

**3<sup>rd</sup> Cycle Draft**  
**Upper Shannon (Boyle) Catchment Report**  
**(HA 25B)**



**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 Upper Shannon (Boyle) 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 3<sup>rd</sup> 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 2<sup>nd</sup> Cycle Areas for Action and a list of proposed 3<sup>rd</sup> 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.

<b>Water Framework Directive – key dates and terminology</b>	
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.
2 <sup>nd</sup> 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.
2 <sup>nd</sup> 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.
3 <sup>rd</sup> 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.
3 <sup>rd</sup> 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 3<sup>rd</sup> Cycle River Basin Management Plan. In addition, a comparative overview of the water quality in the Upper Shannon (Boyle) catchment between Cycle 2 and Cycle 3 characterisation is provided along with a summary of the progress made in the 2<sup>nd</sup> Cycle Areas for Action. The recommended list for the 3<sup>rd</sup> Cycle Areas for Action is also provided.

To provide context, the Upper Shannon (Boyle) catchment covers an area of 674km<sup>2</sup> and is characterised by old red sandstone uplands running along the northern catchment boundary, the highest of which are the Curlew Mountains and karstified limestone lowlands in the southern half of the catchment (Figure 1).

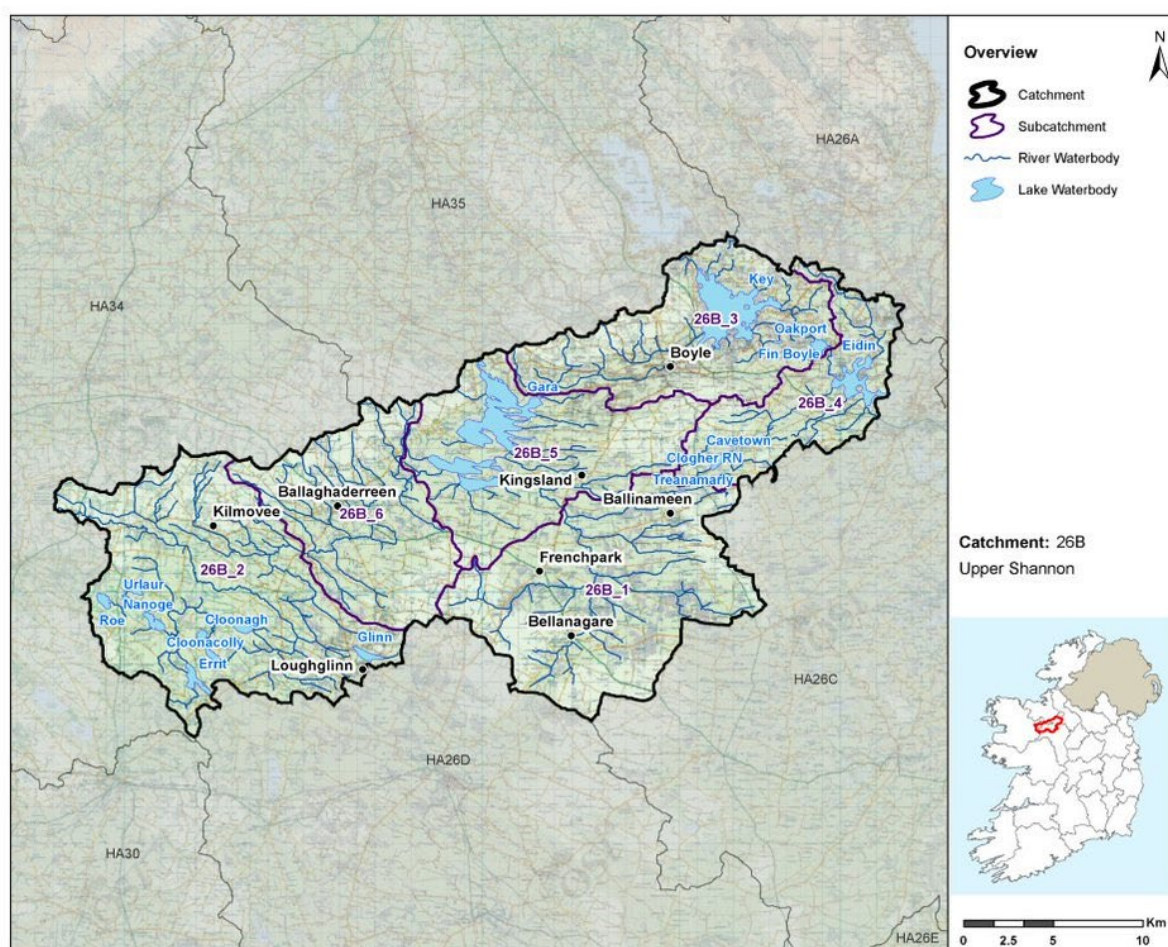


Figure 1: Overview of subcatchments in the Upper Shannon (Boyle) catchment

The Upper Shannon (Boyle) catchment is divided into six subcatchments (Figure 1) with 28 river waterbodies, one lake waterbodies and groundwater bodies (Figure 2).

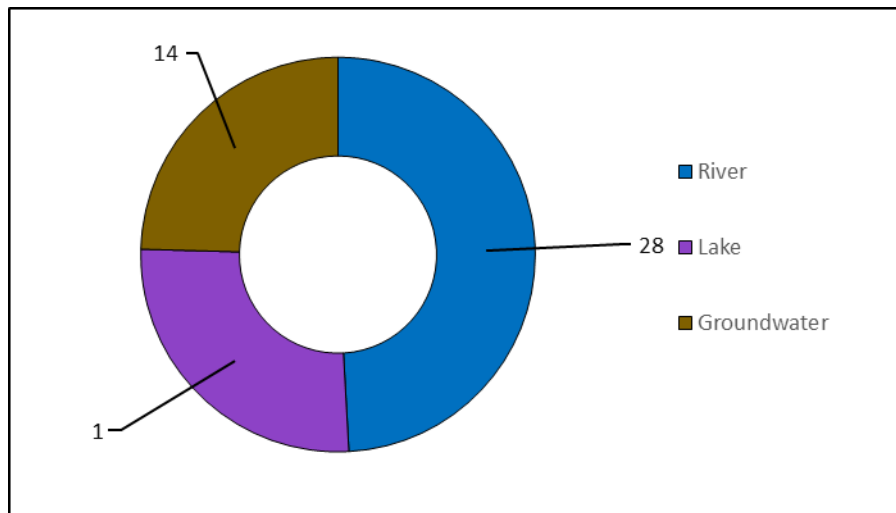


Figure 2: Waterbody types and numbers in the Upper Shannon (Boyle) Catchment.

## 2 Waterbody Overview

### 2.1 Waterbody Status

- ◆ This assessment to inform the 3<sup>rd</sup> 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 25 achieving Good Status, eight achieving Moderate Status, three achieving Poor Status and there is one Bad Status waterbody. There are 20 unassigned waterbodies in the Catchment. All waterbodies must achieve at least Good Ecological status.
- ◆ There is one river waterbody (Lung\_040) that must achieve High Ecological Status (HES) in this catchment. This waterbody is listed in Appendix 1. The only HES Environmental Objective waterbody is achieving Good Status.
- ◆ There has been a reduction of one river waterbody achieving High Status between Cycle 2 and Cycle 3. There is an increase in one river waterbody achieving Good Status (Figure 3 & Table 1).



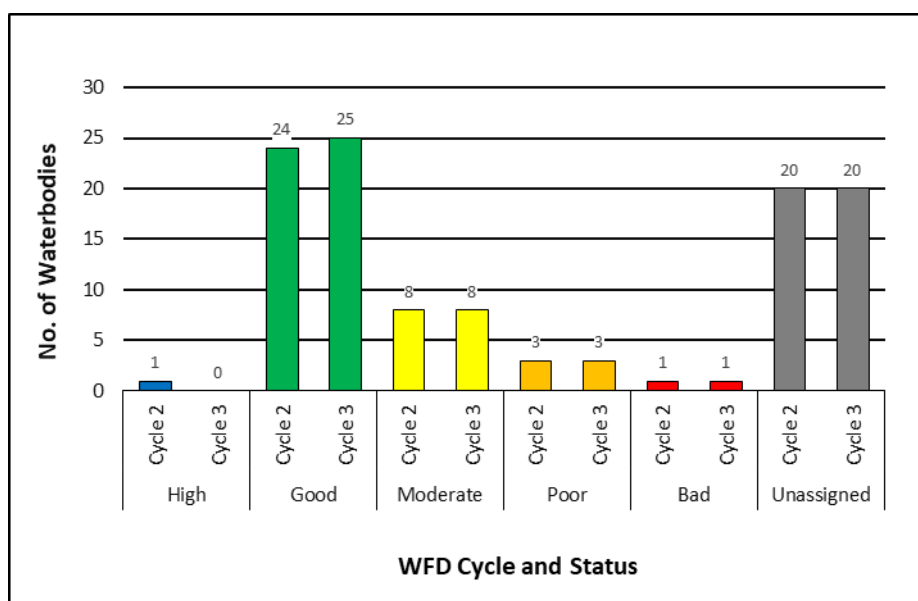


Figure 3: Waterbody Status Breakdown (All waterbodies)

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	1	0	0	0	0	0	0	0	0	0	1	0
Good	10	11	0	0	0	0	0	0	14	14	24	25
Moderate	4	4	4	4	0	0	0	0	0	0	8	8
Poor	3	3	0	0	0	0	0	0	0	0	3	3
Bad	0	0	1	1	0	0	0	0	0	0	1	1
Un-assigned	10	10	10	10	0	0	0	0	0	0	20	20
<b>Total</b>	<b>28</b>	<b>28</b>	<b>15</b>	<b>15</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>14</b>	<b>14</b>	<b>57</b>	<b>57</b>

- ◆ 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, one (3%) waterbody has improved in status, 34 (92%) waterbodies have remained unchanged and two (5%) waterbodies have declined in status.<sup>1</sup>
- ◆ There is an overall decline in the status of one waterbody across the catchment since the Cycle 2 assessment.

<sup>1</sup> 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.



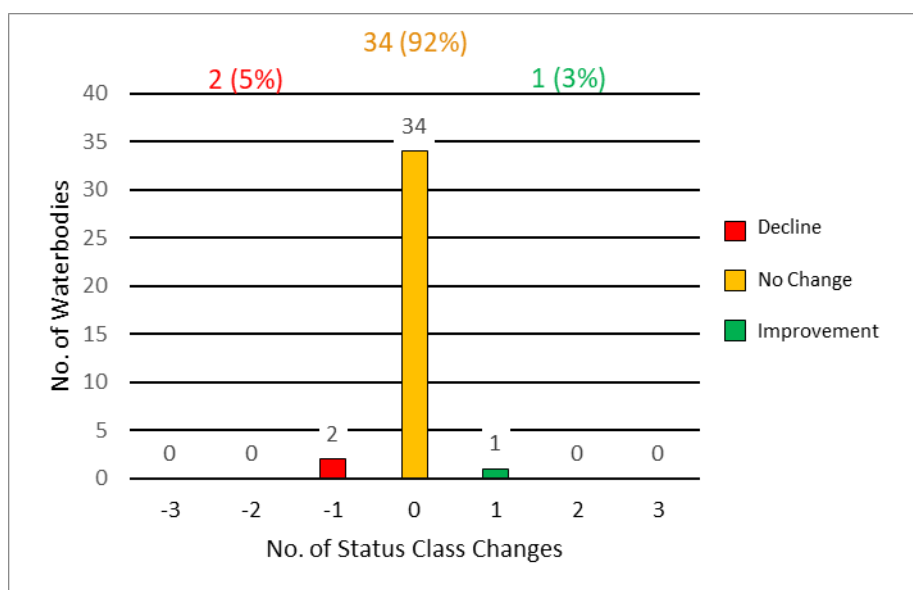


Figure 4: Status Class Changes between Cycle 2 and Cycle 3

## 2.2 Protected Areas

### 2.2.1 Drinking Water

- ◆ There are four 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*.
- ◆ All waterbodies in the catchment met the DWPA objective in 2019.
- ◆ For more detailed information please see the EPA reports on drinking water quality in 2019 for [Public Supplies](#)<sup>2</sup> and [Private Supplies](#)<sup>3</sup>.

### 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](#)<sup>4</sup>.

### 2.2.3 Shellfish Areas

- ◆ There are no designated shellfish areas in the catchment.

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

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

<sup>4</sup><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.

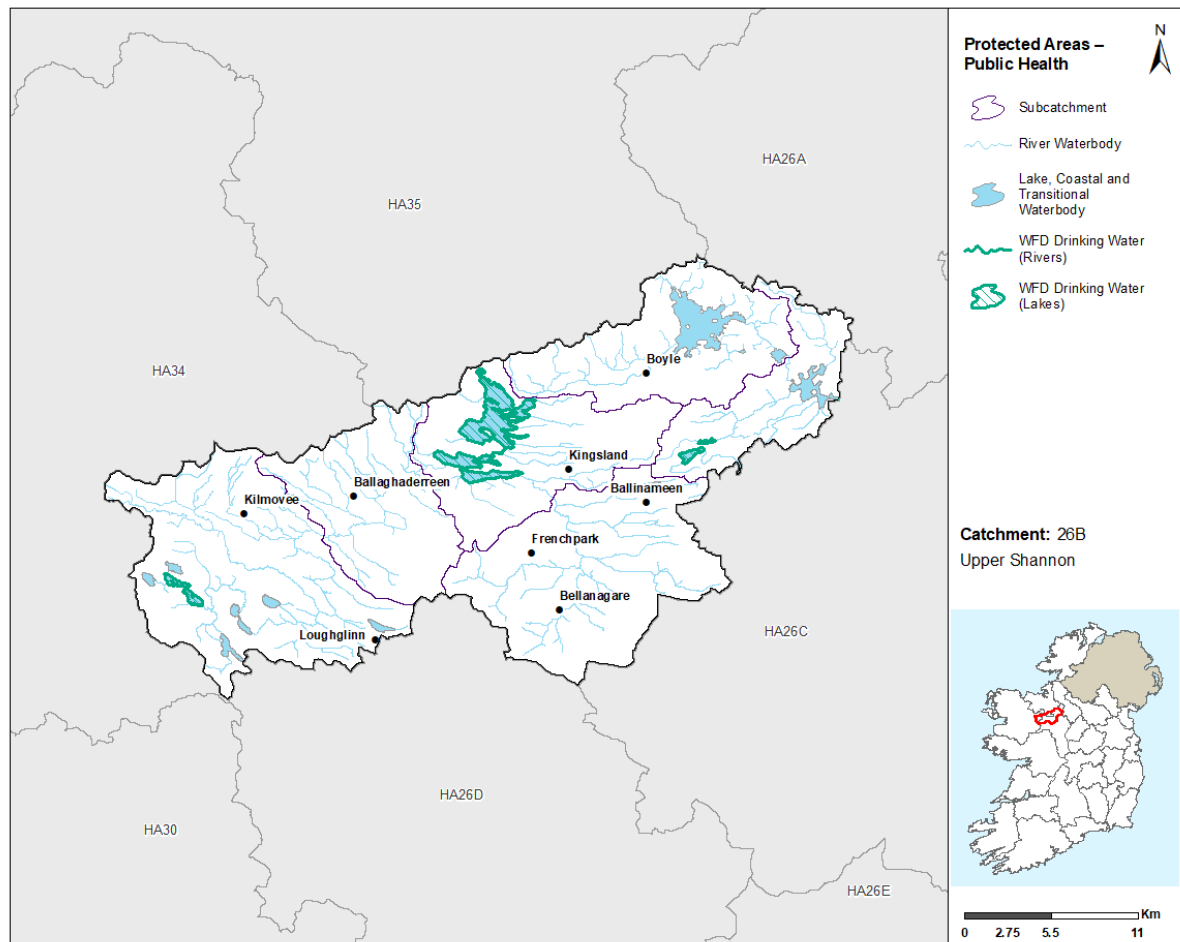


Figure 5: Protected Areas – Public Health

#### 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 eight 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.

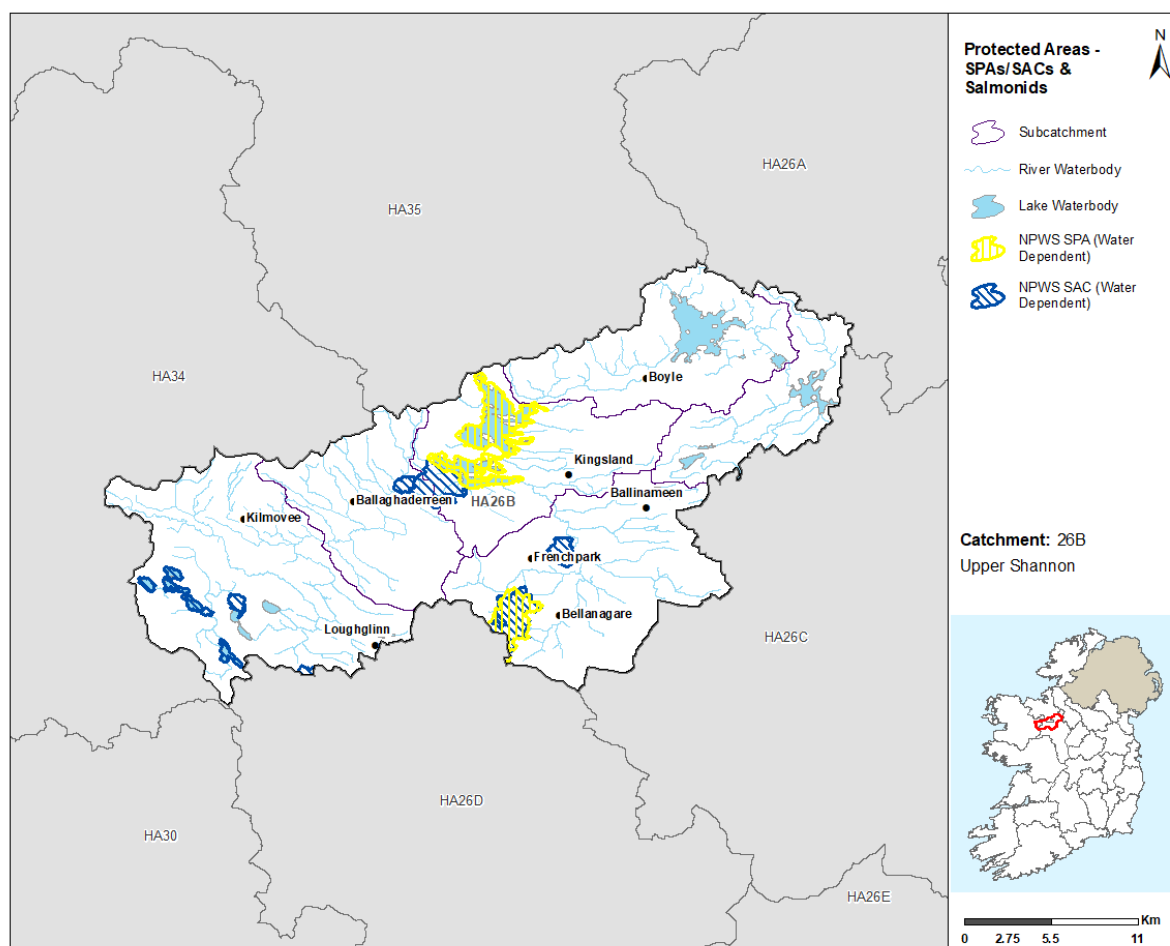
Results of the overall assessment for this catchment are outlined in Table 2 below, information at a waterbody level can be viewed at [Catchments.ie](https://www.catchments.ie).<sup>5</sup>

Table 2: Natura 2000 Network Assessment Summary

Water Body Type	Total No.	Meeting the Requirements	Did not meet the Requirements	Unknown*
Lakes	4	2	2	0

\*As the waterbody status was unassigned.

- ◆ There are no river waterbodies with FWPM habitats in the catchment.
- ◆ There are two groundwater bodies delineated and assessed as Groundwater Dependent Terrestrial Ecosystems for this catchment. Both associated waterbodies (GWDTE-Cloonshanville Bog (SAC000614) & GWDTE-Bellanagare Bog (SAC000592)) are Good Status (2013-2018).
- ◆ Water dependent SACs/ SPAs in the catchment are illustrated in Figure 6.



<sup>5</sup><https://www.catchments.ie/download/catchments-assessments-protected-areas-supporting-documents/>

Figure 6: Water Dependent SPAs / SACs

#### 2.2.5 Nutrient Sensitive Areas

- ◆ There are no Nutrient Sensitive Areas in the catchment.

### 2.3 Heavily Modified Waterbodies

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

### 2.4 Artificial Waterbodies

- ◆ There are no Artificial Waterbodies (AWBs) present in the Shannon (Boyle) 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 of 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 57 waterbodies in the Upper Shannon (Boyle) Catchment and 12 (21%) are currently *At Risk*, 22 (39%) in *Review* and 23 (40%) are *Not At Risk*.

### 3.2 Surface Waters

- ◆ For the 28 rivers waterbodies, seven (25%) are *At Risk*, 11 (39%) are in *Review* and 10 (36%) are *Not At Risk*.
- ◆ For the 15 lake waterbodies, five (33%) are *At Risk*, nine (60%) are in *Review* and one (7%) is *Not At Risk*. Glinn, Urlaur, Cavetown, Key and Gara are the lake waterbodies *At Risk*.

- ◆ The largest proportion of *At Risk* waterbodies are found in river waterbodies, accounting for seven (58%) of 12 *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 a decrease in one *At Risk* waterbody and a decrease in one *Review* waterbody between Cycle 2 and Cycle 3.

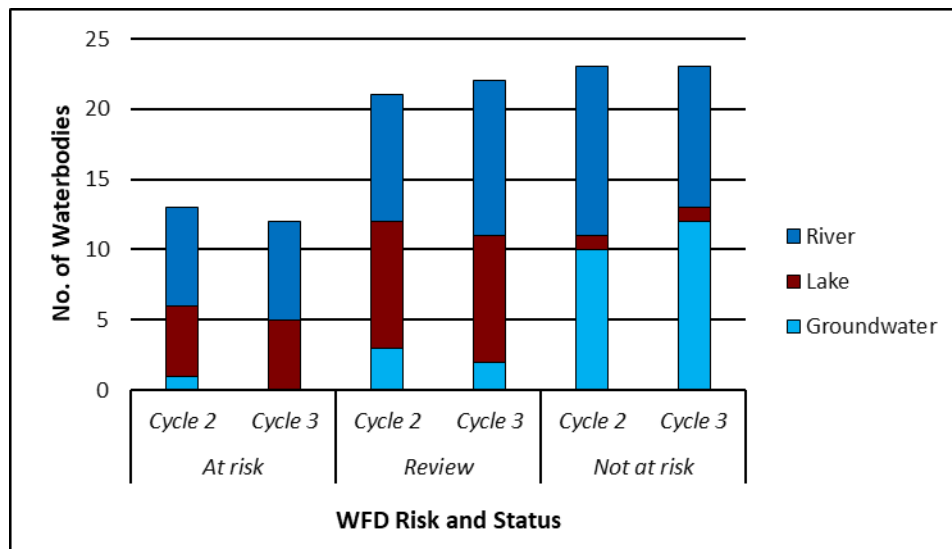


Figure 7: Number of waterbodies in each risk category

- ◆ 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.

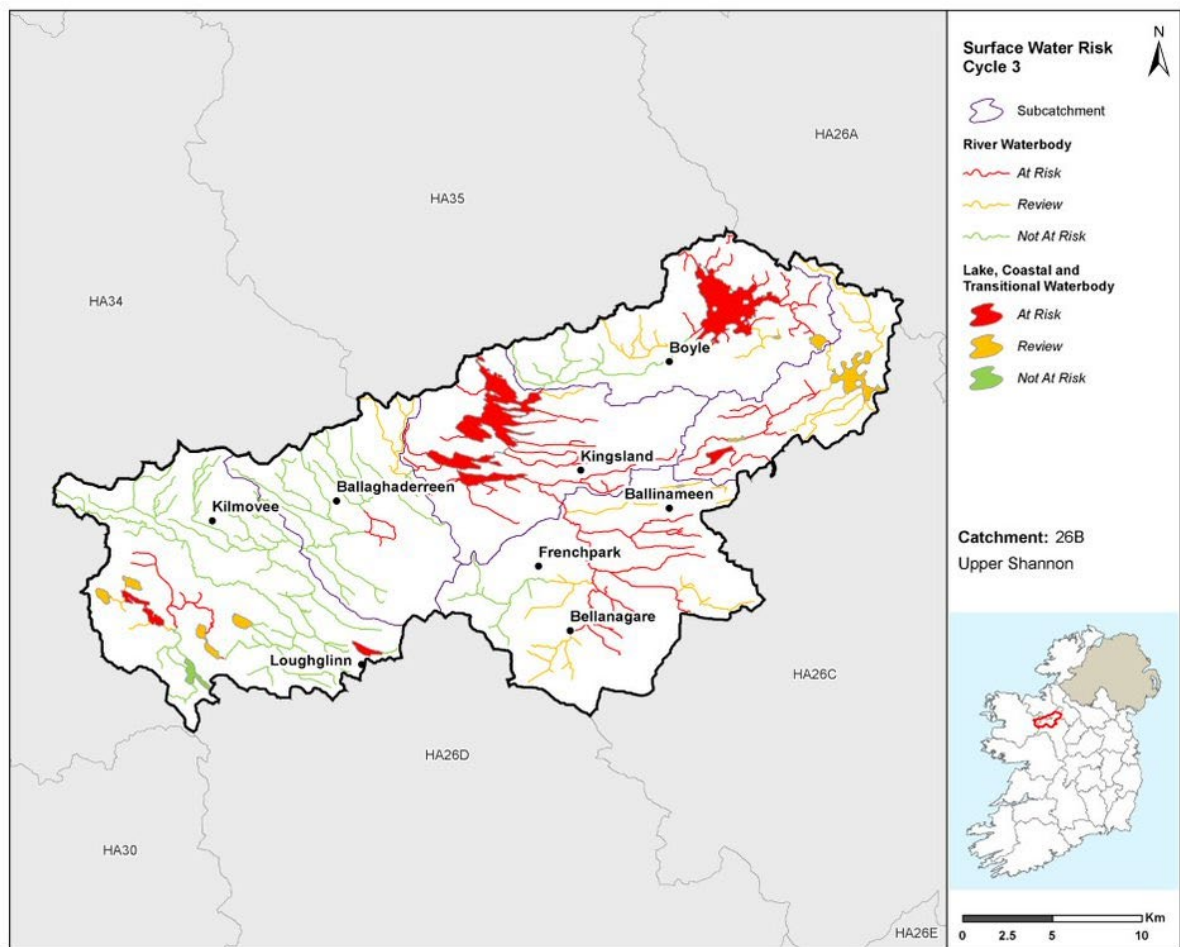


Figure 8: Surface Water Risk Cycle 3

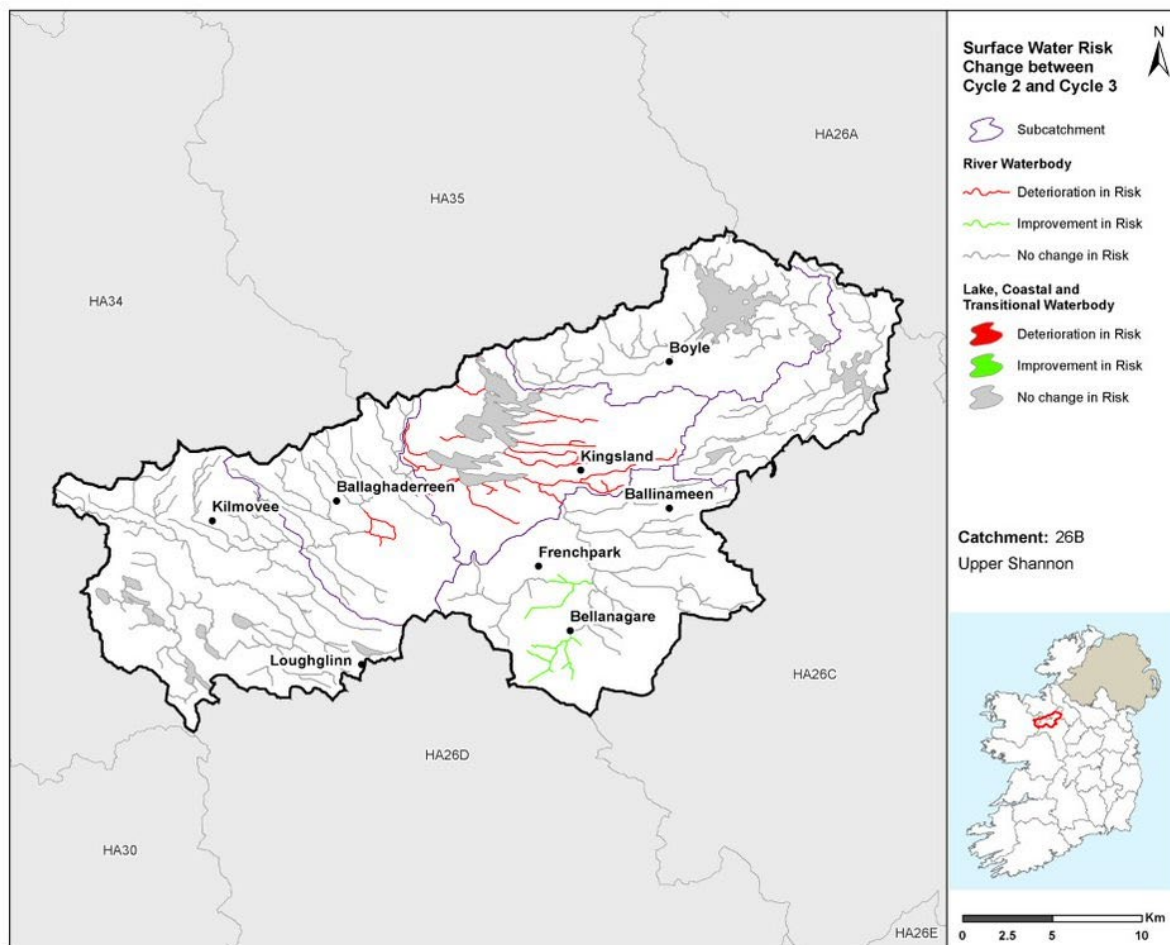


Figure 9: Surface Water Risk Change between Cycle 2 and Cycle 3

### 3.3 Groundwater

- ◆ For the 14 groundwater bodies, two (14%) are in *Review* and 12 (86%) are *Not At Risk*.
- ◆ In Cycle 2 there was one groundwater body (Carrick on Shannon) *At Risk* in this catchment, three in *Review* and 10 *Not At Risk*.
- ◆ The location of the *At Risk*, *Review* and *Not At Risk* groundwater bodies for Cycle 3 are shown in Figure 10.



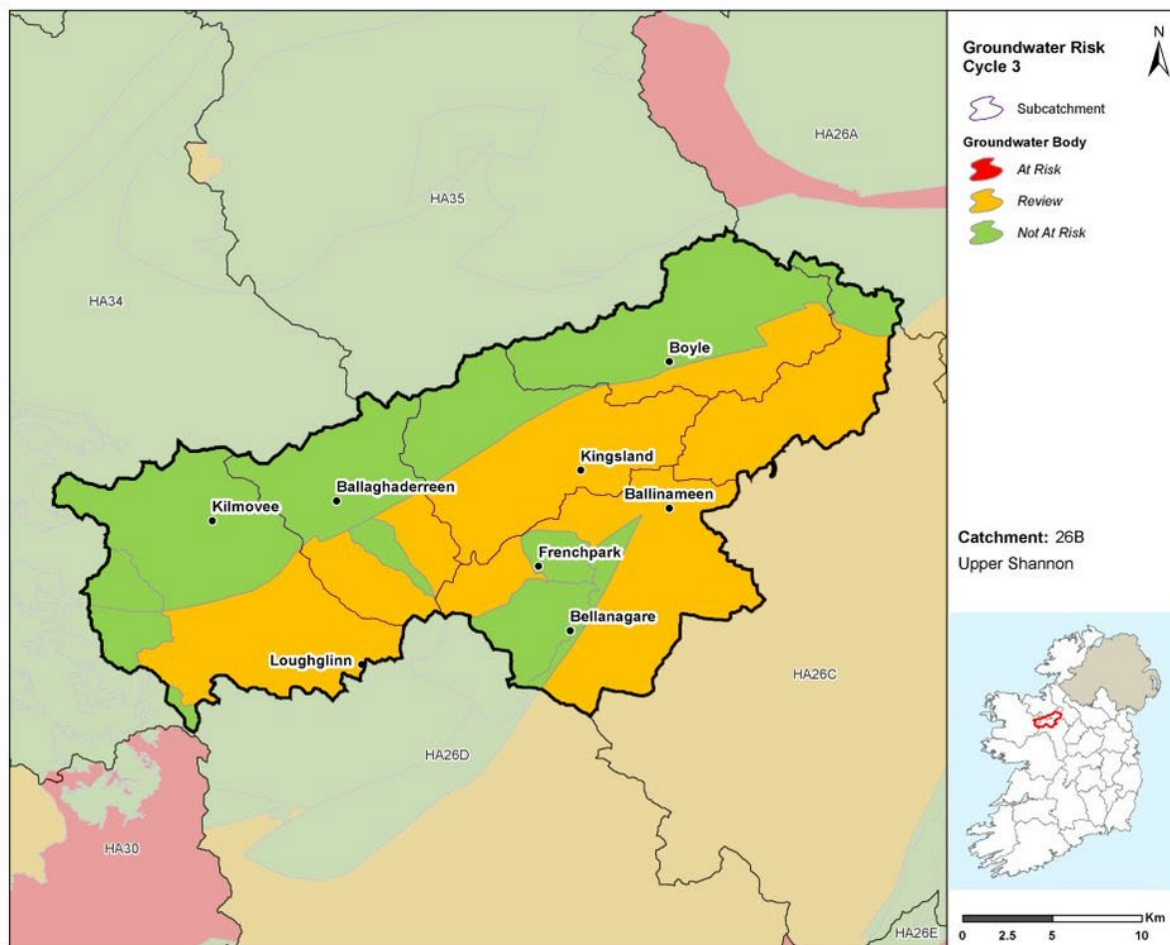


Figure 10: Cycle 3 Groundwater Body Risk

### 3.4 Heavily Modified Waterbodies

- ◆ There are no HMWBs present in the Shannon (Boyle) Catchment. There may be changes to HMWB designation once the Cycle 3 HMWB assessment has been completed and consulted on for the 3<sup>rd</sup> Cycle Final RBMP.

### 3.5 Artificial Waterbodies

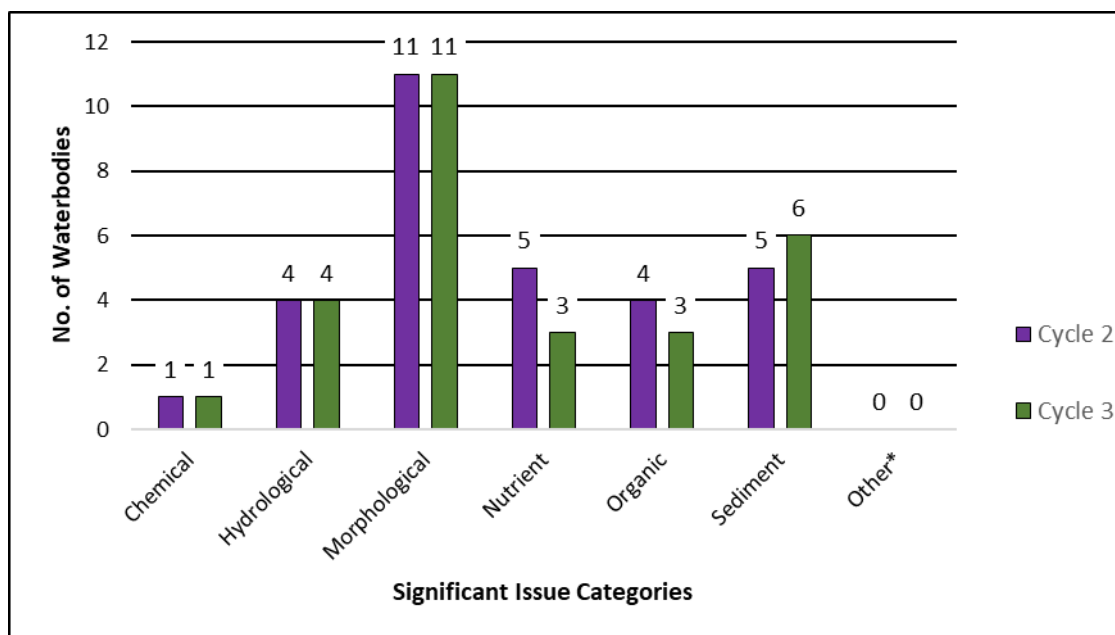
- ◆ There are no Artificial Waterbodies (AWBs) present in the Shannon (Boyle) Catchment.

## 4 Significant Issues in *At Risk* Waterbodies

### 4.1 All Waterbodies

- ◆ Morphological impacts remain the most prevalent issues in the Upper Shannon (Boyle) catchment (Figure 11) impacting 11 waterbodies in Cycle 3. Sediment and hydrological issues are impacting six and four waterbodies respectively. Both nutrients and organics are impacting three waterbodies each while chemical pollution is impacting one waterbody.

- For river waterbodies, the main significant issues are morphological impacts (6), organic pollution (3), hydrological (3), nutrient pollution (2), sediment (2) and chemical impacts (1).
  - For lake waterbodies, the main significant issues are morphological (5), sediment pollution (4), nutrient pollution (1) and hydrological impacts (1).
- ◆ Between Cycle 2 and Cycle 3 the number of waterbodies with nutrients and organic issues has decreased to three waterbodies each from five and four waterbodies in the previous cycle.
  - ◆ The numbers of waterbodies with hydrological, chemical and agriculture issues have remained unchanged from Cycle 2 to Cycle 3.
  - ◆ The number of waterbodies impacted by sediment has increased from five in Cycle 2 to six in Cycle 3.

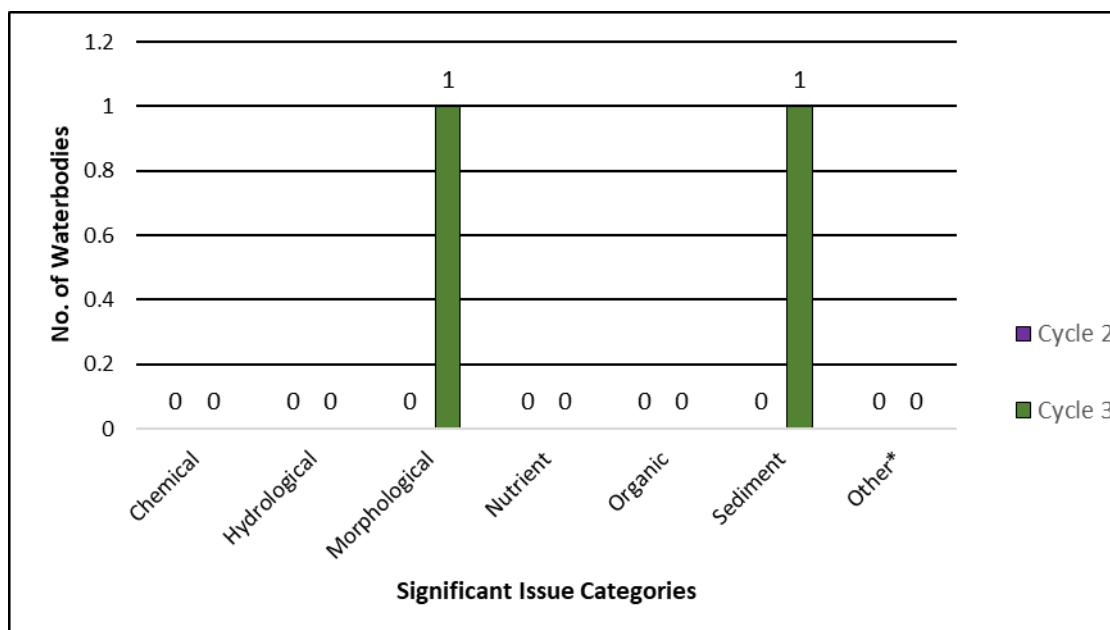


\*Other - Acidification, saline intrusion, elevated temperature, litter, microbiological pollution and unknown impacts have all been grouped into the "Other" issues category for the purpose of this report

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

## 4.2 High Status Objective Waterbodies

- ◆ In Cycle 3 the Upper Shannon (Boyle) Catchment has one High Status Objective waterbody, Lung\_040 river waterbody. This river waterbody is impacted by morphological and sediment issues.
- ◆ Lung\_040 was *Not At Risk* in Cycle 2, therefore, there are no significant impacts listed prior to 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 12: Significant Issues in At Risk High Status Objective Waterbodies

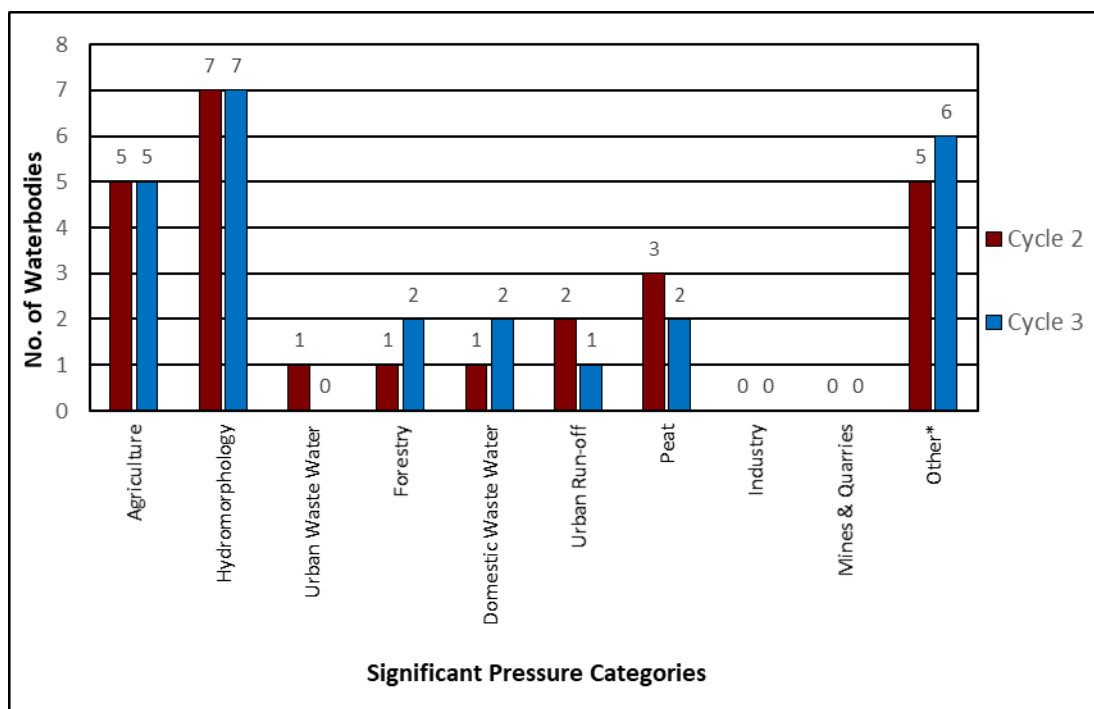
## 5 Significant pressures in At Risk Waterbodies

### 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 hydromorphology, followed by other<sup>6</sup>, agriculture, peat, domestic waste water, forestry and urban run-off.
- ◆ When comparing Cycle 2 and Cycle 3 the biggest change is a decrease of one waterbody (Carricknabraher\_020), where urban waste water is a significant pressure to no waterbodies in Cycle 3.

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<sup>6</sup> 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



\*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 Hydromorphology

- ◆ Hydromorphological modification is a significant pressure in six river waterbodies. These river waterbodies, within the Breedoge, Lung and Boyle subcatchments, are subject to extensive modification due to arterial drainage schemes. In addition, there is one lake waterbody that was created by blocking the outlet to allow flooding upstream. For the river waterbodies, five of these (Anaderryboy\_020, Boyle\_010, Clogher (Roscommon)\_010, Clogher (Roscommon)\_020 and Lung\_040) are impacted by channelisation pressures, while one (Breedoge\_010) is impacted by land drainage pressures and one (Boyle\_010) by bank erosion.

#### 5.1.1.2 Other

- ◆ *Invasive species*  
Zebra mussels have been identified as significant pressures four lake waterbodies, Loughs Urlaur, Key, Cavetown and Gara.
- ◆ *Anthropogenic*  
There is an unknown pressure impacting Lung\_040, Key and Boyle\_040. Sedimentation is impacting Lung\_040, which is possibly linked to extensive bog and forest fires during 2018 while Lough Key and Boyle\_040 are impacted by boating and the forest park activities.

#### 5.1.1.3 Agriculture

- ◆ Agriculture is a significant pressure in three river (Boyle\_010, Breedoge\_010 and Lung\_040) and two lake waterbodies (Cavetown Lough and Lough Gara). The issues related to farming in this catchment are the use of MCPA (impacts in Lough Gara and Breedoge\_010) for control of rushes and 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.

#### **5.1.1.4 Peat**

- ◆ Peat drainage and extraction has been identified as a significant pressure in two river waterbodies (Breedoge\_010 and Anaderryboy\_020). The significant issues arise from peat harvesting which results in hydromorphological pressure with elevated sediment loads.

#### **5.1.1.5 Domestic waste water**

- ◆ Domestic waste water has been identified as a significant pressure in one lake waterbody (Cavetown Lough) and one river waterbody (Boyle\_010). The Boyle\_010 site is at the outfall of Lough Gara which is suspected to be contributing to the pressure.

#### **5.1.1.6 Forestry**

- ◆ Forestry has been identified as a significant pressure in two river waterbodies (Boyle\_010 and Breedoge\_010). The significant issues are clearfelling and increased sediment loading which impacts habitat/morphology.

#### **5.1.1.7 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 one river waterbody, Breedoge\_010, resulting in elevated nutrients and organic contamination.

Figure 14 – Figure 16 illustrates the locations of waterbodies for the three most common pressures in order of prevalence (hydromorphology, agriculture and other) within the catchment in Cycle 3.

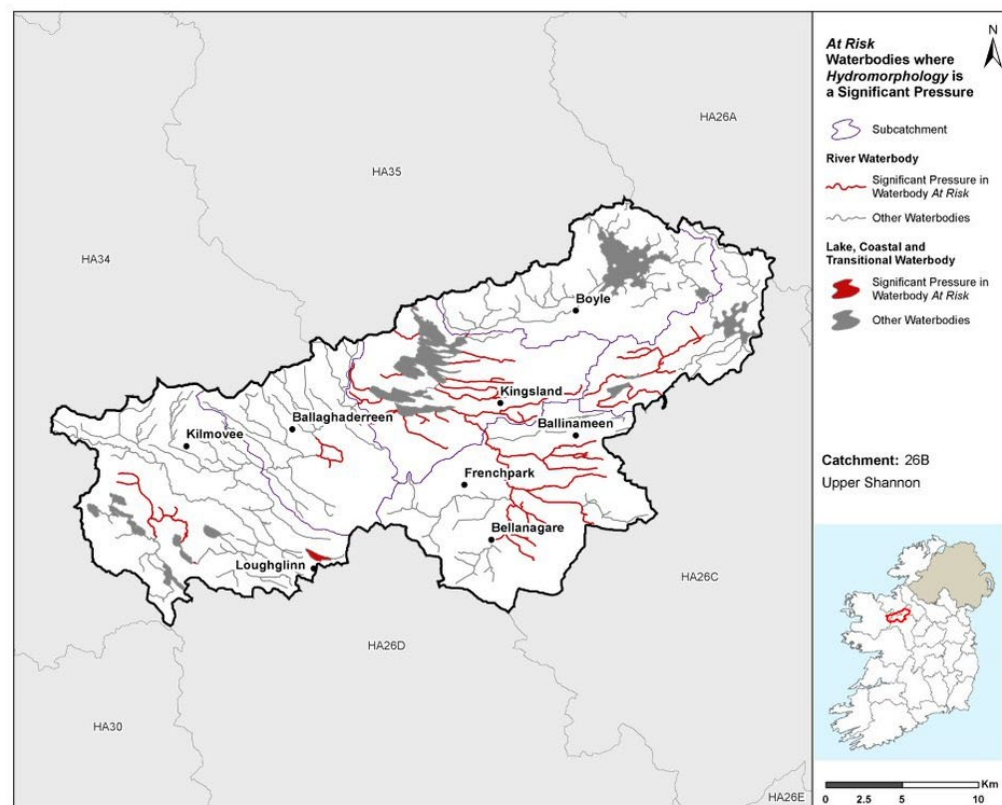


Figure 14: Locations of Waterbodies where Hydromorphology is a Significant Pressure

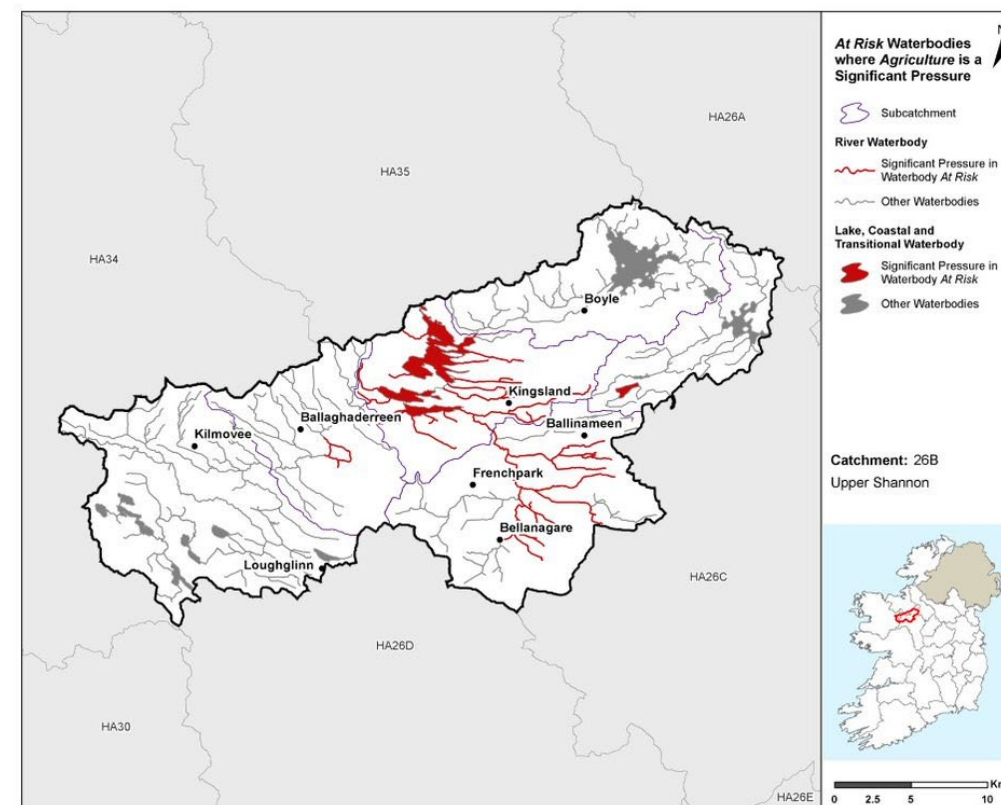


Figure 15: Locations of Waterbodies where Agriculture is a Significant Pressure

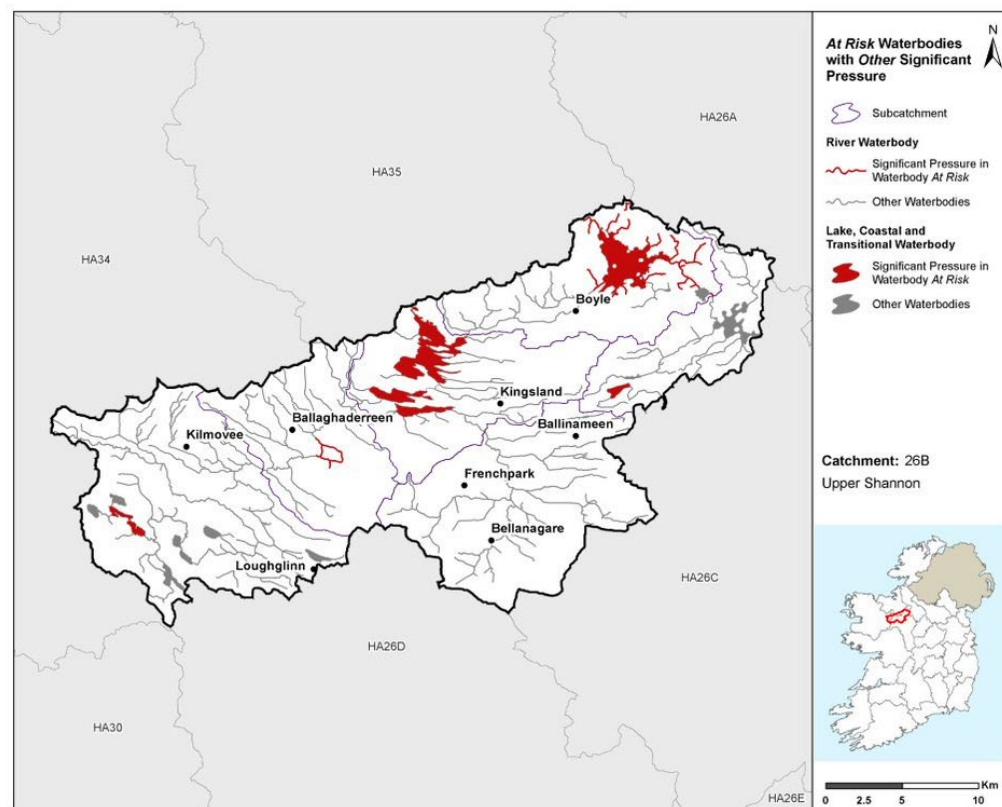
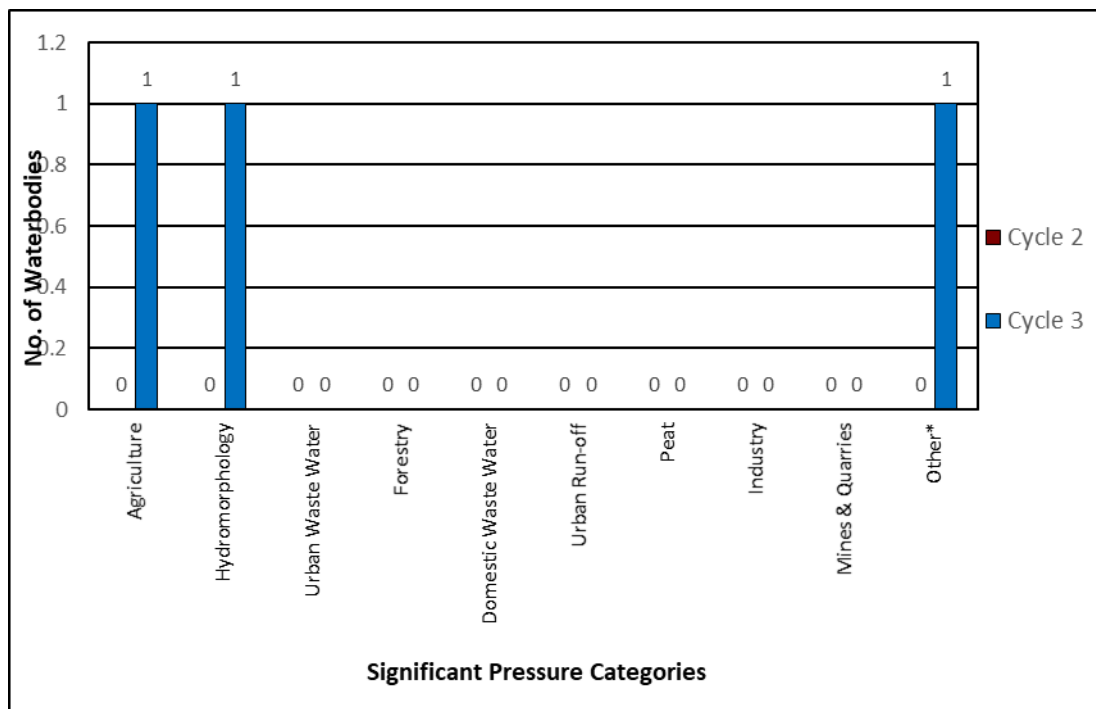


Figure 16: Locations of Waterbodies where Other is a Significant Pressure

## 5.2 High Status Objective Waterbodies

- ◆ Hydromorphology, agriculture and other pressures are the dominant significant pressure in the only High Status Objective waterbody, Lung\_040 river 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 17: 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.
- ◆ 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 and forestry is responsible for 58% and 14% of the nitrogen load respectively while land in pasture, forestry and peat contribute 41%, 22% and 12% of the phosphorus loadings for the catchment respectively (Figure 17).



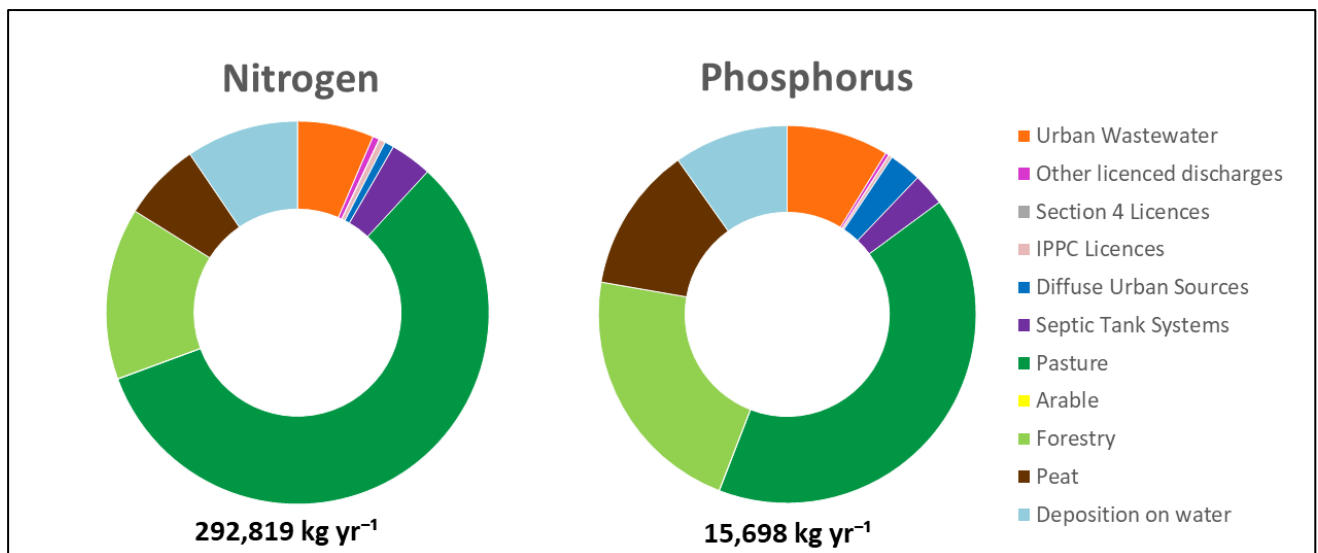


Figure 18: Estimated Proportions of N & P from Each Sector in the Upper Shannon (Boyle) Catchment

## 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 (Boyle) 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 sediment and phosphorus should be targeted. Waterbodies with blue fill are areas where sediment or phosphorus should be targeted. Pollution Impact Potential mapping for both phosphorus and nitrogen in the catchment are provided in Appendix 2.

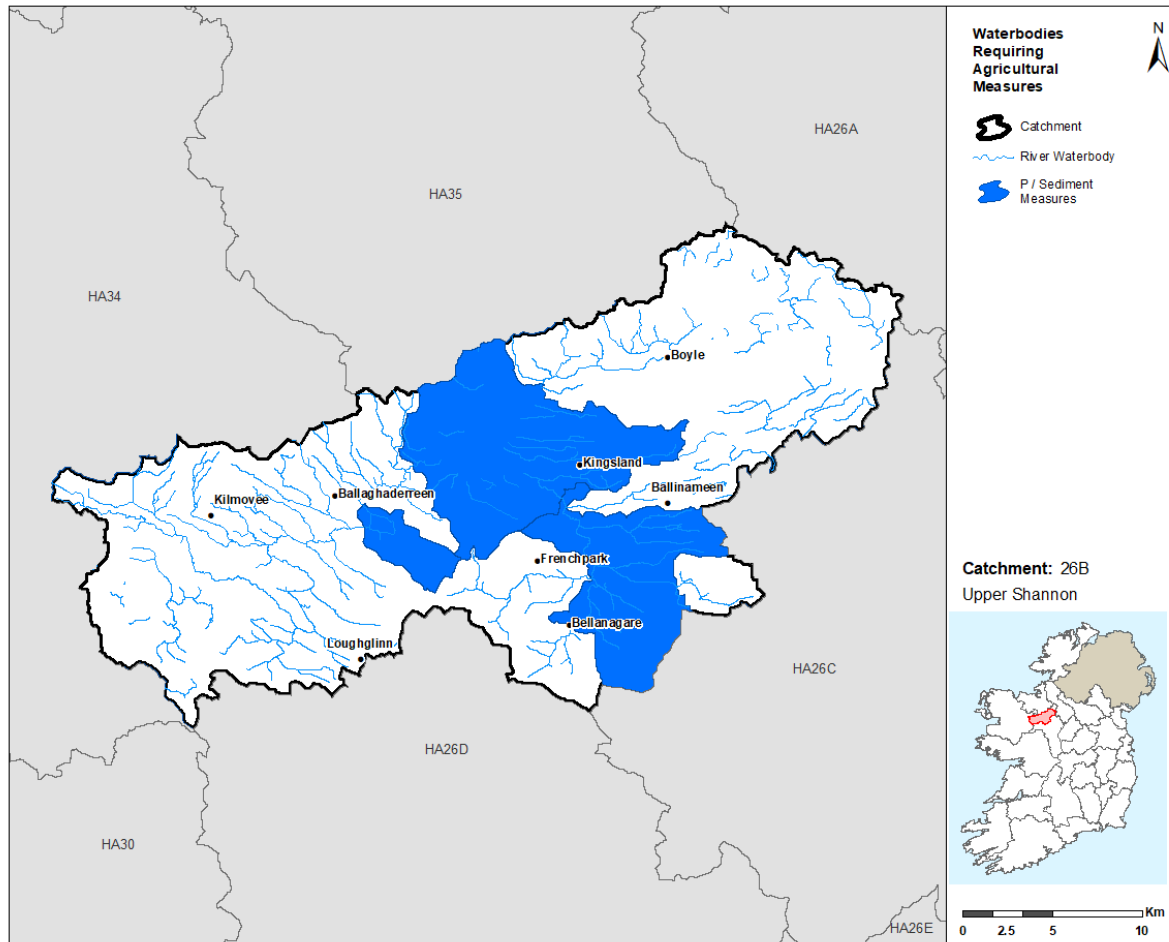


Figure 19: Waterbodies where Agricultural Measures should be Targeted

## 8 2<sup>nd</sup> Cycle Areas for Action

### 8.1 Area for Action Overview

- ◆ There were two Areas for Action, comprising of 12 waterbodies, selected for further characterisation and action in the catchment for the 2<sup>nd</sup> Cycle River Basin Management Plan. The Areas for Action in the catchment are listed in Table 3 and shown in Figure 20. LAWPRO, in conjunction with local authorities and stakeholders from the Borders and Western Regional Operational Committees, have been working in these areas since 2018.

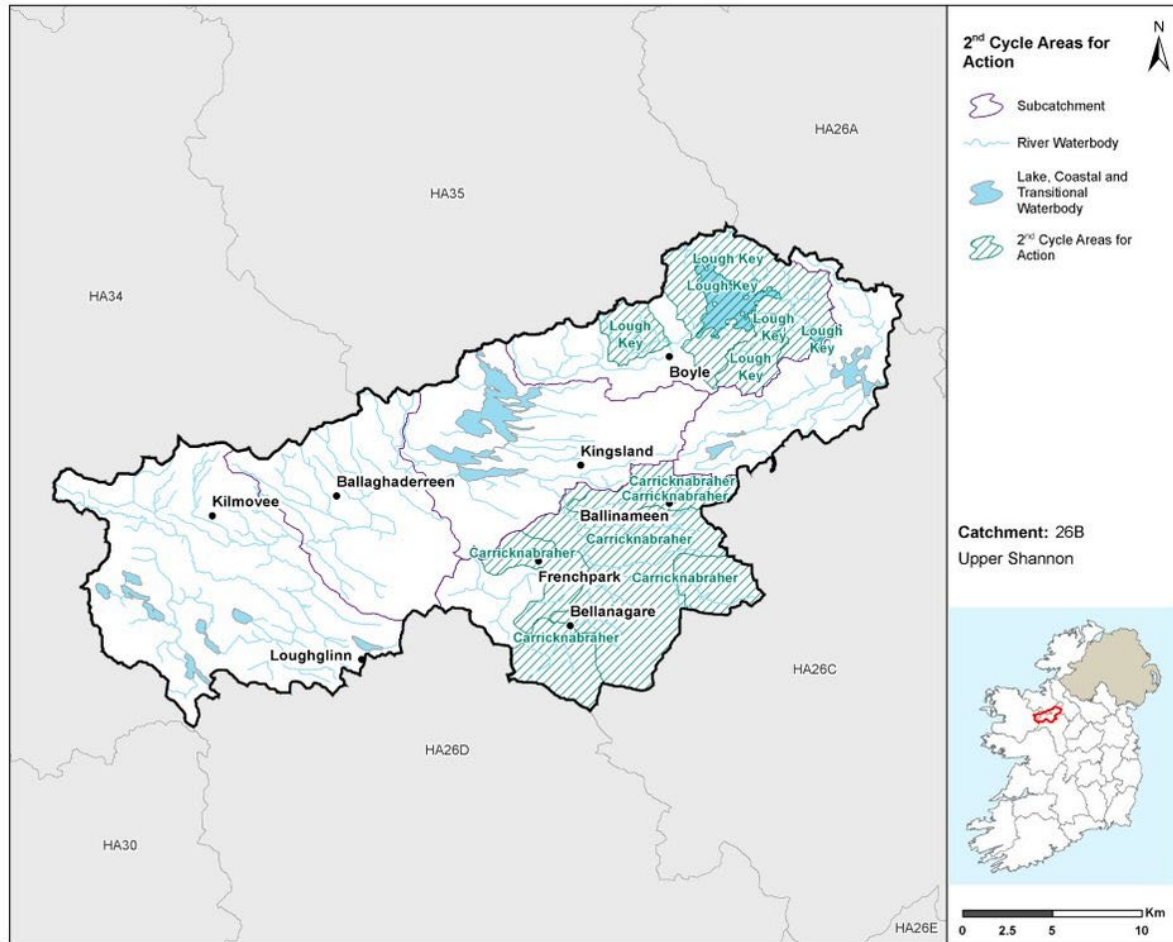


Figure 20: 2<sup>nd</sup> Cycle Areas for Action Locations

Table 3: 2<sup>nd</sup> Cycle Areas for Action

2 <sup>nd</sup> Cycle Area for Action	Number of waterbodies	Sub-catchment	Local Authority	Reason for Selection
<b>Carricknabraher</b>	6	26B_1	Roscommon	<ul style="list-style-type: none"> <li>• Building on completed improvements at Frenchpark WWTP.</li> <li>• Building on existing work on poorly draining soil.</li> <li>• Contributing to Lough Gara drinking water source which is failing its drinking water objectives for glyphosate.</li> <li>• 2 deteriorated waterbodies.</li> <li>• Headwaters that ultimately flow into Lough Gara.</li> </ul>
<b>Lough Key</b>	6	26B_3	Roscommon	<ul style="list-style-type: none"> <li>• Important for tourism.</li> <li>• 2 deteriorated waterbodies, Lough Key (low confidence deterioration) and Boyle_040</li> </ul> <p>Comment: low confidence in the lake status deterioration. Prioritisation of</p>

2 <sup>nd</sup> Cycle Area for Action	Number of waterbodies	Sub-catchment	Local Authority	Reason for Selection
				this project will depend on the next monitoring results; the recent survey was in 2014 so next monitoring likely to be 2017. If there is deterioration, prioritise this project; however, if Good Status is recorded, do not prioritise project.

## 8.2 Status Change in 2<sup>nd</sup> Cycle Areas for Action

- ◆ For Cycle 3, of the 12 waterbodies in the 2<sup>nd</sup> Cycle Areas for Action, one waterbody is at Good Status, two waterbodies at Moderate Status, two waterbodies at Poor Status and seven waterbodies where status has not been assigned.
- ◆ There is an overall improvement in the status of one of the 2<sup>nd</sup> cycle Areas for Action waterbodies across the catchment.<sup>7</sup>
- ◆ Of the five waterbodies within the 2<sup>nd</sup> Cycle Areas for Action which had status assigned, four experienced no change in status between Cycle 2 and Cycle 3 and one waterbody experienced an improvement (Figure 21). The one waterbody improvement was in the Carricknabraher Area for Action.

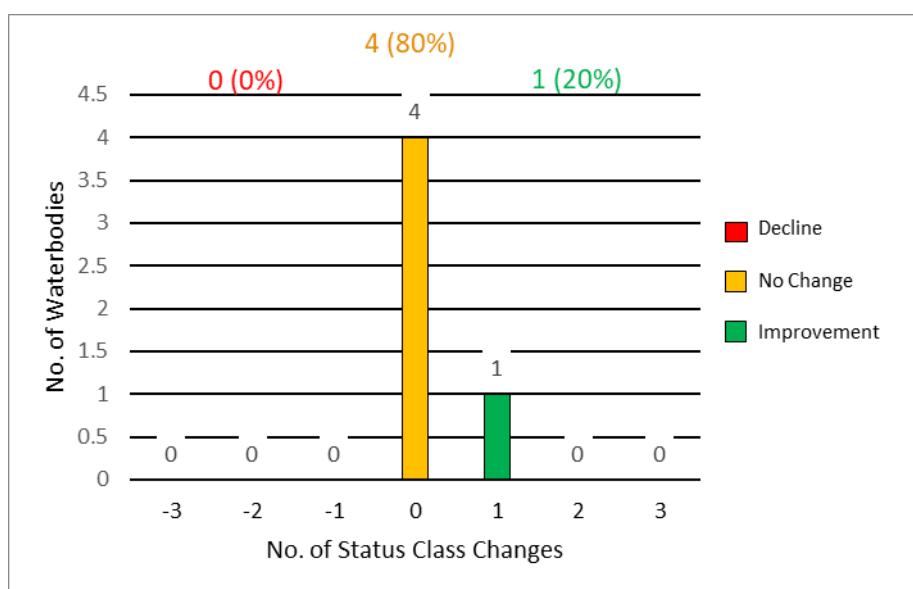


Figure 21: 2<sup>nd</sup> Cycle Area for Action Waterbody Status Class Changes between Cycle 2 and Cycle 3

<sup>7</sup> 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.

### 8.3 Waterbody Risk in 2<sup>nd</sup> Cycle Areas for Action

- ◆ For the 12 waterbodies in the 2<sup>nd</sup> Cycle Areas for Action, three (25%) of these are currently *At Risk* and nine (75%) in *Review*.
- ◆ For the eight river waterbodies, two (25%) are *At Risk* and six (75%) are in *Review*. Boyle\_040 and Breedoge\_010 are the *At Risk* river waterbodies.
- ◆ Of the four lake waterbodies one (25%) is *At Risk* and three (75%) are in *Review*. The *At Risk* lake waterbody is Key.
- ◆ The largest proportion of *At Risk* waterbodies are river waterbodies, accounting for two (67%) of three *At Risk* waterbodies. Figure 22 gives an overview of the breakdown of risk across waterbody types for both Cycle 2 and Cycle 3 in 2<sup>nd</sup> Cycle Areas for Action.
- ◆ Overall there is a decrease from five to three *At Risk* waterbodies in 2<sup>nd</sup> Cycle Areas for Action between Cycle 2 and Cycle 3.

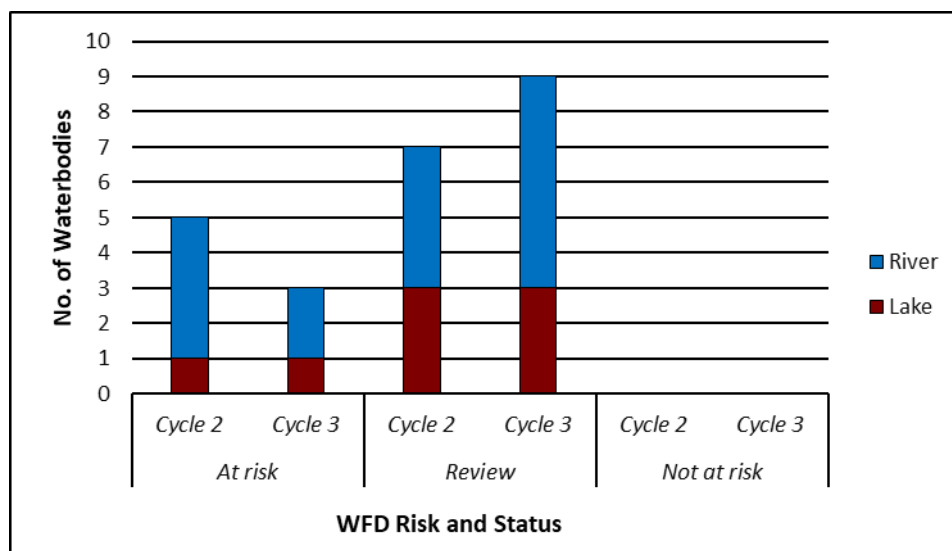
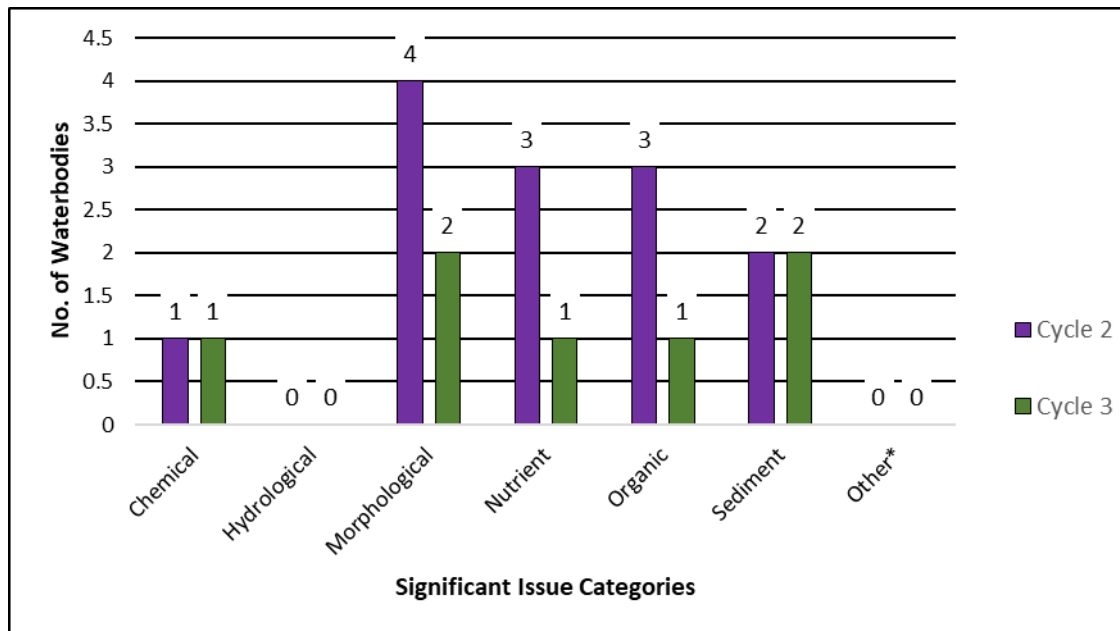


Figure 22: Number of waterbodies in each risk category in 2<sup>nd</sup> Cycle Areas for Action

### 8.4 Significant Issues in 2<sup>nd</sup> Cycle Areas for Action

- ◆ Based on the EPA assessment for Cycle 3, the significant issues in the 2<sup>nd</sup> Cycle Areas for Action are morphological impacts and sediment pollution, each impacting two waterbodies (Figure 23). This is followed by organic, nutrient and chemical pollution which are all impacting one waterbody each.
- ◆ The number of 2<sup>nd</sup> Cycle Areas for Action waterbodies associated with each of the significant issues categories has reduced between Cycle 2 and Cycle 3 except for sediment and chemical which have remained unchanged.

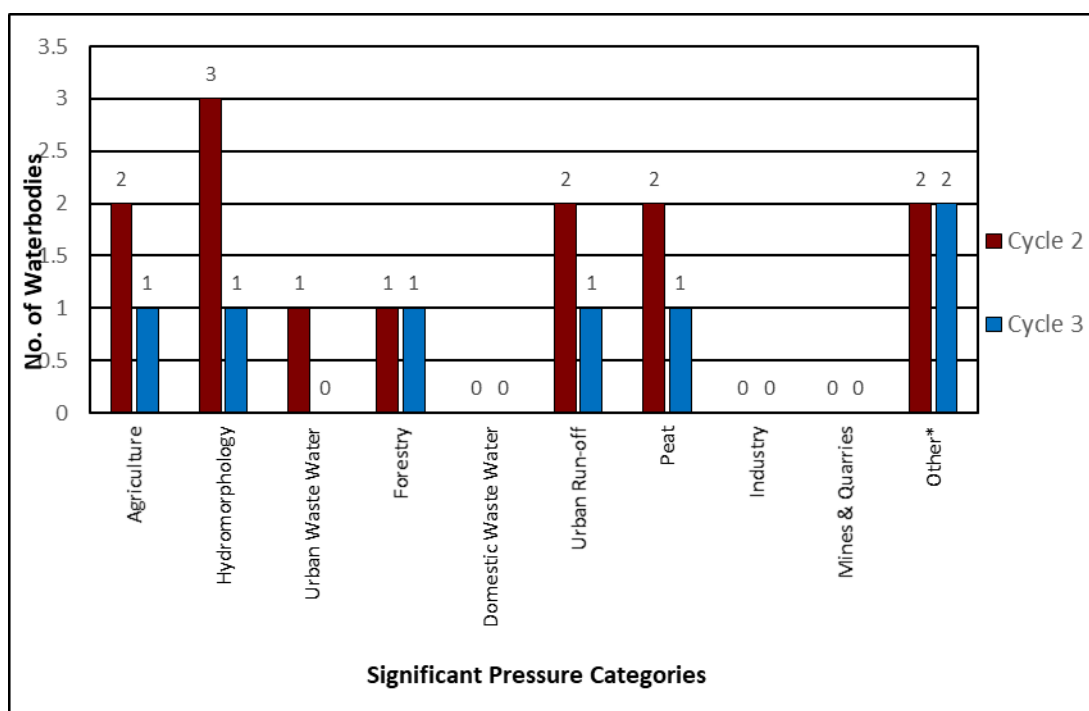


\*Other - Acidification, saline intrusion, elevated temperature, litter, microbiological pollution and unknown impacts have all been grouped into the "Other" issues category for the purpose of this report

Figure 23: Significant Issues across all 2<sup>nd</sup> Cycle Areas for Action Waterbodies

## 8.5 Significant Pressure in 2<sup>nd</sup> Cycle Areas for Action

- ◆ For Cycle 3, in 2<sup>nd</sup> Cycle Areas for Action waterbodies in the catchment the dominant significant pressures are:
  - Hydromorphology - one waterbody is impacted compared to three impacted in Cycle 2.
  - Agriculture, urban run-off and peat are all impacting one waterbody compared to two impacted in Cycle 2.
  - Other pressures and forestry remain unchanged since the previous cycle, impacting two and one waterbody respectively.
  - Urban waste water is no longer a significant pressure in Cycle 3, compared to Cycle 2 where one waterbody was impacted.
- ◆ When comparing the significant pressures in the 2<sup>nd</sup> Cycle Areas for Action between Cycle 2 and 3 there has been a decrease in all significant pressure categories in the catchment with the exception of forestry and other pressures which remain unchanged.



\*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 2<sup>nd</sup> Cycle Area for Action Waterbodies

## 9 3<sup>rd</sup> Cycle Recommended Areas for Action

### 9.1 Recommended Areas for Action Overview

- ◆ For the 3<sup>rd</sup> 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 3<sup>rd</sup> Cycle Plan is to capture all activity that is working to restore, improve and/or protect waterbodies.
- ◆ The Recommended 3<sup>rd</sup> 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 five Areas for Action, comprising of 37 waterbodies, recommended for further characterisation and action in the catchment for the 3<sup>rd</sup> Cycle River Basin Management Plan. Nine of the 37 waterbodies in the 3<sup>rd</sup> Cycle Recommended Areas for Action are *At Risk*, 17 are in *Review* and 11 are *Not At Risk*. The five Recommended Areas for Action consist of four Areas for Restoration and one Catchment Project. LAWPRO are the proposed lead organisation in four Recommended Areas for Action (Lung, Lough Gara, Lough Key & Carricknabrah) and GSI are the proposed lead on the remaining Recommended Area for Action (Suck South GWB). The Recommended Areas for Action in the catchment are listed in Table 4 and shown in Figure 25. The reason for selecting for each waterbody in a Recommended Area for Action is provided in Appendix 3.



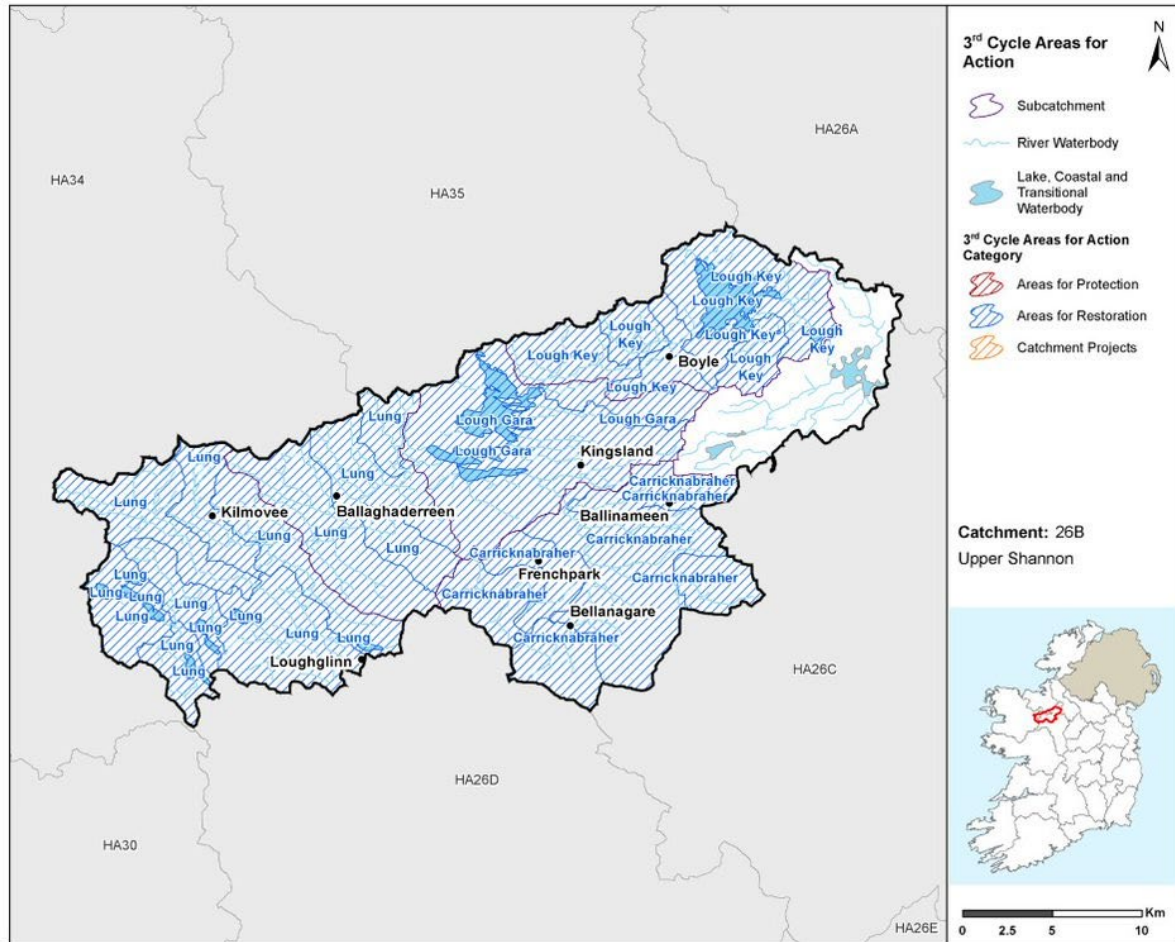


Figure 25: 3<sup>rd</sup> Cycle Recommended Areas for Action Locations

Table 4: 3<sup>rd</sup> 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
Lung	18	Restoration	Prioritised Areas for Action LAWPRO	LAWPRO
Lough Gara	3	Restoration	Prioritised Areas for Action LAWPRO	LAWPRO
Lough Key	8	Restoration	Prioritised Areas for Action LAWPRO	LAWPRO
Carricknabraher	7	Restoration	Prioritised Areas for Action LAWPRO	LAWPRO
Suck South GWB	1	Catchment Projects	Public Body Research	GSI

## 10 Catchment Summary

- Of the 28 river waterbodies, seven are *At Risk* of not meeting their WFD objectives.

- Five out of 15 lake waterbodies are *At Risk* of not meeting their WFD objectives. Glinn, Urlaur, Cavetown, Key and Gara are the *At Risk* lake waterbodies.
- None of the 14 groundwater bodies are *At Risk* in Cycle 3.
- There are 12 waterbodies *At Risk* in Cycle 3 compared to 13 waterbodies *At Risk* in Cycle 2.
- The main significant issues are from morphological impacts and sediment pollution, followed by hydrological impacts, nutrient, organic and chemical pollution.
- The main significant pressures are hydromorphological pressures followed by other<sup>8</sup> pressures, agriculture, peat, domestic waste water and forestry.
- The main impacts and pressures driving the change between Cycle 2 and Cycle 3 are nutrient, organic and sediment pollution.
- In the 2<sup>nd</sup> Cycle Areas for Action, five waterbodies were *At Risk* in Cycle 2 and three waterbodies are *At Risk* in Cycle 3.
- There are five 3<sup>rd</sup> Cycle Recommended Areas for Action for Cycle 3. They comprise of 37 waterbodies with nine waterbodies *At Risk*, 17 in *Review* and 11 *Not At Risk*.

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<sup>8</sup> 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

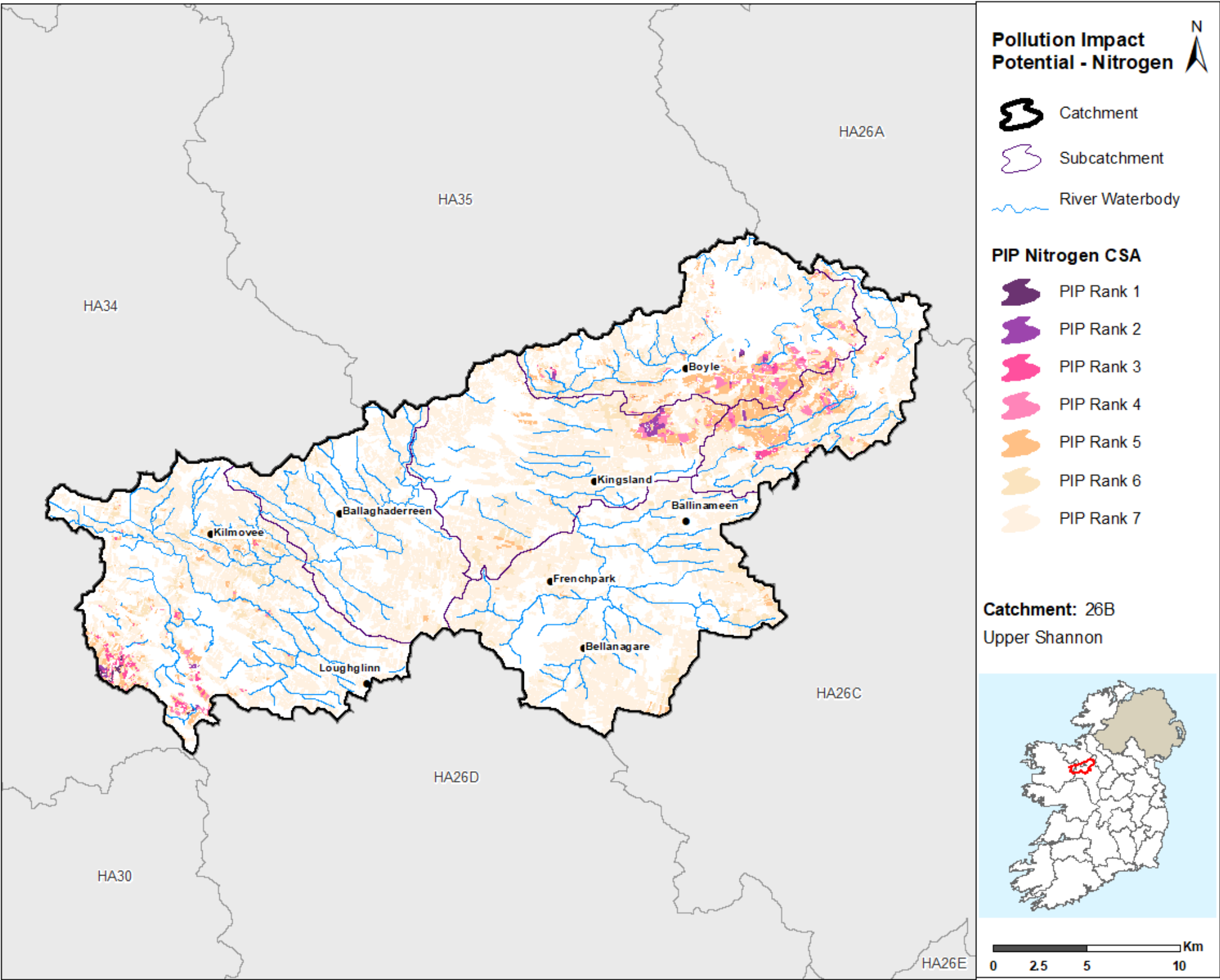
## Appendix 1

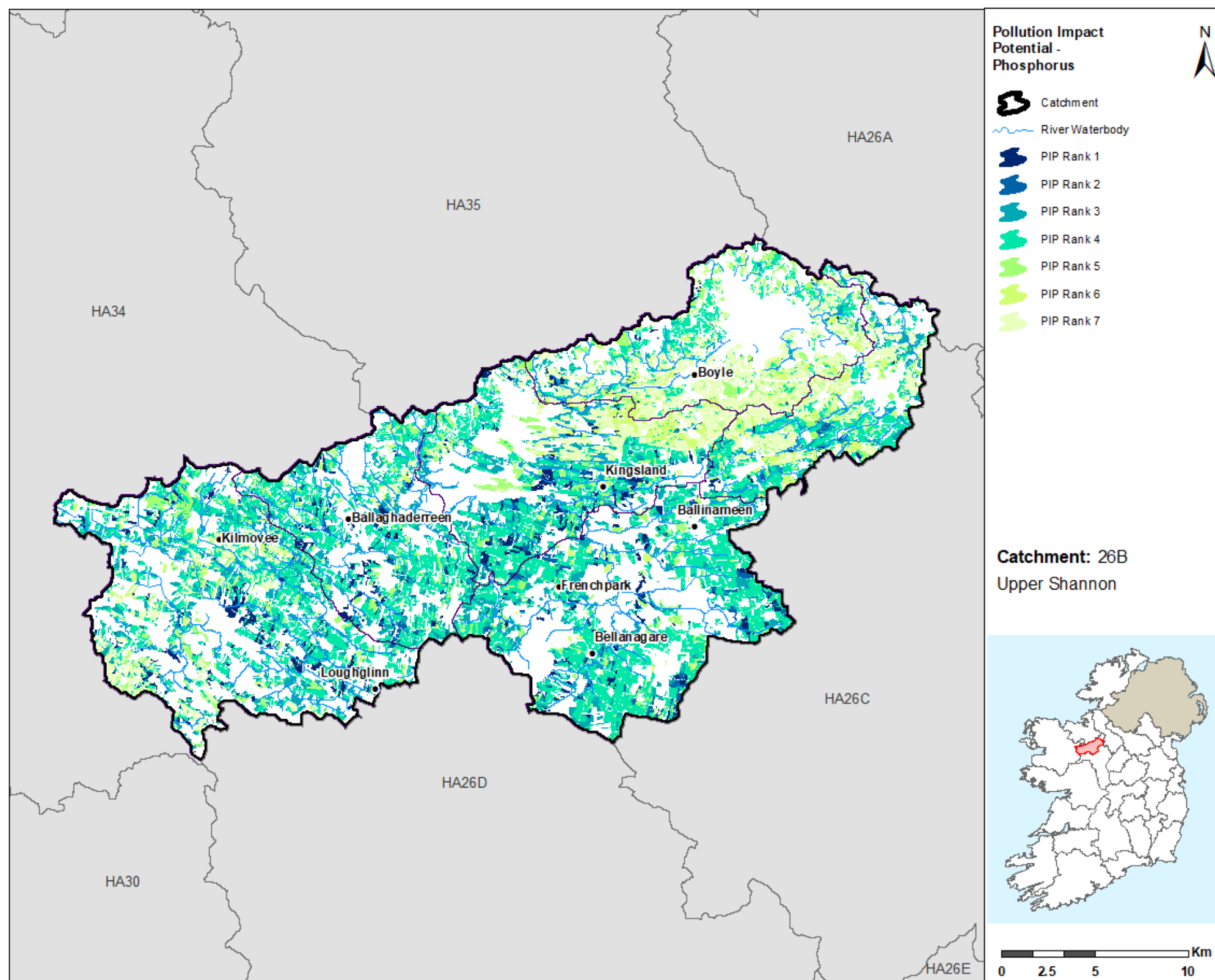
### High ecological status objective waterbodies

Waterbody Name	Waterbody Type	Waterbody Code	Status 2013-2018
LUNG_040	River	IE_SH_26L030350	Good

Appendix 2

Pollution Impact Potential Mapping





## Appendix 3

### Summary information on all waterbodies in the Upper Shannon (Boyle) 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)
26B_2	IE_SH_26A030100	ANADERRYBOY_010	River	Not at risk	Not at risk	Good	Good	No		Lung	Proposed by GWS. Include to complete SC of downstream Blue Dot. Gortnaganny GWS close to this river water body.
26B_2	IE_SH_26A030400	ANADERRYBOY_020	River	At risk	At risk	Moderate	Moderate	No	Hymo, Peat	Lung	Include to complete SC of downstream Blue Dot.
26B_5	IE_SH_26B080100	BOYLE_010	River	Not at risk	At risk	Good	Moderate	No	Ag, DWW, For, Hymo	Lough Gara	Expansion of Lough Key PAA upstream.
26B_3	IE_SH_26B080200	BOYLE_020	River	Not at risk	Not at risk	Good	Good	No		Lough Key	Expansion of Lough Key PAA. Want to include full subcatchment / upstream.
26B_3	IE_SH_26B080400	BOYLE_030	River	Not at risk	Not at risk	Good	Good	No		Lough Key	Expansion of Lough Key PAA. Want to include full subcatchment / upstream.
26B_3	IE_SH_26B080600	BOYLE_040	River	At risk	At risk	Moderate	Moderate	No	Other	Lough Key	Within existing PAA. At Risk.
26B_1	IE_SH_26B090300	BREEDOGE_010	River	At risk	At risk	Poor	Poor	No	Ag, For, Hymo, Peat, UR	Carricknabraher	Within existing PAA. At Risk.
26B_1	IE_SH_26C020100	CARRICKNABRAHER_010	River	Not at risk	Not at risk	Good	Good	No		Carricknabraher	Included to ensure complete subcatchment.
26B_1	IE_SH_26C020200	CARRICKNABRAHER_020	River	At risk	Review	Poor	Poor	No		Carricknabraher	Existing AR PAA WB. Characterisation ongoing.
26B_4	IE_SH_26C180500	CLOGHER (ROSCOMMON)_010	River	At risk	At risk	Poor	Poor	No	Hymo		
26B_4	IE_SH_26C180900	CLOGHER (ROSCOMMON)_020	River	At risk	At risk	Moderate	Moderate	No	Hymo		
26B_2	IE_SH_26C270690	Cummer (Mayo)_010	River	Review	Review	Unassigned	Unassigned	No		Lung	Proposed by NPWS. Include to complete SC of downstream Blue Dot.
26B_3	IE_SH_26D090760	DEMESNE_010	River	Review	Review	Unassigned	Unassigned	No		Lough Key	Error in original list - should have been included. Within existing PA. Unassigned RWB. Awaiting characterisation to confirm if impacted or not.
26B_5	IE_SH_26D110290	DERRYMAQUIRK_010	River	Review	Review	Unassigned	Unassigned	No		Lough Gara	Expansion of Lough Key PAA upstream.
26B_4	IE_SH_26E290990	EIDIN_010	River	Review	Review	Unassigned	Unassigned	No			
26B_6	IE_SH_26F360990	FALLSOLLUS_010	River	Review	Review	Unassigned	Unassigned	No		Lung	Add to proposed Lung Recommended Areas for Action. Complete SC.
26B_1	IE_SH_26G780950	GRANNY_010	River	Review	Review	Unassigned	Unassigned	No		Carricknabraher	In an existing PAA. Characterisation yet to be started.
26B_2	IE_SH_26K060700	KILTACLARE STREAM_010	River	Not at risk	Not at risk	Good	Good	No		Lung	Include to complete SC of downstream Blue Dot.
26B_2	IE_SH_26L030100	LUNG_010	River	Not at risk	Not at risk	Good	Good	No		Lung	Include to complete SC of downstream Blue Dot.
26B_2	IE_SH_26L030200	LUNG_020	River	Not at risk	Not at risk	Good	Good	No		Lung	Include to complete SC of downstream Blue Dot.



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)
26B_6	IE_SH_26L030275	LUNG_030	River	Not at risk	Not at risk	Unassigned	Unassigned	No		Lung	LA feels there are issues in this WB affecting Lung_040. requires investigation.
26B_6	IE_SH_26L030350	LUNG_040	River	Not at risk	At risk	High	Good	Yes	Ag, Hymo, Other	Lung	Low numbers of blue dots in Roscommon. Important to resolve issues here.
26B_6	IE_SH_26L030400	LUNG_050	River	Not at risk	Not at risk	Good	Good	No		Lung	Include to complete SC.
26B_2	IE_SH_26L100900	LISSYDALY STREAM_010	River	Not at risk	Not at risk	Good	Good	No		Lung	Include to complete SC of downstream Blue Dot.
26B_1	IE_SH_26M010200	MANTUA_010	River	Review	Review	Unassigned	Unassigned	No		Carricknabraher	Awaiting characterisation. Unassigned water body.
26B_3	IE_SH_26M910890	MOCMOYNE_010	River	Review	Review	Unassigned	Unassigned	No		Lough Key	Error in original list - should have been included. Within existing PA. Unassigned RWB. Awaiting characterisation to confirm if impacted or not.
26B_1	IE_SH_26O040100	OWENNAFOREESHA_010	River	At risk	Review	Moderate	Good	No		Carricknabraher	Was at risk when originally chosen but water body has flipped from moderate to good to moderate to good. Confirm if improvement is sustained this time via LCA in 2020/2021.
26B_4	IE_SH_26W010200	BOYLE_050	River	Review	Review	Unassigned	Unassigned	No			
26B_3	IE_SH_26_576	Fin Boyle	Lake	Review	Review	Unassigned	Unassigned	No		Lough Key	Within existing PAA. Unassigned lakes work ongoing.
26B_2	IE_SH_26_580	Nanoge	Lake	Review	Review	Unassigned	Unassigned	No		Lung	Proposed by NPWS. Include to complete SC of downstream Blue Dot.
26B_1	IE_SH_26_584	Treanamarly	Lake	Review	Review	Unassigned	Unassigned	No		Carricknabraher	Within existing PAA. Unassigned lakes work ongoing.
26B_2	IE_SH_26_590	Cloonacolly	Lake	Review	Review	Unassigned	Unassigned	No		Lung	Include to complete SC of downstream Blue Dot.
26B_2	IE_SH_26_630	Roe	Lake	Review	Review	Unassigned	Unassigned	No		Lung	Proposed by NPWS. Include to complete SC of downstream Blue Dot.
26B_2	IE_SH_26_661	Glinn	Lake	At risk	At risk	Moderate	Moderate	No	Hymo	Lung	Include to complete SC of downstream Blue Dot.
26B_4	IE_SH_26_684	Clogher RN	Lake	Review	Review	Unassigned	Unassigned	No			
26B_2	IE_SH_26_689	Urlaur	Lake	At risk	At risk	Bad	Bad	No	Other	Lung	GWS, Mayo Co Co & NPWS proposed. The NFGWS would like to propose that the Urlaur Lough catchment is included within a PAA on the basis of Public Health. The lake is used for water abstraction by Kilmovee Urlaur GWS. The lake is currently classified as being of 'Bad' status and worthy of restoration. The downstream waterbodies (Cummer(Mayo)_010 and Anaderryboy_020) are classified as being of 'Unassigned' and 'Moderate' status respectively and worthy of restoration. Further downstream the Lung_010 and Lung_020 are classified as being of 'Good' status thus the restoration of the headwaters would serve to protect these



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)
											downstream waterbodies. In addition, the Urlaur Lakes are designated as an SAC. Kilmovee Urlaur GWS. Include to complete SC of downstream Blue Dot.
26B_2	IE_SH_26_697	Cloonagh	Lake	Review	Review	Unassigned	Unassigned	No		Lung	Include to complete SC of downstream Blue Dot.
26B_2	IE_SH_26_702	Errit	Lake	Not at risk	Not at risk	Unassigned	Unassigned	No		Lung	Proposed by NPWS. Include to complete SC of downstream Blue Dot.
26B_4	IE_SH_26_705	Cavetown	Lake	At risk	At risk	Moderate	Moderate	No	Ag, DWW, Other		
26B_3	IE_SH_26_721	Oakport	Lake	Review	Review	Unassigned	Unassigned	No		Lough Key	Within existing PAA. Unassigned lakes work ongoing.
26B_4	IE_SH_26_722	Eidin	Lake	Review	Review	Unassigned	Unassigned	No			
26B_3	IE_SH_26_724	Key	Lake	At risk	At risk	Moderate	Moderate	No	Other	Lough Key	LCA just started in 2020. Want to expand upstream.
26B_5	IE_SH_26_728	Gara	Lake	At risk	At risk	Moderate	Moderate	No	Ag, Other	Lough Gara	Headwaters to Lough Key PAA. Pesticide issues here.
26A_3, 26B_1, 26B_2, 26B_3, 26B_4, 26B_5, 26B_6, 26C_10, 26C_11, 26C_12, 26C_3, 26C_4, 26C_5, 26D_7, 26D_9, 26E_3, 34_4, 36_15	IE_SH_G_048	Carrick on Shannon	Groundwater	At risk	Review	Good	Good	No			
26B_1, 26B_6	IE_SH_G_049	Waste Facility (W0059-02)	Groundwater	Not at risk	Not at risk	Good	Good	No			
26B_1, 26D_8, 26D_9, 30_10	IE_SH_G_053	Castlerea	Groundwater	Not at risk	Not at risk	Good	Good	No			
26B_1, 26D_9	IE_SH_G_054	Castlerea Bellanagare	Groundwater	Not at risk	Not at risk	Good	Good	No			
26B_1, 26B_5	IE_SH_G_067	GWDTE-Cloonshanville Bog (SAC000614)	Groundwater	Not at risk	Not at risk	Good	Good	No			
26A_2, 26A_3, 26A_6, 26B_2, 26B_3, 26B_4, 26B_5, 26B_6, 26C_11, 34_1, 34_17, 34_18, 35_7, 35_9, 36_15	IE_SH_G_073	Curlew Mountains	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)
26B_1, 26B_2, 26B_6, 26D_8, 26D_9, 30_10, 34_4	IE_SH_G_224	Suck North	Groundwater	Not at risk	Not at risk	Good	Good	No			
26B_1, 26C_12, 26D_1, 26D_10, 26D_11, 26D_2, 26D_3, 26D_4, 26D_5, 26D_6, 26D_7, 26D_8, 26D_9, 26E_2, 26E_3, 26E_5, 26G_1, 26G_2, 29_5, 30_10, 30_12, 30_19, 30_8	IE_SH_G_225	Suck South	Groundwater	Review	Review	Good	Good	No		Suck South GWB	<p>This GWB is in Review as it is hydrologically linked to surface waters that are not meeting water quality objectives where it is considered likely that groundwater is a contributing source of phosphorus. So this type of deterioration may be observed in the future.</p> <p>Also there are numerous groundwater fed drinking water sources with water quality issues in the area.</p> <p>GSI are involved in karst mapping and flood monitoring within this GWB. A PAA status would allow this already existing work to be highlighted via the WFD process.</p> <p>Risk of GWB deteriorating; Public health areas for restoration.</p> <p>Build on existing programmes and community group initiatives.</p>
26B_1, 26D_9	IE_SH_G_241	GWDTE-Bellanagare Bog (SAC000592)	Groundwater	Review	Not at risk	Good	Good	No			
26A_2, 26A_3, 26B_3, 26B_5, 26B_6, 34_18, 35_5, 35_7, 35_9	IE_WE_G_0028	Gorteen	Groundwater	Not at risk	Not at risk	Good	Good	No			
26B_2, 26B_6, 34_1, 34_15, 34_16, 34_17, 34_18, 34_2, 34_20, 34_21, 34_4, 34_7, 35_4, 35_5, 35_7	IE_WE_G_0032	Kilkelly Charlestown	Groundwater	Not at risk	Not at risk	Good	Good	No			
26B_2, 26D_9, 30_10, 30_3, 30_6, 30_7, 30_9, 32_6, 34_1, 34_15, 34_16, 34_17, 34_18, 34_2,	IE_WE_G_0033	Swinford	Groundwater	Not at risk	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)
34_20, 34_21, 34_22, 34_3, 34_4, 34_7, 35_4											
26B_2, 30_10, 34_15, 34_4	IE_WE_G_0063	Corrib Gravels	Groundwater	Not at risk	Not at risk	Good	Good	No			
26B_2, 34_17, 34_4	IE_WE_G_0112	Gweestion-Moy Gravels Group 1	Groundwater	Not at risk	Not at risk	Good	Good	No			

**Ag:** Agriculture

**DWW:** Domestic Waste Water

**For:** Forestry

**Hymo:** Hydromorphology

**Ind:** Industry

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

**M+Q:** Mines and Quarries

**Peat:** Peat Drainage and Extraction

**UR:** Urban Run-off

**UWW:** Urban Waste Water