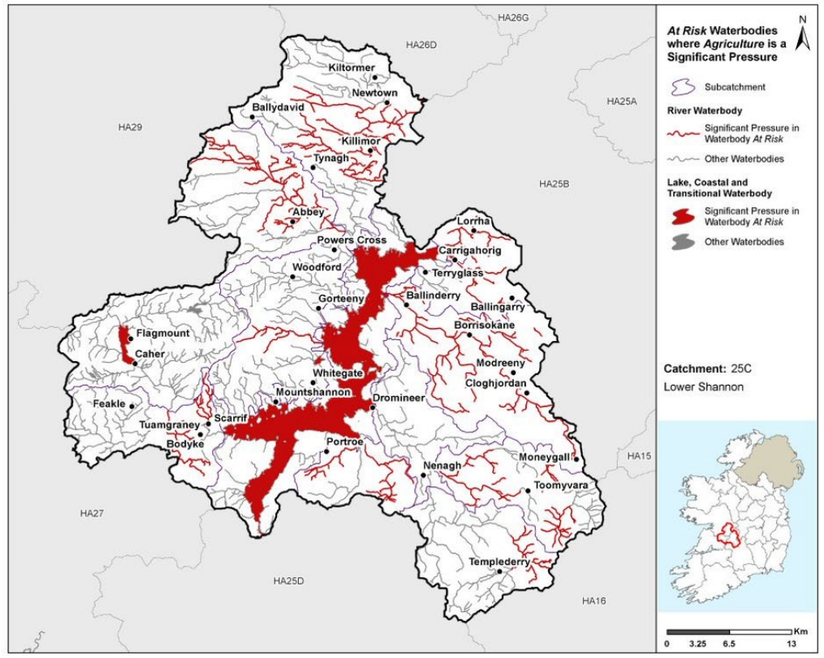


Figure 14: Locations of Waterbodies where Agriculture is a Significant Pressure

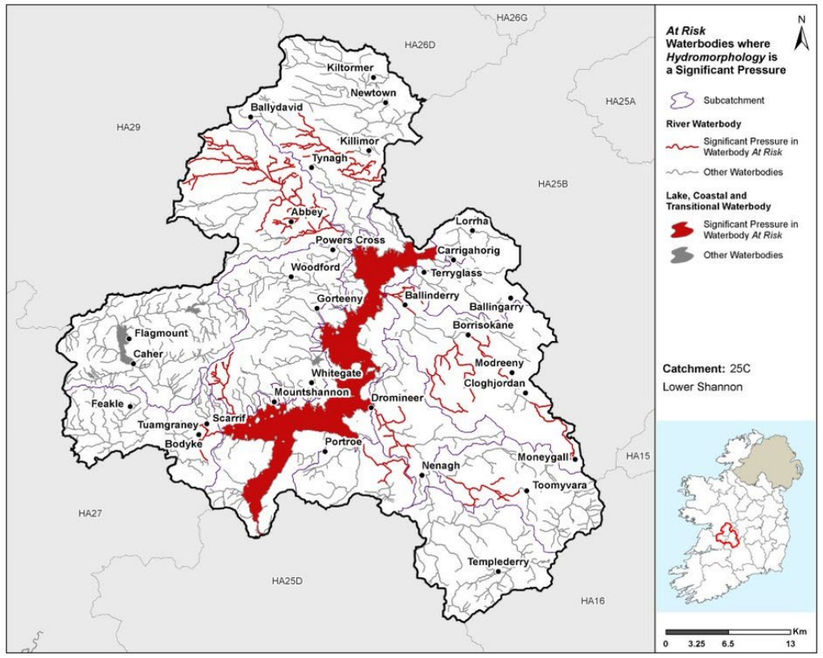


Figure 15: Locations of Waterbodies where Hydromorphology is a Significant Pressure

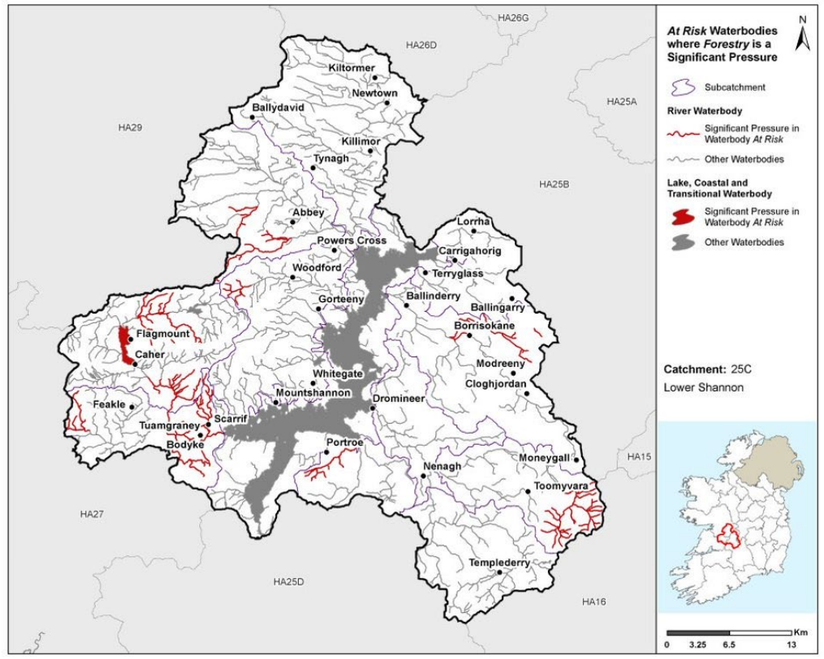


Figure 16: Locations of Waterbodies where Forestry is a Significant Pressure

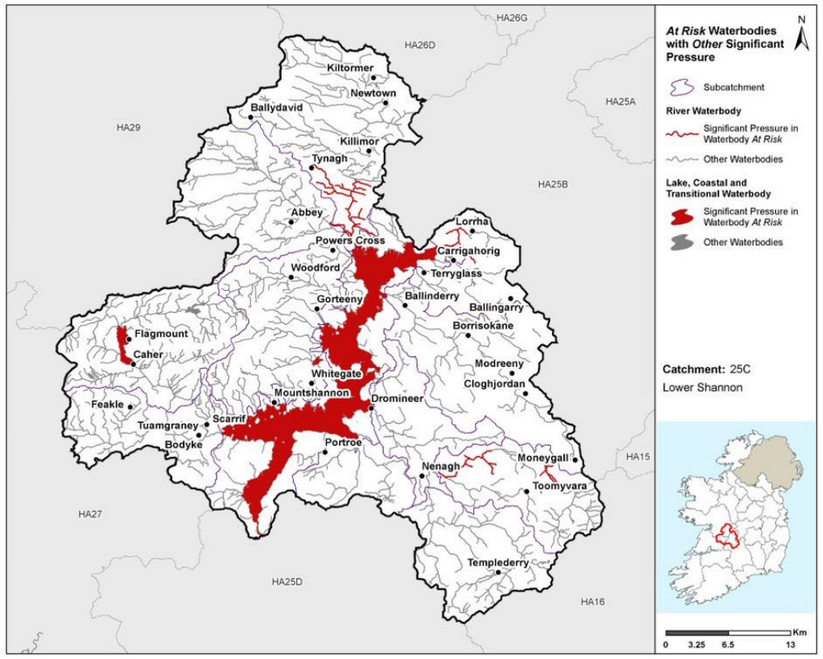
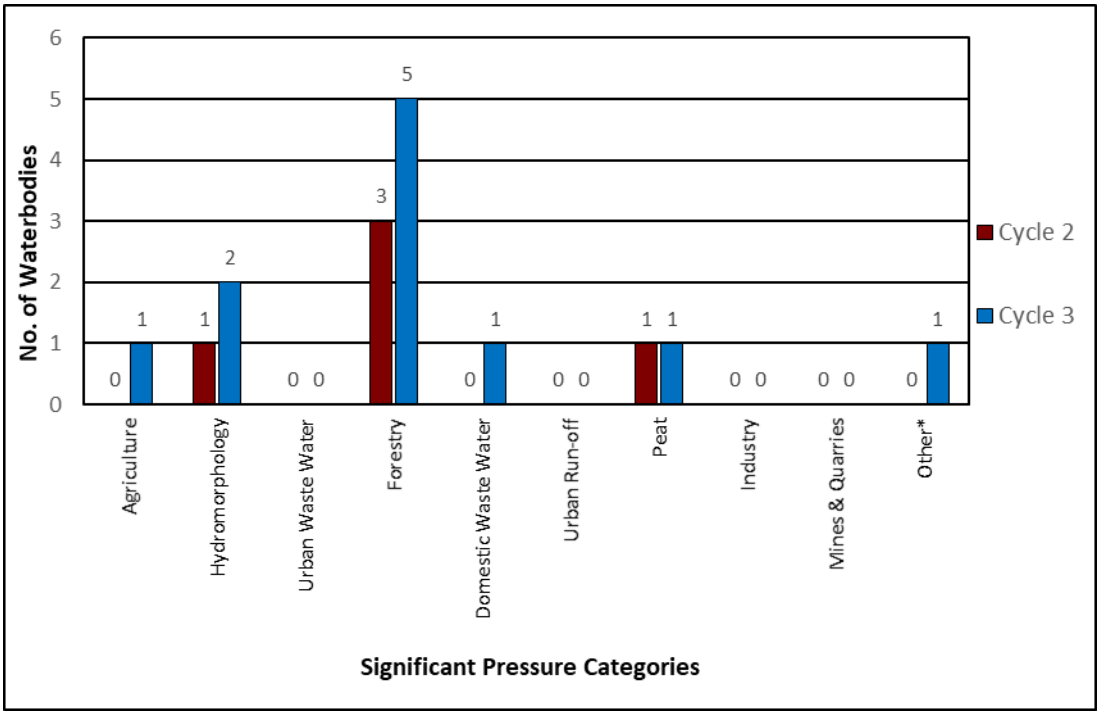


Figure 17: Locations of Waterbodies where Other is a Significant Pressure

5.2 High Status Objective Waterbodies

- Forestry is the dominant significant pressure in High Status Objective waterbodies, with pressures identified in five out of the eight *At Risk* High Status Objective waterbodies.



*Other – abstractions, aquaculture, atmospheric, anthropogenic pressures, historically polluted sites, waste, water treatment and invasive species have all been grouped into the "Other" pressure category for the purpose of this report

Figure 18: Significant Pressure in *At Risk* High Status Objective Waterbodies

6 Source Load Apportionment Modelling (SLAM)

- The EPA has developed Source Load Apportionment Models (SLAM) for both P and N which estimate the proportion of the phosphorus and nitrogen inputs, respectively, to waters in each catchment that comes from each sector as illustrated in Figure 19.

- The main data inputs for the model for agriculture are the 2018 land parcel (LPIS) and animal (AIMs) data from the Department of Agriculture Food and the Marine. The Urban Waste Water (UWW) data comes from Irish Water's discharge monitoring data. The model also calculates the inputs from a range of other sectors, including for example, forestry, septic tanks, peat, urban runoff and atmospheric deposition.

- In the catchment pasture is responsible for 81% of the nitrogen load while pasture, forestry and deposition on water contribute 38%, 27% and 14% of the phosphorus loadings for the catchment respectively (Figure 19).

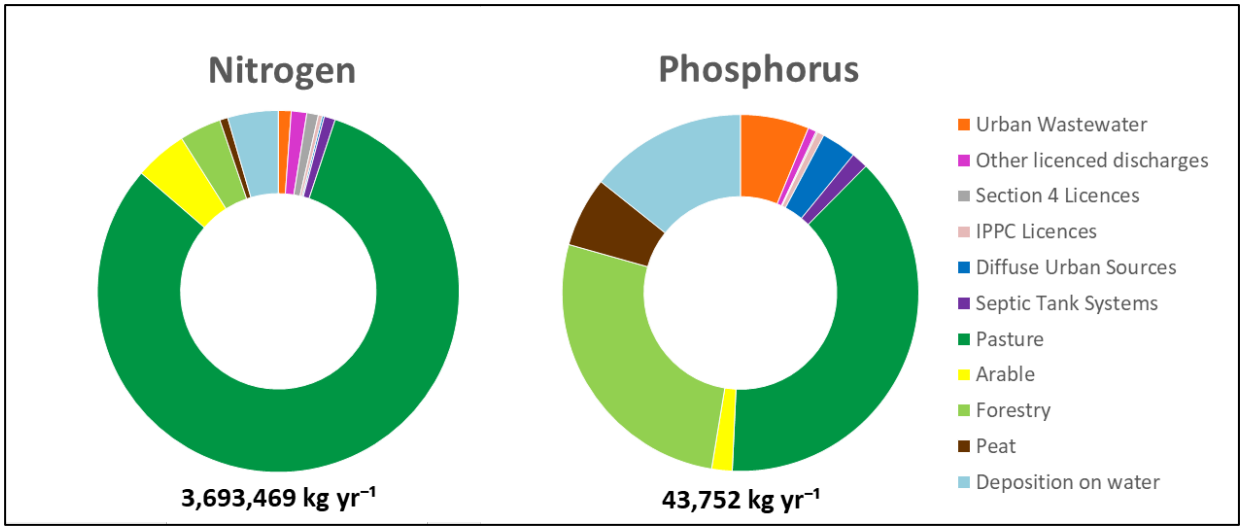


Figure 19: Estimated Proportions of N & P from Each Sector in the Lower Shannon (Lough Derg) Catchment

7 Load Reduction Assessment

7.1 Nitrogen Load Reduction

- An assessment was undertaken to determine if nitrogen reductions in rivers, streams and lakes are required for Transitional and Coastal (TRACs) waterbodies to achieve their WFD environmental objective. The outcome of the assessment indicated that 10 of the 46 catchments require N reductions in our inland waters to restore some TRAC waterbodies. Nitrogen load reduction to meet TRAC WFD objectives are not required in the Lower Shannon (Lough Derg) Catchment.

7.2 Phosphorus / Sediment Load Reduction

- Further modelling work is required to determine precisely what load reductions are required.

Figure 20 highlights areas where agricultural measures for nitrogen, sediment and phosphorus should be targeted. Waterbodies with orange fill are areas where nitrogen measures should be targeted, waterbodies with blue fill are areas where sediment or phosphorus should be targeted and waterbodies with orange and blue hatching highlight areas where multiple measures (phosphorus /sediment and nitrogen) are required. Pollution Impact Potential mapping for both phosphorus and nitrogen in the catchment are provided in Appendix 2.

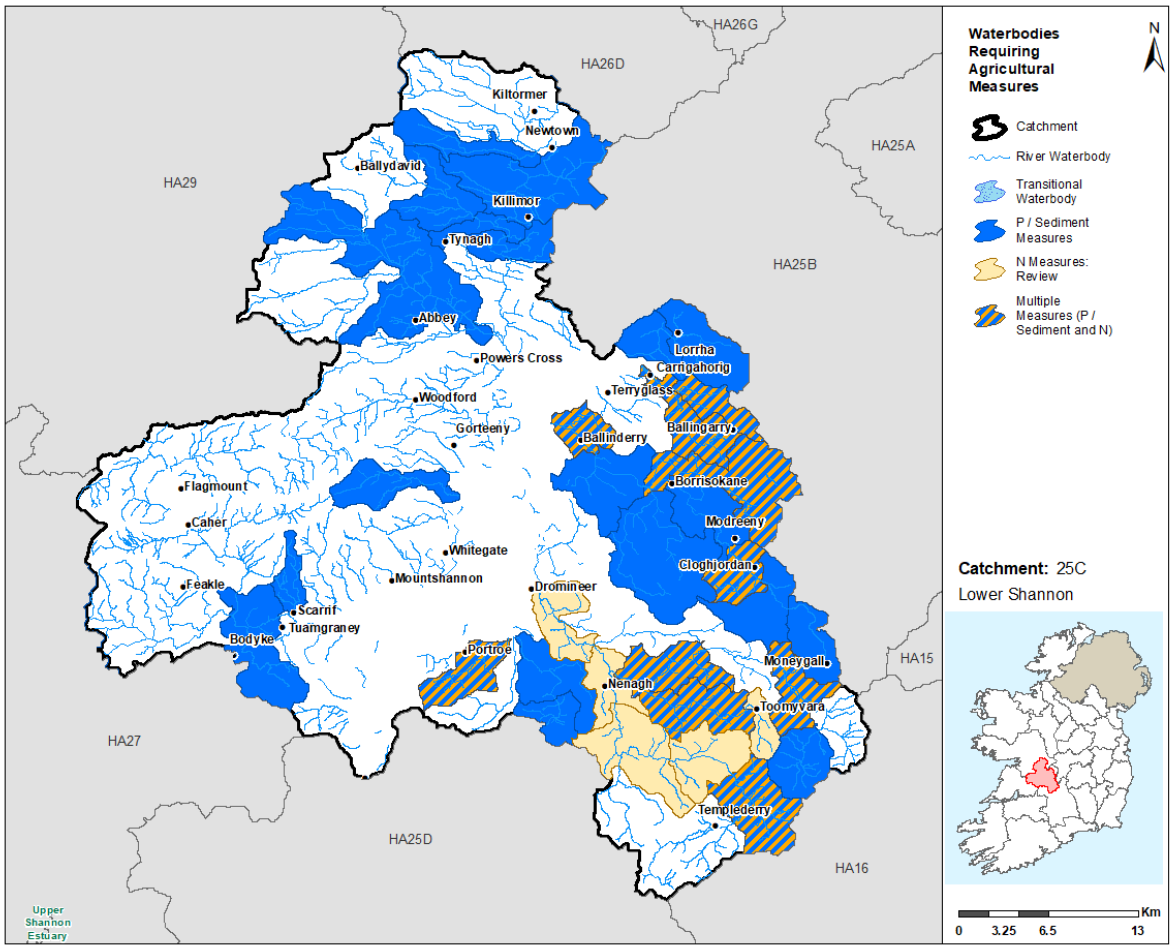


Figure 20: Waterbodies where Agricultural Measures should be Targeted

8 2nd Cycle Areas for Action

8.1 Area for Action Overview

- There were six Areas for Action, comprising of 15 waterbodies, selected for further characterisation and action in the catchment for the 2nd Cycle River Basin Management Plan. The Areas for Action in the catchment are listed in Table 5 and shown in Figure 21. LAWPRO, in conjunction with local authorities and stakeholders from the Western, South East, South West and Midlands and East Regional Operational Committee, have been working in these areas since 2018.

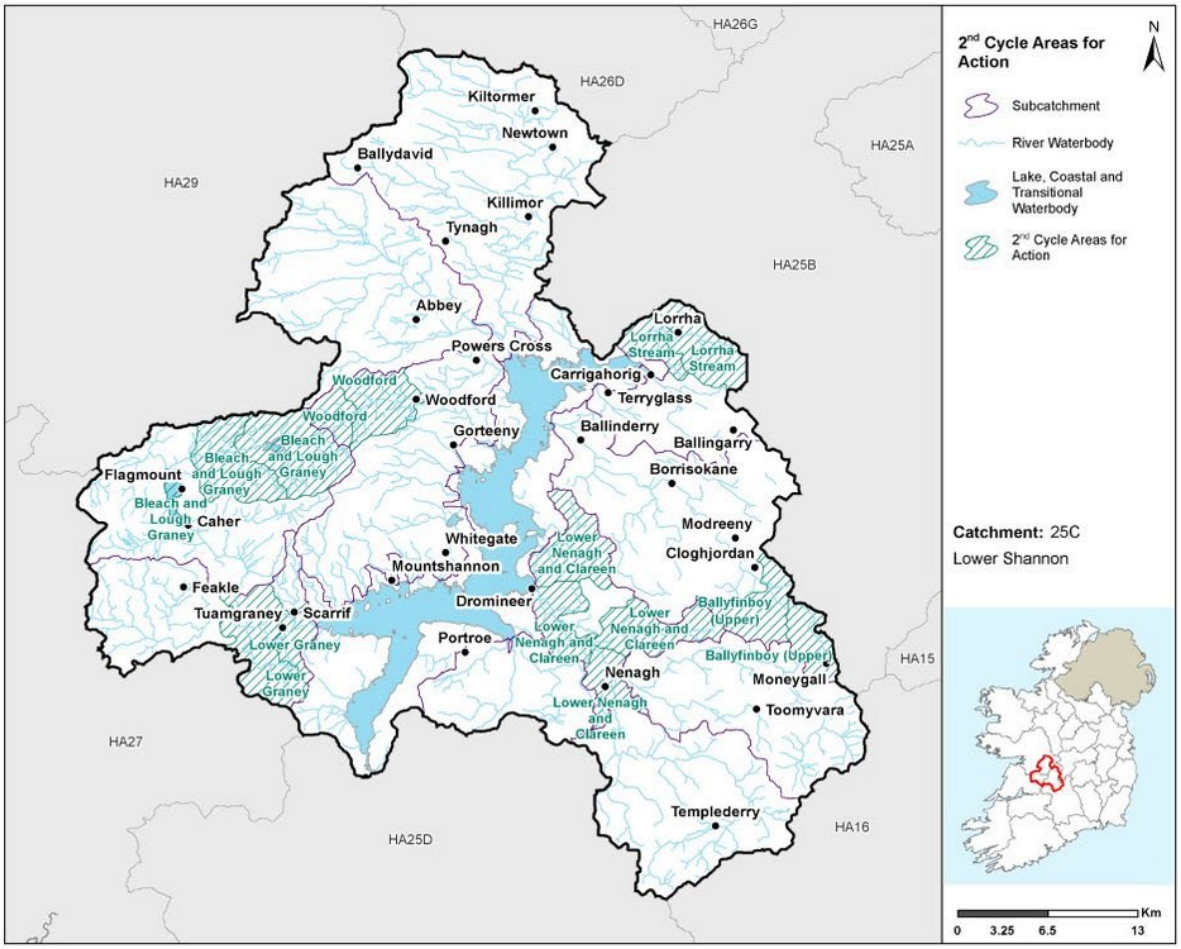


Figure 21: 2nd Cycle Areas for Action Locations

Table 5: 2nd Cycle Areas for Action

2nd Cycle Area for Action	Number of waterbodies	Sub-catchment	Local Authority	Reason for Selection
Lower Graney	2	25C_3	Clare	• Amenity value in Scariff town. • Biodiversity importance (Whooper Swan). • One deteriorated waterbody.
Bleach & Lough Graney	3	25C_8	Clare Galway	• Cross county project. • Important for brown trout angling. • Opportunity to work with angling group in Woodford. • Potential to collaborate with forestry. • Would bring entire subcatchment to Good Status. • Information on investigative assessment and measures can be extrapolated to similar areas. • One deteriorated High Ecological Status objective waterbody.
Woodford	2	25C_7	Galway	• Potential test case for community engagement when developing

2nd Cycle Area for Action	Number of waterbodies	Sub-catchment	Local Authority	Reason for Selection
				Integrated Constructed Wetlands. • Strong community and angling groups. • Contributes 3% of trout population to Lough Derg • One deteriorated waterbody.
Lower Nenagh and Clareen	4	25C_11	Tipperary	• Active angling group. • Opportunity to build on work completed by Tipperary County Council. • Important trout fishery, Nenagh trout have very high genetic biodiversity. • One potential 'quick win'.
Ballyfinboy (Upper)	2	25C_9	Tipperary Offaly	• Building on improvement works completed by Inland Fisheries Ireland. • Headwaters of the Ballyfinboy river. • Building on research completed by Queens which looked at genetics of trout in Ballyfinboy. • Drinking water protected area (abstraction from Jones' & Guilfoyle's Well) elevated. • Mixed land use catchment – diffuse urban & agricultural. • Recent upgrade of Moneygall waste water treatment plant (2013) • Recent depleted brown trout stocks
Lorrha Stream	2	25C_2	Tipperary	• Building on existing work by Tipperary County Council. • Manageable area. • Headwaters to Lough Derg. • Two potential 'quick wins'.

8.2 Status Change in 2nd Cycle Areas for Action

- For Cycle 3, of the 15 waterbodies in the 2nd Cycle Areas for Action, there are two waterbodies at Good Status, eight waterbodies at Moderate Status, three waterbodies at Poor Status and two waterbodies where status has not been assigned.

- There is an no change in the status of the waterbodies of the 2nd cycle Areas for Action waterbodies across the catchment.[8]

[8] Status class change cannot be calculated for waterbodies where status has not been assigned in either cycle 2 or 3 and therefore these waterbodies are not represented in Figure 18. Percentage displayed in the chart below are in relation to the total number of waterbodies with status assigned in both cycles, as opposed to total number of all waterbodies.

- Of the 13 waterbodies within the 2nd Cycle Areas for Action which had status assigned, seven experienced no change in status between Cycle 2 and Cycle 3, three waterbodies experienced an improvement and three were subject to deterioration in Status(Figure 22). Of the three waterbody improvements two were across Bleach and Lough Graney Area for Action and one in Lower Graney Area for Action. The three waterbodies which experienced decline were across the Ballyfinboy (Upper) Area for Action, the Lower Graney Area for Action and the Lorrha Stream Area for Action.

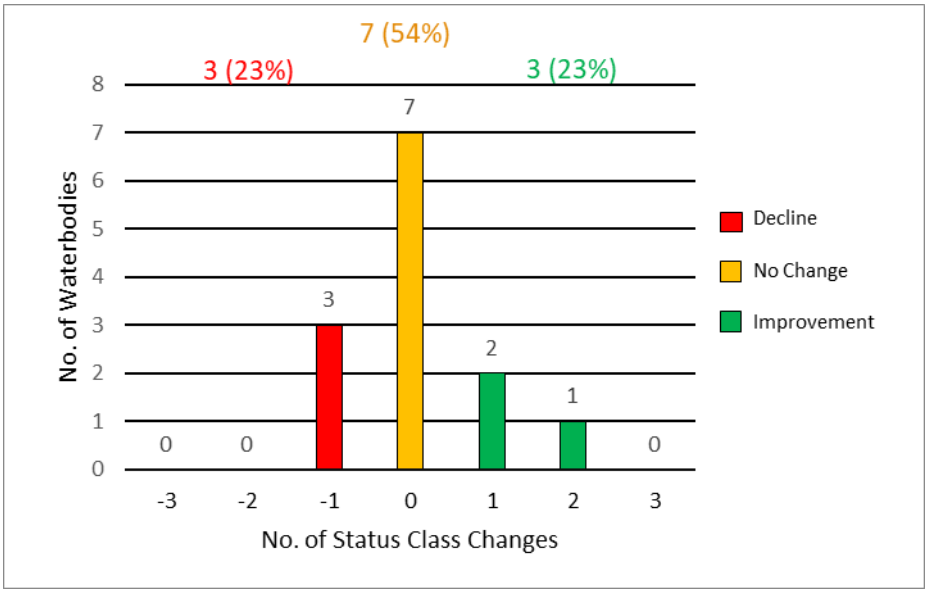


Figure 22: 2nd Cycle Area for Action Waterbody Status Class Changes between Cycle 2 and Cycle 3

8.3 Waterbody Risk in 2nd Cycle Areas for Action

- For the 15 waterbodies in the 2nd Cycle Areas for Action, 12 (80%) of these are currently *At Risk,* two (13%) are in *Review* and one (7%) is *Not At Risk*.

- For the 14 river waterbodies, 11 (79%) are *At Risk*, two (14%) are in *Review* and one (7%) is *Not At Risk*.

- The only lake waterbody in a 2nd Cycle Area for Action (Graney) is *At Risk*.

- The largest proportion of *At Risk* waterbodies are found in river waterbodies, accounting for 11 (92%) of 12 *At Risk* waterbodies. Figure 23 gives an overview of the breakdown of risk across waterbody types for both Cycle 2 and Cycle 3 in 2nd Cycle Areas for Action.

- Overall there is a decrease from 13 to 12 *At Risk* waterbodies in 2nd Cycle Areas for Action between Cycle 2 and Cycle 3.

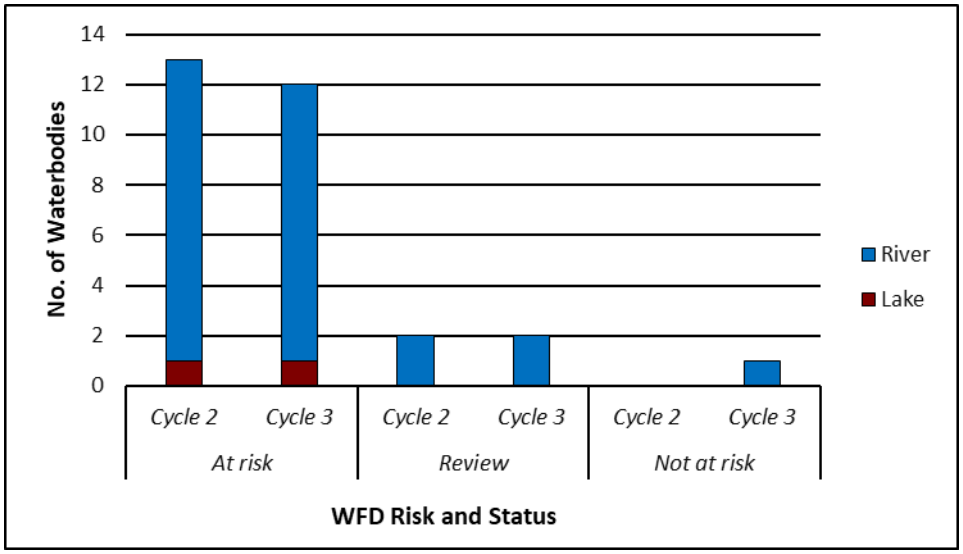
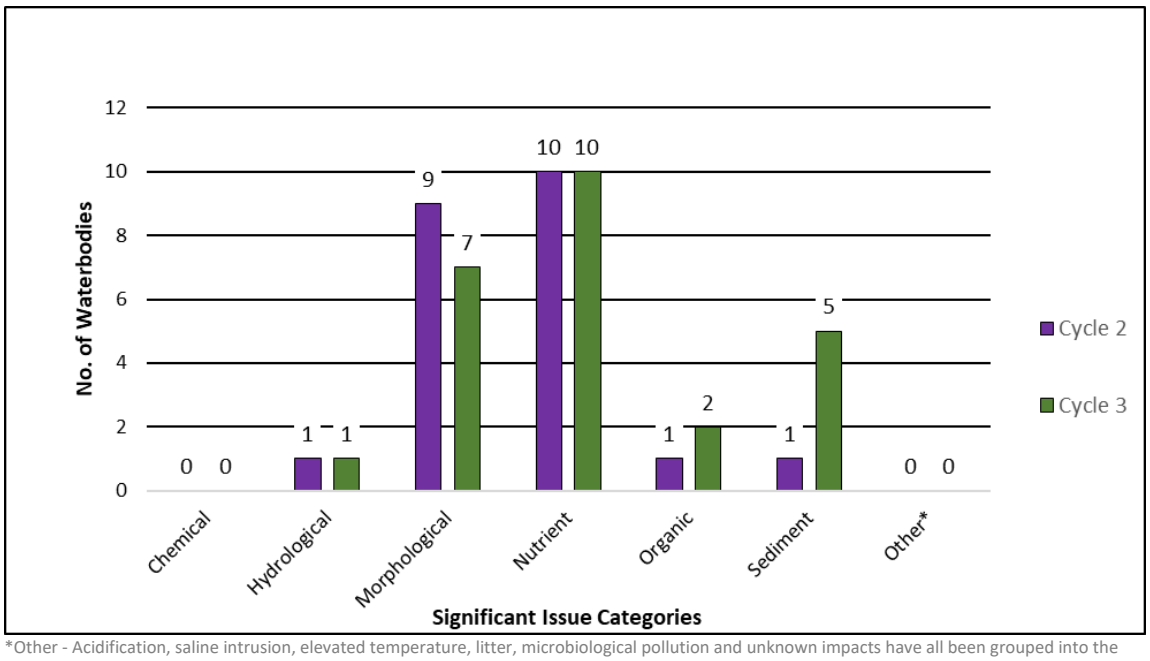


Figure 23: Number of waterbodies in each risk category in 2nd Cycle Areas for Action

8.4 Significant Issues in 2nd Cycle Areas for Action

- Based on the EPA assessment for Cycle 3, the significant issues in the 2nd Cycle Areas for Action are nutrient pollution and morphological impacts, each impacting 10 and seven waterbodies, respectively (Figure 24). This is followed by sediment which is impacting five waterbodies, organic pollution impacting two waterbodies and hydrological issues impacting one waterbody.

- The number of 2nd Cycle Areas for Action waterbodies associated with hydrological issues and nutrient pollution remain unchanged between Cycle 2 and Cycle 3 morphological issues have reduced from nine waterbodies to seven, whereas sediment and organic issues have increased from one waterbody each in Cycle 2 to five and two waterbodies respectively in Cycle 3.

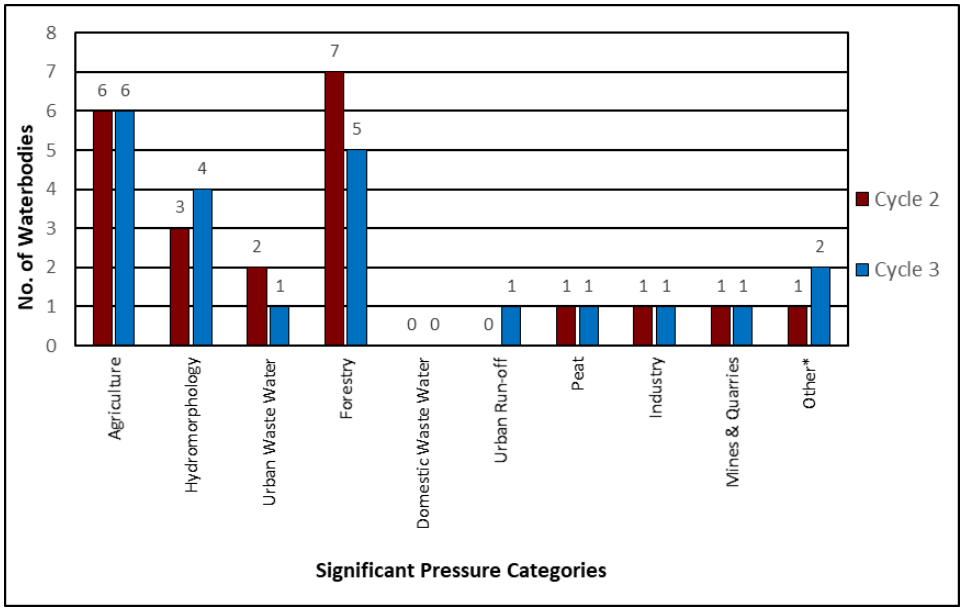


*Other - Acidification, saline intrusion, elevated temperature, litter, microbiological pollution and unknown impacts have all been grouped into the "Other" issues category for the purpose of this report

Figure 24: Significant Issues across all 2nd Cycle Areas for Action Waterbodies

8.5 Significant Pressure in 2nd Cycle Areas for Action

- For Cycle 3, in 2nd Cycle Areas for Action waterbodies in the catchment the dominant significant pressures are:
  - Agriculture – the number of waterbodies impacted has remained unchanged compared to those impacted in Cycle 2.
  - Forestry – five waterbodies are impacted compared to seven impacted in Cycle 2.
  - Hydromorphology – the number of waterbodies impacted has increased from three in Cycle 2 to four in Cycle 3.
  - Urban Waste Water – one waterbody impacted in Cycle 3 compared to two in Cycle 2, Ballyfinboy_010 is no longer deemed to be impacted by urban waste water.
  - Peat, industry and mines and quarries significant pressures are impacting the same number of waterbodies in both cycles.
  - Urban run-off and other pressures both increased by one waterbody each to impact one and two waterbodies respectively in Cycle 3.
- When comparing the significant pressures in the 2nd Cycle Areas for Action between Cycle 2 and 3 there has only been a decrease in the forestry and urban waste water pressures in the catchment, while the remaining categories have either remained unchanged or increased by one waterbody.



*Other – abstractions, aquaculture, atmospheric, anthropogenic pressures, historically polluted sites, waste, water treatment and invasive species have all been grouped into the "Other" pressure category for the purpose of this report

Figure 25: Significant Pressures in 2nd Cycle Area for Action Waterbodies

9 3rd Cycle Recommended Areas for Action

9.1 Recommended Areas for Action Overview

- For the 3rd Cycle Draft River Basin Management Plan Areas for Action have been extended out to not only include Prioritised Areas for Action undertaken by LAWPRO which focussed on restoring waterbodies, but to also include restoration work undertaken by all agencies under Areas for Restoration. In addition, protection work is included under Areas for Protection and

research, pilot schemes and community initiatives are included under Catchment Projects. The aim of the 3rd Cycle Plan is to capture all activity that is working to restore, improve and/or protect waterbodies.

- The Recommended 3rd Cycle Areas for Action list will be included in the Draft River Basin Management Plan and will be finalised after the consultation period.

- There are 16 Areas for Action, comprising of 78 waterbodies, recommended for further characterisation and action in the catchment for the 3rd Cycle River Basin Management Plan. 45 of the 78 waterbodies in the 3rd Cycle Recommended Areas for Action are *At Risk*, 10 are in *Review* and 23 are *Not At Risk.* The 16 Recommended Areas for Action consist of two Areas for Protection, 13 Areas for Restoration and one Catchment Project. LAWPRO are the proposed lead organisation in 10 Recommended Areas for Action, Tipperary and GSI are the proposed lead on one Recommended Area for Action each and NFGWS are the proposed lead on the remaining four Recommended Areas for Action. The Recommended Areas for Action in the catchment are listed in Table 6 and shown in Figure 26. The reason for selecting for each waterbody in a Recommended Area for Action is provided in Appendix 3.

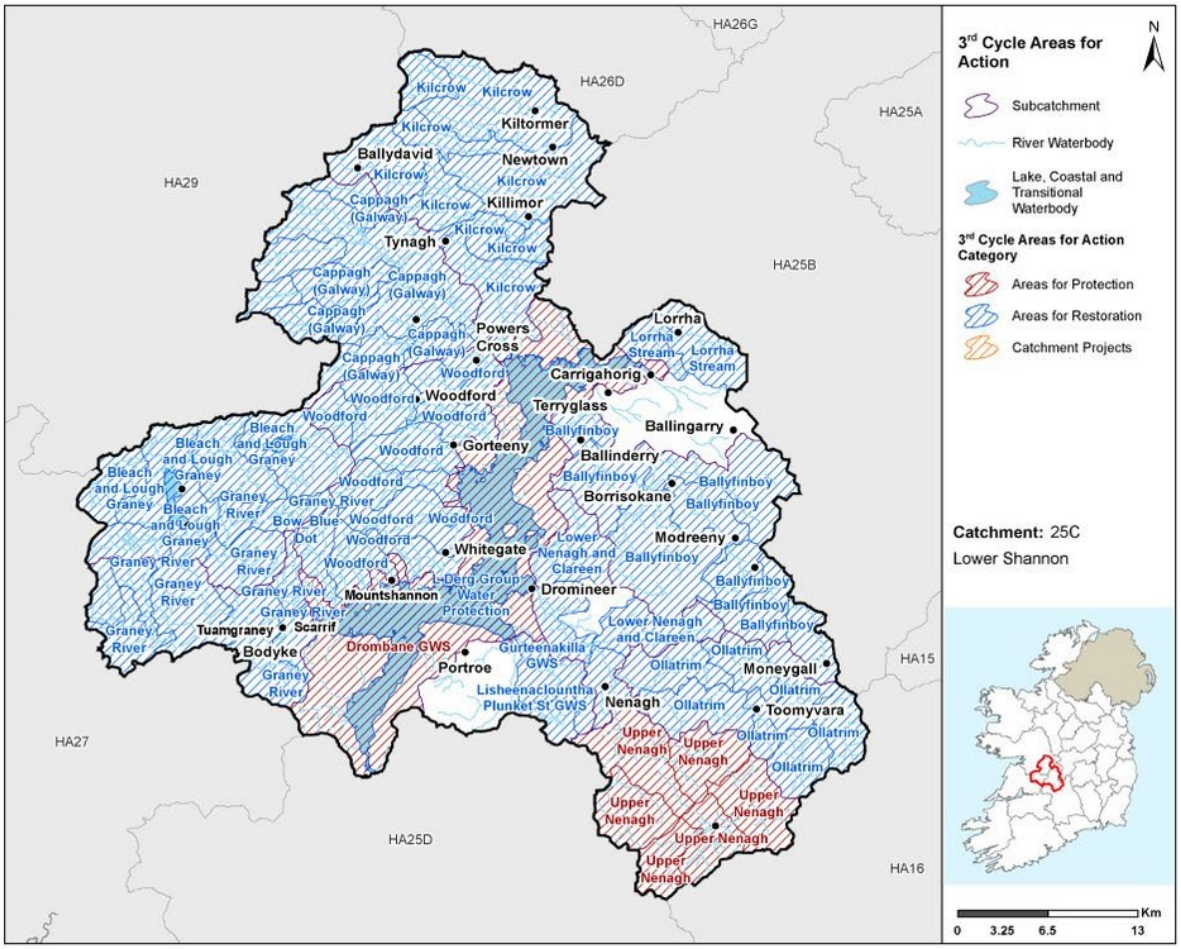


Figure 26: 3rd Cycle Recommended Areas for Action Locations

Table 6: 3rd Cycle Recommended Areas for Action Breakdown

3rd Cycle Recommended Areas for Action	Number of Waterbodies	Recommended Areas for Action Category	Recommended Areas for Action Sub-category	Lead Organisation
Lisheenaclountha Plunket St GWS	1	Restoration	Public Health Areas for Restoration NFGWS, IW, HSE, LAs, SFPA	NFGWS
Gurteenakilla GWS	1	Restoration	Public Health Areas for Restoration NFGWS, IW, HSE, LAs, SFPA	NFGWS
Drombane GWS	1	Protection	Public Health Areas for Protection NFGWS, IW, HSE, LAs, SFPA	NFGWS
Ballyfinboy	8	Restoration	Prioritised Areas for Action LAWPRO	LAWPRO
Graney river	10	Restoration	Prioritised Areas for Action LAWPRO	LAWPRO
Ollatrim	7	Restoration	Prioritised Areas for Action LAWPRO	LAWPRO
Bleach and Lough Graney	7	Restoration	Prioritised Areas for Action LAWPRO	LAWPRO
Bow_Blue Dot	1	Restoration	Blue Dot Areas for Action LAWPRO and Others	LAWPRO
Cappagh (Galway)	9	Restoration	Prioritised Areas for Action LAWPRO	LAWPRO
Woodford	10	Restoration	Prioritised Areas for Action LAWPRO	LAWPRO
Lower Nenagh and Clareen	4	Restoration	Prioritised Areas for Action LAWPRO	LAWPRO
Upper Nenagh	6	Protection	LA Areas for Protection Local Authorities	Tipperary County Council
Kilcrow	9	Restoration	Prioritised Areas for Action LAWPRO	LAWPRO
Lorrha Stream	2	Restoration	Prioritised Areas for Action LAWPRO	LAWPRO
L Derg Group Water Protection	1	Restoration	Public Health Areas for Restoration NFGWS, IW, HSE, LAs, SFPA	NFGWS
GWDTE-Caherglassaun Turlough	1	Catchment Projects	Public Body Research	GSI

10 Catchment Summary

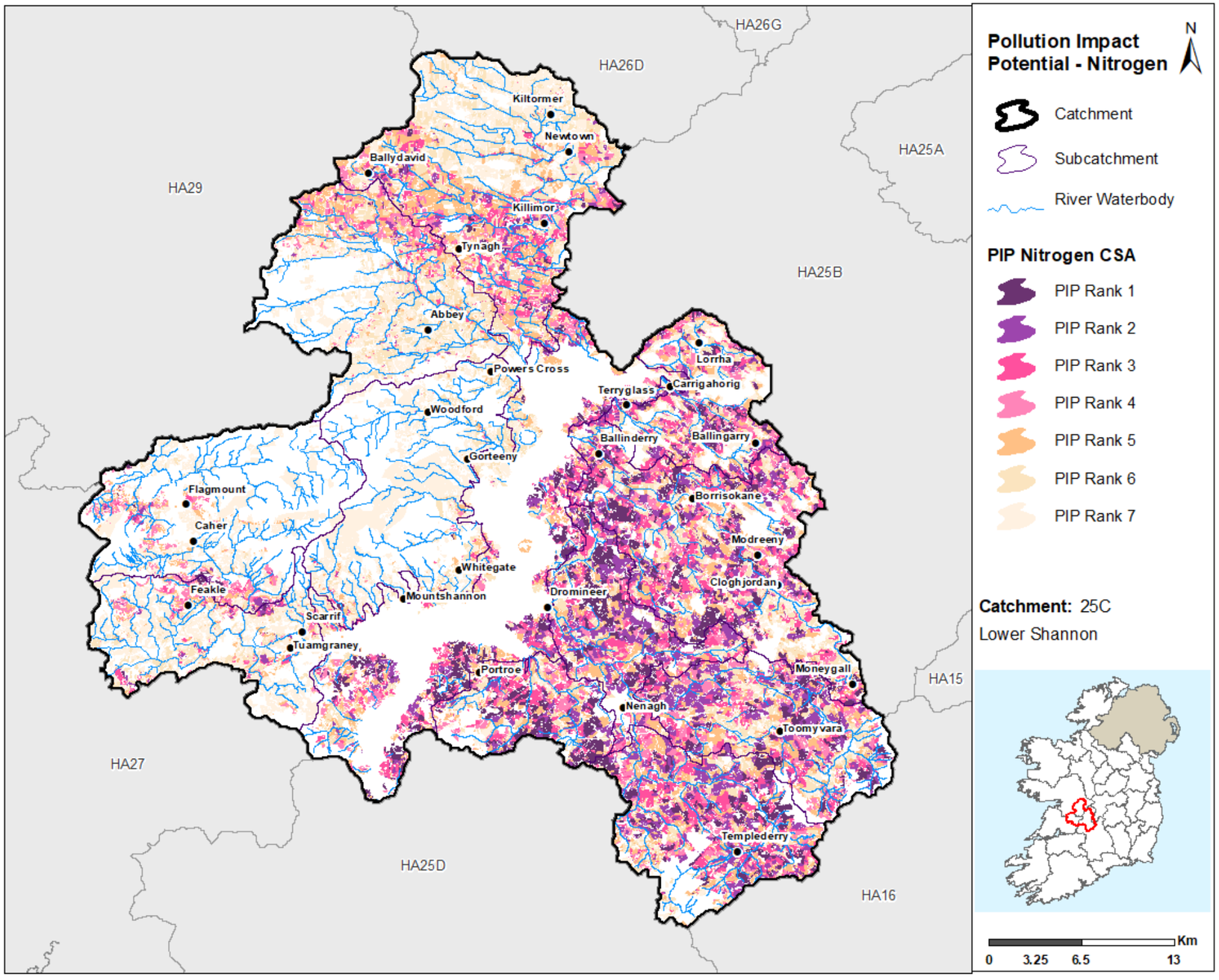
- Of the 79 river waterbodies, 44 are *At Risk* of not meeting their WFD objectives.
- Three out of five lake waterbodies (Alewnaghta, Graney and Derg TN) are *At Risk* of not meeting their WFD objectives.
- Three out of 19 groundwater bodies are *At Risk* (Historic Mine (Tynagh), GWDTE-Caherglassaun Turlough (SAC000238) and GWDTE-Rahasane Turlough (SAC000322)).

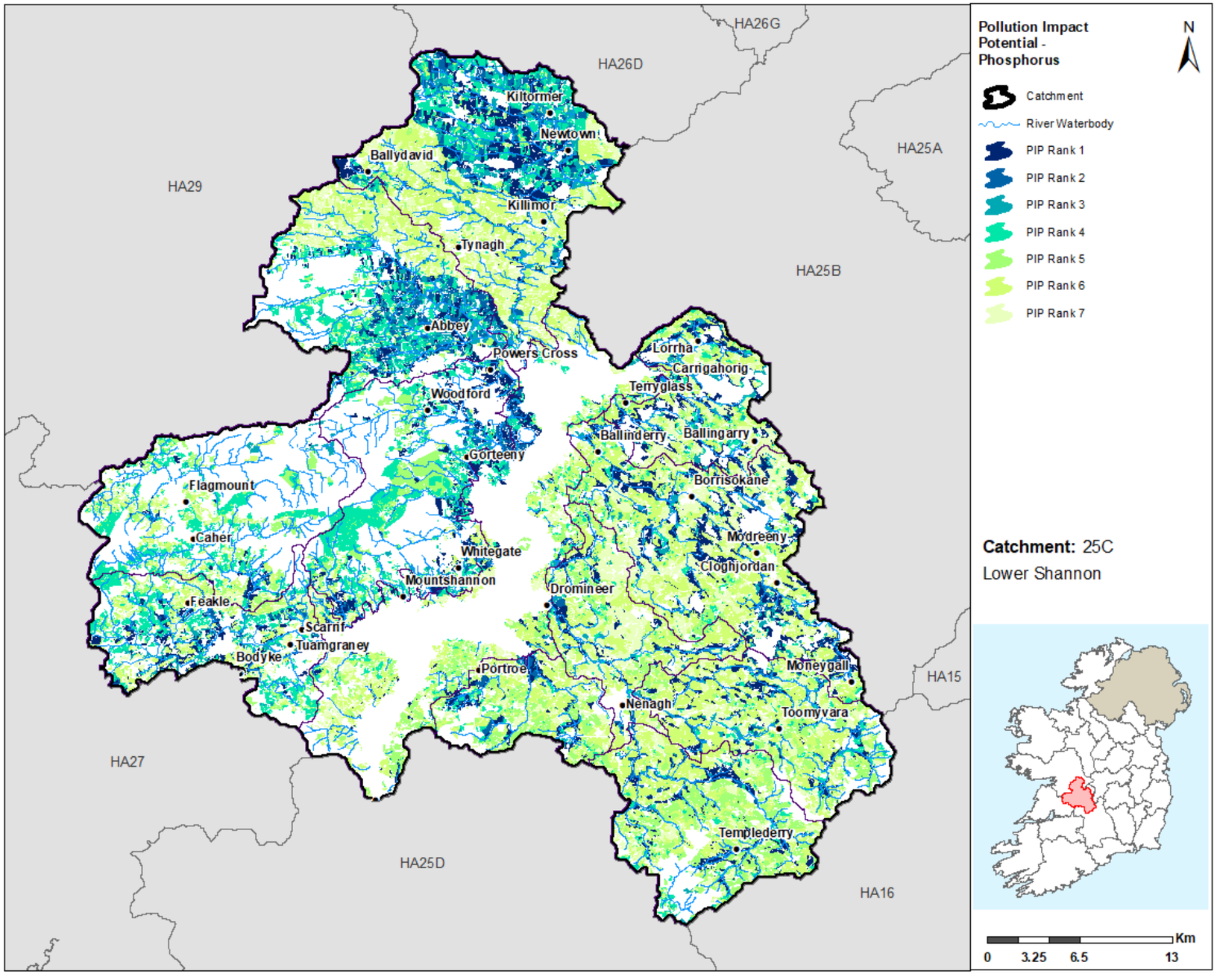
- There has been an overall deterioration across the catchment with 50 waterbodies *At Risk* in Cycle 3 compared to 40 waterbodies *At Risk* in Cycle 2.
- The main significant issues are from nutrient pollution and morphological impacts, followed by sediment, organic pollution, hydrological impacts and chemical pollution.
- The main significant pressures are agricultural pressures followed by hydromorphological pressures, forestry, other pressures, mines and quarries, domestic waste water, urban run-off, urban waste water, peat and industry.
- The main impacts and pressures driving the change between Cycle 2 and Cycle 3 are increases in waterbodies impacted by nutrients and sediment.
- In the 2nd Cycle Areas for Action 12 waterbodies were *At Risk* in Cycle 2 and 13 waterbodies are *At Risk* in Cycle 3.
- There are 16 3rd Cycle Recommended Areas for Action for Cycle 3. They comprise of 78 waterbodies with 45 waterbodies *At Risk*, 10 in *Review* and 23 *Not At Risk*.

Appendix 1
High ecological Statusobjective waterbodies

Waterbody Name	Waterbody Type	Waterbody Code	Status2013-2018
AYLE_010	**River**	IE_SH_25A070400	High
BALLINLOUGH STREAM_010	**River**	IE_SH_25B150300	Good
BALLINLOUGH STREAM_020	**River**	IE_SH_25B150500	Good
BLEACH_020	**River**	IE_SH_25B070200	Good
CAPPAGH (GALWAY)_010	**River**	IE_SH_25C030100	Good
CLOGHAUN_010	**River**	IE_SH_25C070200	Good
CORRA_020	**River**	IE_SH_25C090400	High
DRUMKEARY STREAM_020	**River**	IE_SH_25D110350	Good
GRANEY (SHANNON)_030	**River**	IE_SH_25G040200	Good
OLLATRIM_030	**River**	IE_SH_25O010150	Good

Appendix 2
Pollution Impact Potential Mapping




HA26G
HA26D
HA25A
HA29
HA25B
HA15
HA27
HA25D
HA16
Kiltormer
Newtown
Ballydavid
Killimor
Tynagh
Abbey
Powers Cross
Woodford
Gorteeny
Flagmount
Caher
Whitegate
Mountshannon
Feakle
Scarnf
Tuamgraney
Bodyke
Portroe
Dromineer
Nenagh
Lorrha
Carrigahorig
Terryglass
Ballinderry
Ballingarry
Borrisokane
Modreeny
Cloghjordan
Moneygall
Toomyvara
Templederry
Pollution Impact Potential - Phosphorus
N
Catchment
River Waterbody
PIP Rank 1
PIP Rank 2
PIP Rank 3
PIP Rank 4
PIP Rank 5
PIP Rank 6
PIP Rank 7
Catchment: 25C
Lower Shannon
Km
0
3.25
6.5
13

Appendix 3
Summary information on all waterbodies in the Lower Shannon (Lough Derg) Catchment

Subcatchment Code	Waterbody Code	Waterbody Name	Waterbody Type	Risk 10-15	Risk 13-18	Status 10-15	Status 13-18	High Ecological Status Objective Waterbody	Significant Pressures	Recommended Areas for Action Name	Recommended Areas for Action (reasons for selection)
25C_1	IE_SH_25A040100	ARDGREGANE STREAM_010	River	At risk	At risk	Moderate	Poor	No	Ag	Lisheenaclountha Plunket St GWS	NFGWS: Group Water Scheme groundwater abstraction sources proposed for inclusion as an Area for Acton (3rd Cycle) Lisheenaclountha GWS
25C_1	IE_SH_25A040400	ARDGREGANE STREAM_020	River	At risk	At risk	Moderate	Moderate	No	Ag, Hymo, UR	Gurteenakilla GWS	NFGWS: Group Water Scheme groundwater abstraction sources proposed for inclusion as an Area for Acton (3rd Cycle) Gurteenakilla GWS
25C_10	IE_SH_25A050100	SHANNON (LOWER)_040	River	Review	Review	Unassigned	Unassigned	No		Drombane GWS	NFGWS: Group Water Scheme groundwater abstraction sources proposed for inclusion as an Area for Acton (3rd Cycle) NPWS: Lough Derg, North-East Shore SAC Calcareous fens with Cladium mariscus and species of the Caricion davallianae
25C_9	IE_SH_25A060500	ARDCRONY STREAM_010	River	At risk	At risk	Moderate	Moderate	No	Ag, Hymo, M+Q	Ballyfinboy	NFGWS: Group Water Scheme groundwater abstraction sources proposed for inclusion as an Area for Acton (3rd Cycle) LAWPRO: Expand PAA to include all At Risk wb in subcatchment
25C_3	IE_SH_25A070400	AYLE_010	River	Not at risk	Not at risk	High	High	Yes		Graney River	Included under expanded PAA. SC approach for 25C_3
25C_4	IE_SH_25B010100	BALLINTOTTY_010	River	Not at risk	Not at risk	Good	Good	No		Ollatrim	Tipperary CC: Proposed for LAWPRO
25C_4	IE_SH_25B010300	BALLINTOTTY_020	River	Review	At risk	Good	Moderate	No	Ag, Hymo	Ollatrim	Tipperary CC: Proposed for LAWPRO NFGWS: Group Water Scheme groundwater abstraction sources proposed for inclusion as an Area for Acton (3rd Cycle)
25C_9	IE_SH_25B020070	BALLYFINBOY_010	River	At risk	At risk	Moderate	Moderate	No	Ag, Hymo, M+Q	Ballyfinboy	LAWPRO: Existing PAA, LCA not commenced
25C_9	IE_SH_25B020100	BALLYFINBOY_020	River	At risk	At risk	Moderate	Poor	No	Ag, Hymo	Ballyfinboy	LAWPRO: Existing PAA, LCA not commenced OY: Proposed for LAWPRO
25C_9	IE_SH_25B020300	BALLYFINBOY_030	River	Review	At risk	Good	Moderate	No	Ag, DWW, UR, UWW	Ballyfinboy	LAWPRO: Expand PAA to include all At Risk wb in subcatchment
25C_9	IE_SH_25B020550	BALLYFINBOY_040	River	At risk	At risk	Moderate	Moderate	No	Ag, Hymo, UR	Ballyfinboy	LAWPRO: Expand PAA to include all At Risk wb in subcatchment
25C_9	IE_SH_25B020600	BALLYFINBOY_050	River	At risk	At risk	Moderate	Moderate	No	Ag, For, UWW	Ballyfinboy	LAWPRO: Expand PAA to include all At Risk wb in subcatchment

Subcatchment Code	Waterbody Code	Waterbody Name	Waterbody Type	Risk 10-15	Risk 13-18	Status 10-15	Status 13-18	High Ecological Status Objective Waterbody	Significant Pressures	Recommended Areas for Action Name	Recommended Areas for Action (reasons for selection)
											NFGWS: Group Water Scheme groundwater abstraction sources proposed for inclusion as an Area for Acton (3rd Cycle)
25C_9	IE_SH_25B020700	BALLYFINBOY_060	River	At risk	At risk	Moderate	Moderate	No	Ag, M+Q	Ballyfinboy	LAWPRO: Expand PAA to include all At Risk wb in subcatchment NFGWS: Group Water Scheme groundwater abstraction sources proposed for inclusion as an Area for Acton (3rd Cycle)
25C_9	IE_SH_25B020800	BALLYFINBOY_070	River	At risk	At risk	Moderate	Moderate	No	Ag, Hymo	Ballyfinboy	LAWPRO: Expand PAA to include all At Risk wb in subcatchment
25C_8	IE_SH_25B070100	BLEACH_010	River	At risk	Not at risk	Poor	Good	No		Bleach and Lough Graney	Existing PAA. Transition strategy or possible project to improve to high. Headwaters to a HES objective waterbody
25C_8	IE_SH_25B070200	BLEACH_020	River	At risk	At risk	Moderate	Good	Yes	For	Bleach and Lough Graney	Existing PAA waterbody. Not yet meeting its HES objective.
25C_7	IE_SH_25B100200	BOW_010	River	At risk	At risk	Moderate	Moderate	No	Hymo	Bow_Blue Dot	AR, proposed by Clare CC. HS Site in non HSO WB not achieving High
25C_6	IE_SH_25B150300	BALLINLOUGH STREAM_010	River	At risk	At risk	Good	Good	Yes	For, Peat	Cappagh (Galway)	Moyglass GWS.
25C_6	IE_SH_25B150500	BALLINLOUGH STREAM_020	River	At risk	At risk	Good	Good	Yes	Hymo	Cappagh (Galway)	Abbey Kylemore GWS
25C_6	IE_SH_25C030100	CAPPAGH (GALWAY)_010	River	Not at risk	At risk	High	Good	Yes	Hymo	Cappagh (Galway)	
25C_6	IE_SH_25C030500	CAPPAGH (GALWAY)_020	River	At risk	At risk	Moderate	Moderate	No	Ag, DWW, Hymo	Cappagh (Galway)	Tynagh GWS
25C_3	IE_SH_25C070200	CLOGHAUN_010	River	Not at risk	At risk	High	Good	Yes	DWW, For	Graney River	Deteriorated HES objective waterbody. Expand PAA
25C_3	IE_SH_25C070400	CLOGHAUN_020	River	Not at risk	Not at risk	Good	Good	No		Graney River	Connects waterbodies identified for restoration/ protection. Expand PAA
25C_3	IE_SH_25C070600	CLOGHAUN_030	River	Not at risk	Not at risk	Good	Good	No		Graney River	Connects waterbodies identified for restoration/ protection. Expand PAA
25C_7	IE_SH_25C080200	COOS_010	River	At risk	At risk	Poor	Poor	No	Ag	Woodford	LAWPRO: not proposed originally, but include to complete SC and as WB is AR. Trib of Lough Derg,
25C_8	IE_SH_25C090100	CORRA_010	River	Not at risk	Not at risk	Good	Good	No		Graney River	Include under SC approach for 25C_8. Expand Lower Graney PAA
25C_8	IE_SH_25C090400	CORRA_020	River	Not at risk	Not at risk	High	High	Yes		Graney River	Include under SC approach for 25C_8. Expand Lower Graney PAA
25C_2	IE_SH_25C160500	CARRIGAHORIG STREAM_010	River	At risk	At risk	Poor	Poor	No	Ag		
25C_11	IE_SH_25C970950	CLONMAKILLADUFF_010	River	Review	Review	Unassigned	Unassigned	No		Lower Nenagh and Clareen	LAWPRO: Existing PAA

Subcatchment Code	Waterbody Code	Waterbody Name	Waterbody Type	Risk 10-15	Risk 13-18	Status 10-15	Status 13-18	High Ecological Status Objective Waterbody	Significant Pressures	Recommended Areas for Action Name	Recommended Areas for Action (reasons for selection)
25C_8	IE_SH_25D060500	DRUMANDOORA_010	River	Not at risk	Not at risk	Good	Good	No		Bleach and Lough Graney	Inputting waterbody to existing PAA lake (L Graney). Expand PAA
25C_6	IE_SH_25D070100	DUNIRY_010	River	Not at risk	Not at risk	Good	Good	No		Cappagh (Galway)	
25C_6	IE_SH_25D070400	DUNIRY_020	River	Not at risk	Not at risk	Good	Good	No		Cappagh (Galway)	
25C_5	IE_SH_25D080400	DOLLA_010	River	Not at risk	Not at risk	Good	Good	No		Upper Nenagh	Reviewed with Tipperary CC - potential for LA area for protection Upstream of current PAA NFGWS: Group Water Scheme groundwater abstraction sources proposed for inclusion as an Area for Acton (3rd Cycle)
25C_7	IE_SH_25D100200	DERRAINY_010	River	Not at risk	Not at risk	Good	Good	No		Woodford	Add to complete SC. Could be dropped if resourcing is limited.
25C_6	IE_SH_25D110300	DRUMKEARY STREAM_010	River	At risk	Review	Moderate	Good	No		Cappagh (Galway)	
25C_6	IE_SH_25D110350	DRUMKEARY STREAM_020	River	At risk	At risk	Good	Good	Yes	For	Cappagh (Galway)	
25C_8	IE_SH_25G040025	GRANEY (SHANNON)_010	River	Not at risk	Not at risk	Good	Good	No		Bleach and Lough Graney	Headwaters to existing PAA waterbody. Expand PAA
25C_8	IE_SH_25G040100	GRANEY (SHANNON)_020	River	Not at risk	Not at risk	Good	Good	No		Bleach and Lough Graney	Headwaters to existing PAA waterbody. Expand PAA
25C_8	IE_SH_25G040200	GRANEY (SHANNON)_030	River	Not at risk	At risk	High	Good	Yes	For	Graney River	Deteriorated HES objective waterbody Inputting waterbody to an existing PAA- expand PAA
25C_3	IE_SH_25G040300	GRANEY (SHANNON)_040	River	At risk	At risk	Moderate	Poor	No	Ag, For	Graney River	existing PAA waterbody. Further characterisation may not be complete
25C_3	IE_SH_25G040400	GRANEY (SHANNON)_050	River	At risk	At risk	Poor	Moderate	No	For, Hymo, UR	Graney River	existing PAA waterbody. Further characterisation may not be complete
25C_11	IE_SH_25G200100	GORTADALAUN STREAM_010	River	Review	Review	Unassigned	Unassigned	No		Lower Nenagh and Clareen	LAWPRO: Existing PAA
25C_12	IE_SH_25K010020	KILCROW_010	River	Not at risk	Not at risk	Good	Good	No		Kilcrow	
25C_12	IE_SH_25K010060	KILCROW_020	River	Not at risk	Not at risk	Good	Good	No		Kilcrow	
25C_12	IE_SH_25K010100	KILCROW_030	River	Not at risk	At risk	Good	Moderate	No	Ag	Kilcrow	
25C_12	IE_SH_25K010300	KILCROW_040	River	Not at risk	At risk	Good	Moderate	No	Ag	Kilcrow	
25C_12	IE_SH_25K010360	KILCROW_050	River	At risk	At risk	Moderate	Poor	No	Ag, Hymo	Kilcrow	
25C_12	IE_SH_25K010500	KILCROW_060	River	At risk	At risk	Poor	Poor	No	Ag, Hymo	Kilcrow	
25C_12	IE_SH_25K010700	KILCROW_070	River	At risk	At risk	Moderate	Moderate	No	Other	Kilcrow	Prposed by NFGWS. Killeen Poulatoon GWS
25C_2	IE_SH_25K070600	KILFADDA CASTLE STREAM_010	River	Review	At risk	Good	Moderate	No	Ag		

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25C_6	IE_SH_25K190950	KNOCKSHANGARRY_010	River	Not at risk	Not at risk	Unassigned	Unassigned	No		Cappagh (Galway)	
25C_7	IE_SH_25K720870	KILRATEERA_UPPER_010	River	Review	Review	Unassigned	Unassigned	No		Woodford	Add to complete SC. Could be dropped if resourcing is limited.
25C_2	IE_SH_25L050200	LORRHA STREAM_010	River	At risk	At risk	Moderate	Moderate	No	Ag	Lorrha Stream	LAWPRO: Existing PAA
25C_2	IE_SH_25L050300	LORRHA STREAM_020	River	At risk	At risk	Moderate	Poor	No	Ag, Other, Peat	Lorrha Stream	LAWPRO: Existing PAA
25C_12	IE_SH_25L060100	LISDUFF (KILCROW)_010	River	Not at risk	Not at risk	Good	Good	No		Kilcrow	
25C_12	IE_SH_25L060400	LISDUFF (KILCROW)_020	River	At risk	At risk	Poor	Poor	No	Ag, Hymo, M+Q	Kilcrow	
25C_7	IE_SH_25L080081	LOWER VILLAGE TRIB_010	River	Review	Review	Unassigned	Unassigned	No		Woodford	LAWPRO: not proposed originally, but include to complete SC and as WB is Unassigned. Trib of Lough Derg,
25C_7	IE_SH_25M290660	MOANNAKEEBA_EAST_010	River	Review	Review	Unassigned	Unassigned	No		Woodford	LAWPRO: not proposed originally, but include to complete SC and as WB is Unassigned. Trib of Lough Derg,
25C_5	IE_SH_25N010050	NENAGH_010	River	Not at risk	Not at risk	Good	High	No		Upper Nenagh	Reviewed with Tipperary CC - potential for LA area for protection Upstream of current PAA
25C_5	IE_SH_25N010100	NENAGH_020	River	Not at risk	Not at risk	Good	Good	No		Upper Nenagh	Reviewed with Tipperary CC - potential for LA area for protection Upstream of current PAA
25C_5	IE_SH_25N010200	NENAGH_030	River	Not at risk	At risk	Good	Moderate	No	Ag	Upper Nenagh	Reviewed with Tipperary CC - potential for LA area for protection Upstream of current PAA NFGWS: Group Water Scheme groundwater abstraction sources proposed for inclusion as an Area for Acton (3rd Cycle)
25C_5	IE_SH_25N010300	NENAGH_040	River	Not at risk	Not at risk	Good	Good	No		Upper Nenagh	Reviewed with Tipperary CC - potential for LA area for protection Upstream of current PAA
25C_5	IE_SH_25N010500	NENAGH_050	River	Not at risk	Review	Good	Moderate	No		Upper Nenagh	Reviewed with Tipperary CC - potential for LA area for protection Upstream of current PAA
25C_11	IE_SH_25N010700	NENAGH_060	River	At risk	At risk	Moderate	Moderate	No	Ind	Lower Nenagh and Clareen	LAWPRO: Existing PAA
25C_11	IE_SH_25N010800	NENAGH_070	River	At risk	At risk	Moderate	Moderate	No	Hymo	Lower Nenagh and Clareen	LAWPRO: Existing PAA
25C_1	IE_SH_25N030200	NEWTOWN_010	River	Not at risk	Not at risk	Good	Good	No			
25C_11	IE_SH_25N120710	NENAGH TRIBUTARY_010	River	Not at risk	Not at risk	Unassigned	Unassigned	No			
25C_4	IE_SH_25O010040	OLLATRIM_010	River	At risk	At risk	Poor	Poor	No	Ag, For, M+Q	Ollatrim	Tipperary CC: Proposed for LAWPRO
25C_4	IE_SH_25O010080	OLLATRIM_020	River	Not at risk	At risk	Good	Moderate	No	For	Ollatrim	Tipperary CC: Proposed for LAWPRO

Subcatchment Code	Waterbody Code	Waterbody Name	Waterbody Type	Risk 10-15	Risk 13-18	Status 10-15	Status 13-18	High Ecological Status Objective Waterbody	Significant Pressures	Recommended Areas for Action Name	Recommended Areas for Action (reasons for selection)
25C_4	IE_SH_25O010150	OLLATRIM_030	River	Not at risk	At risk	High	Good	Yes	Ag, Other	Ollatrim	Tipperary CC: Proposed for LAWPRO HSO wb at risk
25C_4	IE_SH_25O010250	OLLATRIM_040	River	Not at risk	Not at risk	Good	Good	No		Ollatrim	Tipperary CC: Proposed for LAWPRO
25C_4	IE_SH_25O010400	OLLATRIM_050	River	Not at risk	At risk	Good	Moderate	No	Ag, Other	Ollatrim	Tipperary CC: Proposed for LAWPRO
25C_3	IE_SH_25S080400	SCARRIFF STREAM_010	River	At risk	At risk	Moderate	Poor	No	Ag, For	Graney River	No improvements in quality, Q3 currently. Scarriff Stream discharges into Graney_050 which is a PAA and improved to Q3-4 in period 2013 - 2018, therefore it would support improvements in that WB
25C_7	IE_SH_25S690670	South Boleynagoagh_010	River	Review	Review	Unassigned	Unassigned	No		Woodford	Add to complete SC. Could be dropped if resourcing is limited.
25C_2	IE_SH_25T650910	Terryglass_010	River	Review	Review	Unassigned	Unassigned	No			
25C_7	IE_SH_25W010040	WOODFORD (GALWAY)_010	River	At risk	At risk	Moderate	Moderate	No	For	Woodford	Existing PAA. Characterisation ongoing. Will need time for actions to be implemented.
25C_7	IE_SH_25W010200	WOODFORD (GALWAY)_020	River	At risk	At risk	Moderate	Moderate	No	UWW	Woodford	Existing PAA. Characterisation ongoing. Will need time for actions to be implemented.
25C_7	IE_SH_25W010300	WOODFORD (GALWAY)_030	River	Not at risk	Not at risk	Good	Good	No		Woodford	Not proposed by LAWPRO initially but include to ensure completed characterisation of Woodford river. Proposed by NFGWS for protection. Looscaun GWS.
25C_1	IE_SH_25Y020200	YOUGHAL (TIPPERARY)_010	River	At risk	At risk	Moderate	Moderate	No	Ag, For		
25C_8	IE_SH_25_172	Atorick	Lake	Review	Review	Unassigned	Unassigned	No		Bleach and Lough Graney	Unassigned lake within Cycle 2 PAA. Upstream of a HSO waterbody (Bleach 20) LA undertaking assessment of lake in 2020/2021 to establish more data towards assigning status to support improvements downstream. Significantly large area in Lough Attorick catchment due for clearfell now. Atorick is also in Co Galway, opportunity for collaboration with neighbouring LA.
25C_7	IE_SH_25_189	Alewnaghta	Lake	At risk	At risk	Bad	Bad	No	Ag, Other	Woodford	AR, proposed by Clare CC.
25C_8	IE_SH_25_190	Graney	Lake	At risk	At risk	Moderate	Moderate	No	Ag, For, Other	Bleach and Lough Graney	Existing PAA waterbody. FC not yet complete
25C_10, 25C_11, 25D_6	IE_SH_25_191a	Derg TN	Lake	At risk	At risk	Poor	Moderate	No	Ag, Hymo, Other	L Derg Group Water Protection	NFGWS: Group Water Scheme groundwater abstraction sources proposed for inclusion as an Area for Acton (3rd Cycle) Oldhort GWS, Carrigahorig Milford GWS, Luska GWS

Subcatchment Code	Waterbody Code	Waterbody Name	Waterbody Type	Risk 10-15	Risk 13-18	Status 10-15	Status 13-18	High Ecological Status Objective Waterbody	Significant Pressures	Recommended Areas for Action Name	Recommended Areas for Action (reasons for selection)
											NPWS: Lower river Shannon SAC Coastal lagoons. Estuaries
25C_10	IE_SH_25_9	Garraunfadda	Lake	Review	Review	Unassigned	Unassigned	No			
15_13, 15_14, 15_15, 16_10, 16_11, 16_13, 16_18, 16_2, 16_20, 16_21, 16_22, 16_28, 16_4, 16_5, 16_6, 16_9, 24_12, 24_2, 24_3, 25B_6, 25C_4, 25C_5, 25D_2, 25D_5, 25D_7	IE_SE_G_131	Templemore	Groundwater	Review	Review	Good	Good	No			
25B_4, 25C_12, 26D_2, 26D_3, 26D_5, 26G_1, 26G_3, 29_5, 29_9	IE_SH_G_019	Aughrim	Groundwater	Not at risk	Not at risk	Good	Good	No			
25B_7, 25C_2, 25C_9	IE_SH_G_021	Ballinderry	Groundwater	Review	Review	Good	Good	No			
25A_1, 25A_8, 25B_1, 25B_2, 25B_4, 25B_5, 25B_7, 25C_10, 25C_2	IE_SH_G_040	Banagher	Groundwater	Not at risk	Not at risk	Good	Good	No			
25A_1, 25A_11, 25B_1, 25B_3, 25B_5, 25B_7, 25C_2	IE_SH_G_041	Birr	Groundwater	Review	Not at risk	Good	Good	No			
25B_7, 25C_2, 25C_9	IE_SH_G_042	Borrisokane	Groundwater	Review	Review	Good	Good	No			
25C_8, 27_1, 27_14, 27_6, 27_7, 29_7	IE_SH_G_071	Crusheen	Groundwater	Review	Review	Good	Good	No			

Subcatchment Code	Waterbody Code	Waterbody Name	Waterbody Type	Risk 10-15	Risk 13-18	Status 10-15	Status 13-18	High Ecological Status Objective Waterbody	Significant Pressures	Recommended Areas for Action Name	Recommended Areas for Action (reasons for selection)
25B_7, 25C_11, 25C_2, 25C_9	IE_SH_G_147	Lismaline	Groundwater	Review	Review	Good	Good	No			
25C_10, 25C_3, 25C_6, 25C_7, 25C_8, 25D_3, 25D_6, 27_12, 27_13, 27_14, 27_6, 29_7	IE_SH_G_157	Lough Graney	Groundwater	Not at risk	Not at risk	Good	Good	No			
16_22, 16_28, 16_5, 25B_5, 25B_6, 25B_7, 25C_1, 25C_10, 25C_11, 25C_2, 25C_4, 25C_5, 25C_9, 25D_1, 25D_4, 25D_5, 25D_6	IE_SH_G_178	Nenagh	Groundwater	Review	Review	Good	Good	No			
15_13, 16_22, 25A_11, 25A_12, 25B_1, 25B_3, 25B_6, 25B_7, 25C_2, 25C_4, 25C_9	IE_SH_G_205	Shinrone	Groundwater	Not at risk	Not at risk	Good	Good	No			
16_11, 16_13, 16_18, 16_28, 16_4, 24_12, 25C_5, 25D_1, 25D_2, 25D_4, 25D_5, 25D_6, 25D_7, 25D_8, 25D_9	IE_SH_G_213	Slieve Phelim	Groundwater	Not at risk	Not at risk	Good	Good	No			
25C_10, 25C_3, 25C_8, 25D_3, 25D_6, 27_1, 27_11, 27_12, 27_13, 27_14, 27_6	IE_SH_G_229	Tulla-Newmarket on Fergus	Groundwater	Review	Review	Good	Good	No			

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25B_1, 25B_2, 25B_4, 25B_5, 25C_10, 25C_12, 25C_3, 25C_6, 25C_7, 25C_8, 26D_3, 26G_1, 26G_3, 29_1, 29_7, 29_8, 29_9	IE_SH_G_236	Tynagh	Groundwater	Not at risk	Not at risk	Good	Good	No			
25C_12, 25C_6	IE_SH_G_237	Historic Mine (Tynagh)	Groundwater	At risk	At risk	Poor	Poor	No	Other		
25B_6, 25C_4, 25C_9	IE_SH_G_251	Cloughjordan-Moneygall Gravels	Groundwater	Review	Not at risk	Good	Good	No			
25C_6, 25C_8, 27_14, 27_7, 29_1, 29_2, 29_7, 29_8	IE_WE_G_0091	GWDTE-Caherglassaun Turlough (SAC000238)	Groundwater	At risk	At risk	Poor	Poor	No	Other	GWDTE-Caherglassaun Turlough	The GWB has deteriorated in status due to forestry pressures, and the local community blame forestry within for causing flooding within the GWB. The GWB is currently the subject of a flood relief scheme study which could permanently alter its hydrogeological behaviour . GSI are involved in research (together with TCD and IT Carlow) into the flooding within this GWB A PAA status would allow this already existing work to be highlighted via the WFD process. Deteriorated waterbody; GWB has deteriorated in status due to forestry pressures; Waterbody includes several SAC, SPA protected areas. Builds on existing programmes and community group initiatives.
25C_6, 29_1, 29_2, 29_8, 29_9	IE_WE_G_0093	GWDTE-Coy Turlough (SAC002117)	Groundwater	Review	Not at risk	Good	Good	No			
25C_12, 25C_6, 26D_2, 26D_3, 29_2, 29_4, 29_5, 29_8, 29_9, 30_12	IE_WE_G_0100	GWDTE-Rahasane Turlough (SAC000322)	Groundwater	At risk	At risk	Good	Good	No	Ag, DWW		

Ag: Agriculture

DWW: Domestic Waste Water

For: Forestry

Hymo: Hydromorphology

Ind: Industry

M+Q: Mines and Quarries

Peat: Peat Drainage and Extraction

UR: Urban Run-off

UWW: Urban Waste Water

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