3rd Cycle Draft Upper Shannon Catchment Report (HA 26F)

Catchment Science & Management Unit

Environmental Protection Agency

August 2021

Version no. 1

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Preface

This document provides a summary of the water quality assessment outcomes for the Upper Shannon 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 Upper Shannon 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 Upper Shannon catchment covers an area of 1,229km² and is characterised by a southwestern region of flat, boggy land, an eastern region containing swarms of isolated relatively steep-sided hills and a northern section composed of more undulating topography entering the southern part of the drumlin belt (Figure 1). The north-eastern part of the catchment contains Loughs Sheelin and Derravaragh (setting of the Children of Lir legend) two of the large midland lakes not located on the main Shannon channel. The catchment is generally underlain by impure limestones, although some karst has been identified in the lakes on the Meath-Westmeath border, with the northern part of the catchment underlain by metamorphic and volcanic rocks. There is a large and productive sand and gravel aquifer located southeast of Lough Sheelin in the catchment. An arterial drainage scheme was completed on the River Inny by the OPW between 1959 and 1963.

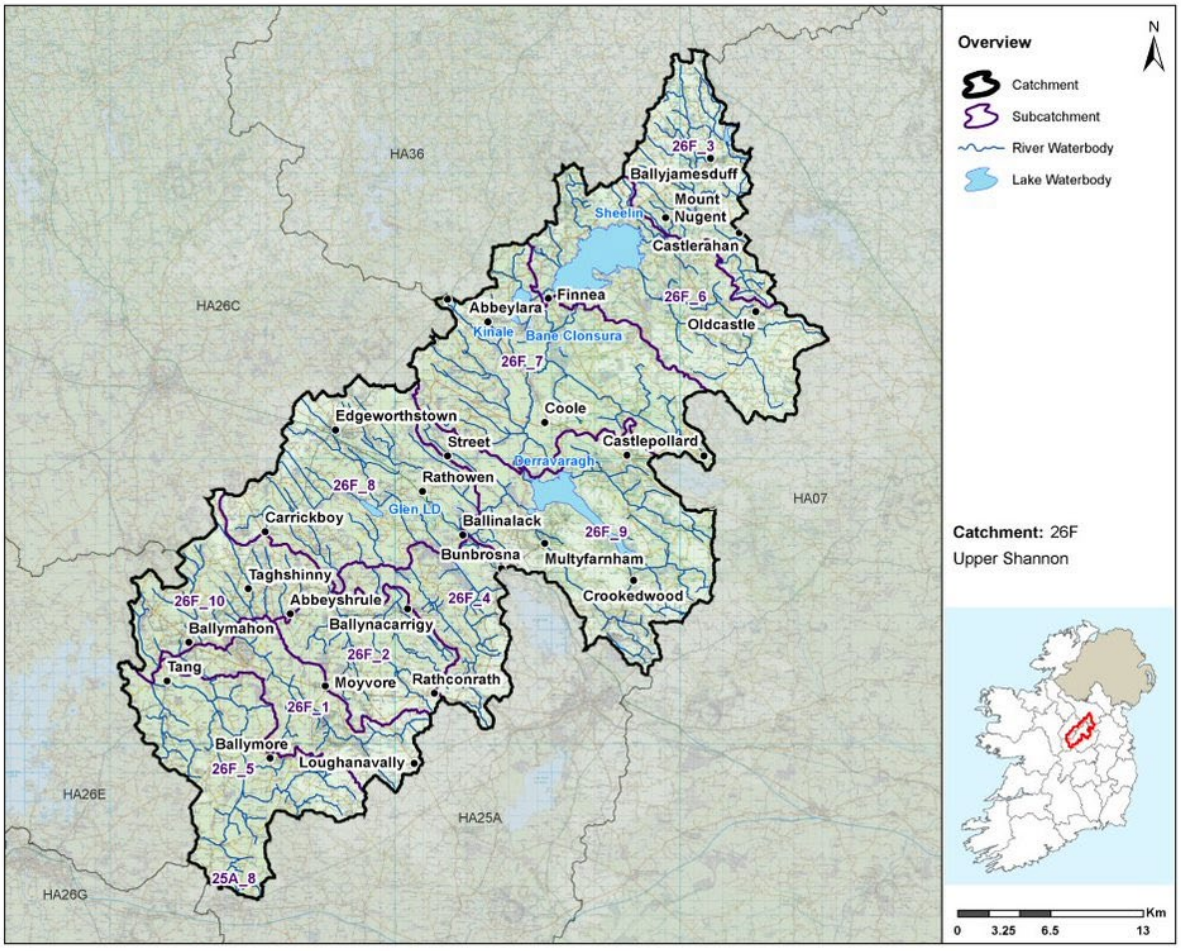


Figure 1: Overview of subcatchments in the Upper Shannon catchment

The Upper Shannon catchment is divided into 10 subcatchments (Figure 1) with 42 river[1] waterbodies, six lake waterbodies and 16 groundwater bodies (Figure 2).

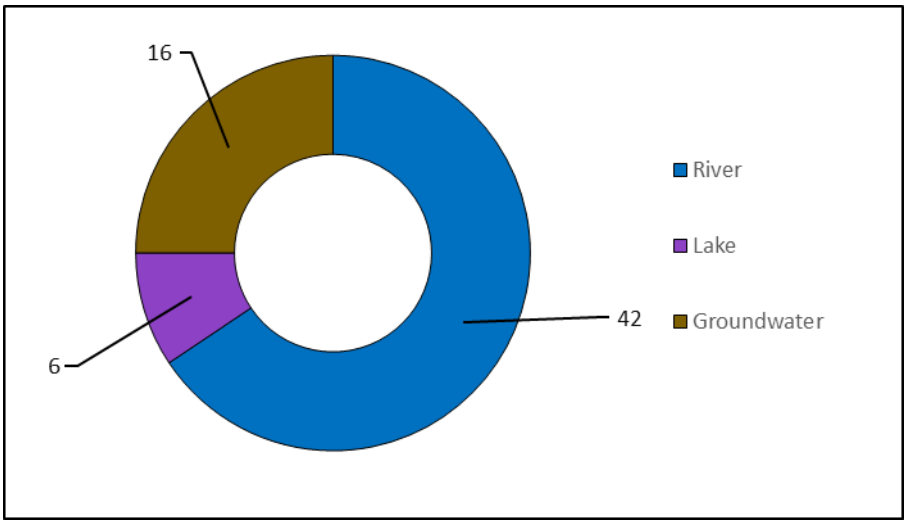


Figure 2: Waterbody types and numbers in the Upper Shannon Catchment.

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 28 waterbodies achieving Good Status, 12 at Moderate Status and 10 at Poor Status There are no waterbodies at High Status. There are 14 waterbodies in the catchment that do not have a Status Classification assigned for Cycle 3. All waterbodies must achieve at least Good Ecological status.

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

[1] One of the river waterbodies in this catchment is an artificial waterbody, Royal Canal Main Line (Upper Shannon F).

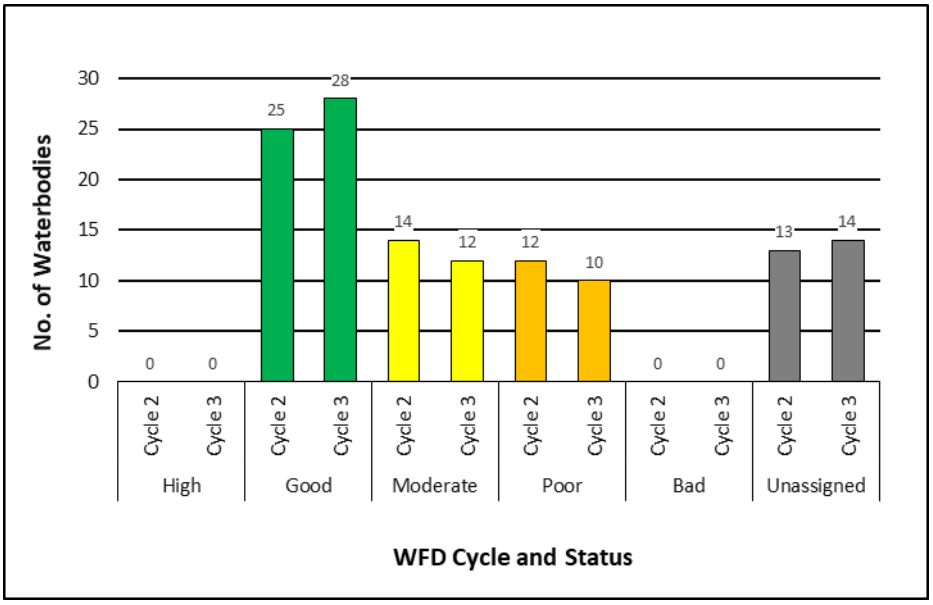


Figure 3: Waterbody Status Breakdown (All waterbodies)

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	0	0	0	0	0	0	0	0	0	0	**0**	**0**
Good	9	11	1	2	0	0	0	0	15	15	**25**	**28**
Moderate	12	10	2	2	0	0	0	0	0	0	**14**	**12**
Poor	10	9	1	0	0	0	0	0	1	1	**12**	**10**
Bad	0	0	0	0	0	0	0	0	0	0	**0**	**0**
Un-assigned	11	12	2	2	0	0	0	0	0	0	**13**	**14**
Total	42	42	6	6	0	0	0	0	16	16	**64**	**64**

- 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, five (10%) waterbodies have improved in status, 44 (88%) waterbodies have remained unchanged and one (2%) waterbody (Comoge_010) has declined in status.[2]

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

[2] 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.

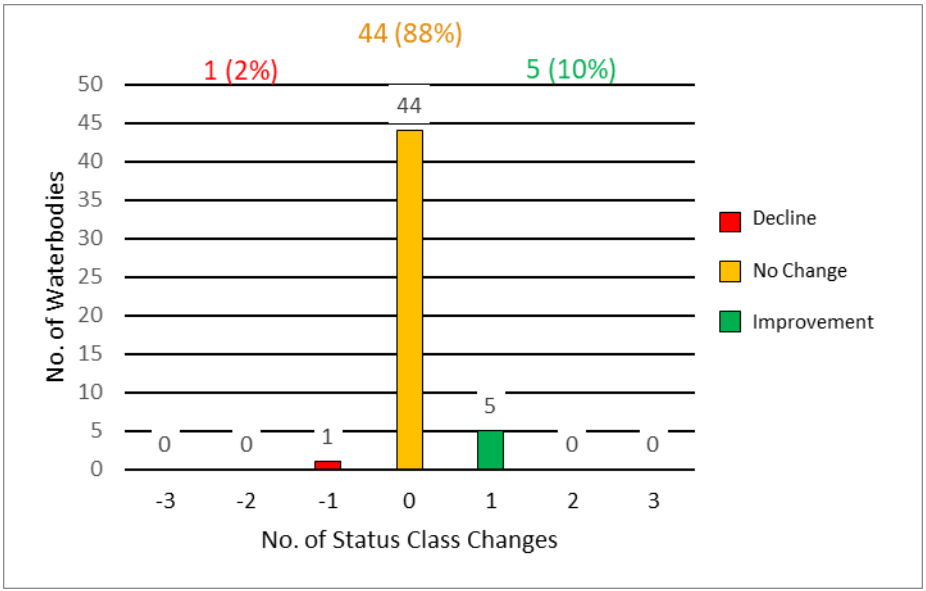


Figure 4: Status Class Changes between Cycle 2 and Cycle 3

2.2 Protected Areas

2.2.1 Drinking Water

- There are three 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 lake waterbody in the catchment did not meet the DWPA objective in 2019:
  - Nadreegeal (IE_EA_07_273) lake waterbody is the source for the Ballyjamesduff RWSS (0200PUB0106) public supply which had MCPA and Metal pesticide exceedances.

- For more detailed information please see the EPA reports on drinking water quality in 2019 for Public Supplies[3] and Private Supplies[4].

2.2.2 Bathing Waters

- There are no bathing waters in or directly adjacent to the catchment identified under the Bathing Water Regulations 2008.

- For more detailed information please see the EPA report on bathing water quality in 2020[5].

2.2.3 Shellfish Areas

- There are no designated shellfish areas in the catchment.

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

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

[5] 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.

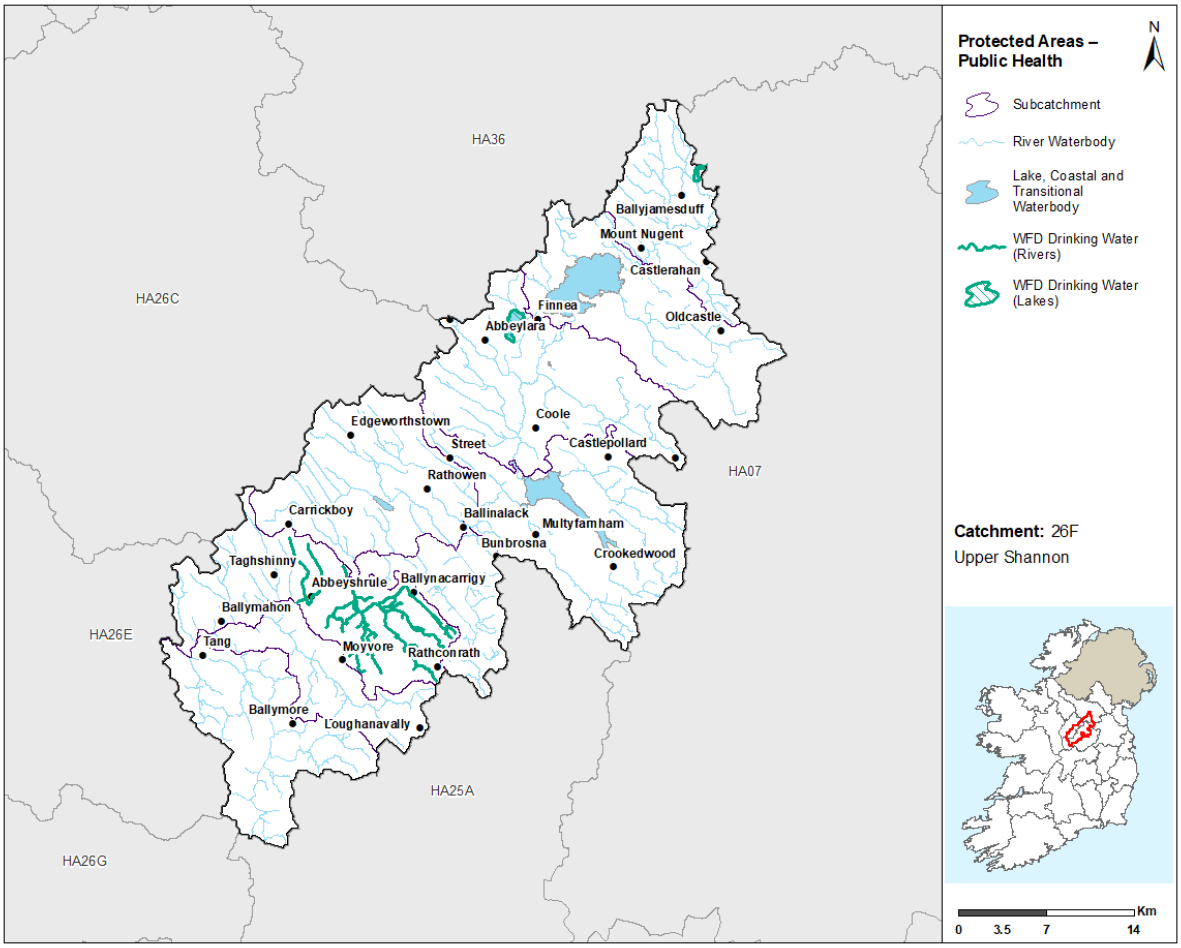


Figure 5: Protected Areas – Public Health

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 seven SACs in this catchment, all 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.[6]

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

**As the waterbody status was unassigned.*

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

- There are five groundwater bodies delineated and assessed as Groundwater Dependent Terrestrial Ecosystems for this catchment. All associated groundwater bodies were at Good Status (2013-2018).

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

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

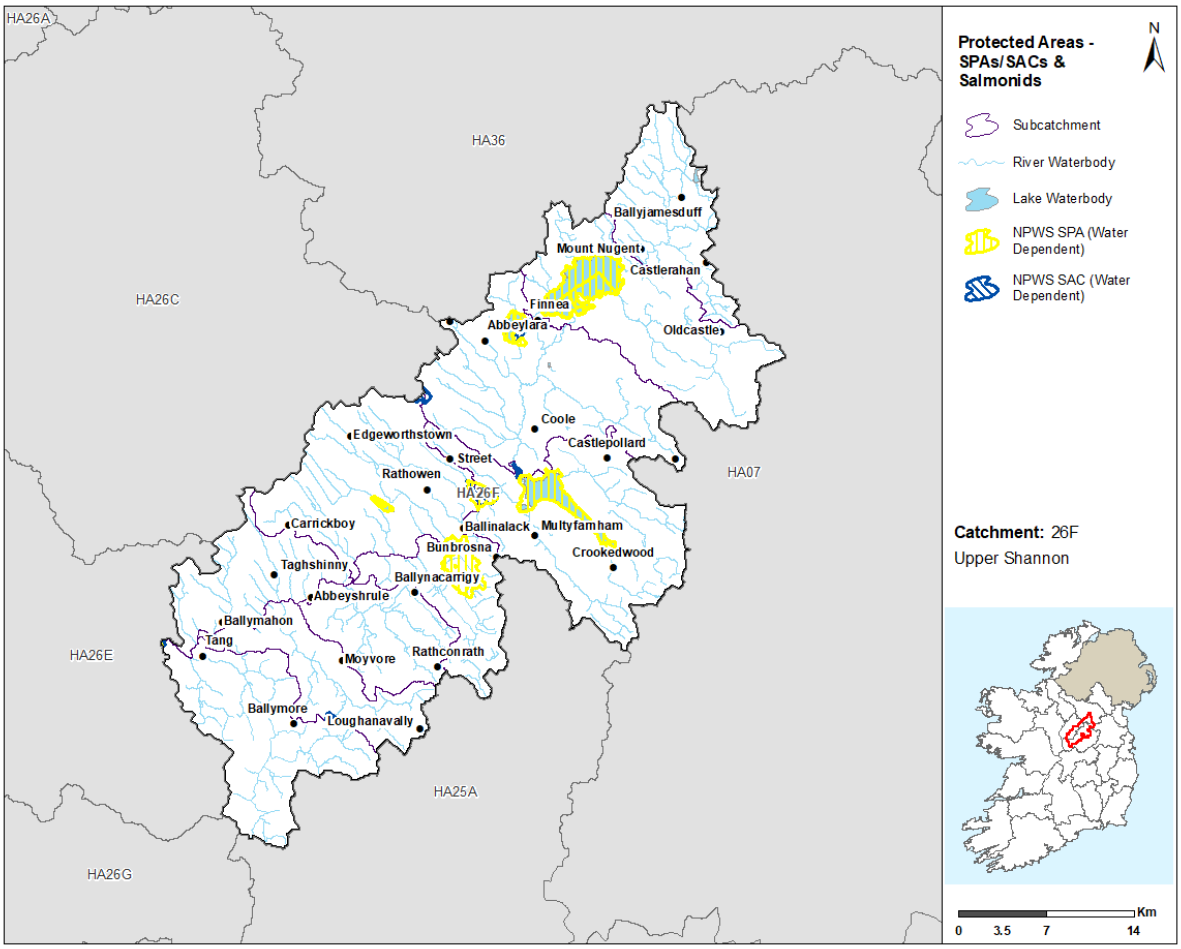


Figure 6: Water Dependent SPAs / SACs and Salmonid Waters

2.2.5 Nutrient Sensitive Areas

- There are no Nutrient Sensitive Areas in the Upper Shannon (26F) Catchment.

2.3 Heavily Modified Waterbodies

- Based on the 1st and 2nd RBMPs there are currently no heavily modified water bodies (HMWBs) 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 is one artificial waterbody in the Upper Shannon Catchment, Royal Canal Main Line (Upper Shannon F).

- The artificial waterbody is currently at Good Status. Prior to Cycle 3, the waterbody was at Good Status in Cycle 2, therefore, no change in status has been observed over the two cycles.

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 64 waterbodies in the Upper Shannon Catchment and 27 (42%) are currently *At Risk*, 17 (27%) in *Review* and 20 (31%) are *Not At Risk*.

3.2 Surface Waters

- For the 42 rivers waterbodies, 21 (50%) are *At Risk,* 13 (31%) are in *Review* and eight (19%) are *Not At Risk*.

- For the six lake waterbodies, two (33%) are *At Risk*), three (50%) are in *Review* and one (17%) is *Not At Risk* (Derravaragh. Nadreegeal and Kinale are the lake waterbodies *At Risk.*

- The largest proportion of *At Risk* waterbodies are found in river waterbodies, accounting for 21 (78%) of 27 *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 two *At Risk* waterbodies, six *Not At Risk* waterbodies and a decline of seven *Review* waterbodies between Cycle 2 and Cycle 3. The Royal Canal Main Line (Upper Shannon F) artificial waterbody did not have risk assigned for Cycle 2 but is in *Review* in Cycle 3.

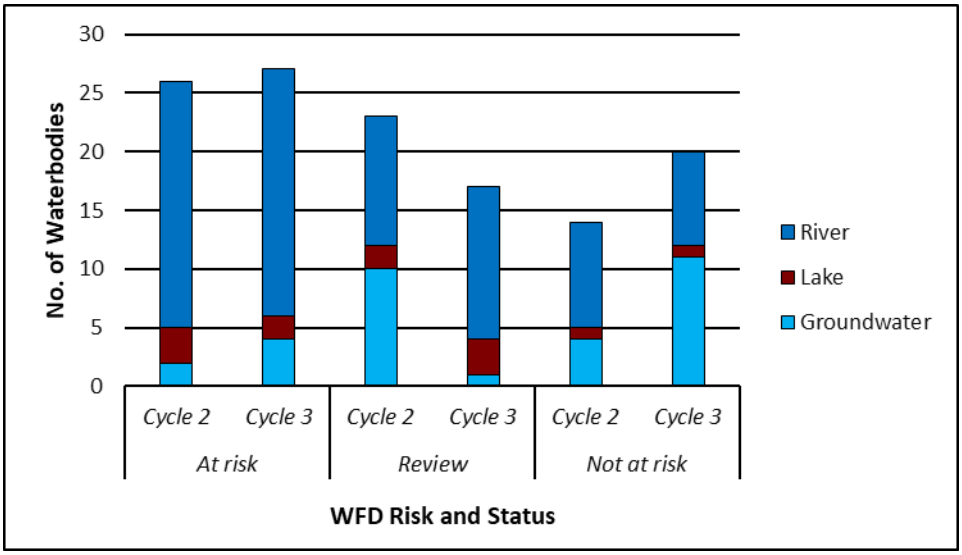


Figure 7: Number of waterbodies in each risk category

- 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.

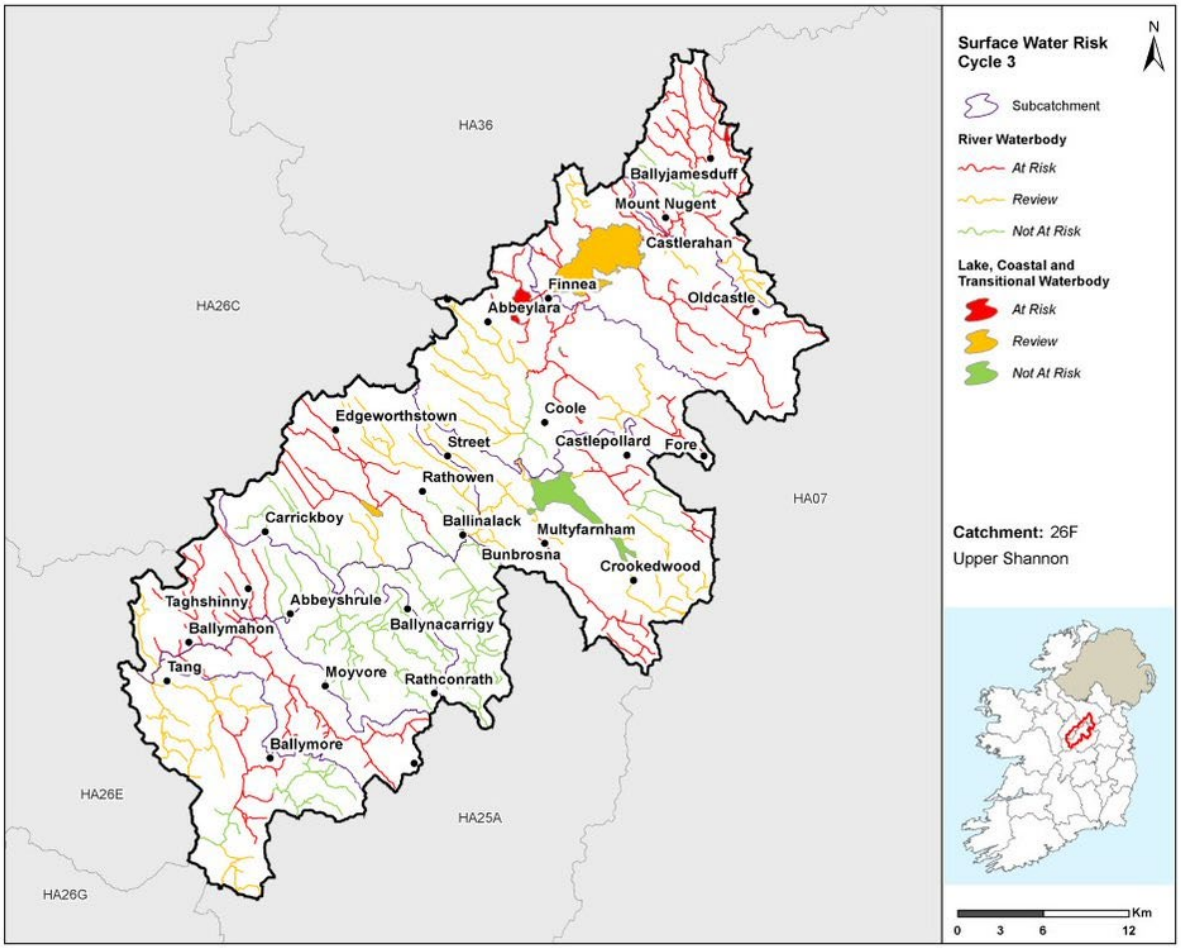


Figure 8: Surface Water Risk Cycle 3

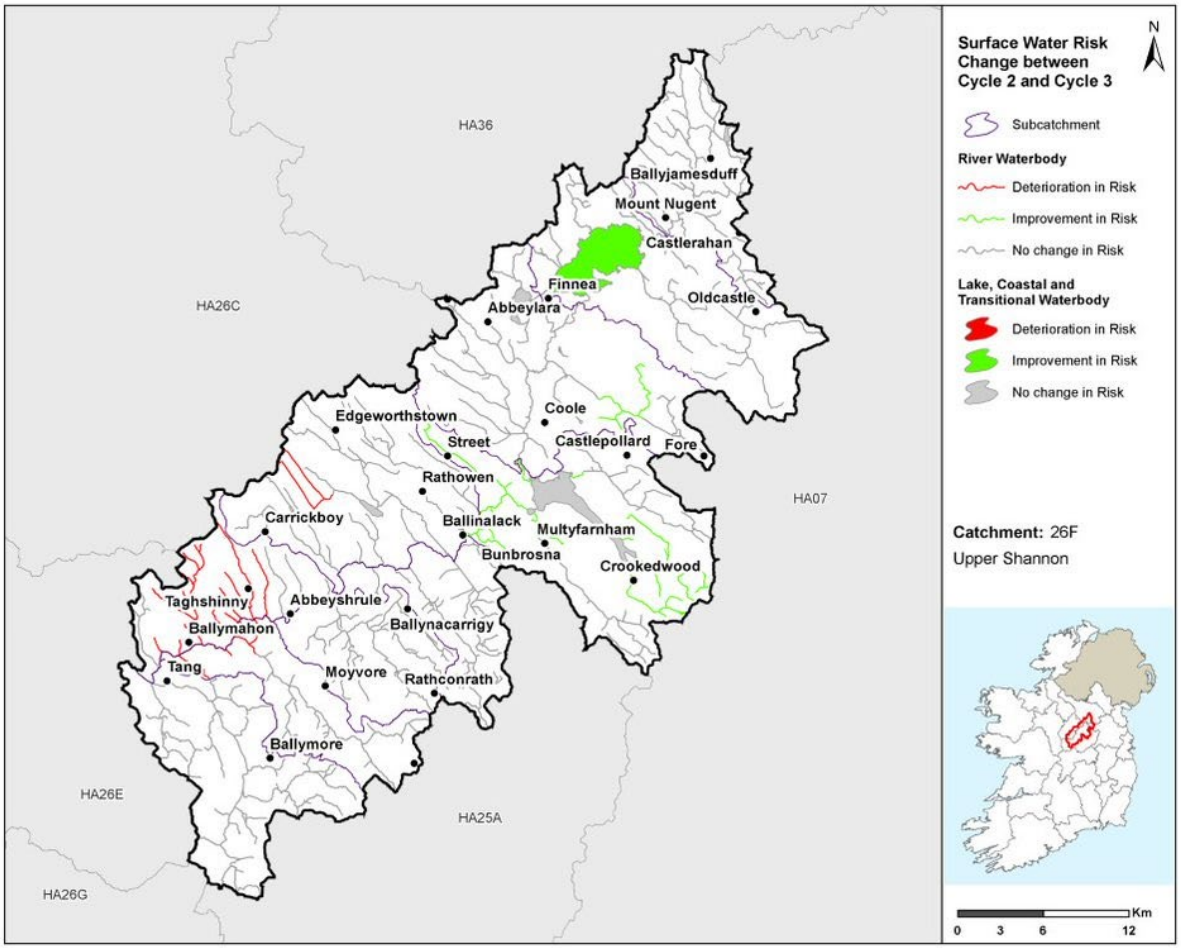


Figure 9: Surface Water Risk Change between Cycle 2 and Cycle 3

3.3 Groundwater

- For the 16 groundwater bodies, four (25%) are *At Risk* (Athboy, Derravarragh, Tynagh Gravels and Industrial Faciligty (P0690-01)), one (6%) is in *Review* (Ballymanus) and 11 (69%) are *Not At Risk*.

- In Cycle 2 there were two groundwater bodies (Derravarragh and Industrial Faciligty (P0690-01)) *At Risk* in this catchment, 10 in *Review* and four *Not At Risk*.

- The location of the *At Risk, Review and Not At Risk* groundwater bodies for Cycle 3 are shown in Figure 10 while the groundwater bodies that have experienced a change in risk between Cycle 2 and 3 are shown in Figure 11.

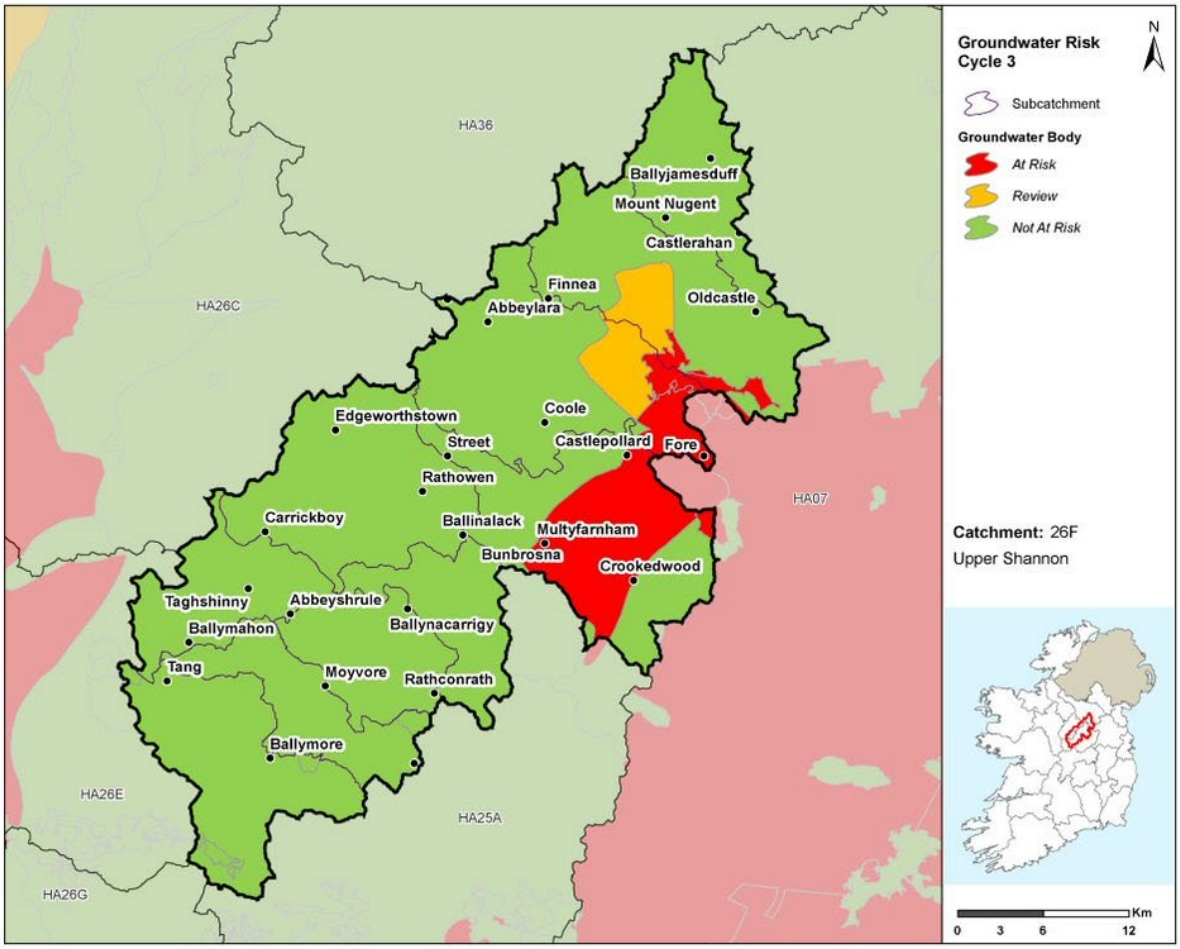


Figure 10: Cycle 3 Groundwater Body Risk

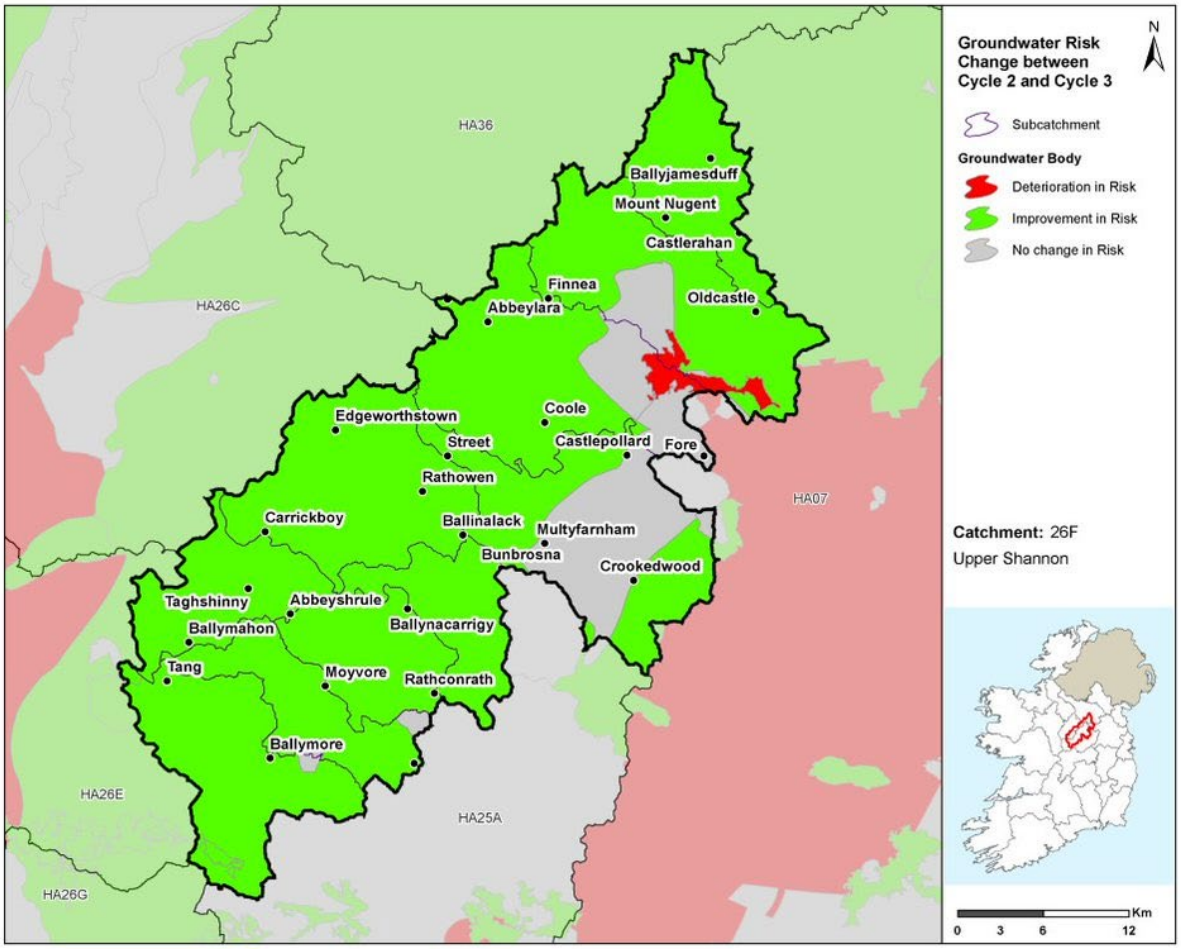


Figure 11: Groundwater Body Risk Change between Cycle 2 & Cycle 3

3.4 Heavily Modified Waterbodies

- There are currently no heavily modified water bodies (HMWBs) 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 is one artificial waterbody in the Upper Shannon Catchment, Royal Canal Main Line (Upper Shannon F) it is currently in *Review*.

4 Significant Issues in *At Risk* Waterbodies

4.1 All Waterbodies

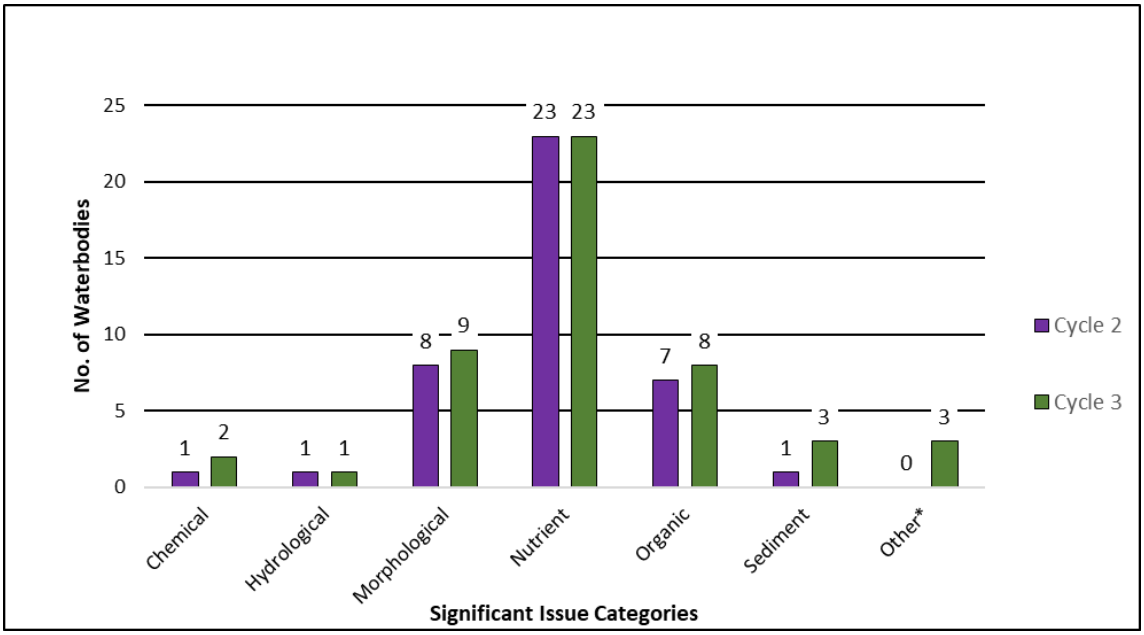
- Excess nutrients and morphological impacts remain the most prevalent issues in the Upper Shannon catchment (Figure 12), impacting 23 and nine waterbodies respectively in Cycle 3. Organic issues are impacting eight waterbodies while sediment is impacting three waterbodies.
    - For river waterbodies, the main significant issues are nutrient pollution (18), morphological impacts (9), organic pollution (7), sediment (3) and hydrological impacts (1).

- There are two At Risk lake waterbodies, the main significant issues in Nadreegal are nutrient pollution, chemical pollution and organic pollution. Nutrient are the only significant issue identified in Kinale lake waterbody.
- For the *At Risk* groundwater bodies the significant issues are nutrients (3), chemical (1) and diminution of quality of associated surface waters for chemical reasons (1).

- Between Cycle 2 and Cycle 3, the number of waterbodies with nutrients issues have remained at 23. Chemical pollution, morphological impacts and organic pollution have each increased by one waterbody in the same Period.

- The numbers of waterbodies with sediment and other issues has increased by two waterbodies each to three and two waterbodies respectively in Cycle 3.

- Three At Risk groundwater bodies have 'diminution of quality of associated surface waters for chemical reasons' attributed to them in Cycle 3 that had not been identified in Cycle 2.



*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 across all *At Risk* WBs between Cycle 2 and Cycle 3

4.2 High Status Objective Waterbodies

- The Upper Shannon Catchment has no High Status Objective waterbodies assigned currently.

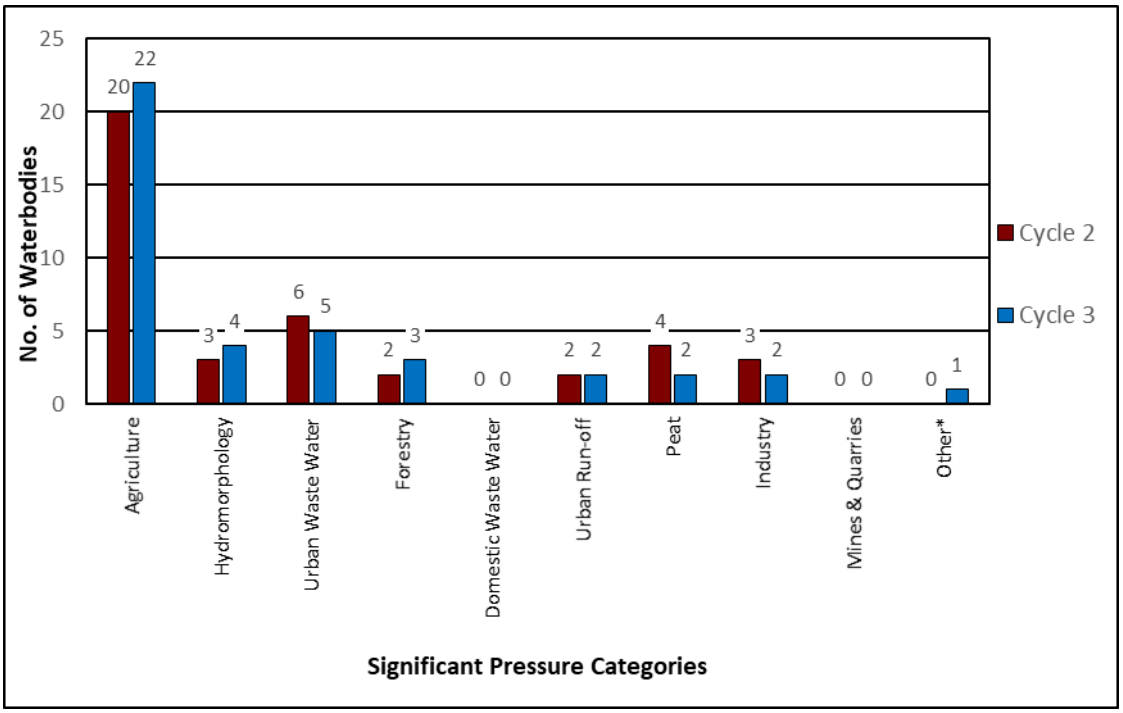
5 Significant pressures in *At Risk* Waterbodies

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 urban waste water, hydromorphology, forestry, industry, urban run-off, peat and other[7].

- When comparing Cycle 2 and Cycle 3 the biggest change is an increase of two waterbodies where agricultural pressures are significant, an increase from 20 waterbodies in Cycle 2 to 22 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 is a significant pressure in 17 river waterbodies, two lake waterbodies (Nadreegeal and Kinale) and three groundwater body (Derravarragh, Tynagh Gravels and Athboy). The issues related to farming in this catchment are predominantly due to diffuse phosphorus loss to surface waters and direct discharges from 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. Diminution of quality of associated surface waters for chemical reasons is an issue associated with agricultural sources in the Derravarragh, Tynagh Gravels groundwater bodies.

5.1.1.2 Urban Waste Water

- Urban Waste Water agglomerations have been identified as a significant pressure in five *At Risk* river waterbodies, a reduction from six waterbodies in Cycle 2. Details are given in Ballyjamesduff

[7] 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

(D0256) was deemed to be impacting Mountnugent_010 in Cycle 2 but upon further investigation the discharge is downstream in Mountnugent_020.

- Table 3. None of the five agglomerations identified as significant pressures and scheduled for upgrade under Irish Water's Capital Investment Programme (2020-2024). Ballyjamesduff (D0256) was deemed to be impacting Mountnugent_010 in Cycle 2 but upon further investigation the discharge is downstream in Mountnugent_020.

Table 3: 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[8]
Ballymore D0509	Agglomeration PE < 500	Dungloman_030	Poor	N/A
Collinstown D0485	Agglomeration PE of 500 to 1,000	Yellow (Castlepollard)_010	Moderate	N/A
Multyfarnham D0510	Agglomeration PE of 500 to 1,000	Gaine_020	Poor	N/A
Edgeworthstown D0098	Agglomeration PE of 2,001 to 10,000	Black (Westmeath)_010	Poor	N/A
Ballyjamesduff D0256	Agglomeration PE of 2,001 to 10,000	Mountnugent_020	Poor	N/A

5.1.1.3 Hydromorphology

- Three river waterbodies (Comoge_010, Inny_100 and Gaine_010) are subject to extensive modification with channelization being the sub-pressure category, while river bank erosion pressures are also impacting the Inny_100. An impoundment is impacting the Inny_040 river waterbody within the Inny subcatchment.

5.1.1.4 Forestry

- Forestry has been identified as a significant pressure in Rath_020, Comoge_010 and Black (Westmeath)_020 waterbodies. The significant issues are arising primarily through afforestation, road construction and clearfelling, which results in increased sediment and nutrient loads.

5.1.1.5 Industry

- Industrial discharges have been identified as significant pressures in Pound (Mountnugent)_010 river waterbody and groundwater body, Industrial Facility (P0690-01) (Table 4). Nutrient and organic pollution are the significant issues in the river waterbody and Chemical pollution is impacting the groundwater body.

Table 4: Breakdown of Cycle 3 Industry Significant Pressures in the Upper Shannon Catchment

Waterbody Code	Waterbody Name	Waterbody Type	Emission Type	Name	Impact
IE_SH_26J050300	Pound (Mountnugent)_010	River	Section 4	N/A*	Nutrient & Organic
IE_SH_G_261	Industrial Facility (P0690-01)	Groundwater	IPC	Decotek Automotive Limited	Chemical & diminution of quality of associated surface waters for chemical reasons

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

*Name of facility not provided during characterisation

5.1.1.6 Urban Run-off

- Diffuse urban pressures, caused by misconnections, leaking sewers and runoff from paved and unpaved areas, have been identified as a significant pressure in Mountnugent_010 and Black (Westmeath)_010 around Ballyjamesduff town and Edgesworthtown respectively. The significant issue is organic pollution.

5.1.1.7 Peat

- Peat extraction has been identified as a significant pressure in two river water bodies, Rath_020 and Inny_050. This has resulted in increased sediment loads due to the peat cutting, which alters habitats, morphology and hydrology.

5.1.1.8 Other significant pressures

- *Invasive species*
  Invasive species (i.e. chub fish) have been identified as a significant pressure in one river waterbody (Inny_100).

- *Unknown anthropogenic*
  Inny_100 is also subject to an additional unknown anthropogenic pressure.

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

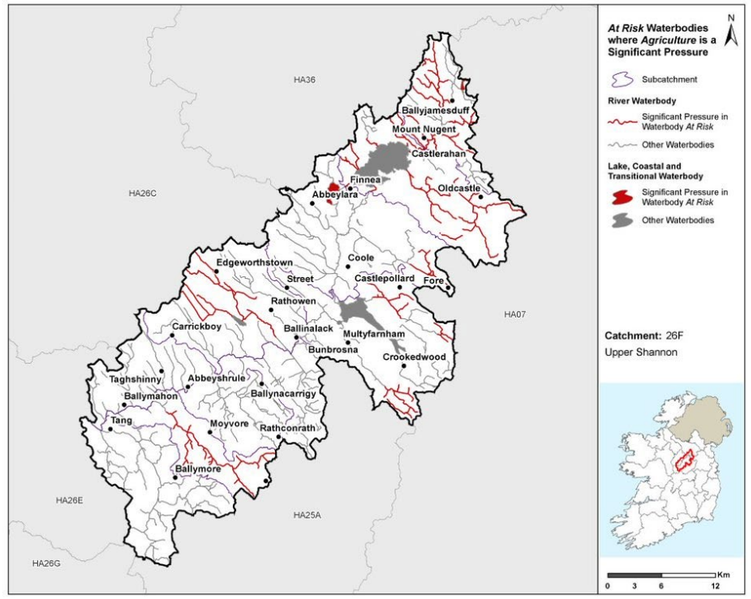


Figure 14: Locations of Waterbodies where Agriculture is a Significant Pressure

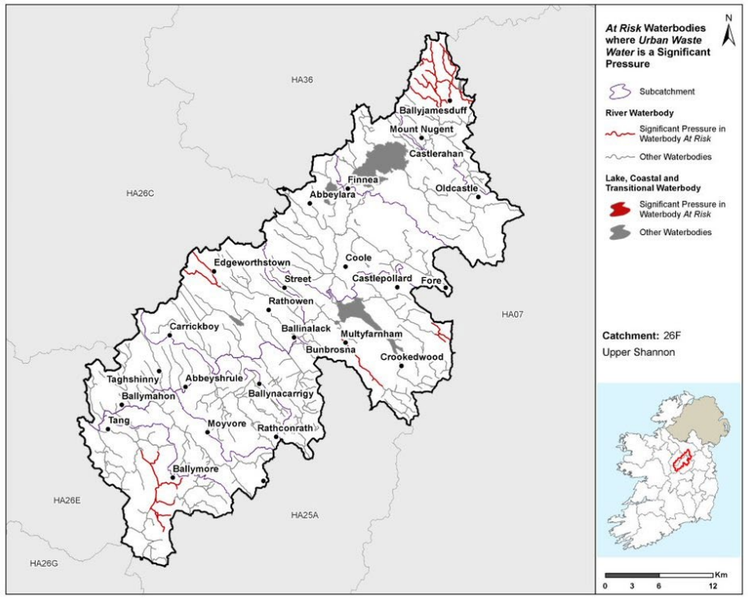


Figure 15: Locations of Waterbodies where Urban Waste Water is a Significant Pressure

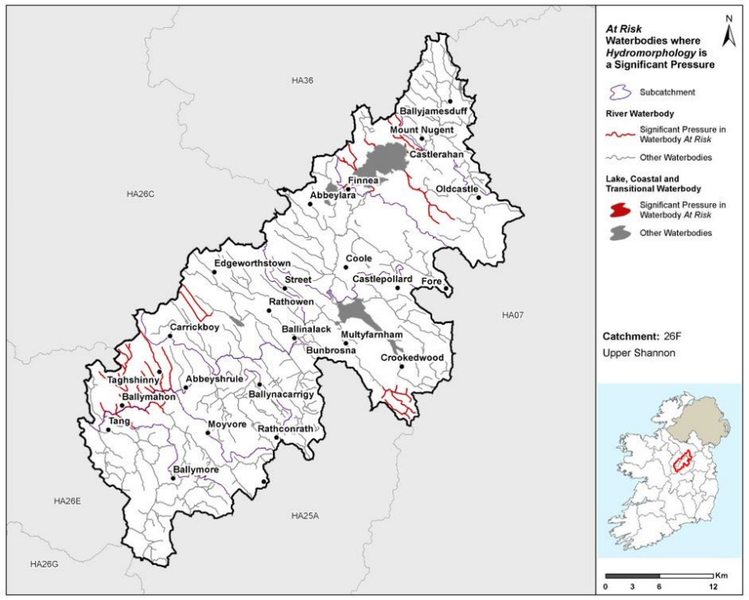


Figure 16: Locations of Waterbodies where Hydromorphology is a Significant Pressure

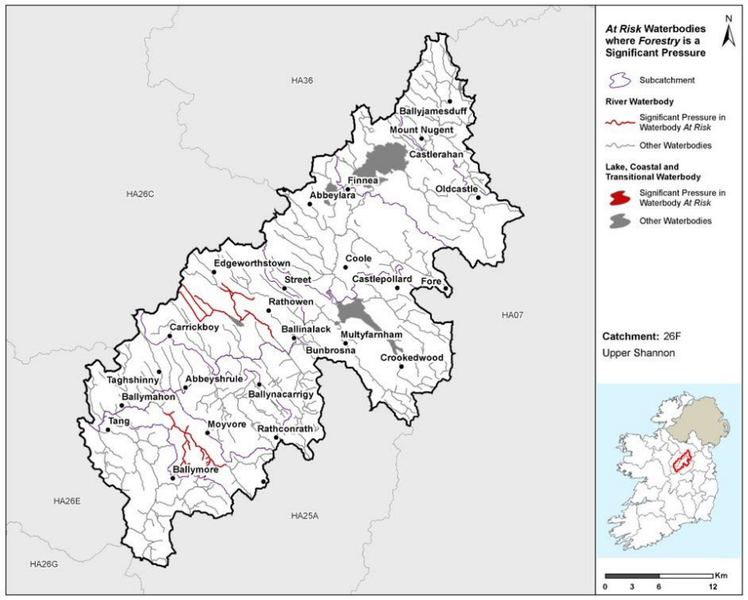


Figure 17: Locations of Waterbodies where Forestry is a Significant Pressure

5.2 High Status Objective Waterbodies

- As stated in Section 4.2, the Upper Shannon Catchment currently has no High Status Objective waterbodies assigned.

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.

- 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 82% of the nitrogen load while land in pasture and forestry contribute 51% and 18% of the phosphorus loadings for the catchment respectively (Figure 17).

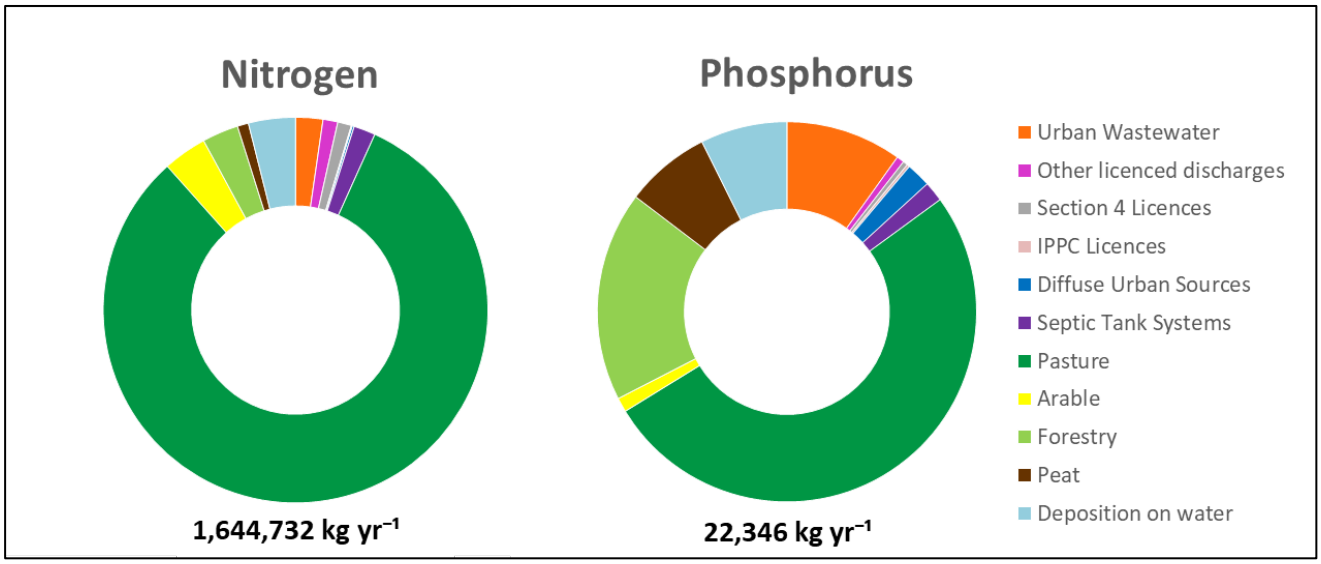


Figure 18: Estimated Proportions of N & P from Each Sector in the Upper Shannon Catchment

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 Upper Shannon Catchment.

7.2 Phosphorus / Sediment Load Reduction

- Further modelling work is required to determine if and what P load reductions are required.

Figure 19 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 1.

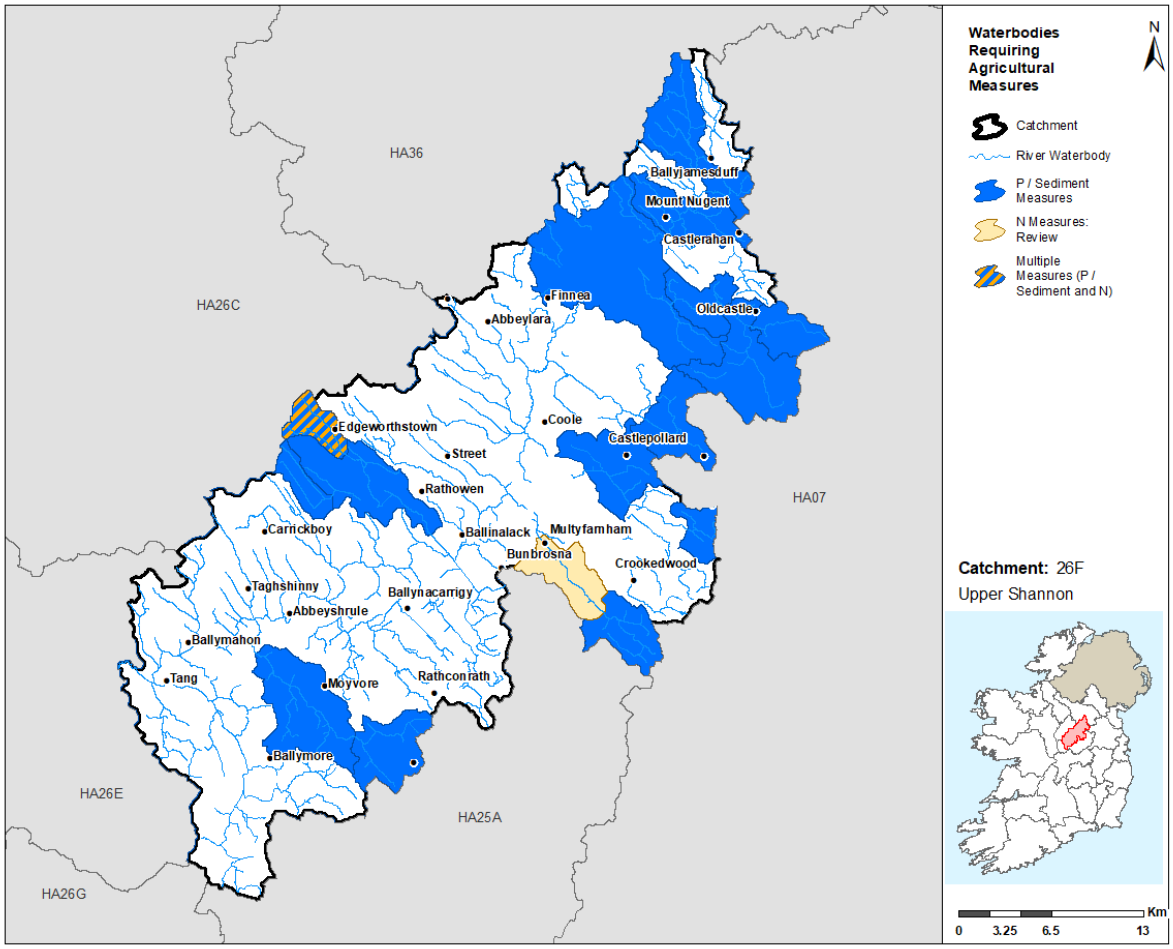


Figure 19: Waterbodies where Agricultural Measures should be Targeted

8 2nd Cycle Areas for Action

8.1 Area for Action Overview

- There were three Areas for Action, comprising of 12 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 20. LAWPRO, in conjunction with local authorities and stakeholders from the Borders, Western, Midlands and Eastern Regional Operational Committee, have been working in these areas since 2018.

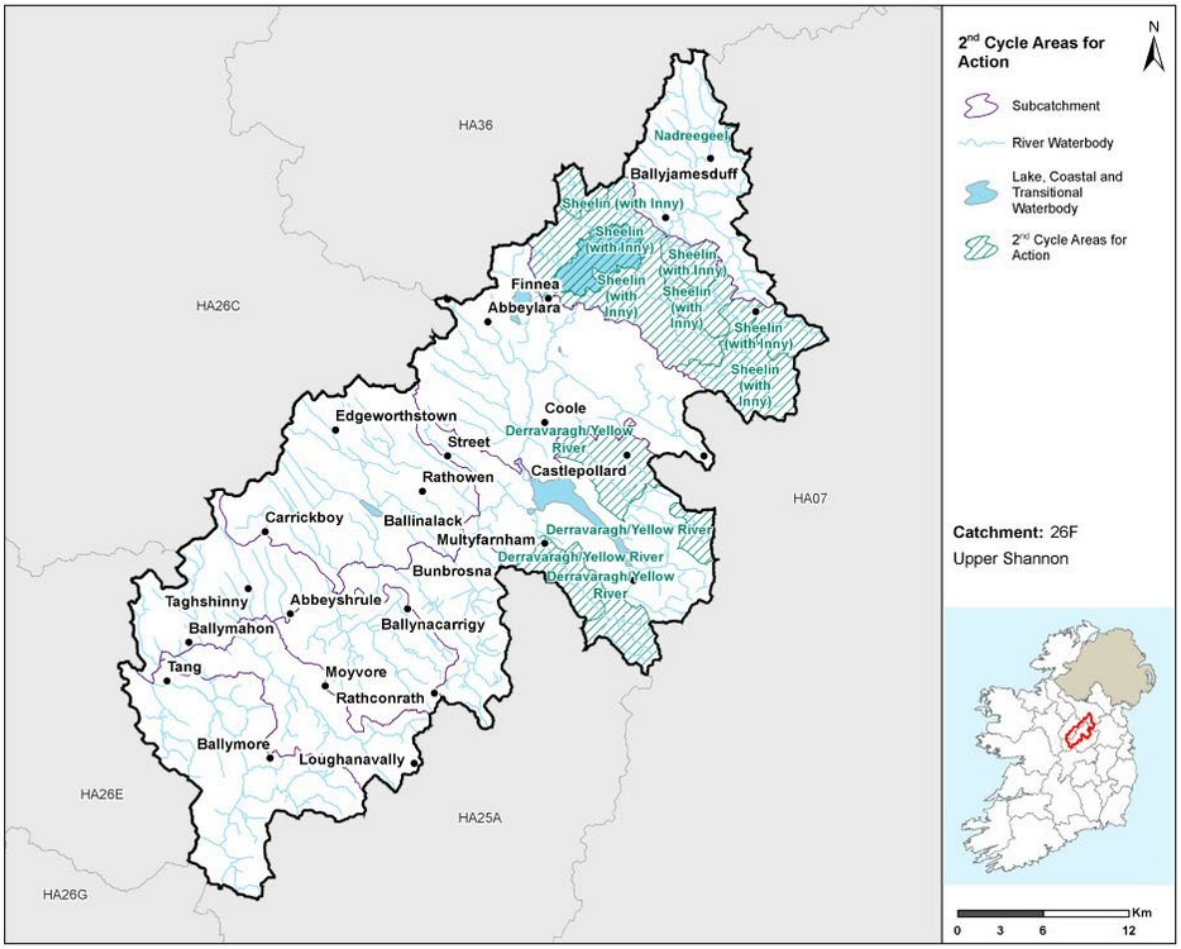


Figure 20: 2nd Cycle Areas for Action Locations

Table 5: 2nd Cycle Areas for Action

2nd Cycle Area for Action	Number of waterbodies	Sub-catchment	Local Authority	Reason for Selection
Sheelin (with Inny)	7	26F_6 26F_9	Meath	• Subcatchment project • Headwaters of the River Inny. • One potential 'quick win'. • Building on improvements completed at Oldcastle WWTP. • Building on improvement works completed by Meath County Council - nutrient concentrations have declined in the last few years. • Building on IFI Lough Sheelin project. The lake is one of 13 wild brown trout fisheries in Europe and IFI. • The River Inny and Lough Sheelin are important for tourism & heritage. • Two deteriorated water bodies.
Derravaragh	4	26F_9	Westmeath	• Three potential quick wins. • Building on existing work completed by Westmeath County Council in

2nd Cycle Area for Action	Number of waterbodies	Sub-catchment	Local Authority	Reason for Selection
				Multyfarnham. • Headwaters to Derravaragh lake. • Important fishery -– one of 13 wild brown trout fisheries in Europe. • Potential to build on work completed by IFI. • The underlying groundwater body is At Risk - potential to build on previous karst research. • Important for tourism & heritage. • Two deteriorated water bodies.
Nadreegeel	2	26F_307_10	Cavan	• Cavan/Monaghan lakes scenario project. • Headwaters to Nadreegeel Lough. • Potential 'quick win'. • Building on existing work completed by Cavan Co Co. • Will provide insight into question regarding river monitoring stations downstream of failing lakes. • A group water scheme here abstracts immediately upstream. • Public water abstraction. • One deteriorated water body.

8.2 Status Change in 2nd Cycle Areas for Action

- For Cycle 3, of the 12 waterbodies in the 2nd Cycle Areas for Action, there is one waterbody at Good Status, five waterbodies at Moderate Status, four waterbodies at Poor Status, and two waterbodies where status has not been assigned.

- There is an overall improvement in the status of two of the 2nd cycle Areas for Action waterbodies across the catchment.[9]

- Of the 10 waterbodies within the 2nd Cycle Areas for Action which had status assigned, eight experienced no change in status between Cycle 2 and Cycle 3 and two waterbodies experienced an improvement (Figure 21). The two waterbody improvements were across the Nadreegeel Area for Action and Sheelin (with Inny) Area for Action.

[9] 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.

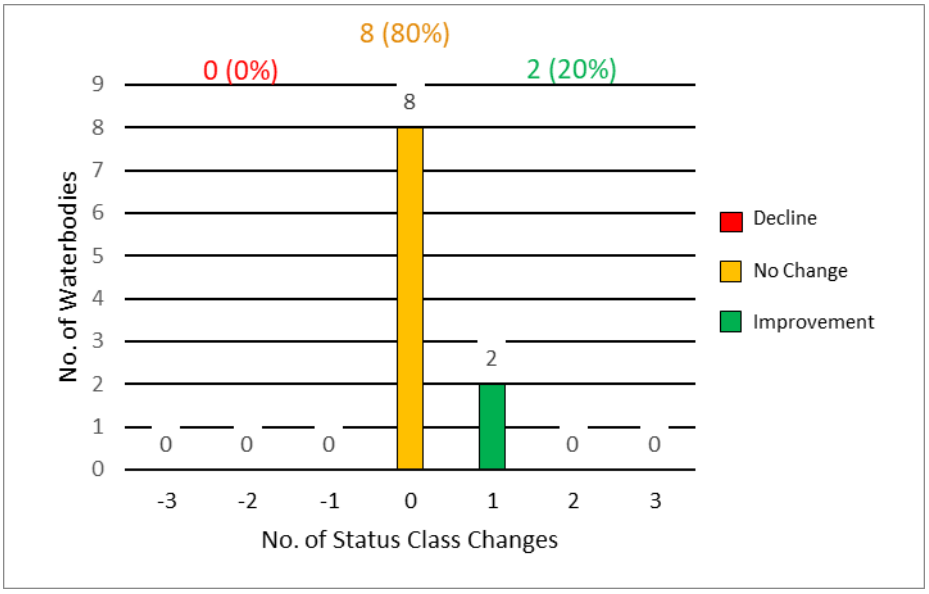


Figure 21: 2nd Cycle Area for Action Waterbody Status Class Changes between Cycle 2 and Cycle 3

8.3 Waterbody Risk in 2nd Cycle Areas for Action

- For the 12 waterbodies in the 2nd Cycle Areas for Action, nine (75%) of these are currently *At Risk* and three (25%) in *Review*.

- For the 10 river waterbodies, eight (80%) are *At Risk* and two (20%) are in *Review* (Aghawonan_010 and Bellsgrove Stream_010).

- Of the two lake waterbodies, one (50%) is *At Risk* (Nadreegeal) and one (50%) is in *Review* (Sheelin).

- The largest proportion of *At Risk* waterbodies are river waterbodies, accounting for eight (89%) of the nine *At Risk* waterbodies. Figure 22 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 10 to nine *At Risk* waterbodies in 2nd Cycle Areas for Action between Cycle 2 and Cycle 3.

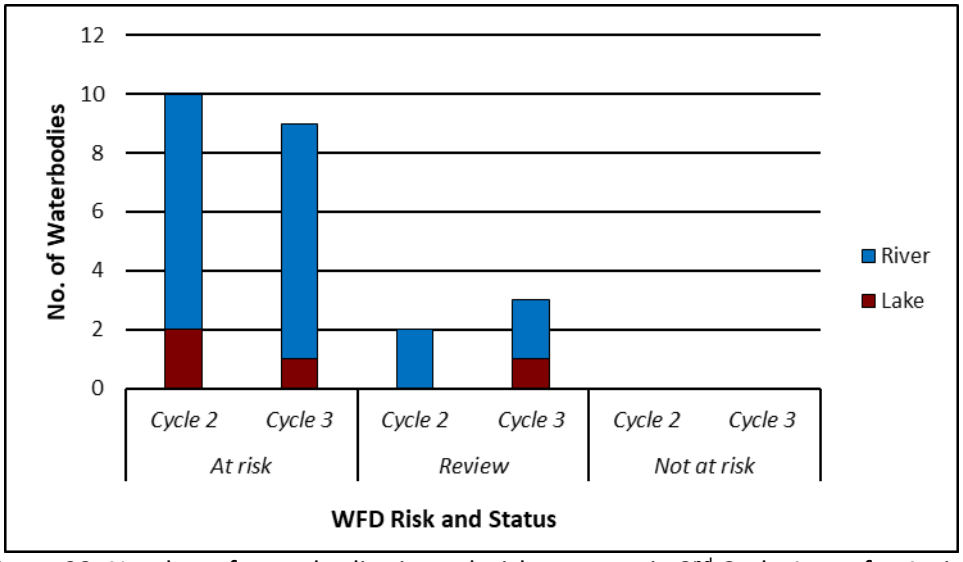
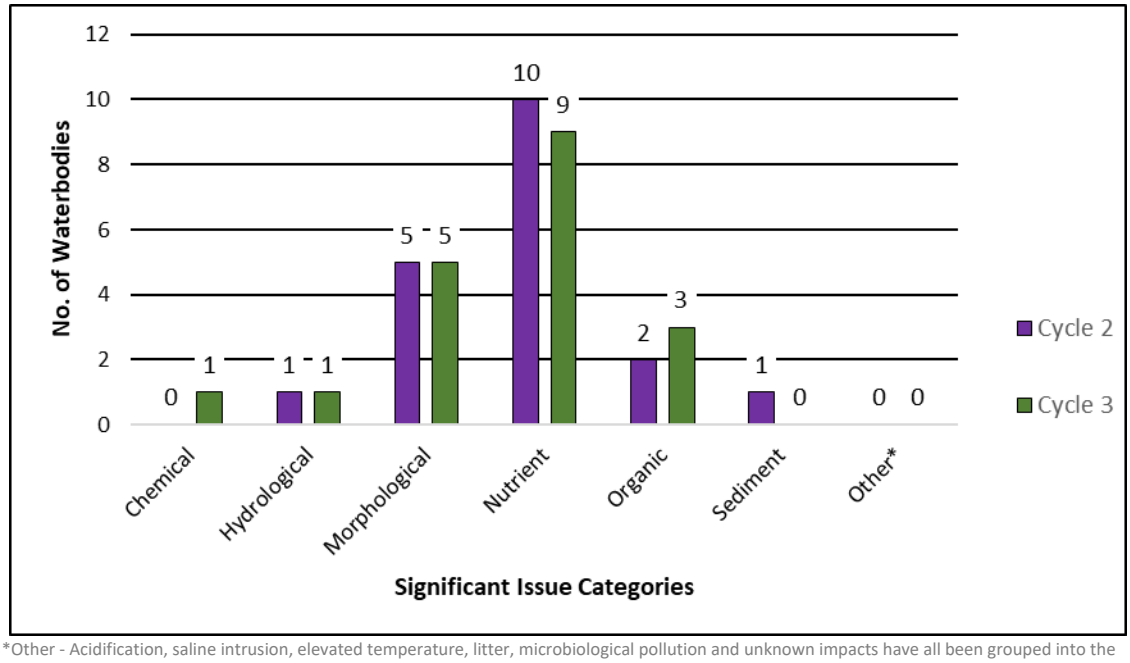


Figure 22: Number of waterbodies in each risk category in 2nd Cycle Areas for Action

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, impacting nine and five waterbodies respectively (Figure 23). This is followed by organic which is impacting three waterbodies while both hydrological and chemical impacts, are each impacting one waterbody.

- The number of 2nd Cycle Areas for Action waterbodies associated with each of the significant issues categories has reduced or remained between Cycle 2 and Cycle 3 except for chemical and organic which both increased by one waterbody.

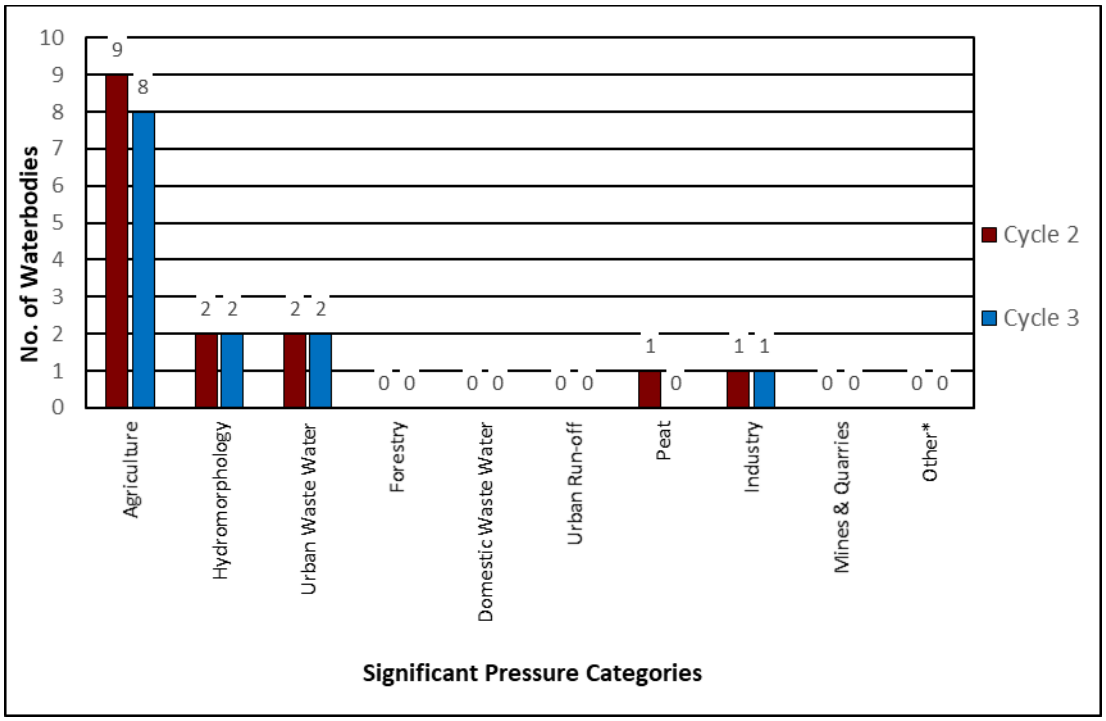


*Other - Acidification, saline intrusion, elevated temperature, litter, microbiological pollution and unknown impacts have all been grouped into the "Other" issues category for the purpose of this report

Figure 23: 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 – eight waterbodies are impacted compared to nine impacted in Cycle 2.
  - Hydromorphology and urban waste water remain unchanged from Cycle 2.
  - Peat pressures and industry pressure are no longer impacting any Areas for Action waterbodies in Cycle 3, while in Cycle 2 each were impacting one waterbody.
- When comparing the significant pressures in the 2nd Cycle Areas for Action between Cycle 2 and 3 there has been a decreased or remained unchanged in all significant pressure categories in the catchment.



*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 24: 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.

- There are seven Recommended Areas for Action, comprising of 33 waterbodies, selected for further characterisation and action in the catchment for the 3rd Cycle River Basin Management

Plan. 22 of the 33 waterbodies in the 3rd Cycle Recommended Areas for Action are *At risk*, six are in *Review* and five are *Not At Risk.* All seven Recommended Areas for Action have been categorised as Areas for Restoration. LAWPRO are the proposed lead organisation in six Recommended Areas for Action and Longford County Council are the proposed lead on the remaining (Edgeworthstown) Recommended Area for Action. The Recommended Areas for Action in the catchment are listed in Table 6 and shown in Figure 25. The reason for selecting for each waterbody in a Recommended Area for Action is provided in Appendix 3.

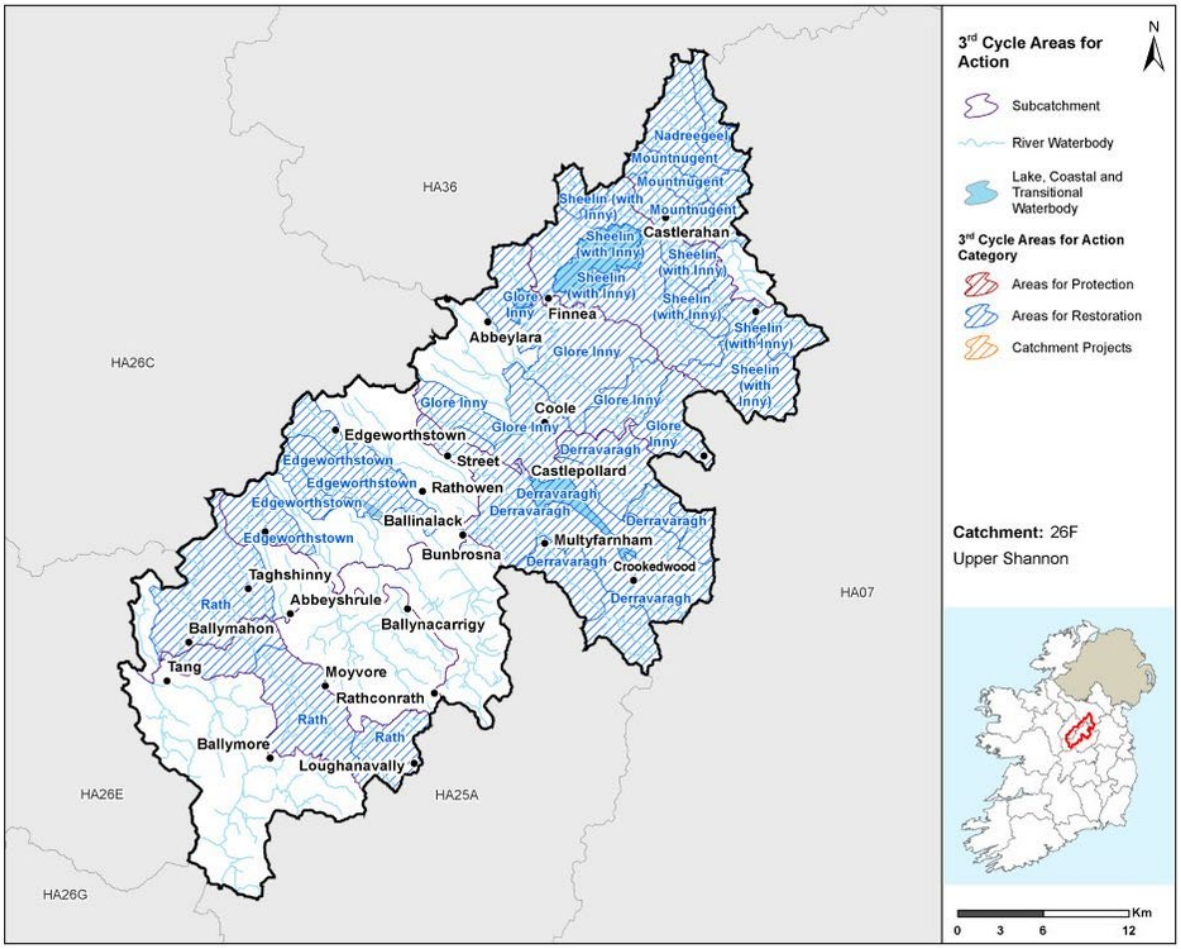


Figure 25: 3rd Cycle Recommended Areas for Action Locations

Table 6: 3rd Cycle Recommended Areas for Action Breakdown

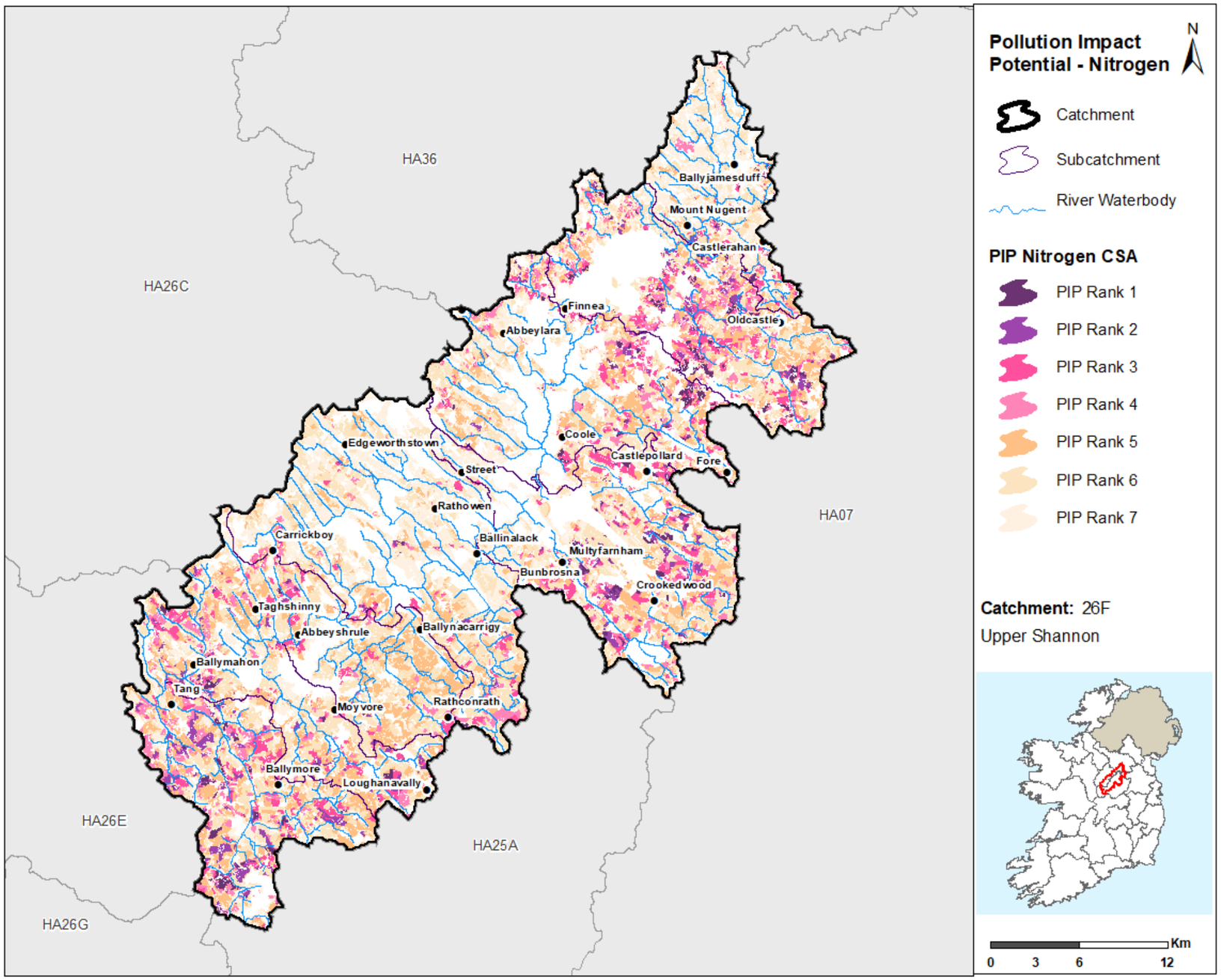
3rd Cycle Recommended Areas for Action	Number of Waterbodies	Recommended Areas for Action Category	Recommended Areas for Action Sub-category	Lead Organisation
Sheelin (with Inny)	7	Restoration	Prioritised Areas for Action LAWPRO	LAWPRO
Edgeworthstown	4	Restoration	LA Areas for Restoration Local Authorities	Longford County Council
Glore Inny	6	Restoration	Prioritised Areas for Action LAWPRO	LAWPRO

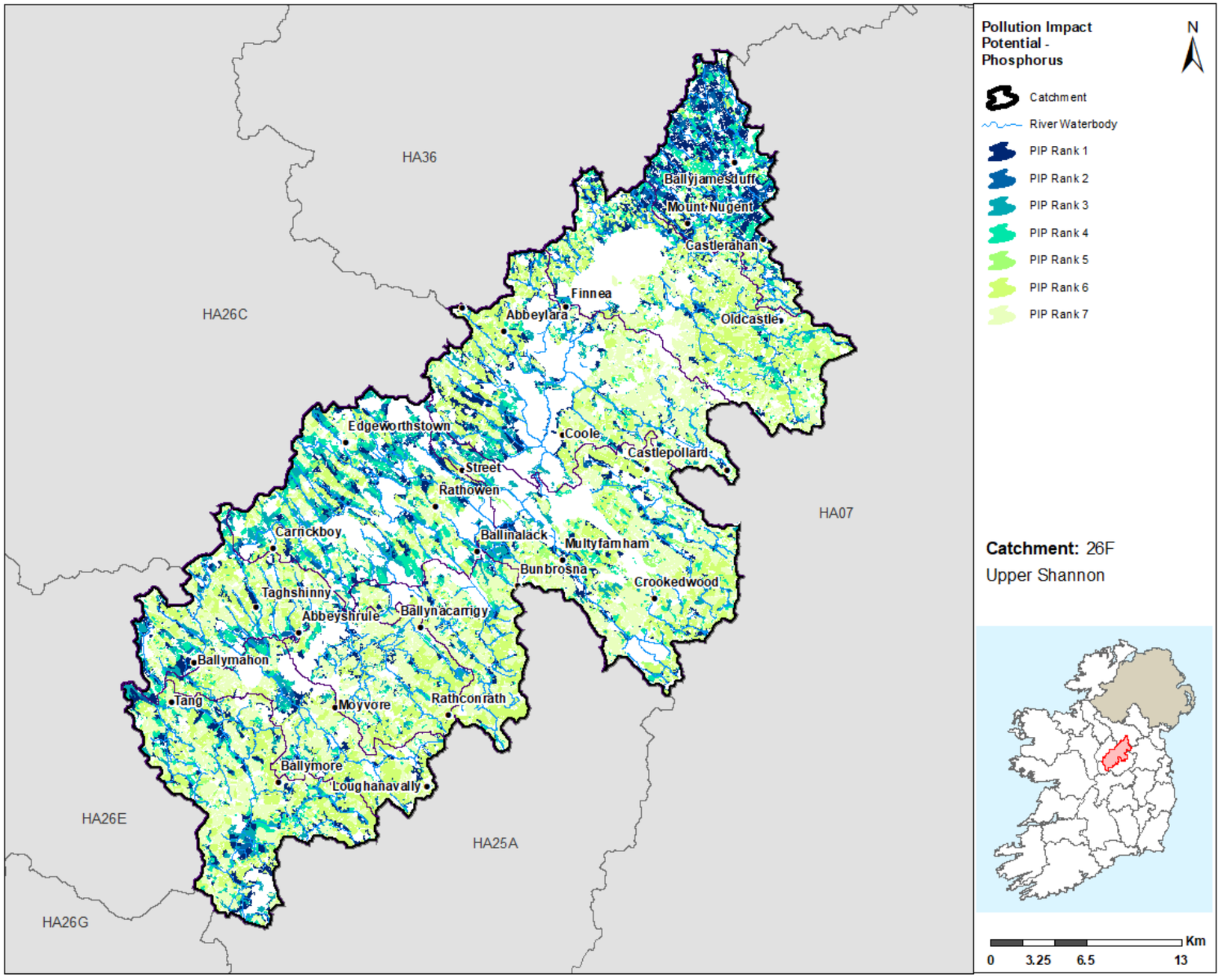
3rd Cycle Recommended Areas for Action	Number of Waterbodies	Recommended Areas for Action Category	Recommended Areas for Action Sub-category	Lead Organisation
Derravargh	7	Restoration	Prioritised Areas for Action LAWPRO	LAWPRO
Rath	3	Restoration	Prioritised Areas for Action LAWPRO	LAWPRO
Mountnugent	5	Restoration	Prioritised Areas for Action LAWPRO	LAWPRO
Nadreegeel	1	Restoration	Prioritised Areas for Action LAWPRO	LAWPRO

10 Catchment Summary

- Of the 42 river waterbodies, 21 are *At Risk* of not meeting their WFD objectives.
- Two out of six lake waterbodies are *At Risk* of not meeting their WFD objectives.
- Four out of 16 groundwater bodies are *At Risk*.
- There are 27 waterbodies *At Risk* in Cycle 3 compared to 26 waterbodies *At Risk* in Cycle 2.
- The main significant issues are from nutrients pollution followed by morphological impacts, organic pollution, sediment, other impacts (diminution of quality of associated surface waters for chemical reasons in groundwaters), chemical pollution and hydrological impacts.
- The main significant pressures are agriculture followed by urban waste water, hydromorphological pressures, forestry, industry, urban run-off, peat and other pressures.
- In the 2nd Cycle Areas for Action, 10 waterbodies were *At Risk* and nine waterbodies are *At Risk* in Cycle 3.
- There are seven 3rd Cycle Recommended Areas for Action for Cycle 3. They comprise of 33 waterbodies with 22 waterbodies *At Risk*, six in *Review* and five *Not At Risk*.

Appendix 1
Pollution Impact Potential Mapping





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: 26F
Upper Shannon

Km
0 3.25 6.5 13

Appendix 2
Summary information on all waterbodies in the Upper Shannon 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)
	IE_26F_AWB_RCMLW	Royal Canal Main Line (Upper Shannon F)	River		Review	Good	Good	No			
26F_6	IE_SH_26A140100	AGHAWONAN_010	River	Review	Review	Unassigned	Unassigned	No		Sheelin (with Inny)	Existing PAA - requires further characterisation
26F_8	IE_SH_26B050100	BLACK (WESTMEATH)_010	River	At risk	At risk	Poor	Poor	No	Ag, UR, UWW	Edgeworthstown	Edgeworthstown UWWT/ SWO - not on Investment programme
26F_8	IE_SH_26B050180	BLACK (WESTMEATH)_020	River	At risk	At risk	Moderate	Moderate	No	Ag, For	Edgeworthstown	At risk WB. Subcatchment of Edgeworthstown. Feeds Inny_080.
26F_6	IE_SH_26B240400	BELLSGROVE STREAM_010	River	Review	Review	Unassigned	Unassigned	No		Sheelin (with Inny)	Existing PAA - requires further characterisation
26F_7	IE_SH_26C080860	Coolnagun Stream_010	River	Review	Review	Unassigned	Unassigned	No		Glore Inny	Expand to complete subcatchment
26F_8	IE_SH_26C120700	COMOGE_010	River	Not at risk	At risk	Good	Moderate	No	Ag, For, Hymo	Edgeworthstown	Deteriorated WB. Subcatchment of Edgeworthstown.
26F_8	IE_SH_26C250420	CLONTYMULLAN_010	River	Review	Review	Unassigned	Unassigned	No			
26F_5	IE_SH_26D060100	DUNGOLMAN_010	River	Review	Review	Unassigned	Unassigned	No			
26F_5	IE_SH_26D060200	DUNGOLMAN_020	River	Not at risk	Not at risk	Good	Good	No			
26F_5	IE_SH_26D060400	DUNGOLMAN_030	River	At risk	At risk	Poor	Poor	No	UWW		
26F_7	IE_SH_26F370890	FERSKILL_010	River	Review	Review	Unassigned	Unassigned	No			
26F_9	IE_SH_26G010100	GAINE_010	River	At risk	At risk	Poor	Poor	No	Ag, Hymo	Derravaragh	Existing PAA Ag, Hymo significant pressures 2027 EO
26F_9	IE_SH_26G010270	GAINE_020	River	At risk	At risk	Poor	Poor	No	UWW	Derravaragh	Existing PAA UWW Significant pressure 2027 EO
26F_7	IE_SH_26G020100	GLORE (WESTMEATH)_010	River	At risk	At risk	Poor	Poor	No	Ag	Glore Inny	At risk WB Ag significant pressure 2027 EO
26F_7	IE_SH_26G020200	GLORE (WESTMEATH)_020	River	At risk	Review	Moderate	Good	No		Glore Inny	Expand to complete subcatchment
26F_6	IE_SH_26I010100	INNY_010	River	At risk	At risk	Poor	Poor	No	Ag	Sheelin (with Inny)	Existing PAA - requires further characterisation
26F_6	IE_SH_26I010200	INNY_020	River	At risk	At risk	Moderate	Moderate	No	Ag	Sheelin (with Inny)	Existing PAA - requires further characterisation
26F_6	IE_SH_26I010300	INNY_030	River	At risk	At risk	Moderate	Moderate	No	Ag	Sheelin (with Inny)	Existing PAA - requires further characterisation
26F_6	IE_SH_26I010500	INNY_040	River	At risk	At risk	Poor	Poor	No	Ag, Hymo	Sheelin (with Inny)	Existing PAA - requires further characterisation

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)
26F_7	IE_SH_26I010600	INNY_050	River	At risk	At risk	Moderate	Moderate	No	Peat	Glore Inny	At risk WB Peat significant pressure 2027 EO
26F_7	IE_SH_26I010700	INNY_060	River	Not at risk	Not at risk	Good	Good	No		Glore Inny	EPA Between waterbodies that require restoration
26F_9	IE_SH_26I010800	INNY_070	River	At risk	Review	Moderate	Good	No		Derravaragh	Expand existing PAA to complete sub catchment Unassigned WB
26F_4, 26F_8	IE_SH_26I011000	INNY_080	River	Not at risk	Not at risk	Good	Good	No			
26F_10, 26F_2	IE_SH_26I011150	INNY_090	River	Not at risk	Not at risk	Good	Good	No			
26F_1, 26F_10	IE_SH_26I011350	INNY_100	River	Review	At risk	Moderate	Moderate	No	Hymo, Other	Rath	Hymo, Othersignificant pressure Invasive species 2027 EO
26F_10, 26F_5	IE_SH_26I011400	INNY_110	River	Review	Review	Unassigned	Unassigned	No			
26F_3	IE_SH_26J050300	Pound (Mountnugent)_010	River	At risk	At risk	Poor	Poor	No	Ag, Ind	Mountnugent	Proposed by IFI - Important spawning stream for Lough Sheelin, biggest source of nutrients in the catchment
26F_8	IE_SH_26L060400	LENAMORE STREAM_010	River	Not at risk	Not at risk	Good	Good	No		Edgeworthstown	To complete sub catchment of Edgeworthstown - protect function.
26F_3	IE_SH_26M020120	MOUNTNUGENT_010	River	At risk	At risk	Poor	Unassigned	No	Ag, UR	Mountnugent	Proposed by IFI - Important spawning stream for Lough Sheelin, biggest source of nutrients in the catchment
26F_3	IE_SH_26M020200	MOUNTNUGENT_020	River	At risk	At risk	Poor	Poor	No	Ag, UWW	Mountnugent	Proposed by IFI - Important spawning stream for Lough Sheelin, biggest source of nutrients in the catchment
26F_3	IE_SH_26M020350	MOUNTNUGENT_030	River	Not at risk	Not at risk	Unassigned	Unassigned	No		Mountnugent	Proposed by IFI - Important spawning stream for Lough Sheelin, biggest source of nutrients in the catchment
26F_3	IE_SH_26M020500	MOUNTNUGENT_040	River	At risk	At risk	Moderate	Good	No	Ag	Mountnugent	Proposed by IFI - Important spawning stream for Lough Sheelin, biggest source of nutrients in the catchment
26F_5	IE_SH_26M120080	MULLENMEEHAN STREAM_010	River	Not at risk	Not at risk	Good	Good	No			
26F_3	IE_SH_26O110580	OLDTULLY_010	River	Review	Review	Unassigned	Unassigned	No			
26F_1	IE_SH_26R010030	RATH_010	River	At risk	At risk	Moderate	Moderate	No	Ag	Rath	Ag significant pressure 2027 EO 1. Headwater
26F_1	IE_SH_26R010300	RATH_020	River	At risk	At risk	Moderate	Moderate	No	Ag, For, Peat	Rath	Ag, Forestry, peat significant pressure 2027 EO 1.Center Parcs
26F_8	IE_SH_26R030100	RIFFEY_010	River	Review	Review	Unassigned	Unassigned	No			
26F_7	IE_SH_26R630830	RATHCRONAN_010	River	Review	Review	Unassigned	Unassigned	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)
26F_9	IE_SH_26Y020060	YELLOW (CASTLEPOLLARD)_010	River	At risk	At risk	Moderate	Moderate	No	Ag, UWW	Derravaragh	Existing PAA Ag, Ind, UWW significant pressures 2027 EO
26F_9	IE_SH_26Y020100	YELLOW (CASTLEPOLLARD)_020	River	Not at risk	Not at risk	Good	Good	No		Derravaragh	Expand existing PAA to complete sub catchment Unassigned WB
26F_9	IE_SH_26Y020250	YELLOW (CASTLEPOLLARD)_030	River	At risk	At risk	Moderate	Moderate	No	Ag	Derravaragh	Existing PAA Ag significnat pressures Poor drainage - EO beyond 2027
07_10, 26F_3	IE_EA_07_273	Nadreegeal	Lake	At risk	At risk	Poor	Moderate	No	Ag	Nadreegeel	Expansion of existing PAA
26F_8	IE_SH_26_468	Glen LD	Lake	Review	Review	Unassigned	Unassigned	No			
26F_7	IE_SH_26_622	Bane Clonsura	Lake	Review	Review	Unassigned	Unassigned	No			
26F_7	IE_SH_26_678	Kinale	Lake	At risk	At risk	Moderate	Moderate	No	Ag	Glore Inny	IW THMs. EPA Pesticide Act and Watch list - Watch: Lake experiences hits of ammonia; pressures in catchment; substantial reed growth at abstraction; moderate status perhaps high nutrient input. Inputting to Inny_050 - moderate status "At risk" waterbodies not included
26F_9	IE_SH_26_708	Derravaragh	Lake	Not at risk	Not at risk	Good	Good	No		Derravaragh	Expand existing PAA to include lake; At good status IFI research project
26F_6	IE_SH_26_709	Sheelin	Lake	At risk	Review	Moderate	Good	No		Sheelin (with Inny)	Existing PAA - requires further characterisation
07_11, 07_12, 07_13, 07_14, 07_18, 07_2, 07_3, 07_4, 07_7, 07_8, 07_9, 14_14, 25A_10, 25A_3, 25A_7, 26F_6, 26F_7, 26F_9	IE_EA_G_001	Athboy	Groundwater	Review	At risk	Good	Good	No	Ag		
06_3, 06_7, 07_10, 07_13, 07_14, 07_5, 07_8, 26F_3, 26F_6, 36_11, 36_16, 36_9	IE_EA_G_006	Bailieborough	Groundwater	Review	Not at risk	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)
03_5, 03_6, 06_5, 06_7, 06_8, 07_10, 07_5, 26C_2, 26C_4, 26C_6, 26F_3, 26F_6, 26F_7, 36_10, 36_11, 36_12, 36_14, 36_16, 36_17, 36_18, 36_19, 36_21, 36_3, 36_4, 36_5, 36_8, 36_9	IE_NW_G_061	Cavan	Groundwater	Review	Not at risk	Good	Good	No			
26F_1, 26F_5	IE_SH_G_029	GWDTE-Ballymore Fen & Mire (SAC002313)	Groundwater	Not at risk	Not at risk	Good	Good	No			
26F_6, 26F_7	IE_SH_G_035	Ballymanus	Groundwater	Review	Review	Good	Good	No			
07_12, 07_7, 25A_10, 26F_6, 26F_7, 26F_9	IE_SH_G_077	Derravarragh	Groundwater	At risk	At risk	Good	Good	No	Ag		
07_10, 07_12, 07_13, 07_7, 07_9, 25A_10, 25A_8, 25A_9, 25B_2, 26C_1, 26C_6, 26C_7, 26E_1, 26E_4, 26E_6, 26F_1, 26F_10, 26F_2, 26F_3, 26F_4, 26F_5, 26F_6, 26F_7, 26F_8, 26F_9, 26G_1, 26G_2, 26G_3, 36_18, 36_8, 36_9	IE_SH_G_110	Inny	Groundwater	Review	Not at risk	Good	Good	No			
26C_1, 26C_2, 26C_4, 26C_6, 26C_7, 26C_9, 26E_1, 26F_10, 26F_7, 26F_8, 36_18, 36_19	IE_SH_G_149	Longford Ballinalee	Groundwater	Review	Not at risk	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)
26E_4, 26E_6, 26F_5	IE_SH_G_162	GWDTE-Lough Ree Fen 9 (SAC000440)	Groundwater	Review	Not at risk	Good	Good	No			
26E_6, 26F_10, 26F_5	IE_SH_G_163	GWDTE-Lough Ree Fen 10 (SAC000440)	Groundwater	Review	Not at risk	Good	Good	No			
26E_1, 26E_6, 26F_10	IE_SH_G_165	GWDTE-Lough Ree Fen 12 (SAC000440)	Groundwater	Not at risk	Not at risk	Good	Good	No			
25A_10, 26F_4, 26F_9	IE_SH_G_166	GWDTE-Lough Owel Fens & Mires (SAC000688 & SAC000692)	Groundwater	Not at risk	Not at risk	Good	Good	No			
07_7, 26F_6, 26F_7	IE_SH_G_238	Tynagh Gravels	Groundwater	Review	At risk	Good	Good	No	Ag		
07_11, 07_2, 07_9, 25A_1, 25A_10, 25A_11, 25A_2, 25A_3, 25A_5, 25A_7, 25A_8, 25A_9, 25B_1, 25B_2, 25B_4, 26F_1, 26F_2, 26F_4, 26F_5, 26G_1, 26G_3	IE_SH_G_240	Clara	Groundwater	Not at risk	Not at risk	Good	Good	No			
26E_4, 26E_6, 26F_5, 26G_3	IE_SH_G_246	Athlone Gravels	Groundwater	Review	Not at risk	Good	Good	No			
07_7, 26F_9	IE_SH_G_261	Industrial Facility (P0690-01)	Groundwater	At risk	At risk	Poor	Poor	No	Ind		

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.